Milliman
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October 2018

Salem Housing Authority/2747
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Salem Housing Authority/2747

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

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

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

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

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

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

Sincerely,

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

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

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Salem Housing Authority -- #2747

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Salem Housing Authority to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Salem Housing Authority.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Salem Housing Authority

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	13.15%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	9.17%	9.17%	9.17%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**23.77%**	**19.02%**	**23.65%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**23.83%**	**19.02%**	**23.65%**

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

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

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 70%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	22.32%	22.32%
Minimum 2021-2023 Rate	17.86%	13.40%
Maximum 2021-2023 Rate	26.78%	31.24%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$10,563,890	$12,164,784	$1,600,894	87%	$2,346,011	68%
12/31/2013	11,707,116	12,604,785	897,669	93%	2,063,886	43%
12/31/2014	12,030,592	14,947,652	2,917,060	80%	2,160,512	135%
12/31/2015	11,551,677	15,470,113	3,918,436	75%	2,075,885	189%
12/31/2016	11,675,058	16,483,425	4,808,367	71%	2,095,494	229%
12/31/2017	12,101,263	17,292,418	5,191,155	70%	2,185,810	237%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Salem Housing Authority

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$5,191,155	$4,808,367
Allocated pooled OPSRP UAL	329,382	360,765
Side account	0	0
Net unfunded pension actuarial accrued liability	5,520,537	5,169,132
Combined valuation payroll	2,185,810	2,095,494
Net pension UAL as a percentage of payroll	253%	247%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($25,045)	($285)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$115,634	$139,486
Tier 1/Tier 2 valuation payroll	879,430	1,003,612
Tier 1/Tier 2 pension normal cost rate	13.15%	13.90%
Tier 1/ Tier 2 Actuarial accrued liability	$17,292,418	$16,483,425
Actuarial asset value	12,101,263	11,675,058
Tier 1/Tier 2 Unfunded actuarial accrued liability	5,191,155	4,808,367
Tier 1/ Tier 2 Funded status	70%	71%
Combined valuation payroll	$2,185,810	$2,095,494
Tier 1/Tier 2 UAL as a percentage of payroll	237%	229%
Tier 1/Tier 2 UAL rate (includes Multnomah Fire District #10)	9.17%	8.42%
Tier 1/Tier 2 active members [1]	15	17
Tier 1/Tier 2 dormant members	10	14
Tier 1/Tier 2 retirees and beneficiaries	57	52

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,185,810	2,095,494
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$784,441	$1,241,513
2. Employer reserves	5,282,258	5,571,102
3. Benefits in force reserve	6,034,565	4,862,443
4. Total market value of assets ***(1. + 2. + 3.)***	**$12,101,263**	**$11,675,058**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

	December 31, 2016 to December 31, 2017
1. Market value of assets at beginning of year	$11,675,058
2. Regular employer contributions	217,131
3. Benefit payments and expenses	(1,124,091)
4. Adjustments [1]	(263,359)
5. Interest credited	1,596,525
6. Total transferred from side accounts	0
7. Market value of assets at end of year ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$12,101,263**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	16,581	30,893
Tier 2 Police & Fire	0	0
Tier 2 General Service	99,053	108,593
Total	**$115,634**	**$139,486**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$115,634	$115,634	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	530,986	865,556
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	2,085,348	2,071,675
▪ **Total Active Members**	**$2,616,334**	**$2,937,231**
Dormant Members	1,007,229	2,062,808
Retired Members and Beneficiaries	13,668,855	11,483,386
Total Actuarial Accrued Liability	**$17,292,418**	**$16,483,425**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$17,292,418	$17,292,418	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$17,292,418	$16,483,425
2. Actuarial value of assets	12,101,263	11,675,058
3. Unfunded accrued liability *(1. – 2.)*	5,191,155	4,808,367
4. Funded percentage *(2. ÷ 1.)*	70%	71%
5. Combined valuation payroll	$2,185,810	$2,095,494
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	237%	229%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	$891,720	$70,670	$61,492	$882,542	$73,143
December 31, 2015	$3,020,705	$221,038	$209,008	$3,008,675	$228,779
December 31, 2017	N/A	N/A	N/A	$1,299,938	$91,784
Total				**$5,191,155**	**$393,706**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$16,483,425
b. Normal cost at December 31, 2016 (excluding assumed expenses)	131,986
c. Benefit payments during 2017	(1,115,421)
d. Interest at 7.20% to December 31, 2017	1,151,403
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	16,651,393
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	16,651,393
2. Actuarial accrued liability at December 31, 2017	17,292,418
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(641,025)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	11,675,058
b. Contributions for 2017[1]	217,131
c. Benefit payments and expenses during 2017	(1,124,091)
d. Interest at 7.20% to December 31, 2017	807,954
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	11,576,050
5. Actuarial value of assets at December 31, 2017	12,101,263
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	525,213
7. Total actuarial gain/(loss) ***(3. + 6.)***	**($115,812)**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$4,808,367**
2. Expected increase	266,976
3. Liability (gain)/loss	641,025
4. Asset (gain)/loss	(525,213)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***	**$5,191,155**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	16,581	103,109	16.08%	30,893	183,171	16.87%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	99,053	776,321	12.76%	108,593	820,441	13.24%
Total	**$115,634**	**$879,430**	**13.15%**	**$139,486**	**$1,003,612**	**13.90%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$5,191,155	$4,808,367
2. Next year's Tier 1/Tier 2 UAL payment	393,706	354,967
3. Combined valuation payroll	2,185,810	2,095,494
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	18.01%	16.94%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	13.15%	13.90%
b. Tier 1/Tier 2 UAL rate	18.01%	16.94%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	31.31%	30.98%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	18.60%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	18.60%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	3.72%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.72%
	c. Funded percentage	70%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.72%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	14.88%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	22.32%
7.	July 1, 2019 total pension rate, before adjustment	31.31%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(8.99%)
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	18.01%
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	9.02%
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	22.32%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	13.15%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	13.15%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	22.32%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	13.15%	13.90%
b. Tier 1/Tier 2 UAL rate	9.02%	8.28%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	22.32%	22.32%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$103,109	$0	$103,109
Tier 2	776,321	0	776,321
Tier 1/Tier 2 valuation payroll	879,430	0	879,430
OPSRP valuation payroll	1,306,380	0	1,306,380
Combined valuation payroll	**$2,185,810**	**$0**	**$2,185,810**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	2	13	24	39	3	14	20	37
Police & Fire	0	0	0	0	0	0	0	0
Total	2	13	24	39	3	14	20	37
Active Members with previous service segments with the employer								
General Service	3	5	N/A	8	3	5	N/A	8
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	3	5	N/A	8	3	5	N/A	8
Dormant Members								
General Service	4	6	5	15	7	7	5	19
Police & Fire	0	0	0	0	0	0	0	0
Total	4	6	5	15	7	7	5	19
Retired Members and Beneficiaries								
General Service	52	5	0	57	48	4	1	53
Police & Fire	0	0	0	0	0	0	0	0
Total	52	5	0	57	48	4	1	53
Grand Total Number of Members	**61**	**29**	**29**	**119**	**61**	**30**	**26**	**117**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39										
40-44				5						**5**
45-49				1	1					**2**
50-54			1	3						**4**
55-59			1	1	1					**3**
60-64										
65-69			1							**1**
70-74										
75+										
Total	**0**	**0**	**3**	**10**	**2**	**0**	**0**	**0**	**0**	**15**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39	1	0
40-44	1	708
45-49		
50-54	2	320
55-59	2	1,973
60-64	1	1,521
65-69	2	1,175
70-74	1	24
75+		
Total	10	919

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54	1	1,306
55-59	1	1,479
60-64	15	1,684
65-69	18	1,886
70-74	13	939
75-79	6	1,613
80-84	2	1,299
85-89	1	3,478
90-94		
95-99		
100+		
Total	57	1,578

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Salmon Harbor-Douglas County/2675
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Salmon Harbor-Douglas County/2675

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

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

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

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

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

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

Sincerely,

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

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

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Salmon Harbor-Douglas County -- #2675

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Salmon Harbor-Douglas County to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Salmon Harbor-Douglas County.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Salmon Harbor-Douglas County

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	11.39%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	3.02%	3.02%	3.02%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**15.86%**	**12.87%**	**17.50%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**15.92%**	**12.87%**	**17.50%**

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

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

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 86%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	14.41%	14.41%
Minimum 2021-2023 Rate	11.41%	8.41%
Maximum 2021-2023 Rate	17.41%	20.41%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$1,345,487	$1,136,722	($208,765)	118%	$382,708	(55%)
12/31/2013	1,410,640	1,283,678	(126,962)	110%	358,232	(35%)
12/31/2014	1,450,594	1,549,890	99,296	94%	396,567	25%
12/31/2015	1,377,121	1,639,524	262,403	84%	329,146	80%
12/31/2016	1,412,393	1,777,590	365,197	79%	421,168	87%
12/31/2017	1,587,616	1,847,506	259,890	86%	464,842	56%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Salmon Harbor-Douglas County

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$259,890	$365,197
Allocated pooled OPSRP UAL	70,048	72,509
Side account	0	0
Net unfunded pension actuarial accrued liability	329,938	437,706
Combined valuation payroll	464,842	421,168
Net pension UAL as a percentage of payroll	71%	104%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5,326)	($57)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$21,158	$18,029
Tier 1/Tier 2 valuation payroll	185,709	155,839
Tier 1/Tier 2 pension normal cost rate	11.39%	11.57%
Tier 1/ Tier 2 Actuarial accrued liability	$1,847,506	$1,777,590
Actuarial asset value	1,587,616	1,412,393
Tier 1/Tier 2 Unfunded actuarial accrued liability	259,890	365,197
Tier 1/ Tier 2 Funded status	86%	79%
Combined valuation payroll	$464,842	$421,168
Tier 1/Tier 2 UAL as a percentage of payroll	56%	87%
Tier 1/Tier 2 UAL rate	3.02%	2.84%
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	4	3
Tier 1/Tier 2 dormant members	3	1
Tier 1/Tier 2 retirees and beneficiaries	9	9

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	464,842	421,168
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$106,507	$96,006
2. Employer reserves	981,718	834,744
3. Benefits in force reserve	499,391	481,643
4. Total market value of assets ***(1. + 2. + 3.)***	**$1,587,616**	**$1,412,393**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$1,412,393
2.	Regular employer contributions	16,159
3.	Benefit payments and expenses	(93,024)
4.	Adjustments [1]	45,223
5.	Interest credited	206,865
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$1,587,616**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	11,647	10,967
Tier 2 Police & Fire	0	0
Tier 2 General Service	9,511	7,062
Total	**$21,158**	**$18,029**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$21,158	$21,158	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	373,699	328,555
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	337,675	309,798
▪ **Total Active Members**	**$711,374**	**$638,353**
Dormant Members	4,964	1,764
Retired Members and Beneficiaries	1,131,168	1,137,473
Total Actuarial Accrued Liability	**$1,847,506**	**$1,777,590**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Actuarial Accrued Liability	$1,847,506	$1,847,506	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$1,847,506	$1,777,590
2. Actuarial value of assets	1,587,616	1,412,393
3. Unfunded accrued liability *(1. – 2.)*	259,890	365,197
4. Funded percentage *(2. ÷ 1.)*	86%	79%
5. Combined valuation payroll	$464,842	$421,168
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	56%	87%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($126,121)	($9,995)	($8,697)	($124,823)	($10,345)
December 31, 2015	$389,170	$28,477	$26,927	$387,620	$29,475
December 31, 2017	N/A	N/A	N/A	($2,907)	($205)
Total				**$259,890**	**$18,925**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$1,777,590
b. Normal cost at December 31, 2016 (excluding assumed expenses)	17,122
c. Benefit payments during 2017	(92,307)
d. Interest at 7.20% to December 31, 2017	125,280
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	1,827,685
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	1,827,685
2. Actuarial accrued liability at December 31, 2017	1,847,506
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(19,821)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	1,412,393
b. Contributions for 2017[1]	16,159
c. Benefit payments and expenses during 2017	(93,024)
d. Interest at 7.20% to December 31, 2017	98,925
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	1,434,453
5. Actuarial value of assets at December 31, 2017	1,587,616
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	153,163
7. Total actuarial gain/(loss) ***(3. + 6.)***	**$133,342**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$365,197**
2. Expected increase	28,035
3. Liability (gain)/loss	19,821
4. Asset (gain)/loss	(153,163)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***	**$259,890**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	11,647	92,840	12.55%	10,967	87,552	12.53%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	9,511	92,869	10.24%	7,062	68,287	10.34%
Total	**$21,158**	**$185,709**	**11.39%**	**$18,029**	**$155,839**	**11.57%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$259,890	$365,197
2. Next year's Tier 1/Tier 2 UAL payment	18,925	25,694
3. Combined valuation payroll	464,842	421,168
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	4.07%	6.10%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	11.39%	11.57%
b. Tier 1/Tier 2 UAL rate	4.07%	6.10%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	15.61%	17.81%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	11.41%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	11.41%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	2.28%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.00%
	c. Funded percentage	86%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.00%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	8.41%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	14.41%
7.	July 1, 2019 total pension rate, before adjustment	15.61%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(1.20%)
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	4.07%
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	2.87%
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	14.41%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	11.39%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	11.39%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	14.41%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	11.39%	11.57%
b. Tier 1/Tier 2 UAL rate	2.87%	2.70%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	14.41%	14.41%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$92,840	$0	$92,840
Tier 2	92,869	0	92,869
Tier 1/Tier 2 valuation payroll	185,709	0	185,709
OPSRP valuation payroll	279,133	0	279,133
Combined valuation payroll	**$464,842**	**$0**	**$464,842**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	1	3	9	13	1	2	9	12
Police & Fire	0	0	0	0	0	0	0	0
Total	1	3	9	13	1	2	9	12
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	3	N/A	3
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	0	0	N/A	0	0	3	N/A	3
Dormant Members								
General Service	0	3	3	6	0	1	3	4
Police & Fire	0	0	0	0	0	0	0	0
Total	0	3	3	6	0	1	3	4
Retired Members and Beneficiaries								
General Service	7	2	0	9	7	2	0	9
Police & Fire	0	0	0	0	0	0	0	0
Total	7	2	0	9	7	2	0	9
Grand Total Number of Members	**8**	**8**	**12**	**28**	**8**	**8**	**12**	**28**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

Age	Years of Service									
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39				1						1
40-44										
45-49										
50-54					1					1
55-59			1							1
60-64										
65-69										
70-74				1						1
75+										
Total	0	0	1	2	1	0	0	0	0	4

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44	1	0
45-49		
50-54		
55-59	1	22
60-64		
65-69		
70-74	1	169
75+		
Total	3	64

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64	1	1,510
65-69	3	1,024
70-74	3	597
75-79	1	270
80-84	1	1,773
85-89		
90-94		
95-99		
100+		
Total	9	935

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Siletz Rural Fire Protection District/2885
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Siletz Rural Fire Protection District/2885

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Siletz Rural Fire Protection District -- #2885

October 2018

CONTENTS

Executive Summary

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

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Siletz Rural Fire Protection District.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Siletz Rural Fire Protection District

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	16.92%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	0.15%	0.15%	0.15%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**18.52%**	**10.00%**	**14.63%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.58%**	**10.00%**	**14.63%**

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

1 *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 100%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	17.07%	17.07%
Minimum 2021-2023 Rate	13.66%	10.25%
Maximum 2021-2023 Rate	20.48%	23.89%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$0	$0	$0	0%	$0	0%
12/31/2013	0	0	0	0%	0	0%
12/31/2014	(20)	0	20	0%	135,428	0%
12/31/2015	(6)	0	6	0%	84,876	0%
12/31/2016	17	0	(17)	0%	99,191	0%
12/31/2017	54	0	(54)	100%	97,635	0%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Siletz Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	($54)	($17)
Allocated pooled OPSRP UAL	14,713	17,077
Side account	0	0
Net unfunded pension actuarial accrued liability	14,659	17,060
Combined valuation payroll	97,635	99,191
Net pension UAL as a percentage of payroll	15%	17%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,119)	($14)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$0	$0
Tier 1/Tier 2 valuation payroll	0	0
Tier 1/Tier 2 pension normal cost rate	16.92%	16.95%
Tier 1/ Tier 2 Actuarial accrued liability	$0	$0
Actuarial asset value	54	17
Tier 1/Tier 2 Unfunded actuarial accrued liability	(54)	(17)
Tier 1/ Tier 2 Funded status	0%	0%
Combined valuation payroll	$97,635	$99,191
Tier 1/Tier 2 UAL as a percentage of payroll	0%	0%
Tier 1/Tier 2 UAL rate	0.15%	0.14%
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	0	0
Tier 1/Tier 2 dormant members	0	0
Tier 1/Tier 2 retirees and beneficiaries	0	0

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	97,635	99,191
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$0	$0
2. Employer reserves	54	17
3. Benefits in force reserve	0	0
4. Total market value of assets ***(1. + 2. + 3.)***	**$54**	**$17**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$17
2.	Regular employer contributions	128
3.	Benefit payments and expenses	0
4.	Adjustments [1]	(138)
5.	Interest credited	47
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$54**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	0	0
Tier 2 Police & Fire	0	0
Tier 2 General Service	0	0
Total	**$0**	**$0**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$0	$0	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	0	0
▪ **Total Active Members**	**$0**	**$0**
Dormant Members	0	0
Retired Members and Beneficiaries	0	0
Total Actuarial Accrued Liability	**$0**	**$0**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Actuarial Accrued Liability	$0	$0	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$0	$0
2. Actuarial value of assets	54	17
3. Unfunded accrued liability *(1. – 2.)*	(54)	(17)
4. Funded percentage *(2. ÷ 1.)*	100%	100%
5. Combined valuation payroll	$97,635	$99,191
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	0%	0%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2015	$6	$0	$0	$6	$0
December 31, 2017	N/A	N/A	N/A	($60)	($4)
Total				**($54)**	**($4)**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$0
b. Normal cost at December 31, 2016 (excluding assumed expenses)	0
c. Benefit payments during 2017	0
d. Interest at 7.20% to December 31, 2017	0
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	0
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	0
2. Actuarial accrued liability at December 31, 2017	0
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	0
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	17
b. Contributions for 2017[1]	128
c. Benefit payments and expenses during 2017	0
d. Interest at 7.20% to December 31, 2017	6
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	151
5. Actuarial value of assets at December 31, 2017	54
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	(97)
7. Total actuarial gain/(loss) ***(3. + 6.)***	**($97)**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**($17)**
2. Expected increase	(134)
3. Liability (gain)/loss	0
4. Asset (gain)/loss	97
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***	**($54)**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost Rate	Normal Cost	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost Rate
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	**$0**	**$0**	**16.92%**	**$0**	**$0**	**16.95%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	($54)	($17)
2. Next year's Tier 1/Tier 2 UAL payment	(4)	(2)
3. Combined valuation payroll	97,635	99,191
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	0.00%	0.00%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	16.92%	16.95%
b. Tier 1/Tier 2 UAL rate	0.00%	0.00%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	17.07%	17.09%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1. Current net Tier 1/Tier 2 pension contribution rate		16.86%
2. Employer contribution rate attributable to side accounts		0.00%
3. Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*		16.86%
4. Size of rate collar		
a. 20% of current employer contribution rate *(20% x 3.)*		3.37%
b. Preliminary size of rate collar *(maximum of 3% or a.)*		3.37%
c. Funded percentage		100%
d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*		3.37%
5. July 1, 2019 minimum employer contribution rate	*(3. – 4.d. but not < 0%)*	13.49%
6. July 1, 2019 maximum employer contribution rate	*(3. + 4.d.)*	20.23%
7. July 1, 2019 total pension rate, before adjustment		17.07%
8. Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*		0.00%
9. July 1, 2019 Tier 1/Tier 2 UAL rate, before collar		0.00%
10. July 1, 2019 Tier 1/Tier 2 UAL rate, after collar	*(8. + 9.)*	0.00%
11. July 1, 2019 Tier 1/Tier 2 pension rate, after collar		17.07%
12. Tier 1/Tier 2 retiree healthcare rate		0.06%
13. Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*		0.00%
14. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment		16.92%
15. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*		16.92%
16. July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment	*(11. + 13.)*	17.07%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	16.92%	16.95%
b. Tier 1/Tier 2 UAL rate	0.00%	0.00%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	17.07%	17.09%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$0	$0
Tier 2	0	0	0
Tier 1/Tier 2 valuation payroll	0	0	0
OPSRP valuation payroll	0	97,635	97,635
Combined valuation payroll	**$0**	**$97,635**	**$97,635**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	2	2	0	0	2	2
Total	0	0	2	2	0	0	2	2
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	0	0	N/A	0	0	0	N/A	0
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Retired Members and Beneficiaries								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Grand Total Number of Members	**0**	**0**	**2**	**2**	**0**	**0**	**2**	**2**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54										
55-59										
60-64										
65-69										
70-74										
75+										
Total	0	0	0	0	0	0	0	0	0	0

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75+		
Total		

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total		

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Sisters-Camp Sherman Rural Fire Protection District/2701
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Sisters-Camp Sherman Rural Fire Protection District/2701

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Sisters-Camp Sherman Rural Fire Protection District -- #2701

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Sisters-Camp Sherman Rural Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Sisters-Camp Sherman Rural Fire Protection District.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Sisters-Camp Sherman Rural Fire Protection District

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	21.21%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	17.34%	17.34%	17.34%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**40.00%**	**27.19%**	**31.82%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**40.06%**	**27.19%**	**31.82%**

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

1 *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 45%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	38.55%	38.55%
Minimum 2021-2023 Rate	30.84%	23.13%
Maximum 2021-2023 Rate	46.26%	53.97%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$2,517,320	$3,313,831	$796,511	76%	$1,179,483	68%
12/31/2013	2,983,177	3,635,619	652,442	82%	989,618	66%
12/31/2014	2,883,709	4,420,367	1,536,658	65%	815,021	189%
12/31/2015	2,455,291	5,855,478	3,400,187	42%	1,022,384	333%
12/31/2016	2,531,399	6,208,356	3,676,957	41%	1,126,606	326%
12/31/2017	2,904,101	6,461,893	3,557,792	45%	1,250,353	285%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Sisters-Camp Sherman Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$3,557,792	$3,676,957
Allocated pooled OPSRP UAL	188,417	193,959
Side account	0	0
Net unfunded pension actuarial accrued liability	3,746,209	3,870,916
Combined valuation payroll	1,250,353	1,126,606
Net pension UAL as a percentage of payroll	300%	344%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($14,327)	($153)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$115,406	$107,759
Tier 1/Tier 2 valuation payroll	544,148	520,412
Tier 1/Tier 2 pension normal cost rate	21.21%	20.71%
Tier 1/ Tier 2 Actuarial accrued liability	$6,461,893	$6,208,356
Actuarial asset value	2,904,101	2,531,399
Tier 1/Tier 2 Unfunded actuarial accrued liability	3,557,792	3,676,957
Tier 1/ Tier 2 Funded status	45%	41%
Combined valuation payroll	$1,250,353	$1,126,606
Tier 1/Tier 2 UAL as a percentage of payroll	285%	326%
Tier 1/Tier 2 UAL rate (includes Multnomah Fire District #10)	17.34%	17.84%
Tier 1/Tier 2 active members [1]	5	5
Tier 1/Tier 2 dormant members	1	1
Tier 1/Tier 2 retirees and beneficiaries	10	10

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,250,353	1,126,606
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$181,298	$153,936
2. Employer reserves	813,706	560,532
3. Benefits in force reserve	1,909,097	1,816,931
4. Total market value of assets *(1. + 2. + 3.)*	**$2,904,101**	**$2,531,399**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$2,531,399
2.	Regular employer contributions	149,280
3.	Benefit payments and expenses	(355,618)
4.	Adjustments [1]	194,061
5.	Interest credited	384,979
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year *(1. + 2. + 3. + 4. + 5. + 6.)***	**$2,904,101**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Tier 1 Police & Fire	$60,635	$59,110
Tier 1 General Service	0	0
Tier 2 Police & Fire	46,395	42,129
Tier 2 General Service	8,376	6,520
Total	**$115,406**	**$107,759**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Normal Cost	$115,406	$115,406	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Active Members		
▪ Tier 1 Police & Fire	$949,768	$902,719
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	738,543	608,002
▪ Tier 2 General Service	140,076	124,714
▪ **Total Active Members**	**$1,828,387**	**$1,635,435**
Dormant Members	309,223	281,967
Retired Members and Beneficiaries	4,324,283	4,290,954
Total Actuarial Accrued Liability	**$6,461,893**	**$6,208,356**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Actuarial Accrued Liability	$6,461,893	$6,461,893	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$6,461,893	$6,208,356
2. Actuarial value of assets	2,904,101	2,531,399
3. Unfunded accrued liability *(1. – 2.)*	3,557,792	3,676,957
4. Funded percentage *(2. ÷ 1.)*	45%	41%
5. Combined valuation payroll	$1,250,353	$1,126,606
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	285%	326%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	$648,118	$51,365	$44,693	$641,446	$53,161
December 31, 2015	$2,747,562	$201,051	$190,109	$2,736,620	$208,092
December 31, 2017	N/A	N/A	N/A	$179,726	$12,690
Total				**$3,557,792**	**$273,943**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$6,208,356
b. Normal cost at December 31, 2016 (excluding assumed expenses)	101,965
c. Benefit payments during 2017	(352,875)
d. Interest at 7.20% to December 31, 2017	437,969
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	6,395,415
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	6,395,415
2. Actuarial accrued liability at December 31, 2017	6,461,893
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(66,478)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	2,531,399
b. Contributions for 2017[1]	149,280
c. Benefit payments and expenses during 2017	(355,618)
d. Interest at 7.20% to December 31, 2017	174,833
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	2,499,894
5. Actuarial value of assets at December 31, 2017	2,904,101
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	404,207
7. Total actuarial gain/(loss) ***(3. + 6.)***	**$337,729**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$3,676,957**
2. Expected increase	218,564
3. Liability (gain)/loss	66,478
4. Asset (gain)/loss	(404,207)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***	**$3,557,792**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$60,635	$230,620	26.29%	$59,110	$237,145	24.93%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	46,395	240,106	19.32%	42,129	218,561	19.28%
Tier 2 General Service	8,376	73,422	11.41%	6,520	64,706	10.08%
Total	**$115,406**	**$544,148**	**21.21%**	**$107,759**	**$520,412**	**20.71%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$3,557,792	$3,676,957
2. Next year's Tier 1/Tier 2 UAL payment	273,943	272,276
3. Combined valuation payroll	1,250,353	1,126,606
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	21.91%	24.17%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	21.21%	20.71%
b. Tier 1/Tier 2 UAL rate	21.91%	24.17%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	43.27%	45.02%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1. Current net Tier 1/Tier 2 pension contribution rate	27.53%
2. Employer contribution rate attributable to side accounts	0.00%
3. Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	27.53%
4. Size of rate collar	
a. 20% of current employer contribution rate *(20% x 3.)*	5.51%
b. Preliminary size of rate collar *(maximum of 3% or a.)*	5.51%
c. Funded percentage	45%
d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	11.02%
5. July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	16.51%
6. July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	38.55%
7. July 1, 2019 total pension rate, before adjustment	43.27%
8. Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(4.72%)
9. July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	21.91%
10. July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	17.19%
11. July 1, 2019 Tier 1/Tier 2 pension rate, after collar	38.55%
12. Tier 1/Tier 2 retiree healthcare rate	0.06%
13. Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	21.21%
15. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	21.21%
16. July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	38.55%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	21.21%	20.71%
b. Tier 1/Tier 2 UAL rate	17.19%	17.70%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	38.55%	38.55%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$230,620	$230,620
Tier 2	73,422	240,106	313,528
Tier 1/Tier 2 valuation payroll	73,422	470,726	544,148
OPSRP valuation payroll	56,554	649,651	706,205
Combined valuation payroll	**$129,976**	**$1,120,377**	**$1,250,353**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	1	1	2	0	1	2	3
Police & Fire	2	2	7	11	2	2	7	11
Total	2	3	8	13	2	3	9	14
Active Members with previous service segments with the employer								
General Service	0	1	N/A	1	0	0	N/A	0
Police & Fire	0	1	N/A	1	0	2	N/A	2
Total	0	2	N/A	2	0	2	N/A	2
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	1	0	1	2	1	0	1	2
Total	1	0	1	2	1	0	1	2
Retired Members and Beneficiaries								
General Service	1	0	0	1	1	0	0	1
Police & Fire	7	2	0	9	6	3	0	9
Total	8	2	0	10	7	3	0	10
Grand Total Number of Members	**11**	**7**	**9**	**27**	**10**	**8**	**10**	**28**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**	**Total**
<20										
20-24										
25-29										
30-34										
35-39										
40-44			1	2						**3**
45-49										
50-54							1			**1**
55-59					1					**1**
60-64										
65-69										
70-74										
75+										
Total	**0**	**0**	**1**	**2**	**1**	**0**	**1**	**0**	**0**	**5**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49	1	2,517
50-54		
55-59		
60-64		
65-69		
70-74		
75+		
Total	1	2,517

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45	1	5,579
45-49		
50-54	1	1,249
55-59	1	1,978
60-64	3	3,064
65-69	2	2,255
70-74	1	1,258
75-79		
80-84	1	363
85-89		
90-94		
95-99		
100+		
Total	10	2,413

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

South Lane County Fire and Rescue/2859
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
South Lane County Fire and Rescue/2859

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

South Lane County Fire and Rescue -- #2859

October 2018

Secondary Employers

2827 Creswell Rural Fire Protection District

CONTENTS

Executive Summary

Milliman has prepared this report for South Lane County Fire and Rescue to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to South Lane County Fire and Rescue.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for South Lane County Fire and Rescue

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	20.33%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	13.61%	13.61%	13.61%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**35.39%**	**23.46%**	**28.09%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**35.45%**	**23.46%**	**28.09%**

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

1 *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 37%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	33.94%	33.94%
Minimum 2021-2023 Rate	27.15%	20.36%
Maximum 2021-2023 Rate	40.73%	47.52%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$1,027,376	$2,784,912	$1,757,536	37%	$1,671,543	105%
12/31/2013	1,203,455	3,095,152	1,891,697	39%	1,700,151	111%
12/31/2014	1,196,903	4,052,766	2,855,863	30%	1,811,141	158%
12/31/2015	1,121,841	4,502,076	3,380,235	25%	1,775,628	190%
12/31/2016	1,294,597	4,791,660	3,497,063	27%	1,812,467	193%
12/31/2017	2,038,595	5,516,585	3,477,990	37%	2,053,376	169%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

South Lane County Fire and Rescue

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$3,477,990	$3,497,063
Allocated pooled OPSRP UAL	309,425	312,038
Side account	0	0
Net unfunded pension actuarial accrued liability	3,787,415	3,809,101
Combined valuation payroll	2,053,376	1,812,467
Net pension UAL as a percentage of payroll	184%	210%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($23,528)	($247)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$126,092	$132,415
Tier 1/Tier 2 valuation payroll	620,376	623,172
Tier 1/Tier 2 pension normal cost rate	20.33%	21.25%
Tier 1/ Tier 2 Actuarial accrued liability	$5,516,585	$4,791,660
Actuarial asset value	2,038,595	1,294,597
Tier 1/Tier 2 Unfunded actuarial accrued liability	3,477,990	3,497,063
Tier 1/ Tier 2 Funded status	37%	27%
Combined valuation payroll	$2,053,376	$1,812,467
Tier 1/Tier 2 UAL as a percentage of payroll	169%	193%
Tier 1/Tier 2 UAL rate (includes Multnomah Fire District #10)	13.61%	14.87%
Tier 1/Tier 2 active members [1]	5	6
Tier 1/Tier 2 dormant members	2	2
Tier 1/Tier 2 retirees and beneficiaries	10	9

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	2,053,376	1,812,467
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$53,939	$49,614
2. Employer reserves	610,717	216,982
3. Benefits in force reserve	1,373,939	1,028,001
4. Total market value of assets *(1. + 2. + 3.)*	**$2,038,595**	**$1,294,597**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

	December 31, 2016 to December 31, 2017
1. Market value of assets at beginning of year	$1,294,597
2. Regular employer contributions	313,734
3. Benefit payments and expenses	(255,931)
4. Adjustments [1]	415,737
5. Interest credited	270,459
6. Total transferred from side accounts	0
7. Market value of assets at end of year *(1. + 2. + 3. + 4. + 5. + 6.)*	**$2,038,595**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Tier 1 Police & Fire	$57,057	$73,633
Tier 1 General Service	0	0
Tier 2 Police & Fire	69,035	58,782
Tier 2 General Service	0	0
Total	**$126,092**	**$132,415**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Normal Cost	$126,092	$126,092	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$1,151,796	$1,347,356
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	1,226,500	994,225
▪ Tier 2 General Service	0	0
▪ **Total Active Members**	**$2,378,296**	**$2,341,581**
Dormant Members	26,188	22,301
Retired Members and Beneficiaries	3,112,100	2,427,778
Total Actuarial Accrued Liability	**$5,516,585**	**$4,791,660**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$5,516,585	$5,516,585	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$5,516,585	$4,791,660
2. Actuarial value of assets	2,038,595	1,294,597
3. Unfunded accrued liability *(1. – 2.)*	3,477,990	3,497,063
4. Funded percentage *(2. ÷ 1.)*	37%	27%
5. Combined valuation payroll	$2,053,376	$1,812,467
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	169%	193%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	$1,879,160	$148,927	$129,584	$1,859,817	$154,137
December 31, 2015	$1,489,624	$109,002	$103,070	$1,483,692	$112,820
December 31, 2017	N/A	N/A	N/A	$134,481	$9,495
Total				**$3,477,990**	**$276,452**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$4,791,660
b. Normal cost at December 31, 2016 (excluding assumed expenses)	125,295
c. Benefit payments during 2017	(253,957)
d. Interest at 7.20% to December 31, 2017	340,368
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	5,003,366
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	5,003,366
2. Actuarial accrued liability at December 31, 2017	5,516,585
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(513,219)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	1,294,597
b. Contributions for 2017[1]	313,734
c. Benefit payments and expenses during 2017	(255,931)
d. Interest at 7.20% to December 31, 2017	95,292
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	1,447,691
5. Actuarial value of assets at December 31, 2017	2,038,595
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	590,904
7. Total actuarial gain/(loss) *(3. + 6.)*	**$77,685**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$3,497,063**
2. Expected increase	58,612
3. Liability (gain)/loss	513,219
4. Asset (gain)/loss	(590,904)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**$3,477,990**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$57,057	$242,796	23.50%	$73,633	$305,778	24.08%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	69,035	377,580	18.28%	58,782	317,394	18.52%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	**$126,092**	**$620,376**	**20.33%**	**$132,415**	**$623,172**	**21.25%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$3,477,990	$3,497,063
2. Next year's Tier 1/Tier 2 UAL payment	276,452	266,986
3. Combined valuation payroll	2,053,376	1,812,467
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	13.46%	14.73%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	20.33%	21.25%
b. Tier 1/Tier 2 UAL rate	13.46%	14.73%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	33.94%	36.12%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	32.26%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	32.26%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	6.45%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	6.45%
	c. Funded percentage	37%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	12.90%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	19.36%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	45.16%
7.	July 1, 2019 total pension rate, before adjustment	33.94%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	0.00%
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	13.46%
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	13.46%
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	33.94%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	20.33%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	20.33%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	33.94%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	20.33%	21.25%
b. Tier 1/Tier 2 UAL rate	13.46%	14.73%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	33.94%	36.12%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$242,796	$242,796
Tier 2	0	377,580	377,580
Tier 1/Tier 2 valuation payroll	0	620,376	620,376
OPSRP valuation payroll	60,600	1,372,400	1,433,000
Combined valuation payroll	**$60,600**	**$1,992,776**	**$2,053,376**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	0	2	2	0	0	2	2
Police & Fire	2	3	16	21	3	3	13	19
Total	2	3	18	23	3	3	15	21
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	1	4	N/A	5	1	4	N/A	5
Total	1	4	N/A	5	1	4	N/A	5
Dormant Members								
General Service	0	1	0	1	0	1	0	1
Police & Fire	0	1	1	2	0	1	1	2
Total	0	2	1	3	0	2	1	3
Retired Members and Beneficiaries								
General Service	1	0	0	1	1	0	0	1
Police & Fire	8	1	0	9	7	1	0	8
Total	9	1	0	10	8	1	0	9
Grand Total Number of Members	**12**	**10**	**19**	**41**	**12**	**10**	**16**	**38**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**	**Total**
<20										
20-24										
25-29										
30-34										
35-39										
40-44				1						**1**
45-49			1	1	1					**3**
50-54										
55-59						1				**1**
60-64										
65-69										
70-74										
75+										
Total	**0**	**0**	**1**	**2**	**1**	**1**	**0**	**0**	**0**	**5**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49	1	204
50-54		
55-59		
60-64	1	65
65-69		
70-74		
75+		
Total	2	134

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54	1	3,424
55-59	1	2,613
60-64	5	1,465
65-69	3	1,151
70-74		
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total	10	1,682

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members’ regular account balances. 7.20% compounded annually on members’ variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Sunrise Water Authority/2845
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Sunrise Water Authority/2845

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Sunrise Water Authority -- #2845

October 2018

Secondary Employers

2586	Mt Scott Water District
2656	Damascus Water District

CONTENTS

Executive Summary

Milliman has prepared this report for Sunrise Water Authority to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Sunrise Water Authority.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Sunrise Water Authority

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	10.77%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	8.06%	8.06%	8.06%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**20.28%**	**17.91%**	**22.54%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.34%**	**17.91%**	**22.54%**

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

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

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 70%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	18.83%	18.83%
Minimum 2021-2023 Rate	15.06%	11.29%
Maximum 2021-2023 Rate	22.60%	26.37%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$2,973,563	$4,013,502	$1,039,939	74%	$1,130,346	92%
12/31/2013	3,222,903	4,026,330	803,427	80%	1,068,798	75%
12/31/2014	3,273,211	4,606,451	1,333,240	71%	1,191,064	112%
12/31/2015	3,175,704	4,854,173	1,678,469	65%	1,094,333	153%
12/31/2016	3,285,905	5,104,660	1,818,755	64%	1,399,276	130%
12/31/2017	3,748,027	5,355,595	1,607,568	70%	1,616,375	99%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Sunrise Water Authority

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$1,607,568	$1,818,755
Allocated pooled OPSRP UAL	243,573	240,902
Side account	0	0
Net unfunded pension actuarial accrued liability	1,851,141	2,059,657
Combined valuation payroll	1,616,375	1,399,276
Net pension UAL as a percentage of payroll	115%	147%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($18,521)	($191)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$41,002	$36,186
Tier 1/Tier 2 valuation payroll	380,665	333,400
Tier 1/Tier 2 pension normal cost rate	10.77%	10.85%
Tier 1/ Tier 2 Actuarial accrued liability	$5,355,595	$5,104,660
Actuarial asset value	3,748,027	3,285,905
Tier 1/Tier 2 Unfunded actuarial accrued liability	1,607,568	1,818,755
Tier 1/ Tier 2 Funded status	70%	64%
Combined valuation payroll	$1,616,375	$1,399,276
Tier 1/Tier 2 UAL as a percentage of payroll	99%	130%
Tier 1/Tier 2 UAL rate (includes Multnomah Fire District #10)	8.06%	9.97%
Tier 1/Tier 2 active members [1]	4	4
Tier 1/Tier 2 dormant members	5	6
Tier 1/Tier 2 retirees and beneficiaries	18	16

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	1,616,375	1,399,276
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$373,622	$420,356
2. Employer reserves	1,766,079	1,382,706
3. Benefits in force reserve	1,608,326	1,482,844
4. Total market value of assets ***(1. + 2. + 3.)***	**$3,748,027**	**$3,285,905**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$3,285,905
2.	Regular employer contributions	150,348
3.	Benefit payments and expenses	(299,592)
4.	Adjustments [1]	126,389
5.	Interest credited	484,977
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$3,748,027**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	10,709	9,580
Tier 2 Police & Fire	0	0
Tier 2 General Service	30,293	26,606
Total	**$41,002**	**$36,186**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$41,002	$41,002	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	296,188	337,930
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	917,727	754,169
▪ **Total Active Members**	**$1,213,915**	**$1,092,099**
Dormant Members	498,670	510,603
Retired Members and Beneficiaries	3,643,010	3,501,958
Total Actuarial Accrued Liability	**$5,355,595**	**$5,104,660**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$5,355,595	$5,355,595	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$5,355,595	$5,104,660
2. Actuarial value of assets	3,748,027	3,285,905
3. Unfunded accrued liability *(1. – 2.)*	1,607,568	1,818,755
4. Funded percentage *(2. ÷ 1.)*	70%	64%
5. Combined valuation payroll	$1,616,375	$1,399,276
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	99%	130%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	$798,102	$63,251	$55,036	$789,887	$65,464
December 31, 2015	$875,443	$64,060	$60,573	$871,956	$66,303
December 31, 2017	N/A	N/A	N/A	($54,275)	($3,832)
Total				**$1,607,568**	**$127,935**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$5,104,660
b. Normal cost at December 31, 2016 (excluding assumed expenses)	34,241
c. Benefit payments during 2017	(297,281)
d. Interest at 7.20% to December 31, 2017	358,066
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	5,199,686
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	5,199,686
2. Actuarial accrued liability at December 31, 2017	5,355,595
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(155,909)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	3,285,905
b. Contributions for 2017[1]	150,348
c. Benefit payments and expenses during 2017	(299,592)
d. Interest at 7.20% to December 31, 2017	231,212
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	3,367,874
5. Actuarial value of assets at December 31, 2017	3,748,027
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	380,154
7. Total actuarial gain/(loss) *(3. + 6.)*	**$224,245**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$1,818,755**
2. Expected increase	13,058
3. Liability (gain)/loss	155,909
4. Asset (gain)/loss	(380,154)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**$1,607,568**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	10,709	91,093	11.76%	9,580	80,857	11.85%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	30,293	289,572	10.46%	26,606	252,543	10.54%
Total	**$41,002**	**$380,665**	**10.77%**	**$36,186**	**$333,400**	**10.85%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$1,607,568	$1,818,755
2. Next year's Tier 1/Tier 2 UAL payment	127,935	137,564
3. Combined valuation payroll	1,616,375	1,399,276
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	7.91%	9.83%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	10.77%	10.85%
b. Tier 1/Tier 2 UAL rate	7.91%	9.83%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	18.83%	20.82%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	19.16%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	19.16%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	3.83%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.83%
	c. Funded percentage	70%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.83%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	15.33%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	22.99%
7.	July 1, 2019 total pension rate, before adjustment	18.83%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	0.00%
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	7.91%
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	7.91%
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	18.83%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	10.77%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	10.77%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	18.83%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	10.77%	10.85%
b. Tier 1/Tier 2 UAL rate	7.91%	9.83%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	18.83%	20.82%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$91,093	$0	$91,093
Tier 2	289,572	0	289,572
Tier 1/Tier 2 valuation payroll	380,665	0	380,665
OPSRP valuation payroll	1,235,710	0	1,235,710
Combined valuation payroll	**$1,616,375**	**$0**	**$1,616,375**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	1	3	18	22	1	3	15	19
Police & Fire	0	0	0	0	0	0	0	0
Total	1	3	18	22	1	3	15	19
Active Members with previous service segments with the employer								
General Service	1	1	N/A	2	2	1	N/A	3
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	1	1	N/A	2	2	1	N/A	3
Dormant Members								
General Service	3	2	3	8	4	2	2	8
Police & Fire	0	0	0	0	0	0	0	0
Total	3	2	3	8	4	2	2	8
Retired Members and Beneficiaries								
General Service	17	1	0	18	15	1	0	16
Police & Fire	0	0	0	0	0	0	0	0
Total	17	1	0	18	15	1	0	16
Grand Total Number of Members	**22**	**7**	**21**	**50**	**22**	**7**	**17**	**46**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**	**Total**
<20										
20-24										
25-29										
30-34										
35-39										
40-44				1						**1**
45-49				2	1					**3**
50-54										
55-59										
60-64										
65-69										
70-74										
75+										
Total	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**4**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54	4	1,114
55-59		
60-64	1	65
65-69		
70-74		
75+		
Total	5	904

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64	2	439
65-69	3	2,442
70-74	4	1,536
75-79	4	1,485
80-84	2	2,111
85-89	1	1,238
90-94	1	637
95-99	1	720
100+		
Total	18	1,506

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Sweet Home Cemetery/2643
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

October 2018
Sweet Home Cemetery/2643

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Sweet Home Cemetery/2643

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Sweet Home Cemetery -- #2643

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Sweet Home Cemetery to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Sweet Home Cemetery.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Sweet Home Cemetery

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	17.11%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	2.03%	2.03%	2.03%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**20.59%**	**11.88%**	**16.51%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.65%**	**11.88%**	**16.51%**

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

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

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 95%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	19.14%	19.14%
Minimum 2021-2023 Rate	15.31%	11.48%
Maximum 2021-2023 Rate	22.97%	26.80%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$388,006	$464,278	$76,272	84%	$84,731	90%
12/31/2013	441,442	485,592	44,150	91%	107,083	41%
12/31/2014	415,137	462,736	47,599	90%	114,408	42%
12/31/2015	423,852	477,886	54,034	89%	118,271	46%
12/31/2016	444,166	508,620	64,454	87%	124,875	52%
12/31/2017	504,204	532,476	28,272	95%	137,703	21%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Sweet Home Cemetery

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$28,272	$64,454
Allocated pooled OPSRP UAL	20,751	21,499
Side account	0	0
Net unfunded pension actuarial accrued liability	49,023	85,953
Combined valuation payroll	137,703	124,875
Net pension UAL as a percentage of payroll	36%	69%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,578)	($17)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$7,181	$6,837
Tier 1/Tier 2 valuation payroll	41,976	39,860
Tier 1/Tier 2 pension normal cost rate	17.11%	17.15%
Tier 1/ Tier 2 Actuarial accrued liability	$532,476	$508,620
Actuarial asset value	504,204	444,166
Tier 1/Tier 2 Unfunded actuarial accrued liability	28,272	64,454
Tier 1/ Tier 2 Funded status	95%	87%
Combined valuation payroll	$137,703	$124,875
Tier 1/Tier 2 UAL as a percentage of payroll	21%	52%
Tier 1/Tier 2 UAL rate	2.03%	4.11%
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	1	1
Tier 1/Tier 2 dormant members	0	0
Tier 1/Tier 2 retirees and beneficiaries	1	1

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	137,703	124,875
3. Average Amortization factor	8.312	8.994
4. Total side account rate ***(-1. ÷ 2. ÷ 3.)*** [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$85,376	$79,045
2. Employer reserves	276,350	228,982
3. Benefits in force reserve	142,478	136,139
4. Total market value of assets ***(1. + 2. + 3.)***	**$504,204**	**$444,166**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$444,166
2.	Regular employer contributions	10,521
3.	Benefit payments and expenses	(26,540)
4.	Adjustments [1]	14,494
5.	Interest credited	61,563
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$504,204**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	7,181	6,837
Tier 2 Police & Fire	0	0
Tier 2 General Service	0	0
Total	**$7,181**	**$6,837**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$7,181	$7,181	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	209,751	187,106
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	0	0
▪ **Total Active Members**	**$209,751**	**$187,106**
Dormant Members	0	0
Retired Members and Beneficiaries	322,725	321,514
Total Actuarial Accrued Liability	**$532,476**	**$508,620**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$532,476	$532,476	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$532,476	$508,620
2. Actuarial value of assets	504,204	444,166
3. Unfunded accrued liability *(1. – 2.)*	28,272	64,454
4. Funded percentage *(2. ÷ 1.)*	95%	87%
5. Combined valuation payroll	$137,703	$124,875
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	21%	52%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	$43,858	$3,476	$3,024	$43,406	$3,597
December 31, 2015	$9,915	$726	$686	$9,875	$751
December 31, 2017	N/A	N/A	N/A	($25,009)	($1,766)
Total				**$28,272**	**$2,582**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$508,620
b. Normal cost at December 31, 2016 (excluding assumed expenses)	6,469
c. Benefit payments during 2017	(26,335)
d. Interest at 7.20% to December 31, 2017	35,905
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	524,659
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	524,659
2. Actuarial accrued liability at December 31, 2017	532,476
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(7,817)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	444,166
b. Contributions for 2017[1]	10,521
c. Benefit payments and expenses during 2017	(26,540)
d. Interest at 7.20% to December 31, 2017	31,403
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	459,551
5. Actuarial value of assets at December 31, 2017	504,204
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	44,653
7. Total actuarial gain/(loss) *(3. + 6.)*	**$36,836**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$64,454**
2. Expected increase	654
3. Liability (gain)/loss	7,817
4. Asset (gain)/loss	(44,653)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**$28,272**

1 *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	7,181	41,976	17.11%	6,837	39,860	17.15%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	**$7,181**	**$41,976**	**17.11%**	**$6,837**	**$39,860**	**17.15%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$28,272	$64,454
2. Next year's Tier 1/Tier 2 UAL payment	2,582	4,956
3. Combined valuation payroll	137,703	124,875
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	1.88%	3.97%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	17.11%	17.15%
b. Tier 1/Tier 2 UAL rate	1.88%	3.97%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	19.14%	21.26%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1. Current net Tier 1/Tier 2 pension contribution rate		20.39%
2. Employer contribution rate attributable to side accounts		0.00%
3. Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*		20.39%
4. Size of rate collar		
a. 20% of current employer contribution rate *(20% x 3.)*		4.08%
b. Preliminary size of rate collar *(maximum of 3% or a.)*		4.08%
c. Funded percentage		95%
d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*		4.08%
5. July 1, 2019 minimum employer contribution rate	*(3. – 4.d. but not < 0%)*	16.31%
6. July 1, 2019 maximum employer contribution rate	*(3. + 4.d.)*	24.47%
7. July 1, 2019 total pension rate, before adjustment		19.14%
8. Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*		0.00%
9. July 1, 2019 Tier 1/Tier 2 UAL rate, before collar		1.88%
10. July 1, 2019 Tier 1/Tier 2 UAL rate, after collar	*(8. + 9.)*	1.88%
11. July 1, 2019 Tier 1/Tier 2 pension rate, after collar		19.14%
12. Tier 1/Tier 2 retiree healthcare rate		0.06%
13. Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*		0.00%
14. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment		17.11%
15. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*		17.11%
16. July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment	*(11. + 13.)*	19.14%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	17.11%	17.15%
b. Tier 1/Tier 2 UAL rate	1.88%	3.97%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	19.14%	21.26%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$41,976	$0	$41,976
Tier 2	0	0	0
Tier 1/Tier 2 valuation payroll	41,976	0	41,976
OPSRP valuation payroll	95,727	0	95,727
Combined valuation payroll	**$137,703**	**$0**	**$137,703**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	1	0	2	3	1	0	2	3
Police & Fire	0	0	0	0	0	0	0	0
Total	1	0	2	3	1	0	2	3
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	0	0	N/A	0	0	0	N/A	0
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Retired Members and Beneficiaries								
General Service	1	0	0	1	1	0	0	1
Police & Fire	0	0	0	0	0	0	0	0
Total	1	0	0	1	1	0	0	1
Grand Total Number of Members	**2**	**0**	**2**	**4**	**2**	**0**	**2**	**4**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**	**Total**
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54										
55-59						1				**1**
60-64										
65-69										
70-74										
75+										
Total	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75+		
Total		

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64		
65-69	1	1,843
70-74		
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total	1	1,843

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Tillamook 9-1-1/2722
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

October 2018
Tillamook 9-1-1/2722

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Tillamook 9-1-1/2722

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Tillamook 9-1-1 -- #2722

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Tillamook 9-1-1 to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Tillamook 9-1-1.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Tillamook 9-1-1

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	13.90%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	(2.43%)	(2.43%)	(2.43%)
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**12.92%**	**7.42%**	**12.05%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**12.98%**	**7.42%**	**12.05%**

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

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

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 94%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	11.47%	11.47%
Minimum 2021-2023 Rate	8.47%	5.47%
Maximum 2021-2023 Rate	14.47%	17.47%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$2,056,968	$1,641,966	($415,002)	125%	$525,267	(79%)
12/31/2013	2,338,997	1,713,100	(625,897)	137%	530,964	(118%)
12/31/2014	2,358,457	2,145,269	(213,188)	110%	567,404	(38%)
12/31/2015	2,424,064	2,256,633	(167,431)	107%	557,353	(30%)
12/31/2016	2,284,214	2,531,977	247,763	90%	664,473	37%
12/31/2017	2,557,508	2,710,707	153,199	94%	642,126	24%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Tillamook 9-1-1

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$153,199	$247,763
Allocated pooled OPSRP UAL	96,763	114,397
Side account	0	0
Net unfunded pension actuarial accrued liability	249,962	362,160
Combined valuation payroll	642,126	664,473
Net pension UAL as a percentage of payroll	39%	55%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($7,358)	($90)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$40,020	$38,656
Tier 1/Tier 2 valuation payroll	287,945	285,167
Tier 1/Tier 2 pension normal cost rate	13.90%	13.56%
Tier 1/ Tier 2 Actuarial accrued liability	$2,710,707	$2,531,977
Actuarial asset value	2,557,508	2,284,214
Tier 1/Tier 2 Unfunded actuarial accrued liability	153,199	247,763
Tier 1/ Tier 2 Funded status	94%	90%
Combined valuation payroll	$642,126	$664,473
Tier 1/Tier 2 UAL as a percentage of payroll	24%	37%
Tier 1/Tier 2 UAL rate (includes Multnomah Fire District #10)	(2.43%)	(2.09%)
Tier 1/Tier 2 active members [1]	4	4
Tier 1/Tier 2 dormant members	4	4
Tier 1/Tier 2 retirees and beneficiaries	7	6

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	642,126	664,473
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$468,603	$426,569
2. Employer reserves	1,602,338	1,398,142
3. Benefits in force reserve	486,567	459,504
4. Total market value of assets *(1. + 2. + 3.)*	**$2,557,508**	**$2,284,214**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$2,284,214
2.	Regular employer contributions	(8,755)
3.	Benefit payments and expenses	(90,636)
4.	Adjustments [1]	45,762
5.	Interest credited	326,922
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year *(1. + 2. + 3. + 4. + 5. + 6.)***	**$2,557,508**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	27,084	25,962
Tier 2 Police & Fire	0	0
Tier 2 General Service	12,936	12,694
Total	**$40,020**	**$38,656**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$40,020	$40,020	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	630,045	571,658
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	440,297	384,844
▪ **Total Active Members**	**$1,070,342**	**$956,502**
Dormant Members	538,243	490,289
Retired Members and Beneficiaries	1,102,121	1,085,186
Total Actuarial Accrued Liability	**$2,710,707**	**$2,531,977**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Actuarial Accrued Liability	$2,710,707	$2,710,707	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$2,710,707	$2,531,977
2. Actuarial value of assets	2,557,508	2,284,214
3. Unfunded accrued liability *(1. – 2.)*	153,199	247,763
4. Funded percentage *(2. ÷ 1.)*	94%	90%
5. Combined valuation payroll	$642,126	$664,473
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	24%	37%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($621,748)	($49,275)	($42,875)	($615,348)	($50,999)
December 31, 2015	$457,869	$33,504	$31,681	$456,046	$34,678
December 31, 2017	N/A	N/A	N/A	$312,501	$22,065
Total				**$153,199**	**$5,744**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$2,531,977
b. Normal cost at December 31, 2016 (excluding assumed expenses)	36,578
c. Benefit payments during 2017	(89,937)
d. Interest at 7.20% to December 31, 2017	180,381
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	2,658,999
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	2,658,999
2. Actuarial accrued liability at December 31, 2017	2,710,707
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(51,708)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	2,284,214
b. Contributions for 2017[1]	(8,755)
c. Benefit payments and expenses during 2017	(90,636)
d. Interest at 7.20% to December 31, 2017	160,885
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	2,345,709
5. Actuarial value of assets at December 31, 2017	2,557,508
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	211,799
7. Total actuarial gain/(loss) *(3. + 6.)*	**$160,091**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$247,763**
2. Expected increase	65,527
3. Liability (gain)/loss	51,708
4. Asset (gain)/loss	(211,799)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**$153,199**

1 *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	27,084	158,147	17.13%	25,962	156,560	16.58%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	12,936	129,798	9.97%	12,694	128,607	9.87%
Total	**$40,020**	**$287,945**	**13.90%**	**$38,656**	**$285,167**	**13.56%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$153,199	$247,763
2. Next year's Tier 1/Tier 2 UAL payment	5,744	13,294
3. Combined valuation payroll	642,126	664,473
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	0.89%	2.00%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	13.90%	13.56%
b. Tier 1/Tier 2 UAL rate	0.89%	2.00%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	14.94%	15.70%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	8.47%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	8.47%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	1.69%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.00%
	c. Funded percentage	94%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.00%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	5.47%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	11.47%
7.	July 1, 2019 total pension rate, before adjustment	14.94%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(3.47%)
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	0.89%
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	(2.58%)
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	11.47%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	13.90%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	13.90%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	11.47%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	13.90%	13.56%
b. Tier 1/Tier 2 UAL rate	(2.58%)	(2.23%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	11.47%	11.47%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$158,147	$0	$158,147
Tier 2	129,798	0	129,798
Tier 1/Tier 2 valuation payroll	287,945	0	287,945
OPSRP valuation payroll	354,181	0	354,181
Combined valuation payroll	**$642,126**	**$0**	**$642,126**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	2	2	7	11	2	2	9	13
Police & Fire	0	0	0	0	0	0	0	0
Total	2	2	7	11	2	2	9	13
Active Members with previous service segments with the employer								
General Service	2	4	N/A	6	3	5	N/A	8
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	2	4	N/A	6	3	5	N/A	8
Dormant Members								
General Service	4	0	2	6	4	0	1	5
Police & Fire	0	0	0	0	0	0	0	0
Total	4	0	2	6	4	0	1	5
Retired Members and Beneficiaries								
General Service	7	0	0	7	6	0	0	6
Police & Fire	0	0	0	0	0	0	0	0
Total	7	0	0	7	6	0	0	6
Grand Total Number of Members	**15**	**6**	**9**	**30**	**15**	**7**	**10**	**32**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

Age	Years of Service									
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39			1							1
40-44										
45-49			1			1				2
50-54						1				1
55-59										
60-64										
65-69										
70-74										
75+										
Total	0	0	2	0	0	2	0	0	0	4

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49	1	2,062
50-54	2	1,644
55-59	1	0
60-64		
65-69		
70-74		
75+		
Total	4	1,337

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59	2	1,412
60-64	3	474
65-69	1	98
70-74	1	1,942
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total	7	898

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Tillamook County Soil And Water Conservation District/2821
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Tillamook County Soil And Water Conservation District/2821

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Tillamook County Soil And Water Conservation District -- #2821

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Tillamook County Soil And Water Conservation District to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Tillamook County Soil And Water Conservation District.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Tillamook County Soil And Water Conservation District

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	13.70%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	4.64%	4.64%	4.64%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**19.79%**	**14.49%**	**19.12%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**19.85%**	**14.49%**	**19.12%**

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

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

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 82%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	18.34%	18.34%
Minimum 2021-2023 Rate	14.67%	11.00%
Maximum 2021-2023 Rate	22.01%	25.68%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$285,362	$301,823	$16,461	95%	$63,910	26%
12/31/2013	343,758	346,692	2,934	99%	73,887	4%
12/31/2014	390,400	504,206	113,806	77%	166,220	68%
12/31/2015	419,462	549,750	130,288	76%	206,045	63%
12/31/2016	472,955	657,358	184,403	72%	222,426	83%
12/31/2017	589,878	718,280	128,402	82%	187,892	68%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Tillamook County Soil And Water Conservation District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$128,402	$184,403
Allocated pooled OPSRP UAL	28,314	38,293
Side account	0	0
Net unfunded pension actuarial accrued liability	156,716	222,696
Combined valuation payroll	187,892	222,426
Net pension UAL as a percentage of payroll	83%	100%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,153)	($30)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$22,559	$23,647
Tier 1/Tier 2 valuation payroll	164,701	182,798
Tier 1/Tier 2 pension normal cost rate	13.70%	12.94%
Tier 1/ Tier 2 Actuarial accrued liability	$718,280	$657,358
Actuarial asset value	589,878	472,955
Tier 1/Tier 2 Unfunded actuarial accrued liability	128,402	184,403
Tier 1/ Tier 2 Funded status	82%	72%
Combined valuation payroll	$187,892	$222,426
Tier 1/Tier 2 UAL as a percentage of payroll	68%	83%
Tier 1/Tier 2 UAL rate	4.64%	5.40%
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	2	3
Tier 1/Tier 2 dormant members	3	3
Tier 1/Tier 2 retirees and beneficiaries	1	0

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	187,892	222,426
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$93,883	$93,532
2. Employer reserves	463,406	379,423
3. Benefits in force reserve	32,589	0
4. Total market value of assets ***(1. + 2. + 3.)***	**$589,878**	**$472,955**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

	December 31, 2016 to December 31, 2017
1. Market value of assets at beginning of year	$472,955
2. Regular employer contributions	22,146
3. Benefit payments and expenses	(6,071)
4. Adjustments [1]	20,588
5. Interest credited	80,259
6. Total transferred from side accounts	0
7. Market value of assets at end of year ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$589,878**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	10,744	10,162
Tier 2 Police & Fire	0	0
Tier 2 General Service	11,815	13,485
Total	**$22,559**	**$23,647**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$22,559	$22,559	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	87,019	69,655
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	463,211	505,818
▪ **Total Active Members**	**$550,230**	**$575,473**
Dormant Members	94,232	81,885
Retired Members and Beneficiaries	73,818	0
Total Actuarial Accrued Liability	**$718,280**	**$657,358**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$718,280	$718,280	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$718,280	$657,358
2. Actuarial value of assets	589,878	472,955
3. Unfunded accrued liability *(1. – 2.)*	128,402	184,403
4. Funded percentage *(2. ÷ 1.)*	82%	72%
5. Combined valuation payroll	$187,892	$222,426
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	68%	83%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	$2,916	$231	$201	$2,886	$239
December 31, 2015	$127,323	$9,317	$8,810	$126,816	$9,643
December 31, 2017	N/A	N/A	N/A	($1,300)	($92)
Total				**$128,402**	**$9,790**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$657,358
b. Normal cost at December 31, 2016 (excluding assumed expenses)	22,376
c. Benefit payments during 2017	(6,024)
d. Interest at 7.20% to December 31, 2017	47,918
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	721,628
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	721,628
2. Actuarial accrued liability at December 31, 2017	718,280
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	3,348
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	472,955
b. Contributions for 2017[1]	22,146
c. Benefit payments and expenses during 2017	(6,071)
d. Interest at 7.20% to December 31, 2017	34,631
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	523,662
5. Actuarial value of assets at December 31, 2017	589,878
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	66,216
7. Total actuarial gain/(loss) ***(3. + 6.)***	**$69,564**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$184,403**
2. Expected increase	13,563
3. Liability (gain)/loss	(3,348)
4. Asset (gain)/loss	(66,216)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***	**$128,402**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	10,744	59,473	18.07%	10,162	57,876	17.56%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	11,815	105,228	11.23%	13,485	124,922	10.79%
Total	**$22,559**	**$164,701**	**13.70%**	**$23,647**	**$182,798**	**12.94%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$128,402	$184,403
2. Next year's Tier 1/Tier 2 UAL payment	9,790	13,372
3. Combined valuation payroll	187,892	222,426
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	5.21%	6.01%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	13.70%	12.94%
b. Tier 1/Tier 2 UAL rate	5.21%	6.01%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	19.06%	19.09%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	15.28%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	15.28%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	3.06%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.06%
	c. Funded percentage	82%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.06%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	12.22%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	18.34%
7.	July 1, 2019 total pension rate, before adjustment	19.06%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(0.72%)
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	5.21%
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	4.49%
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	18.34%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	13.70%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	13.70%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	18.34%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	13.70%	12.94%
b. Tier 1/Tier 2 UAL rate	4.49%	5.26%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	18.34%	18.34%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$59,473	$0	$59,473
Tier 2	105,228	0	105,228
Tier 1/Tier 2 valuation payroll	164,701	0	164,701
OPSRP valuation payroll	23,191	0	23,191
Combined valuation payroll	**$187,892**	**$0**	**$187,892**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	1	1	1	3	1	2	1	4
Police & Fire	0	0	0	0	0	0	0	0
Total	1	1	1	3	1	2	1	4
Active Members with previous service segments with the employer								
General Service	0	1	N/A	1	0	1	N/A	1
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	0	1	N/A	1	0	1	N/A	1
Dormant Members								
General Service	0	3	0	3	0	3	0	3
Police & Fire	0	0	0	0	0	0	0	0
Total	0	3	0	3	0	3	0	3
Retired Members and Beneficiaries								
General Service	0	1	0	1	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0
Grand Total Number of Members	**1**	**6**	**1**	**8**	**1**	**6**	**1**	**8**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54										
55-59						1				1
60-64					1					1
65-69										
70-74										
75+										
Total	0	0	0	0	1	1	0	0	0	2

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49	1	10
50-54	1	493
55-59		
60-64	1	254
65-69		
70-74		
75+		
Total	3	253

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64		
65-69	1	505
70-74		
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total	1	505

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Tillamook Fire District/2783
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

October 2018
Tillamook Fire District/2783

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Tillamook Fire District/2783

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

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

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

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

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

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

Sincerely,

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

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

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Tillamook Fire District -- #2783

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Tillamook Fire District to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Tillamook Fire District.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Tillamook Fire District

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	21.24%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	(2.23%)	(2.23%)	(2.23%)
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**20.46%**	**7.62%**	**12.25%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.52%**	**7.62%**	**12.25%**

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

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

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 101%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	19.01%	19.01%
Minimum 2021-2023 Rate	15.21%	11.41%
Maximum 2021-2023 Rate	22.81%	26.61%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$863,045	$819,757	($43,288)	105%	$273,216	(16%)
12/31/2013	993,298	880,246	(113,052)	113%	279,546	(40%)
12/31/2014	1,059,115	1,076,206	17,091	98%	287,394	6%
12/31/2015	1,086,488	1,150,218	63,730	94%	291,168	22%
12/31/2016	1,170,650	1,256,399	85,749	93%	291,815	29%
12/31/2017	1,362,072	1,352,142	(9,930)	101%	299,802	(3%)

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Tillamook Fire District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	($9,930)	$85,749
Allocated pooled OPSRP UAL	45,178	50,240
Side account	0	0
Net unfunded pension actuarial accrued liability	35,248	135,989
Combined valuation payroll	299,802	291,815
Net pension UAL as a percentage of payroll	12%	47%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,435)	($40)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$49,610	$48,094
Tier 1/Tier 2 valuation payroll	233,517	227,875
Tier 1/Tier 2 pension normal cost rate	21.24%	21.11%
Tier 1/ Tier 2 Actuarial accrued liability	$1,352,142	$1,256,399
Actuarial asset value	1,362,072	1,170,650
Tier 1/Tier 2 Unfunded actuarial accrued liability	(9,930)	85,749
Tier 1/ Tier 2 Funded status	101%	93%
Combined valuation payroll	$299,802	$291,815
Tier 1/Tier 2 UAL as a percentage of payroll	(3%)	29%
Tier 1/Tier 2 UAL rate	(2.23%)	(2.10%)
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	3	3
Tier 1/Tier 2 dormant members	0	0
Tier 1/Tier 2 retirees and beneficiaries	5	5

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	299,802	291,815
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$105,022	$96,895
2. Employer reserves	1,105,635	928,506
3. Benefits in force reserve	151,415	145,249
4. Total market value of assets *(1. + 2. + 3.)*	**$1,362,072**	**$1,170,650**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$1,170,650
2.	Regular employer contributions	29,461
3.	Benefit payments and expenses	(28,205)
4.	Adjustments [1]	14,534
5.	Interest credited	175,632
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year *(1. + 2. + 3. + 4. + 5. + 6.)***	**$1,362,072**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$22,731	$21,908
Tier 1 General Service	0	0
Tier 2 Police & Fire	26,879	26,186
Tier 2 General Service	0	0
Total	**$49,610**	**$48,094**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$49,610	$49,610	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$537,978	$491,186
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	471,195	422,185
▪ Tier 2 General Service	0	0
▪ **Total Active Members**	**$1,009,173**	**$913,371**
Dormant Members	0	0
Retired Members and Beneficiaries	342,969	343,028
Total Actuarial Accrued Liability	**$1,352,142**	**$1,256,399**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$1,352,142	$1,352,142	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$1,352,142	$1,256,399
2. Actuarial value of assets	1,362,072	1,170,650
3. Unfunded accrued liability *(1. – 2.)*	(9,930)	85,749
4. Funded percentage *(2. ÷ 1.)*	101%	93%
5. Combined valuation payroll	$299,802	$291,815
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	(3%)	29%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($112,302)	($8,900)	($7,744)	($111,146)	($9,212)
December 31, 2015	$176,651	$12,926	$12,223	$175,948	$13,379
December 31, 2017	N/A	N/A	N/A	($74,732)	($5,277)
Total				**($9,930)**	**($1,110)**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$1,256,399
b. Normal cost at December 31, 2016 (excluding assumed expenses)	45,508
c. Benefit payments during 2017	(27,987)
d. Interest at 7.20% to December 31, 2017	91,091
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	1,365,011
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	1,365,011
2. Actuarial accrued liability at December 31, 2017	1,352,142
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	12,869
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	1,170,650
b. Contributions for 2017[1]	29,461
c. Benefit payments and expenses during 2017	(28,205)
d. Interest at 7.20% to December 31, 2017	84,332
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	1,256,238
5. Actuarial value of assets at December 31, 2017	1,362,072
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	105,834
7. Total actuarial gain/(loss) *(3. + 6.)*	**$118,703**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$85,749**
2. Expected increase	23,024
3. Liability (gain)/loss	(12,869)
4. Asset (gain)/loss	(105,834)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**($9,930)**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$22,731	$93,009	24.44%	$21,908	$89,449	24.49%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	26,879	140,508	19.13%	26,186	138,426	18.92%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	**$49,610**	**$233,517**	**21.24%**	**$48,094**	**$227,875**	**21.11%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	($9,930)	$85,749
2. Next year's Tier 1/Tier 2 UAL payment	(1,110)	5,537
3. Combined valuation payroll	299,802	291,815
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	(0.37%)	1.90%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	21.24%	21.11%
b. Tier 1/Tier 2 UAL rate	(0.37%)	1.90%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	21.02%	23.15%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	15.84%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	15.84%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	3.17%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.17%
	c. Funded percentage	101%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.17%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	12.67%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	19.01%
7.	July 1, 2019 total pension rate, before adjustment	21.02%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(2.01%)
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	(0.37%)
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	(2.38%)
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	19.01%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	21.24%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	21.24%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	19.01%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	21.24%	21.11%
b. Tier 1/Tier 2 UAL rate	(2.38%)	(2.24%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	19.01%	19.01%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$93,009	$93,009
Tier 2	0	140,508	140,508
Tier 1/Tier 2 valuation payroll	0	233,517	233,517
OPSRP valuation payroll	0	66,285	66,285
Combined valuation payroll	**$0**	**$299,802**	**$299,802**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	0	0	0	0	0	0	0
Police & Fire	1	2	1	4	1	2	1	4
Total	1	2	1	4	1	2	1	4
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	0	0	N/A	0	0	0	N/A	0
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Retired Members and Beneficiaries								
General Service	1	0	0	1	1	0	0	1
Police & Fire	4	0	0	4	4	0	0	4
Total	5	0	0	5	5	0	0	5
Grand Total Number of Members	**6**	**2**	**1**	**9**	**6**	**2**	**1**	**9**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**	**Total**
<20										
20-24										
25-29										
30-34										
35-39										
40-44				1						**1**
45-49			1							**1**
50-54										
55-59										
60-64					1					**1**
65-69										
70-74										
75+										
Total	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**3**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75+		
Total		

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64		
65-69	2	600
70-74	3	329
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total	5	437

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Town of Butte Falls/2253
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

October 2018
Town of Butte Falls/2253

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Town of Butte Falls/2253

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

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

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

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

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

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

Sincerely,

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

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

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Town of Butte Falls -- #2253

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Town of Butte Falls to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Town of Butte Falls.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Town of Butte Falls

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	15.68%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	(1.27%)	(1.27%)	(1.27%)
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**15.86%**	**8.58%**	**13.21%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**15.92%**	**8.58%**	**13.21%**

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

1 *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 80%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	14.41%	14.41%
Minimum 2021-2023 Rate	11.41%	8.41%
Maximum 2021-2023 Rate	17.41%	20.41%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$227,332	$191,168	($36,164)	119%	$55,627	(65%)
12/31/2013	260,079	208,272	(51,807)	125%	74,444	(70%)
12/31/2014	278,186	258,036	(20,150)	108%	65,100	(31%)
12/31/2015	283,012	296,657	13,645	95%	37,997	36%
12/31/2016	283,703	323,036	39,333	88%	46,022	85%
12/31/2017	272,737	341,986	69,250	80%	50,750	136%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Town of Butte Falls

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$69,249	$39,333
Allocated pooled OPSRP UAL	7,648	7,923
Side account	0	0
Net unfunded pension actuarial accrued liability	76,897	47,256
Combined valuation payroll	50,750	46,022
Net pension UAL as a percentage of payroll	152%	103%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($582)	($6)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$785	$878
Tier 1/Tier 2 valuation payroll	5,007	5,523
Tier 1/Tier 2 pension normal cost rate	15.68%	15.90%
Tier 1/ Tier 2 Actuarial accrued liability	$341,986	$323,036
Actuarial asset value	272,737	283,703
Tier 1/Tier 2 Unfunded actuarial accrued liability	69,249	39,333
Tier 1/ Tier 2 Funded status	80%	88%
Combined valuation payroll	$50,750	$46,022
Tier 1/Tier 2 UAL as a percentage of payroll	136%	85%
Tier 1/Tier 2 UAL rate (includes Multnomah Fire District #10)	(1.27%)	(1.49%)
Tier 1/Tier 2 active members [1]	0	0
Tier 1/Tier 2 dormant members	3	4
Tier 1/Tier 2 retirees and beneficiaries	5	4

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	50,750	46,022
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$18,492	$56,501
2. Employer reserves	175,628	195,916
3. Benefits in force reserve	78,617	31,285
4. Total market value of assets ***(1. + 2. + 3.)***	**$272,737**	**$283,703**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$283,703
2.	Regular employer contributions	(3,847)
3.	Benefit payments and expenses	(14,644)
4.	Adjustments [1]	(29,097)
5.	Interest credited	36,623
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$272,737**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$217	$417
Tier 1 General Service	0	0
Tier 2 Police & Fire	0	0
Tier 2 General Service	568	461
Total	**$785**	**$878**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$785	$785	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$118,468	$109,102
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	3,317	2,557
▪ **Total Active Members**	**$121,785**	**$111,659**
Dormant Members	42,127	137,493
Retired Members and Beneficiaries	178,074	73,884
Total Actuarial Accrued Liability	**$341,986**	**$323,036**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$341,986	$341,986	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$341,986	$323,036
2. Actuarial value of assets	272,737	283,703
3. Unfunded accrued liability *(1. – 2.)*	69,249	39,333
4. Funded percentage *(2. ÷ 1.)*	80%	88%
5. Combined valuation payroll	$50,750	$46,022
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	136%	85%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($51,463)	($4,079)	($3,549)	($50,933)	($4,221)
December 31, 2015	$65,395	$4,785	$4,525	$65,135	$4,953
December 31, 2017	N/A	N/A	N/A	$55,047	$3,887
Total				**$69,249**	**$4,619**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$323,036
b. Normal cost at December 31, 2016 (excluding assumed expenses)	878
c. Benefit payments during 2017	(14,531)
d. Interest at 7.20% to December 31, 2017	22,767
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	332,150
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	332,150
2. Actuarial accrued liability at December 31, 2017	341,986
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(9,836)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	283,703
b. Contributions for 2017[1]	(3,847)
c. Benefit payments and expenses during 2017	(14,644)
d. Interest at 7.20% to December 31, 2017	19,761
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	284,972
5. Actuarial value of assets at December 31, 2017	272,737
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	(12,235)
7. Total actuarial gain/(loss) *(3. + 6.)*	**($22,071)**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$39,333**
2. Expected increase	7,845
3. Liability (gain)/loss	9,836
4. Asset (gain)/loss	12,235
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**$69,249**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$217	$1,304	16.64%	$417	$2,525	16.51%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	568	3,703	15.34%	461	2,998	15.38%
Total	**$785**	**$5,007**	**15.68%**	**$878**	**$5,523**	**15.90%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$69,249	$39,333
2. Next year's Tier 1/Tier 2 UAL payment	4,619	2,499
3. Combined valuation payroll	50,750	46,022
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	9.10%	5.43%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	15.68%	15.90%
b. Tier 1/Tier 2 UAL rate	9.10%	5.43%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	24.93%	21.47%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	11.41%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	11.41%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	2.28%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.00%
	c. Funded percentage	80%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.00%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	8.41%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	14.41%
7.	July 1, 2019 total pension rate, before adjustment	24.93%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(10.52%)
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	9.10%
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	(1.42%)
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	14.41%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	15.68%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	15.68%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	14.41%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	15.68%	15.90%
b. Tier 1/Tier 2 UAL rate	(1.42%)	(1.63%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	14.41%	14.41%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$1,304	$1,304
Tier 2	3,703	0	3,703
Tier 1/Tier 2 valuation payroll	3,703	1,304	5,007
OPSRP valuation payroll	44,434	1,309	45,743
Combined valuation payroll	**$48,137**	**$2,613**	**$50,750**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	0	1	1	0	0	1	1
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	1	1	0	0	1	1
Active Members with previous service segments with the employer								
General Service	0	1	N/A	1	0	1	N/A	1
Police & Fire	2	0	N/A	2	2	0	N/A	2
Total	2	1	N/A	3	2	1	N/A	3
Dormant Members								
General Service	0	0	1	1	0	0	1	1
Police & Fire	0	3	0	3	1	3	0	4
Total	0	3	1	4	1	3	1	5
Retired Members and Beneficiaries								
General Service	0	0	0	0	0	0	0	0
Police & Fire	3	2	0	5	2	2	0	4
Total	3	2	0	5	2	2	0	4
Grand Total Number of Members	**5**	**6**	**2**	**13**	**5**	**6**	**2**	**13**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

Age	Years of Service									
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54										
55-59										
60-64										
65-69										
70-74										
75+										
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49	1	318
50-54	2	31
55-59		
60-64		
65-69		
70-74		
75+		
Total	3	126

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64	2	324
65-69	1	165
70-74	1	94
75-79		
80-84		
85-89	1	122
90-94		
95-99		
100+		
Total	5	206

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Tri-County Cooperative Weed Management Area/2865
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Tri-County Cooperative Weed Management Area/2865

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT
DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Tri-County Cooperative Weed Management Area -- #2865

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Tri-County Cooperative Weed Management Area to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Tri-County Cooperative Weed Management Area.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Tri-County Cooperative Weed Management Area

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	16.92%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	0.55%	0.55%	0.55%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**18.92%**	**10.40%**	**15.03%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**18.98%**	**10.40%**	**15.03%**

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

1 *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 100%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	17.47%	17.47%
Minimum 2021-2023 Rate	13.98%	10.49%
Maximum 2021-2023 Rate	20.96%	24.45%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	($295)	$0	$295	0%	$96,745	0%
12/31/2013	(1,440)	0	1,440	0%	91,490	2%
12/31/2014	(3,031)	0	3,031	0%	75,233	4%
12/31/2015	(4,528)	0	4,528	0%	70,260	6%
12/31/2016	(8,243)	0	8,243	0%	133,036	6%
12/31/2017	(12,717)	0	12,717	0%	102,620	12%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Tri-County Cooperative Weed Management Area

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$12,717	$8,243
Allocated pooled OPSRP UAL	15,464	22,904
Side account	0	0
Net unfunded pension actuarial accrued liability	28,181	31,147
Combined valuation payroll	102,620	133,036
Net pension UAL as a percentage of payroll	27%	23%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,176)	($18)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$0	$0
Tier 1/Tier 2 valuation payroll	0	0
Tier 1/Tier 2 pension normal cost rate	16.92%	16.95%
Tier 1/ Tier 2 Actuarial accrued liability	$0	$0
Actuarial asset value	(12,717)	(8,243)
Tier 1/Tier 2 Unfunded actuarial accrued liability	12,717	8,243
Tier 1/ Tier 2 Funded status	0%	0%
Combined valuation payroll	$102,620	$133,036
Tier 1/Tier 2 UAL as a percentage of payroll	12%	6%
Tier 1/Tier 2 UAL rate	0.55%	0.52%
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	0	0
Tier 1/Tier 2 dormant members	0	0
Tier 1/Tier 2 retirees and beneficiaries	0	0

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	102,620	133,036
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$0	$0
2. Employer reserves	(12,717)	(8,243)
3. Benefits in force reserve	0	0
4. Total market value of assets ***(1. + 2. + 3.)***	**($12,717)**	**($8,243)**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

	December 31, 2016 to December 31, 2017
1. Market value of assets at beginning of year	($8,243)
2. Regular employer contributions	(2,659)
3. Benefit payments and expenses	0
4. Adjustments [1]	(149)
5. Interest credited	(1,666)
6. Total transferred from side accounts	0
7. Market value of assets at end of year ***(1. + 2. + 3. + 4. + 5. + 6.)***	**($12,717)**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	0	0
Tier 2 Police & Fire	0	0
Tier 2 General Service	0	0
Total	**$0**	**$0**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$0	$0	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	0	0
▪ **Total Active Members**	**$0**	**$0**
Dormant Members	0	0
Retired Members and Beneficiaries	0	0
Total Actuarial Accrued Liability	**$0**	**$0**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Actuarial Accrued Liability	$0	$0	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$0	$0
2. Actuarial value of assets	(12,717)	(8,243)
3. Unfunded accrued liability *(1. – 2.)*	12,717	8,243
4. Funded percentage *(2. ÷ 1.)*	100%	100%
5. Combined valuation payroll	$102,620	$133,036
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	12%	6%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	$1,430	$113	$99	$1,416	$117
December 31, 2015	$3,088	$226	$214	$3,076	$234
December 31, 2017	N/A	N/A	N/A	$8,225	$581
Total				**$12,717**	**$932**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$0
b. Normal cost at December 31, 2016 (excluding assumed expenses)	0
c. Benefit payments during 2017	0
d. Interest at 7.20% to December 31, 2017	0
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	0
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	0
2. Actuarial accrued liability at December 31, 2017	0
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	0
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	(8,243)
b. Contributions for 2017[1]	(2,659)
c. Benefit payments and expenses during 2017	0
d. Interest at 7.20% to December 31, 2017	(689)
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	(11,591)
5. Actuarial value of assets at December 31, 2017	(12,717)
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	(1,126)
7. Total actuarial gain/(loss) ***(3. + 6.)***	**($1,126)**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$8,243**
2. Expected increase	3,348
3. Liability (gain)/loss	0
4. Asset (gain)/loss	1,126
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***	**$12,717**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	**$0**	**$0**	**16.92%**	**$0**	**$0**	**16.95%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$12,717	$8,243
2. Next year's Tier 1/Tier 2 UAL payment	932	602
3. Combined valuation payroll	102,620	133,036
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	0.91%	0.45%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	16.92%	16.95%
b. Tier 1/Tier 2 UAL rate	0.91%	0.45%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	17.98%	17.54%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1. Current net Tier 1/Tier 2 pension contribution rate		14.47%
2. Employer contribution rate attributable to side accounts		0.00%
3. Current employer Tier 1/Tier 2 pension contribution rate	*(1. – 2.)*	14.47%
4. Size of rate collar		
a. 20% of current employer contribution rate	*(20% x 3.)*	2.89%
b. Preliminary size of rate collar	*(maximum of 3% or a.)*	3.00%
c. Funded percentage		100%
d. Size of rate collar	*(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.00%
5. July 1, 2019 minimum employer contribution rate	*(3. – 4.d. but not < 0%)*	11.47%
6. July 1, 2019 maximum employer contribution rate	*(3. + 4.d.)*	17.47%
7. July 1, 2019 total pension rate, before adjustment		17.98%
8. Net adjustment due to rate collar	*(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(0.51%)
9. July 1, 2019 Tier 1/Tier 2 UAL rate, before collar		0.91%
10. July 1, 2019 Tier 1/Tier 2 UAL rate, after collar	*(8. + 9.)*	0.40%
11. July 1, 2019 Tier 1/Tier 2 pension rate, after collar		17.47%
12. Tier 1/Tier 2 retiree healthcare rate		0.06%
13. Net adjustment due to 6% minimum	*(6% - 11. - 12., minimum 0%)*	0.00%
14. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment		16.92%
15. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment	*(13. + 14.)*	16.92%
16. July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment	*(11. + 13.)*	17.47%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	16.92%	16.95%
b. Tier 1/Tier 2 UAL rate	0.40%	0.38%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	17.47%	17.47%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$0	$0
Tier 2	0	0	0
Tier 1/Tier 2 valuation payroll	0	0	0
OPSRP valuation payroll	102,620	0	102,620
Combined valuation payroll	**$102,620**	**$0**	**$102,620**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	0	2	2	0	0	4	4
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	2	2	0	0	4	4
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	0	0	N/A	0	0	0	N/A	0
Dormant Members								
General Service	0	0	1	1	0	0	1	1
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	1	1	0	0	1	1
Retired Members and Beneficiaries								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Grand Total Number of Members	**0**	**0**	**3**	**3**	**0**	**0**	**5**	**5**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54										
55-59										
60-64										
65-69										
70-74										
75+										
Total	0	0	0	0	0	0	0	0	0	0

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75+		
Total		

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total		

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Turner Fire District/2610
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Turner Fire District/2610

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Turner Fire District -- #2610

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Turner Fire District to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Turner Fire District.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Turner Fire District

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	24.97%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	(4.01%)	(4.01%)	(4.01%)
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**22.41%**	**5.84%**	**10.47%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**22.47%**	**5.84%**	**10.47%**

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

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

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 89%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	20.96%	20.96%
Minimum 2021-2023 Rate	16.77%	12.58%
Maximum 2021-2023 Rate	25.15%	29.34%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$1,274,813	$1,088,856	($185,957)	117%	$336,946	(55%)
12/31/2013	1,424,608	1,184,515	(240,093)	120%	355,304	(68%)
12/31/2014	1,459,477	1,608,804	149,327	91%	327,881	46%
12/31/2015	1,454,911	1,696,372	241,461	86%	495,653	49%
12/31/2016	1,503,403	1,837,121	333,718	82%	591,204	56%
12/31/2017	1,675,002	1,882,397	207,395	89%	508,845	41%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Turner Fire District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$207,395	$333,718
Allocated pooled OPSRP UAL	76,678	101,783
Side account	0	0
Net unfunded pension actuarial accrued liability	284,073	435,501
Combined valuation payroll	508,845	591,204
Net pension UAL as a percentage of payroll	56%	74%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($5,830)	($80)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$24,073	$23,865
Tier 1/Tier 2 valuation payroll	96,422	95,554
Tier 1/Tier 2 pension normal cost rate	24.97%	24.98%
Tier 1/ Tier 2 Actuarial accrued liability	$1,882,397	$1,837,121
Actuarial asset value	1,675,002	1,503,403
Tier 1/Tier 2 Unfunded actuarial accrued liability	207,395	333,718
Tier 1/ Tier 2 Funded status	89%	82%
Combined valuation payroll	$508,845	$591,204
Tier 1/Tier 2 UAL as a percentage of payroll	41%	56%
Tier 1/Tier 2 UAL rate	(4.01%)	(4.02%)
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	1	1
Tier 1/Tier 2 dormant members	8	8
Tier 1/Tier 2 retirees and beneficiaries	7	7

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	508,845	591,204
3. Average Amortization factor	8.312	8.994
4. Total side account rate ***(-1. ÷ 2. ÷ 3.)*** [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$183,863	$161,430
2. Employer reserves	1,142,621	1,008,557
3. Benefits in force reserve	348,517	333,416
4. Total market value of assets ***(1. + 2. + 3.)***	**$1,675,002**	**$1,503,403**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$1,503,403
2.	Regular employer contributions	(18,206)
3.	Benefit payments and expenses	(64,920)
4.	Adjustments [1]	34,513
5.	Interest credited	220,212
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$1,675,002**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$23,838	$23,280
Tier 1 General Service	0	0
Tier 2 Police & Fire	0	585
Tier 2 General Service	235	0
Total	**$24,073**	**$23,865**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$24,073	$24,073	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Active Members		
▪ Tier 1 Police & Fire	$834,773	$816,521
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	137,497	123,685
▪ Tier 2 General Service	0	0
▪ **Total Active Members**	**$972,270**	**$940,206**
Dormant Members	120,702	109,502
Retired Members and Beneficiaries	789,425	787,413
Total Actuarial Accrued Liability	**$1,882,397**	**$1,837,121**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Actuarial Accrued Liability	$1,882,397	$1,882,397	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$1,882,397	$1,837,121
2. Actuarial value of assets	1,675,002	1,503,403
3. Unfunded accrued liability *(1. – 2.)*	207,395	333,718
4. Funded percentage *(2. ÷ 1.)*	89%	82%
5. Combined valuation payroll	$508,845	$591,204
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	41%	56%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($238,501)	($18,902)	($16,447)	($236,046)	($19,563)
December 31, 2015	$481,248	$35,215	$33,298	$479,331	$36,448
December 31, 2017	N/A	N/A	N/A	($35,890)	($2,534)
Total				**$207,395**	**$14,351**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$1,837,121
b. Normal cost at December 31, 2016 (excluding assumed expenses)	22,613
c. Benefit payments during 2017	(64,420)
d. Interest at 7.20% to December 31, 2017	130,768
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	1,926,082
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	1,926,082
2. Actuarial accrued liability at December 31, 2017	1,882,397
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	43,685
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	1,503,403
b. Contributions for 2017[1]	(18,206)
c. Benefit payments and expenses during 2017	(64,920)
d. Interest at 7.20% to December 31, 2017	105,252
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	1,525,530
5. Actuarial value of assets at December 31, 2017	1,675,002
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	149,472
7. Total actuarial gain/(loss) ***(3. + 6.)***	**$193,157**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$333,718**
2. Expected increase	66,834
3. Liability (gain)/loss	(43,685)
4. Asset (gain)/loss	(149,472)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***	**$207,395**

1 *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$23,838	$94,742	25.16%	$23,280	$92,364	25.20%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	0	0	0.00%	585	3,190	18.34%
Tier 2 General Service	235	1,680	13.99%	0	0	0.00%
Total	**$24,073**	**$96,422**	**24.97%**	**$23,865**	**$95,554**	**24.98%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$207,395	$333,718
2. Next year's Tier 1/Tier 2 UAL payment	14,351	22,736
3. Combined valuation payroll	508,845	591,204
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	2.82%	3.85%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	24.97%	24.98%
b. Tier 1/Tier 2 UAL rate	2.82%	3.85%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	27.94%	28.97%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	17.47%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	17.47%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	3.49%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.49%
	c. Funded percentage	89%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.49%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	13.98%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	20.96%
7.	July 1, 2019 total pension rate, before adjustment	27.94%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(6.98%)
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	2.82%
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	(4.16%)
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	20.96%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	24.97%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	24.97%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	20.96%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	24.97%	24.98%
b. Tier 1/Tier 2 UAL rate	(4.16%)	(4.16%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	20.96%	20.96%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$94,742	$94,742
Tier 2	1,680	0	1,680
Tier 1/Tier 2 valuation payroll	1,680	94,742	96,422
OPSRP valuation payroll	17,212	395,210	412,423
Combined valuation payroll	**$18,892**	**$489,952**	**$508,845**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	0	6	6	0	0	0	0
Police & Fire	1	0	12	13	1	0	17	18
Total	1	0	18	19	1	0	17	18
Active Members with previous service segments with the employer								
General Service	1	1	N/A	2	1	0	N/A	1
Police & Fire	6	13	N/A	19	6	17	N/A	23
Total	7	14	N/A	21	7	17	N/A	24
Dormant Members								
General Service	0	1	1	2	0	1	0	1
Police & Fire	1	6	2	9	1	6	2	9
Total	1	7	3	11	1	7	2	10
Retired Members and Beneficiaries								
General Service	0	0	0	0	0	0	0	0
Police & Fire	6	1	0	7	6	1	0	7
Total	6	1	0	7	6	1	0	7
Grand Total Number of Members	**15**	**22**	**21**	**58**	**15**	**25**	**19**	**59**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

Age	Years of Service 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54						1				**1**
55-59										
60-64										
65-69										
70-74										
75+										
Total	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39	1	412
40-44	1	155
45-49	1	210
50-54	3	14
55-59	1	354
60-64		
65-69	1	1,239
70-74		
75+		
Total	8	302

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54	2	8
55-59	1	52
60-64	2	18
65-69	1	916
70-74	1	3,490
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total	7	644

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Umatilla County Fire District #1/2887
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Umatilla County Fire District #1/2887

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

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

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

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

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

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

Sincerely,

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

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

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Umatilla County Fire District #1 -- #2887

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Umatilla County Fire District #1 to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Umatilla County Fire District #1.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Umatilla County Fire District #1

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	19.19%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	10.03%	10.03%	10.03%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**30.67%**	**19.88%**	**24.51%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**30.73%**	**19.88%**	**24.51%**

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

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

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 57%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	29.22%	29.22%
Minimum 2021-2023 Rate	23.38%	17.54%
Maximum 2021-2023 Rate	35.06%	40.90%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$0	$0	$0	0%	$0	0%
12/31/2013	0	0	0	0%	0	0%
12/31/2014	0	0	0	0%	0	0%
12/31/2015	0	0	0	0%	0	0%
12/31/2016	6,233,145	9,410,763	3,177,618	66%	2,832,566	112%
12/31/2017	5,941,316	10,493,485	4,552,170	57%	3,251,712	140%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Umatilla County Fire District #1

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$4,552,169	$3,177,618
Allocated pooled OPSRP UAL	490,004	487,661
Side account	0	0
Net unfunded pension actuarial accrued liability	5,042,173	3,665,279
Combined valuation payroll	3,251,712	2,832,566
Net pension UAL as a percentage of payroll	155%	129%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($37,259)	($386)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$218,141	$286,855
Tier 1/Tier 2 valuation payroll	1,136,619	1,418,311
Tier 1/Tier 2 pension normal cost rate	19.19%	20.23%
Tier 1/ Tier 2 Actuarial accrued liability	$10,493,485	$9,410,763
Actuarial asset value	5,941,316	6,233,145
Tier 1/Tier 2 Unfunded actuarial accrued liability	4,552,169	3,177,618
Tier 1/ Tier 2 Funded status	57%	66%
Combined valuation payroll	$3,251,712	$2,832,566
Tier 1/Tier 2 UAL as a percentage of payroll	140%	112%
Tier 1/Tier 2 UAL rate (includes Multnomah Fire District #10)	10.03%	8.06%
Tier 1/Tier 2 active members [1]	10	15
Tier 1/Tier 2 dormant members	4	3
Tier 1/Tier 2 retirees and beneficiaries	16	11

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	3,251,712	2,832,566
3. Average Amortization factor	8.312	8.994
4. Total side account rate ***(-1. ÷ 2. ÷ 3.)*** [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$337,105	$650,152
2. Employer reserves	3,016,732	4,520,503
3. Benefits in force reserve	2,587,479	1,062,490
4. Total market value of assets ***(1. + 2. + 3.)***	**$5,941,316**	**$6,233,145**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

	December 31, 2016 to December 31, 2017
1. Market value of assets at beginning of year	$6,233,145
2. Regular employer contributions	207,845
3. Benefit payments and expenses	(481,984)
4. Adjustments [1]	(886,456)
5. Interest credited	868,766
6. Total transferred from side accounts	0
7. Market value of assets at end of year ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$5,941,316**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$59,520	$84,245
Tier 1 General Service	0	13,096
Tier 2 Police & Fire	158,621	189,514
Tier 2 General Service	0	0
Total	**$218,141**	**$286,855**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$218,141	$218,141	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$1,026,088	$3,066,677
▪ Tier 1 General Service	46	255,014
▪ Tier 2 Police & Fire	3,315,928	3,502,631
▪ Tier 2 General Service	39,894	37,746
▪ **Total Active Members**	**$4,381,956**	**$6,862,068**
Dormant Members	250,646	39,465
Retired Members and Beneficiaries	5,860,884	2,509,230
Total Actuarial Accrued Liability	**$10,493,485**	**$9,410,763**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$10,493,485	$10,493,485	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$10,493,485	$9,410,763
2. Actuarial value of assets	5,941,316	6,233,145
3. Unfunded accrued liability *(1. – 2.)*	4,552,169	3,177,618
4. Funded percentage *(2. ÷ 1.)*	57%	66%
5. Combined valuation payroll	$3,251,712	$2,832,566
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	140%	112%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2017	N/A	N/A	N/A	$4,552,169	$321,413
Total				**$4,552,169**	**$321,413**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$9,410,763
b. Normal cost at December 31, 2016 (excluding assumed expenses)	271,476
c. Benefit payments during 2017	(478,266)
d. Interest at 7.20% to December 31, 2017	670,130
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	9,874,103
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	9,874,103
2. Actuarial accrued liability at December 31, 2017	10,493,485
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(619,382)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	6,233,145
b. Contributions for 2017[1]	207,845
c. Benefit payments and expenses during 2017	(481,984)
d. Interest at 7.20% to December 31, 2017	438,917
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	6,397,923
5. Actuarial value of assets at December 31, 2017	5,941,316
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	(456,607)
7. Total actuarial gain/(loss) *(3. + 6.)*	**($1,075,989)**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$3,177,618**
2. Expected increase	298,562
3. Liability (gain)/loss	619,382
4. Asset (gain)/loss	456,607
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**$4,552,169**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$59,520	$297,173	20.03%	$84,245	$407,798	20.66%
Tier 1 General Service	0	0	0.00%	13,096	70,519	18.57%
Tier 2 Police & Fire	158,621	839,446	18.90%	189,514	939,994	20.16%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	**$218,141**	**$1,136,619**	**19.19%**	**$286,855**	**$1,418,311**	**20.23%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$4,552,169	$3,177,618
2. Next year's Tier 1/Tier 2 UAL payment	321,413	224,361
3. Combined valuation payroll	3,251,712	2,832,566
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	9.88%	7.92%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	19.19%	20.23%
b. Tier 1/Tier 2 UAL rate	9.88%	7.92%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	29.22%	28.29%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1. Current net Tier 1/Tier 2 pension contribution rate	29.22%
2. Employer contribution rate attributable to side accounts	0.00%
3. Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	29.22%
4. Size of rate collar	
a. 20% of current employer contribution rate *(20% x 3.)*	N/A
b. Preliminary size of rate collar *(maximum of 3% or a.)*	N/A
c. Funded percentage	N/A
d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	N/A
5. July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	N/A
6. July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	N/A
7. July 1, 2019 total pension rate, before adjustment	N/A
8. Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	N/A
9. July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	N/A
10. July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	N/A
11. July 1, 2019 Tier 1/Tier 2 pension rate, after collar	N/A
12. Tier 1/Tier 2 retiree healthcare rate	N/A
13. Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	N/A
14. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	N/A
15. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	N/A
16. July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	N/A

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	19.19%	20.23%
b. Tier 1/Tier 2 UAL rate	9.88%	7.92%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	29.22%	28.29%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$297,173	$297,173
Tier 2	0	839,446	839,446
Tier 1/Tier 2 valuation payroll	0	1,136,619	1,136,619
OPSRP valuation payroll	57,995	2,057,099	2,115,093
Combined valuation payroll	**$57,995**	**$3,193,718**	**$3,251,712**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	0	1	1	1	0	1	2
Police & Fire	2	8	30	40	4	10	19	33
Total	2	8	31	41	5	10	20	35
Active Members with previous service segments with the employer								
General Service	1	1	N/A	2	1	4	N/A	5
Police & Fire	1	8	N/A	9	2	9	N/A	11
Total	2	9	N/A	11	3	13	N/A	16
Dormant Members								
General Service	0	1	0	1	0	1	0	1
Police & Fire	1	2	0	3	1	1	0	2
Total	1	3	0	4	1	2	0	3
Retired Members and Beneficiaries								
General Service	2	0	0	2	1	0	0	1
Police & Fire	13	1	0	14	10	0	0	10
Total	15	1	0	16	11	0	0	11
Grand Total Number of Members	**20**	**21**	**31**	**72**	**20**	**25**	**20**	**65**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

Age	Years of Service									
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39			1							**1**
40-44			1	1						**2**
45-49				3		1				**4**
50-54				1	1					**2**
55-59				1						**1**
60-64										
65-69										
70-74										
75+										
Total	**0**	**0**	**2**	**6**	**1**	**1**	**0**	**0**	**0**	**10**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49	3	765
50-54	1	167
55-59		
60-64		
65-69		
70-74		
75+		
Total	4	615

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54	5	2,975
55-59	1	516
60-64	4	1,515
65-69	4	2,246
70-74	1	1
75-79	1	467
80-84		
85-89		
90-94		
95-99		
100+		
Total	16	1,931

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

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

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

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

Tier 1/Tier 2 Valuation Payroll

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

Transition Liability

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

Unfunded Accrued Liability (UAL)

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

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October 2018

Umatilla-Morrow Radio and Data District/2874
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

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

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

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

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

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

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

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

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Umatilla-Morrow Radio and Data District/2874

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

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

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

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

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

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

Sincerely,

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

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

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Umatilla-Morrow Radio and Data District -- #2874

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Umatilla-Morrow Radio and Data District to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Umatilla-Morrow Radio and Data District.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Umatilla-Morrow Radio and Data District

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	11.12%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	1.07%	1.07%	1.07%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**13.64%**	**10.92%**	**15.55%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**13.70%**	**10.92%**	**15.55%**

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

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

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 81%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	12.19%	12.19%
Minimum 2021-2023 Rate	9.19%	6.19%
Maximum 2021-2023 Rate	15.19%	18.19%

Executive Summary

Accounting Information

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

Pension

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

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$18,250	$10,753	($7,497)	170%	$125,894	(6%)
12/31/2013	36,329	22,118	(14,211)	164%	128,162	(11%)
12/31/2014	48,000	46,421	(1,579)	103%	205,709	(1%)
12/31/2015	61,232	70,322	9,090	87%	202,445	4%
12/31/2016	83,176	110,850	27,674	75%	205,471	13%
12/31/2017	115,256	143,067	27,811	81%	209,379	13%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

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

Executive Summary

Principal Valuation Results

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

Umatilla-Morrow Radio and Data District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$27,811	$27,674
Allocated pooled OPSRP UAL	31,552	35,374
Side account	0	0
Net unfunded pension actuarial accrued liability	59,363	63,048
Combined valuation payroll	209,379	205,471
Net pension UAL as a percentage of payroll	28%	31%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($2,399)	($28)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$23,286	$22,419
Tier 1/Tier 2 valuation payroll	209,379	205,471
Tier 1/Tier 2 pension normal cost rate	11.12%	10.91%
Tier 1/ Tier 2 Actuarial accrued liability	$143,067	$110,850
Actuarial asset value	115,256	83,176
Tier 1/Tier 2 Unfunded actuarial accrued liability	27,811	27,674
Tier 1/ Tier 2 Funded status	81%	75%
Combined valuation payroll	$209,379	$205,471
Tier 1/Tier 2 UAL as a percentage of payroll	13%	13%
Tier 1/Tier 2 UAL rate	1.07%	1.06%
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	3	3
Tier 1/Tier 2 dormant members	0	0
Tier 1/Tier 2 retirees and beneficiaries	0	0

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

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

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

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

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	209,379	205,471
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

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

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$0	$0
2. Employer reserves	115,256	83,176
3. Benefits in force reserve	0	0
4. Total market value of assets ***(1. + 2. + 3.)***	**$115,256**	**$83,176**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$83,176
2.	Regular employer contributions	16,841
3.	Benefit payments and expenses	0
4.	Adjustments [1]	(288)
5.	Interest credited	15,527
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$115,256**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	0	0
Tier 2 Police & Fire	0	0
Tier 2 General Service	23,286	22,419
Total	**$23,286**	**$22,419**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$23,286	$23,286	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	143,067	110,850
▪ **Total Active Members**	**$143,067**	**$110,850**
Dormant Members	0	0
Retired Members and Beneficiaries	0	0
Total Actuarial Accrued Liability	**$143,067**	**$110,850**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$143,067	$143,067	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$143,067	$110,850
2. Actuarial value of assets	115,256	83,176
3. Unfunded accrued liability *(1. – 2.)*	27,811	27,674
4. Funded percentage *(2. ÷ 1.)*	81%	75%
5. Combined valuation payroll	$209,379	$205,471
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	13%	13%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($14,116)	($1,119)	($973)	($13,970)	($1,158)
December 31, 2015	$23,283	$1,704	$1,611	$23,190	$1,763
December 31, 2017	N/A	N/A	N/A	$18,591	$1,313
Total				**$27,811**	**$1,918**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$110,850
b. Normal cost at December 31, 2016 (excluding assumed expenses)	21,213
c. Benefit payments during 2017	0
d. Interest at 7.20% to December 31, 2017	8,745
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	140,808
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	140,808
2. Actuarial accrued liability at December 31, 2017	143,067
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(2,259)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	83,176
b. Contributions for 2017[1]	16,841
c. Benefit payments and expenses during 2017	0
d. Interest at 7.20% to December 31, 2017	6,595
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	106,613
5. Actuarial value of assets at December 31, 2017	115,256
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	8,644
7. Total actuarial gain/(loss) *(3. + 6.)*	**$6,385**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$27,674**
2. Expected increase	6,522
3. Liability (gain)/loss	2,259
4. Asset (gain)/loss	(8,644)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**$27,811**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	23,286	209,379	11.12%	22,419	205,471	10.91%
Total	**$23,286**	**$209,379**	**11.12%**	**$22,419**	**$205,471**	**10.91%**

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

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$27,811	$27,674
2. Next year's Tier 1/Tier 2 UAL payment	1,918	1,892
3. Combined valuation payroll	209,379	205,471
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	0.92%	0.92%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	11.12%	10.91%
b. Tier 1/Tier 2 UAL rate	0.92%	0.92%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	12.19%	11.97%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1. Current net Tier 1/Tier 2 pension contribution rate	10.72%
2. Employer contribution rate attributable to side accounts	0.00%
3. Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	10.72%
4. Size of rate collar	
a. 20% of current employer contribution rate *(20% x 3.)*	2.14%
b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.00%
c. Funded percentage	81%
d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.00%
5. July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	7.72%
6. July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	13.72%
7. July 1, 2019 total pension rate, before adjustment	12.19%
8. Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	0.00%
9. July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	0.92%
10. July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	0.92%
11. July 1, 2019 Tier 1/Tier 2 pension rate, after collar	12.19%
12. Tier 1/Tier 2 retiree healthcare rate	0.06%
13. Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	11.12%
15. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	11.12%
16. July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	12.19%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	11.12%	10.91%
b. Tier 1/Tier 2 UAL rate	0.92%	0.92%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	12.19%	11.97%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$0	$0
Tier 2	209,379	0	209,379
Tier 1/Tier 2 valuation payroll	209,379	0	209,379
OPSRP valuation payroll	0	0	0
Combined valuation payroll	**$209,379**	**$0**	**$209,379**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	3	0	3	0	3	0	3
Police & Fire	0	0	0	0	0	0	0	0
Total	0	3	0	3	0	3	0	3
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	0	0	N/A	0	0	0	N/A	0
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Retired Members and Beneficiaries								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Grand Total Number of Members	**0**	**3**	**0**	**3**	**0**	**3**	**0**	**3**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39				1						**1**
40-44				1						**1**
45-49										
50-54				1						**1**
55-59										
60-64										
65-69										
70-74										
75+										
Total	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**3**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75+		
Total		

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total		

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

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

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

Economic Assumptions

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

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

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

Actuarial Asset Value

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

Actuarial Assumptions

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

Actuarial Cost Method

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

Actuarial Gain or (Loss)

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

Combined Valuation Payroll

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

Cost Sharing Multiple-Employer Plan

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

Employer Contribution Rate

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

Funded Status

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

Normal Cost

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

OPSRP Valuation Payroll

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

Glossary

Pre-SLGRP Liability

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

Pre-SLGRP Pooled Liability

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

Present Value

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

Rate Collar

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

Required Supplementary Information (RSI)

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

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

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

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

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

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

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Valley View Cemetery/2536
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Valley View Cemetery/2536

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Valley View Cemetery -- #2536

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Valley View Cemetery to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Valley View Cemetery.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Valley View Cemetery

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	22.78%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	(16.84%)	(16.84%)	(16.84%)
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**7.39%**	**0.00%**	**0.00%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**7.45%**	**0.00%**	**0.00%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 931%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	5.94%	5.94%
Minimum 2021-2023 Rate	2.94%	0.00%
Maximum 2021-2023 Rate	8.94%	11.94%

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$101,364	$7,927	($93,437)	1279%	$33,825	(276%)
12/31/2013	116,935	8,598	(108,337)	1360%	38,133	(284%)
12/31/2014	125,081	10,818	(114,263)	1156%	43,622	(262%)
12/31/2015	125,579	11,343	(114,236)	1107%	45,911	(249%)
12/31/2016	130,231	13,608	(116,623)	957%	54,572	(214%)
12/31/2017	146,282	15,704	(130,578)	931%	46,202	(283%)

Executive Summary

Accounting Information (continued)

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting the Retiree Health Insurance Account (RHIA) under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Valley View Cemetery

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
T1/T2 UAL	($130,578)	($116,623)
Allocated pooled OPSRP UAL	6,962	9,395
Side account	0	0
Net unfunded pension actuarial accrued liability	(123,616)	(107,228)
Combined valuation payroll	46,202	54,572
Net pension UAL as a percentage of payroll	(268%)	(196%)
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($529)	($7)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$1,370	$1,245
Tier 1/Tier 2 valuation payroll	8,133	7,673
Tier 1/Tier 2 pension normal cost rate	22.78%	21.74%
Tier 1/ Tier 2 Actuarial accrued liability	$15,704	$13,608
Actuarial asset value	146,282	130,231
Tier 1/Tier 2 Unfunded actuarial accrued liability	(130,578)	(116,623)
Tier 1/ Tier 2 Funded status	931%	957%
Combined valuation payroll	$46,202	$54,572
Tier 1/Tier 2 UAL as a percentage of payroll	(283%)	(214%)
Tier 1/Tier 2 UAL rate	(16.84%)	(16.23%)
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	0	0
Tier 1/Tier 2 dormant members	0	0
Tier 1/Tier 2 retirees and beneficiaries	1	1

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	46,202	54,572
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$0	$0
2. Employer reserves	143,038	127,104
3. Benefits in force reserve	3,244	3,127
4. Total market value of assets ***(1. + 2. + 3.)***	**$146,282**	**$130,231**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

	December 31, 2016 to December 31, 2017
1. Market value of assets at beginning of year	$130,231
2. Regular employer contributions	(3,147)
3. Benefit payments and expenses	(604)
4. Adjustments [1]	190
5. Interest credited	19,613
6. Total transferred from side accounts	0
7. Market value of assets at end of year ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$146,282**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	1,370	1,245
Tier 2 Police & Fire	0	0
Tier 2 General Service	0	0
Total	**$1,370**	**$1,245**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$1,370	$1,370	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	8,355	6,223
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	0	0
▪ **Total Active Members**	**$8,355**	**$6,223**
Dormant Members	0	0
Retired Members and Beneficiaries	7,349	7,385
Total Actuarial Accrued Liability	**$15,704**	**$13,608**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Actuarial Accrued Liability	$15,704	$15,704	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$15,704	$13,608
2. Actuarial value of assets	146,282	130,231
3. Unfunded accrued liability *(1. – 2.)*	(130,578)	(116,623)
4. Funded percentage *(2. ÷ 1.)*	931%	957%
5. Combined valuation payroll	$46,202	$54,572
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	(283%)	(214%)

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($107,620)	($8,529)	($7,421)	($106,512)	($8,827)
December 31, 2015	($5,980)	($438)	($414)	($5,956)	($453)
December 31, 2017	N/A	N/A	N/A	($18,110)	($1,279)
Total				**($130,578)**	**($10,559)**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$13,608
b. Normal cost at December 31, 2016 (excluding assumed expenses)	1,245
c. Benefit payments during 2017	(600)
d. Interest at 7.20% to December 31, 2017	1,003
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	15,256
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	15,256
2. Actuarial accrued liability at December 31, 2017	15,704
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(448)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	130,231
b. Contributions for 2017[1]	(3,147)
c. Benefit payments and expenses during 2017	(604)
d. Interest at 7.20% to December 31, 2017	9,242
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	135,721
5. Actuarial value of assets at December 31, 2017	146,282
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	10,561
7. Total actuarial gain/(loss) *(3. + 6.)*	**$10,113**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**($116,623)**
2. Expected increase	(3,842)
3. Liability (gain)/loss	448
4. Asset (gain)/loss	(10,561)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**($130,578)**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost Rate	Normal Cost	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost Rate
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	1,370	8,133	16.84%	1,245	7,673	16.23%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	**$1,370**	**$8,133**	**16.84%**	**$1,245**	**$7,673**	**16.23%**

An independent employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of all independent employers as calculated in the system-wide actuarial valuation report.

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	($130,578)	($116,623)
2. Next year's Tier 1/Tier 2 UAL payment	(10,559)	(9,180)
3. Combined valuation payroll	46,202	54,572
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	(22.85%)	(16.82%)

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	16.84%	16.23%
b. Tier 1/Tier 2 UAL rate	(22.85%)	(16.82%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	(5.86%)	(0.45%)

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	5.50%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	5.50%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	1.10%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.00%
	c. Funded percentage	931%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	6.00%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	0.00%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	11.50%
7.	July 1, 2019 total pension rate, before adjustment	(5.86%)
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	5.86%
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	(22.85%)
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	(16.99%)
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	0.00%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	5.94%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	16.84%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	22.78%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	5.94%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	22.78%	21.74%
b. Tier 1/Tier 2 UAL rate	(16.99%)	(16.37%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	5.94%	5.51%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$8,133	$0	$8,133
Tier 2	0	0	0
Tier 1/Tier 2 valuation payroll	8,133	0	8,133
OPSRP valuation payroll	38,069	0	38,069
Combined valuation payroll	**$46,202**	**$0**	**$46,202**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	0	2	2	0	0	2	2
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	2	2	0	0	2	2
Active Members with previous service segments with the employer								
General Service	1	0	N/A	1	1	0	N/A	1
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	1	0	N/A	1	1	0	N/A	1
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Retired Members and Beneficiaries								
General Service	1	0	0	1	1	0	0	1
Police & Fire	0	0	0	0	0	0	0	0
Total	1	0	0	1	1	0	0	1
Grand Total Number of Members	**2**	**0**	**2**	**4**	**2**	**0**	**2**	**4**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54										
55-59										
60-64										
65-69										
70-74										
75+										
Total	0	0	0	0	0	0	0	0	0	0

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75+		
Total		

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75-79		
80-84		
85-89	1	51
90-94		
95-99		
100+		
Total	1	51

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Vernonia Fire/2797
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

Milliman

October 2018
Vernonia Fire/2797

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Vernonia Fire/2797

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Vernonia Fire -- #2797

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Vernonia Fire to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Vernonia Fire.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Vernonia Fire

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	11.38%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	(0.87%)	(0.87%)	(0.87%)
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**11.96%**	**8.98%**	**13.61%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**12.02%**	**8.98%**	**13.61%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 106%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	10.51%	10.51%
Minimum 2021-2023 Rate	7.51%	4.51%
Maximum 2021-2023 Rate	13.51%	16.51%

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$222,028	$192,073	($29,955)	116%	$68,647	(44%)
12/31/2013	246,059	200,102	(45,957)	123%	76,009	(60%)
12/31/2014	253,297	232,832	(20,465)	109%	80,963	(25%)
12/31/2015	251,140	245,454	(5,686)	102%	81,364	(7%)
12/31/2016	255,516	253,639	(1,877)	101%	106,826	(2%)
12/31/2017	283,589	267,270	(16,319)	106%	145,979	(11%)

Executive Summary

Accounting Information (continued)

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting the Retiree Health Insurance Account (RHIA) under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Vernonia Fire

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	($16,319)	($1,877)
Allocated pooled OPSRP UAL	21,998	18,391
Side account	0	0
Net unfunded pension actuarial accrued liability	5,679	16,514
Combined valuation payroll	145,979	106,826
Net pension UAL as a percentage of payroll	4%	15%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,673)	($15)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$2,653	$2,377
Tier 1/Tier 2 valuation payroll	23,320	21,027
Tier 1/Tier 2 pension normal cost rate	11.38%	11.30%
Tier 1/ Tier 2 Actuarial accrued liability	$267,270	$253,639
Actuarial asset value	283,589	255,516
Tier 1/Tier 2 Unfunded actuarial accrued liability	(16,319)	(1,877)
Tier 1/ Tier 2 Funded status	106%	101%
Combined valuation payroll	$145,979	$106,826
Tier 1/Tier 2 UAL as a percentage of payroll	(11%)	(2%)
Tier 1/Tier 2 UAL rate	(0.87%)	(0.26%)
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	1	1
Tier 1/Tier 2 dormant members	1	1
Tier 1/Tier 2 retirees and beneficiaries	1	1

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions) **RHIA**	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	145,979	106,826
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$20,958	$19,290
2. Employer reserves	188,846	165,895
3. Benefits in force reserve	73,785	70,332
4. Total market value of assets ***(1. + 2. + 3.)***	**$283,589**	**$255,516**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

	December 31, 2016 to December 31, 2017
1. Market value of assets at beginning of year	$255,516
2. Regular employer contributions	(2,146)
3. Benefit payments and expenses	(13,744)
4. Adjustments [1]	7,419
5. Interest credited	36,544
6. Total transferred from side accounts	0
7. Market value of assets at end of year ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$283,589**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	0	0
Tier 2 Police & Fire	0	0
Tier 2 General Service	2,653	2,377
Total	**$2,653**	**$2,377**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$2,653	$2,653	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	52,190	42,874
▪ **Total Active Members**	**$52,190**	**$42,874**
Dormant Members	47,949	44,667
Retired Members and Beneficiaries	167,131	166,098
Total Actuarial Accrued Liability	**$267,270**	**$253,639**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Actuarial Accrued Liability	$267,270	$267,270	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$267,270	$253,639
2. Actuarial value of assets	283,589	255,516
3. Unfunded accrued liability *(1. – 2.)*	(16,319)	(1,877)
4. Funded percentage *(2. ÷ 1.)*	106%	101%
5. Combined valuation payroll	$145,979	$106,826
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	(11%)	(2%)

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($45,651)	($3,618)	($3,148)	($45,181)	($3,744)
December 31, 2015	$40,225	$2,943	$2,783	$40,065	$3,047
December 31, 2017	N/A	N/A	N/A	($11,203)	($791)
Total				**($16,319)**	**($1,488)**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$253,639
b. Normal cost at December 31, 2016 (excluding assumed expenses)	2,249
c. Benefit payments during 2017	(13,638)
d. Interest at 7.20% to December 31, 2017	17,852
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	260,102
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	260,102
2. Actuarial accrued liability at December 31, 2017	267,270
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(7,168)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	255,516
b. Contributions for 2017[1]	(2,146)
c. Benefit payments and expenses during 2017	(13,744)
d. Interest at 7.20% to December 31, 2017	17,825
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	257,451
5. Actuarial value of assets at December 31, 2017	283,589
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	26,137
7. Total actuarial gain/(loss) *(3. + 6.)*	**$18,969**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**($1,877)**
2. Expected increase	4,527
3. Liability (gain)/loss	7,168
4. Asset (gain)/loss	(26,137)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**($16,319)**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			**December 31, 2016**		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	2,653	23,320	11.38%	2,377	21,027	11.30%
Total	**$2,653**	**$23,320**	**11.38%**	**$2,377**	**$21,027**	**11.30%**

An independent employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of all independent employers as calculated in the system-wide actuarial valuation report.

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	($16,319)	($1,877)
2. Next year's Tier 1/Tier 2 UAL payment	(1,488)	(424)
3. Combined valuation payroll	145,979	106,826
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	(1.02%)	(0.40%)

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	11.38%	11.30%
b. Tier 1/Tier 2 UAL rate	(1.02%)	(0.40%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	10.51%	11.04%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	8.47%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	8.47%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	1.69%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.00%
	c. Funded percentage	106%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.00%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	5.47%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	11.47%
7.	July 1, 2019 total pension rate, before adjustment	10.51%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	0.00%
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	(1.02%)
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	(1.02%)
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	10.51%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	11.38%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	11.38%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	10.51%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	11.38%	11.30%
b. Tier 1/Tier 2 UAL rate	(1.02%)	(0.40%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	10.51%	11.04%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$0	$0
Tier 2	23,320	0	23,320
Tier 1/Tier 2 valuation payroll	23,320	0	23,320
OPSRP valuation payroll	0	122,659	122,659
Combined valuation payroll	**$23,320**	**$122,659**	**$145,979**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	1	0	1	0	1	0	1
Police & Fire	0	0	2	2	0	0	2	2
Total	0	1	2	3	0	1	2	3
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	0	0	N/A	0	0	0	N/A	0
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	1	0	0	1	1	0	0	1
Total	1	0	0	1	1	0	0	1
Retired Members and Beneficiaries								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	1	0	1	0	1	0	1
Total	0	1	0	1	0	1	0	1
Grand Total Number of Members	**1**	**2**	**2**	**5**	**1**	**2**	**2**	**5**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**	**Total**
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49			1							**1**
50-54										
55-59										
60-64										
65-69										
70-74										
75+										
Total	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54		
55-59	1	273
60-64		
65-69		
70-74		
75+		
Total	1	273

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64	1	953
65-69		
70-74		
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total	1	953

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Wallowa County/2050
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

October 2018
Wallowa County/2050

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Wallowa County/2050

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Wallowa County -- #2050

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Wallowa County to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Wallowa County.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Wallowa County

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	26.25%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	(13.73%)	(13.73%)	(13.73%)
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**13.97%**	**0.00%**	**0.75%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**14.03%**	**0.00%**	**0.75%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 116%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	12.52%	12.52%
Minimum 2021-2023 Rate	9.52%	6.52%
Maximum 2021-2023 Rate	15.52%	18.52%

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$1,302,300	$1,090,558	($211,742)	119%	$178,369	(119%)
12/31/2013	1,434,706	1,162,654	(272,052)	123%	267,075	(102%)
12/31/2014	1,464,839	1,340,855	(123,984)	109%	271,075	(46%)
12/31/2015	1,455,430	1,365,970	(89,460)	107%	266,007	(34%)
12/31/2016	1,499,514	1,374,858	(124,656)	109%	282,838	(44%)
12/31/2017	1,607,491	1,388,234	(219,258)	116%	327,585	(67%)

Executive Summary

Accounting Information (continued)

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting the Retiree Health Insurance Account (RHIA) under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Wallowa County

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	($219,257)	($124,656)
Allocated pooled OPSRP UAL	49,364	48,694
Side account	0	0
Net unfunded pension actuarial accrued liability	(169,893)	(75,962)
Combined valuation payroll	327,585	282,838
Net pension UAL as a percentage of payroll	(52%)	(27%)
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($3,754)	($39)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$15,010	$14,488
Tier 1/Tier 2 valuation payroll	57,186	47,571
Tier 1/Tier 2 pension normal cost rate	26.25%	30.46%
Tier 1/ Tier 2 Actuarial accrued liability	$1,388,234	$1,374,858
Actuarial asset value	1,607,491	1,499,514
Tier 1/Tier 2 Unfunded actuarial accrued liability	(219,257)	(124,656)
Tier 1/ Tier 2 Funded status	116%	109%
Combined valuation payroll	$327,585	$282,838
Tier 1/Tier 2 UAL as a percentage of payroll	(67%)	(44%)
Tier 1/Tier 2 UAL rate	(13.73%)	(17.94%)
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	1	1
Tier 1/Tier 2 dormant members	1	3
Tier 1/Tier 2 retirees and beneficiaries	9	8

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions) RHIA	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	327,585	282,838
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$131,099	$137,440
2. Employer reserves	1,088,337	1,052,529
3. Benefits in force reserve	388,055	309,545
4. Total market value of assets ***(1. + 2. + 3.)***	**$1,607,491**	**$1,499,514**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$1,499,514
2.	Regular employer contributions	(20,279)
3.	Benefit payments and expenses	(72,285)
4.	Adjustments [1]	(7,374)
5.	Interest credited	207,916
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$1,607,491**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	0	0
Tier 2 Police & Fire	15,010	14,488
Tier 2 General Service	0	0
Total	**$15,010**	**$14,488**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$15,010	$15,010	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$67,690	$0
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	284,254	252,468
▪ Tier 2 General Service	0	0
▪ **Total Active Members**	**$351,944**	**$252,468**
Dormant Members	157,309	391,355
Retired Members and Beneficiaries	878,981	731,035
Total Actuarial Accrued Liability	**$1,388,234**	**$1,374,858**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$1,388,234	$1,388,234	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$1,388,234	$1,374,858
2. Actuarial value of assets	1,607,491	1,499,514
3. Unfunded accrued liability *(1. – 2.)*	(219,257)	(124,656)
4. Funded percentage *(2. ÷ 1.)*	116%	109%
5. Combined valuation payroll	$327,585	$282,838
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	(67%)	(44%)

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($270,250)	($21,418)	($18,636)	($267,468)	($22,167)
December 31, 2015	$182,337	$13,342	$12,616	$181,611	$13,810
December 31, 2017	N/A	N/A	N/A	($133,400)	($9,419)
Total				**($219,257)**	**($17,776)**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$1,374,858
b. Normal cost at December 31, 2016 (excluding assumed expenses)	13,709
c. Benefit payments during 2017	(71,728)
d. Interest at 7.20% to December 31, 2017	96,901
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	1,413,740
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	1,413,740
2. Actuarial accrued liability at December 31, 2017	1,388,234
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	25,506
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	1,499,514
b. Contributions for 2017[1]	(20,279)
c. Benefit payments and expenses during 2017	(72,285)
d. Interest at 7.20% to December 31, 2017	104,633
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	1,511,582
5. Actuarial value of assets at December 31, 2017	1,607,491
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	95,910
7. Total actuarial gain/(loss) *(3. + 6.)*	**$121,416**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**($124,656)**
2. Expected increase	26,815
3. Liability (gain)/loss	(25,506)
4. Asset (gain)/loss	(95,910)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**($219,257)**

1 *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	15,010	57,186	26.25%	14,488	47,571	30.46%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	**$15,010**	**$57,186**	**26.25%**	**$14,488**	**$47,571**	**30.46%**

An independent employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of all independent employers as calculated in the system-wide actuarial valuation report.

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	($219,257)	($124,656)
2. Next year's Tier 1/Tier 2 UAL payment	(17,776)	(10,670)
3. Combined valuation payroll	327,585	282,838
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	(5.43%)	(3.77%)

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	26.25%	30.46%
b. Tier 1/Tier 2 UAL rate	(5.43%)	(3.77%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	20.97%	26.83%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	9.52%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	9.52%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	1.90%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.00%
	c. Funded percentage	116%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.00%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	6.52%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	12.52%
7.	July 1, 2019 total pension rate, before adjustment	20.97%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(8.45%)
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	(5.43%)
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	(13.88%)
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	12.52%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	26.25%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	26.25%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	12.52%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	26.25%	30.46%
b. Tier 1/Tier 2 UAL rate	(13.88%)	(18.08%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	12.52%	12.52%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$0	$0
Tier 2	0	57,186	57,186
Tier 1/Tier 2 valuation payroll	0	57,186	57,186
OPSRP valuation payroll	0	270,399	270,399
Combined valuation payroll	**$0**	**$327,585**	**$327,585**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	1	6	7	0	1	5	6
Total	0	1	6	7	0	1	5	6
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	1	0	N/A	1	0	0	N/A	0
Total	1	0	N/A	1	0	0	N/A	0
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	1	0	0	1	2	1	0	3
Total	1	0	0	1	2	1	0	3
Retired Members and Beneficiaries								
General Service	0	0	0	0	0	0	0	0
Police & Fire	7	2	0	9	7	1	0	8
Total	7	2	0	9	7	1	0	8
Grand Total Number of Members	**9**	**3**	**6**	**18**	**9**	**3**	**5**	**17**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54				1						**1**
55-59										
60-64										
65-69										
70-74										
75+										
Total	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54	1	1,040
55-59		
60-64		
65-69		
70-74		
75+		
Total	1	1,040

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54	1	716
55-59	1	563
60-64	1	1,104
65-69	1	676
70-74	1	932
75-79	1	658
80-84	2	197
85-89	1	115
90-94		
95-99		
100+		
Total	9	573

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

West Side Rural Fire Protection District/2796
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

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October 2018
West Side Rural Fire Protection District/2796

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

West Side Rural Fire Protection District -- #2796

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for West Side Rural Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to West Side Rural Fire Protection District.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for West Side Rural Fire Protection District

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	16.92%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	(8.16%)	(8.16%)	(8.16%)
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**10.21%**	**1.69%**	**6.32%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**10.27%**	**1.69%**	**6.32%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 117%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	8.76%	8.76%
Minimum 2021-2023 Rate	5.76%	2.76%
Maximum 2021-2023 Rate	11.76%	14.76%

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$278,239	$226,802	($51,437)	123%	$84,601	(61%)
12/31/2013	335,523	253,385	(82,138)	132%	87,178	(94%)
12/31/2014	369,674	315,804	(53,870)	117%	129,580	(42%)
12/31/2015	386,385	358,137	(28,248)	108%	43,749	(65%)
12/31/2016	424,346	397,513	(26,833)	107%	49,659	(54%)
12/31/2017	500,906	426,370	(74,536)	117%	52,110	(143%)

Executive Summary

Accounting Information (continued)

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting the Retiree Health Insurance Account (RHIA) under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

West Side Rural Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	($74,536)	($26,833)
Allocated pooled OPSRP UAL	7,852	8,549
Side account	0	0
Net unfunded pension actuarial accrued liability	(66,684)	(18,284)
Combined valuation payroll	52,110	49,659
Net pension UAL as a percentage of payroll	(128%)	(37%)
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($597)	($7)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$0	$0
Tier 1/Tier 2 valuation payroll	0	0
Tier 1/Tier 2 pension normal cost rate	16.92%	16.95%
Tier 1/ Tier 2 Actuarial accrued liability	$426,370	$397,513
Actuarial asset value	500,906	424,346
Tier 1/Tier 2 Unfunded actuarial accrued liability	(74,536)	(26,833)
Tier 1/ Tier 2 Funded status	117%	107%
Combined valuation payroll	$52,110	$49,659
Tier 1/Tier 2 UAL as a percentage of payroll	(143%)	(54%)
Tier 1/Tier 2 UAL rate (includes Multnomah Fire District #10)	(8.16%)	(4.82%)
Tier 1/Tier 2 active members [1]	1	1
Tier 1/Tier 2 dormant members	0	0
Tier 1/Tier 2 retirees and beneficiaries	0	0

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	52,110	49,659
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$36,382	$31,426
2. Employer reserves	464,524	392,920
3. Benefits in force reserve	0	0
4. Total market value of assets ***(1. + 2. + 3.)***	**$500,906**	**$424,346**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$424,346
2.	Regular employer contributions	9,594
3.	Benefit payments and expenses	0
4.	Adjustments [1]	(98)
5.	Interest credited	67,064
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$500,906**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	0	0
Tier 2 Police & Fire	0	0
Tier 2 General Service	0	0
Total	**$0**	**$0**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Normal Cost	$0	$0	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	426,370	397,513
▪ Tier 2 General Service	0	0
▪ **Total Active Members**	**$426,370**	**$397,513**
Dormant Members	0	0
Retired Members and Beneficiaries	0	0
Total Actuarial Accrued Liability	**$426,370**	**$397,513**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$426,370	$426,370	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$426,370	$397,513
2. Actuarial value of assets	500,906	424,346
3. Unfunded accrued liability *(1. – 2.)*	(74,536)	(26,833)
4. Funded percentage *(2. ÷ 1.)*	117%	107%
5. Combined valuation payroll	$52,110	$49,659
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	(143%)	(54%)

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($81,593)	($6,466)	($5,627)	($80,754)	($6,693)
December 31, 2015	$53,812	$3,938	$3,723	$53,597	$4,076
December 31, 2017	N/A	N/A	N/A	($47,379)	($3,345)
Total				**($74,536)**	**($5,962)**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$397,513
b. Normal cost at December 31, 2016 (excluding assumed expenses)	0
c. Benefit payments during 2017	0
d. Interest at 7.20% to December 31, 2017	28,621
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	426,134
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	426,134
2. Actuarial accrued liability at December 31, 2017	426,370
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(236)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	424,346
b. Contributions for 2017[1]	9,594
c. Benefit payments and expenses during 2017	0
d. Interest at 7.20% to December 31, 2017	30,898
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	464,838
5. Actuarial value of assets at December 31, 2017	500,906
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	36,067
7. Total actuarial gain/(loss) *(3. + 6.)*	**$35,831**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**($26,833)**
2. Expected increase	(11,872)
3. Liability (gain)/loss	236
4. Asset (gain)/loss	(36,067)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**($74,536)**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	**$0**	**$0**	**16.92%**	**$0**	**$0**	**16.95%**

An independent employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of all independent employers as calculated in the system-wide actuarial valuation report.

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	($74,536)	($26,833)
2. Next year's Tier 1/Tier 2 UAL payment	(5,962)	(2,461)
3. Combined valuation payroll	52,110	49,659
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	(11.44%)	(4.96%)

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	16.92%	16.95%
b. Tier 1/Tier 2 UAL rate	(11.44%)	(4.96%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	5.63%	12.13%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1. Current net Tier 1/Tier 2 pension contribution rate	11.76%
2. Employer contribution rate attributable to side accounts	0.00%
3. Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	11.76%
4. Size of rate collar	
a. 20% of current employer contribution rate *(20% x 3.)*	2.35%
b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.00%
c. Funded percentage	117%
d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.00%
5. July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	8.76%
6. July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	14.76%
7. July 1, 2019 total pension rate, before adjustment	5.63%
8. Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	3.13%
9. July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	(11.44%)
10. July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	(8.31%)
11. July 1, 2019 Tier 1/Tier 2 pension rate, after collar	8.76%
12. Tier 1/Tier 2 retiree healthcare rate	0.06%
13. Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	16.92%
15. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	16.92%
16. July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	8.76%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	16.92%	16.95%
b. Tier 1/Tier 2 UAL rate	(8.31%)	(4.96%)
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	8.76%	12.13%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$0	$0
Tier 2	0	0	0
Tier 1/Tier 2 valuation payroll	0	0	0
OPSRP valuation payroll	4,461	47,649	52,110
Combined valuation payroll	**$4,461**	**$47,649**	**$52,110**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	1	1	2	0	1	1	2
Total	0	1	1	2	0	1	1	2
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	0	0	N/A	0	0	0	N/A	0
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Retired Members and Beneficiaries								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Grand Total Number of Members	**0**	**1**	**1**	**2**	**0**	**1**	**1**	**2**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54										
55-59										
60-64										
65-69				1						**1**
70-74										
75+										
Total	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75+		
Total		

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total		

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

West Valley Fire District/2725
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
West Valley Fire District/2725

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

West Valley Fire District -- #2725

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for West Valley Fire District to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to West Valley Fire District.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for West Valley Fire District

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	20.16%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	0.19%	0.19%	0.19%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**21.80%**	**10.04%**	**14.67%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**21.86%**	**10.04%**	**14.67%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 75%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	20.35%	20.35%
Minimum 2021-2023 Rate	16.28%	12.21%
Maximum 2021-2023 Rate	24.42%	28.49%

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$699,866	$728,108	$28,242	96%	$368,253	8%
12/31/2013	813,970	782,700	(31,270)	104%	509,464	(6%)
12/31/2014	770,983	1,025,215	254,232	75%	604,114	42%
12/31/2015	753,673	1,063,541	309,868	71%	648,188	48%
12/31/2016	769,711	1,085,636	315,925	71%	643,371	49%
12/31/2017	840,673	1,127,945	287,271	75%	589,302	49%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting the Retiree Health Insurance Account (RHIA) under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

West Valley Fire District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$287,272	$315,925
Allocated pooled OPSRP UAL	88,803	110,764
Side account	0	0
Net unfunded pension actuarial accrued liability	376,075	426,689
Combined valuation payroll	589,302	643,371
Net pension UAL as a percentage of payroll	64%	66%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($6,752)	($88)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$5,473	$5,188
Tier 1/Tier 2 valuation payroll	27,143	27,278
Tier 1/Tier 2 pension normal cost rate	20.16%	19.02%
Tier 1/ Tier 2 Actuarial accrued liability	$1,127,945	$1,085,636
Actuarial asset value	840,673	769,711
Tier 1/Tier 2 Unfunded actuarial accrued liability	287,272	315,925
Tier 1/ Tier 2 Funded status	75%	71%
Combined valuation payroll	$589,302	$643,371
Tier 1/Tier 2 UAL as a percentage of payroll	49%	49%
Tier 1/Tier 2 UAL rate	0.19%	1.33%
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	1	1
Tier 1/Tier 2 dormant members	3	3
Tier 1/Tier 2 retirees and beneficiaries	8	7

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	589,302	643,371
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$65,289	$56,575
2. Employer reserves	552,636	511,166
3. Benefits in force reserve	222,748	201,970
4. Total market value of assets ***(1. + 2. + 3.)***	**$840,673**	**$769,711**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$769,711
2.	Regular employer contributions	(13,604)
3.	Benefit payments and expenses	(41,492)
4.	Adjustments [1]	13,519
5.	Interest credited	112,541
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$840,673**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	5,473	5,188
Tier 2 Police & Fire	0	0
Tier 2 General Service	0	0
Total	**$5,473**	**$5,188**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$5,473	$5,473	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	**December 31, 2016**
Active Members		
▪ Tier 1 Police & Fire	$12,685	$32,581
▪ Tier 1 General Service	19,993	11,391
▪ Tier 2 Police & Fire	325,580	296,651
▪ Tier 2 General Service	0	0
▪ **Total Active Members**	**$358,258**	**$340,623**
Dormant Members	265,142	268,030
Retired Members and Beneficiaries	504,544	476,983
Total Actuarial Accrued Liability	**$1,127,945**	**$1,085,636**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	**After Changes**	**Net Change**
Actuarial Accrued Liability	$1,127,945	$1,127,945	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$1,127,945	$1,085,636
2. Actuarial value of assets	840,673	769,711
3. Unfunded accrued liability *(1. – 2.)*	287,272	315,925
4. Funded percentage *(2. ÷ 1.)*	75%	71%
5. Combined valuation payroll	$589,302	$643,371
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	49%	49%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($31,063)	($2,462)	($2,142)	($30,743)	($2,548)
December 31, 2015	$341,030	$24,955	$23,596	$339,671	$25,829
December 31, 2017	N/A	N/A	N/A	($21,656)	($1,529)
Total				**$287,272**	**$21,752**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$1,085,636
b. Normal cost at December 31, 2016 (excluding assumed expenses)	4,909
c. Benefit payments during 2017	(41,172)
d. Interest at 7.20% to December 31, 2017	76,860
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	1,126,233
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	1,126,233
2. Actuarial accrued liability at December 31, 2017	1,127,945
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	(1,712)
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	769,711
b. Contributions for 2017[1]	(13,604)
c. Benefit payments and expenses during 2017	(41,492)
d. Interest at 7.20% to December 31, 2017	53,436
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	768,050
5. Actuarial value of assets at December 31, 2017	840,673
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	72,624
7. Total actuarial gain/(loss) *(3. + 6.)*	**$70,912**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$315,925**
2. Expected increase	42,259
3. Liability (gain)/loss	1,712
4. Asset (gain)/loss	(72,624)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**$287,272**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost Rate	Normal Cost	Employer Tier 1/Tier 2 Valuation Payroll	Normal Cost Rate
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	5,473	27,143	20.16%	5,188	27,278	19.02%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	**$5,473**	**$27,143**	**20.16%**	**$5,188**	**$27,278**	**19.02%**

An independent employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of all independent employers as calculated in the system-wide actuarial valuation report.

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$287,272	$315,925
2. Next year's Tier 1/Tier 2 UAL payment	21,752	22,914
3. Combined valuation payroll	589,302	643,371
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	3.69%	3.56%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	20.16%	19.02%
b. Tier 1/Tier 2 UAL rate	3.69%	3.56%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	24.00%	22.72%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	16.96%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	16.96%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	3.39%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.39%
	c. Funded percentage	75%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.39%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	13.57%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	20.35%
7.	July 1, 2019 total pension rate, before adjustment	24.00%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(3.65%)
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	3.69%
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	0.04%
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	20.35%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	20.16%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	20.16%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	20.35%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	20.16%	19.02%
b. Tier 1/Tier 2 UAL rate	0.04%	1.19%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	20.35%	20.35%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$27,143	$0	$27,143
Tier 2	0	0	0
Tier 1/Tier 2 valuation payroll	27,143	0	27,143
OPSRP valuation payroll	25,662	536,497	562,159
Combined valuation payroll	**$52,805**	**$536,497**	**$589,302**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	1	0	1	2	1	0	0	1
Police & Fire	0	0	10	10	0	0	11	11
Total	1	0	11	12	1	0	11	12
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	1	11	N/A	12	2	11	N/A	13
Total	1	11	N/A	12	2	11	N/A	13
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	2	1	5	8	2	1	3	6
Total	2	1	5	8	2	1	3	6
Retired Members and Beneficiaries								
General Service	1	0	0	1	1	0	0	1
Police & Fire	6	1	0	7	5	1	0	6
Total	7	1	0	8	6	1	0	7
Grand Total Number of Members	**11**	**13**	**16**	**40**	**11**	**13**	**14**	**38**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54										
55-59										
60-64				1						**1**
65-69										
70-74										
75+										
Total	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49	1	23
50-54		
55-59		
60-64	1	1,473
65-69		
70-74		
75+	1	571
Total	3	689

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49	2	18
50-54	1	2,063
55-59		
60-64	4	161
65-69		
70-74		
75-79		
80-84	1	58
85-89		
90-94		
95-99		
100+		
Total	8	350

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Winchester Bay Sanitary District/2714
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

October 2018
Winchester Bay Sanitary District/2714

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Winchester Bay Sanitary District -- #2714

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Winchester Bay Sanitary District to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Winchester Bay Sanitary District.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Winchester Bay Sanitary District

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	16.00%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	3.42%	3.42%	3.42%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**20.87%**	**13.27%**	**17.90%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**20.93%**	**13.27%**	**17.90%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

[1] *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 86%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	19.42%	19.42%
Minimum 2021-2023 Rate	15.54%	11.66%
Maximum 2021-2023 Rate	23.30%	27.18%

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$204,010	$269,846	$65,836	76%	$143,212	46%
12/31/2013	243,389	280,556	37,167	87%	144,040	26%
12/31/2014	267,042	343,278	76,236	78%	149,211	51%
12/31/2015	279,590	367,587	87,997	76%	152,862	58%
12/31/2016	309,099	415,243	106,144	74%	160,956	66%
12/31/2017	369,696	429,752	60,056	86%	151,959	40%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting the Retiree Health Insurance Account (RHIA) under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Winchester Bay Sanitary District

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
T1/T2 UAL	$60,056	$106,144
Allocated pooled OPSRP UAL	22,899	27,711
Side account	0	0
Net unfunded pension actuarial accrued liability	82,955	133,855
Combined valuation payroll	151,959	160,956
Net pension UAL as a percentage of payroll	55%	83%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($1,741)	($22)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$16,577	$16,456
Tier 1/Tier 2 valuation payroll	103,576	110,837
Tier 1/Tier 2 pension normal cost rate	16.00%	14.85%
Tier 1/ Tier 2 Actuarial accrued liability	$429,752	$415,243
Actuarial asset value	369,696	309,099
Tier 1/Tier 2 Unfunded actuarial accrued liability	60,056	106,144
Tier 1/ Tier 2 Funded status	86%	74%
Combined valuation payroll	$151,959	$160,956
Tier 1/Tier 2 UAL as a percentage of payroll	40%	66%
Tier 1/Tier 2 UAL rate (includes Multnomah Fire District #10)	3.42%	5.08%
Tier 1/Tier 2 active members [1]	2	2
Tier 1/Tier 2 dormant members	0	0
Tier 1/Tier 2 retirees and beneficiaries	2	2

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	151,959	160,956
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$26,043	$22,494
2. Employer reserves	293,202	237,480
3. Benefits in force reserve	50,451	49,126
4. Total market value of assets ***(1. + 2. + 3.)***	**$369,696**	**$309,099**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$309,099
2.	Regular employer contributions	16,616
3.	Benefit payments and expenses	(9,398)
4.	Adjustments [1]	4,039
5.	Interest credited	49,340
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$369,696**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	0	0
Tier 2 Police & Fire	0	0
Tier 2 General Service	16,577	16,456
Total	**$16,577**	**$16,456**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$16,577	$16,577	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	315,477	299,225
▪ **Total Active Members**	**$315,477**	**$299,225**
Dormant Members	0	0
Retired Members and Beneficiaries	114,275	116,018
Total Actuarial Accrued Liability	**$429,752**	**$415,243**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$429,752	$429,752	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$429,752	$415,243
2. Actuarial value of assets	369,696	309,099
3. Unfunded accrued liability *(1. – 2.)*	60,056	106,144
4. Funded percentage *(2. ÷ 1.)*	86%	74%
5. Combined valuation payroll	$151,959	$160,956
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	40%	66%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	$36,920	$2,926	$2,546	$36,540	$3,028
December 31, 2015	$50,846	$3,721	$3,518	$50,643	$3,851
December 31, 2017	N/A	N/A	N/A	($27,127)	($1,915)
Total				**$60,056**	**$4,964**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$415,243
b. Normal cost at December 31, 2016 (excluding assumed expenses)	15,571
c. Benefit payments during 2017	(9,325)
d. Interest at 7.20% to December 31, 2017	30,122
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	451,611
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	451,611
2. Actuarial accrued liability at December 31, 2017	429,752
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	21,859
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	309,099
b. Contributions for 2017[1]	16,616
c. Benefit payments and expenses during 2017	(9,398)
d. Interest at 7.20% to December 31, 2017	22,515
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	338,832
5. Actuarial value of assets at December 31, 2017	369,696
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	30,864
7. Total actuarial gain/(loss) *(3. + 6.)*	**$52,723**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$106,144**
2. Expected increase	6,635
3. Liability (gain)/loss	(21,859)
4. Asset (gain)/loss	(30,864)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 *(1. + 2. + 3. + 4. + 5.)*	**$60,056**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	0	0	0.00%	0	0	0.00%
Tier 2 General Service	16,577	103,576	16.00%	16,456	110,837	14.85%
Total	**$16,577**	**$103,576**	**16.00%**	**$16,456**	**$110,837**	**14.85%**

An independent employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of all independent employers as calculated in the system-wide actuarial valuation report.

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$60,056	$106,144
2. Next year's Tier 1/Tier 2 UAL payment	4,964	7,945
3. Combined valuation payroll	151,959	160,956
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	3.27%	4.94%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	16.00%	14.85%
b. Tier 1/Tier 2 UAL rate	3.27%	4.94%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	19.42%	19.93%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1. Current net Tier 1/Tier 2 pension contribution rate	16.91%
2. Employer contribution rate attributable to side accounts	0.00%
3. Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	16.91%
4. Size of rate collar	
a. 20% of current employer contribution rate *(20% x 3.)*	3.38%
b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.38%
c. Funded percentage	86%
d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.38%
5. July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	13.53%
6. July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	20.29%
7. July 1, 2019 total pension rate, before adjustment	19.42%
8. Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	0.00%
9. July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	3.27%
10. July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	3.27%
11. July 1, 2019 Tier 1/Tier 2 pension rate, after collar	19.42%
12. Tier 1/Tier 2 retiree healthcare rate	0.06%
13. Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	16.00%
15. July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	16.00%
16. July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	19.42%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	16.00%	14.85%
b. Tier 1/Tier 2 UAL rate	3.27%	4.94%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	19.42%	19.93%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$0	$0
Tier 2	103,576	0	103,576
Tier 1/Tier 2 valuation payroll	103,576	0	103,576
OPSRP valuation payroll	48,383	0	48,383
Combined valuation payroll	**$151,959**	**$0**	**$151,959**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	2	1	3	0	2	1	3
Police & Fire	0	0	0	0	0	0	0	0
Total	0	2	1	3	0	2	1	3
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	0	0	N/A	0	0	0	N/A	0
Total	0	0	N/A	0	0	0	N/A	0
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Retired Members and Beneficiaries								
General Service	2	0	0	2	2	0	0	2
Police & Fire	0	0	0	0	0	0	0	0
Total	2	0	0	2	2	0	0	2
Grand Total Number of Members	**2**	**2**	**1**	**5**	**2**	**2**	**1**	**5**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**	**Total**
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54										
55-59					1					**1**
60-64			1							**1**
65-69										
70-74										
75+										
Total	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**2**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75+		
Total		

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64		
65-69	1	334
70-74		
75-79		
80-84		
85-89	1	843
90-94		
95-99		
100+		
Total	2	589

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Yamhill County/2015
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Yamhill County/2015

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Yamhill County -- #2015

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Yamhill County to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Yamhill County.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Yamhill County

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	16.58%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	1.13%	1.13%	1.13%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**19.16%**	**10.98%**	**15.61%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**19.22%**	**10.98%**	**15.61%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 82%.

Funded Status as of December 31, 2019	**70% to 130%**	**Under 60% or Over 140%**
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	17.71%	17.71%
Minimum 2021-2023 Rate	14.17%	10.63%
Maximum 2021-2023 Rate	21.25%	24.79%

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$55,280,975	$58,352,215	$3,071,240	95%	$21,979,926	14%
12/31/2013	61,606,382	62,439,555	833,172	99%	22,587,423	4%
12/31/2014	64,662,813	74,720,280	10,057,467	87%	23,980,678	42%
12/31/2015	63,565,447	79,347,419	15,781,972	80%	26,264,266	60%
12/31/2016	65,096,141	85,103,706	20,007,565	76%	26,601,709	75%
12/31/2017	72,751,335	88,659,767	15,908,432	82%	27,550,588	58%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting the Retiree Health Insurance Account (RHIA) under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Yamhill County

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	$15,908,432	$20,007,565
Allocated pooled OPSRP UAL	4,151,629	4,579,808
Side account	0	0
Net unfunded pension actuarial accrued liability	20,060,061	24,587,373
Combined valuation payroll	27,550,588	26,601,709
Net pension UAL as a percentage of payroll	73%	92%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($315,680)	($3,622)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
Normal cost	$1,524,592	$1,577,491
Tier 1/Tier 2 valuation payroll	9,195,653	9,697,762
Tier 1/Tier 2 pension normal cost rate	16.58%	16.27%
Tier 1/ Tier 2 Actuarial accrued liability	$88,659,767	$85,103,706
Actuarial asset value	72,751,335	65,096,141
Tier 1/Tier 2 Unfunded actuarial accrued liability	15,908,432	20,007,565
Tier 1/ Tier 2 Funded status	82%	76%
Combined valuation payroll	$27,550,588	$26,601,709
Tier 1/Tier 2 UAL as a percentage of payroll	58%	75%
Tier 1/Tier 2 UAL rate	1.13%	1.44%
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members [1]	133	144
Tier 1/Tier 2 dormant members	96	96
Tier 1/Tier 2 retirees and beneficiaries	251	243

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of December 31, 2017	Actuarial Valuation as of December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	**December 31, 2017**	**December 31, 2016**
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	27,550,588	26,601,709
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$7,740,473	$7,149,811
2. Employer reserves	47,471,652	41,953,814
3. Benefits in force reserve	17,539,211	15,992,515
4. Total market value of assets ***(1. + 2. + 3.)***	**$72,751,335**	**$65,096,141**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

		December 31, 2016 to December 31, 2017
1.	Market value of assets at beginning of year	$65,096,141
2.	Regular employer contributions	1,040,980
3.	Benefit payments and expenses	(3,267,125)
4.	Adjustments [1]	162,729
5.	Interest credited	9,718,611
6.	Total transferred from side accounts	0
7.	**Market value of assets at end of year** ***(1. + 2. + 3. + 4. + 5. + 6.)***	**$72,751,335**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$236,250	$255,347
Tier 1 General Service	112,503	95,823
Tier 2 Police & Fire	399,444	393,903
Tier 2 General Service	776,395	832,418
Total	**$1,524,592**	**$1,577,491**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$1,524,592	$1,524,592	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$9,004,734	$9,343,449
▪ Tier 1 General Service	2,781,174	2,525,432
▪ Tier 2 Police & Fire	8,430,060	7,845,389
▪ Tier 2 General Service	21,791,122	21,913,967
▪ **Total Active Members**	**$42,007,090**	**$41,628,237**
Dormant Members	6,924,722	5,706,752
Retired Members and Beneficiaries	39,727,955	37,768,717
Total Actuarial Accrued Liability	**$88,659,767**	**$85,103,706**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$88,659,767	$88,659,767	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$88,659,767	$85,103,706
2. Actuarial value of assets	72,751,335	65,096,141
3. Unfunded accrued liability *(1. – 2.)*	15,908,432	20,007,565
4. Funded percentage *(2. ÷ 1.)*	82%	76%
5. Combined valuation payroll	$27,550,588	$26,601,709
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	58%	75%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	$827,651	$65,593	$57,074	$819,132	$67,888
December 31, 2015	$14,945,709	$1,093,642	$1,034,119	$14,886,186	$1,131,943
December 31, 2017	N/A	N/A	N/A	$203,114	$14,341
Total				**$15,908,432**	**$1,214,172**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$85,103,706
b. Normal cost at December 31, 2016 (excluding assumed expenses)	1,492,946
c. Benefit payments during 2017	(3,241,924)
d. Interest at 7.20% to December 31, 2017	6,064,504
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	89,419,232
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	89,419,232
2. Actuarial accrued liability at December 31, 2017	88,659,767
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	759,465
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	65,096,141
b. Contributions for 2017[1]	1,040,980
c. Benefit payments and expenses during 2017	(3,267,125)
d. Interest at 7.20% to December 31, 2017	4,606,781
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	67,476,777
5. Actuarial value of assets at December 31, 2017	72,751,335
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	5,274,559
7. Total actuarial gain/(loss) ***(3. + 6.)***	**$6,034,024**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**$20,007,565**
2. Expected increase	1,934,891
3. Liability (gain)/loss	(759,465)
4. Asset (gain)/loss	(5,274,559)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***	**$15,908,432**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$236,250	$993,249	23.79%	$255,347	$1,083,230	23.57%
Tier 1 General Service	112,503	591,525	19.02%	95,823	507,424	18.88%
Tier 2 Police & Fire	399,444	1,990,379	20.07%	393,903	1,974,978	19.94%
Tier 2 General Service	776,395	5,620,500	13.81%	832,418	6,132,130	13.57%
Total	**$1,524,592**	**$9,195,653**	**16.58%**	**$1,577,491**	**$9,697,762**	**16.27%**

An independent employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of all independent employers as calculated in the system-wide actuarial valuation report.

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	$15,908,432	$20,007,565
2. Next year's Tier 1/Tier 2 UAL payment	1,214,172	1,458,197
3. Combined valuation payroll	27,550,588	26,601,709
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	4.41%	5.48%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	Advisory July 1, 2019 Rates calculated as of December 31, 2016
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	16.58%	16.27%
b. Tier 1/Tier 2 UAL rate	4.41%	5.48%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	21.14%	21.89%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	14.71%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	14.71%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	2.94%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.00%
	c. Funded percentage	82%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.00%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	11.71%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	17.71%
7.	July 1, 2019 total pension rate, before adjustment	21.14%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	(3.43%)
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	4.41%
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	0.98%
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	17.71%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	16.58%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	16.58%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	17.71%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	16.58%	16.27%
b. Tier 1/Tier 2 UAL rate	0.98%	1.30%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	17.71%	17.71%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$591,525	$993,249	$1,584,774
Tier 2	5,620,500	1,990,379	7,610,879
Tier 1/Tier 2 valuation payroll	6,212,025	2,983,628	9,195,653
OPSRP valuation payroll	14,978,606	3,376,330	18,354,935
Combined valuation payroll	**$21,190,631**	**$6,359,958**	**$27,550,588**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	10	90	328	428	9	100	292	401
Police & Fire	11	22	45	78	12	23	41	76
Total	21	112	373	506	21	123	333	477
Active Members with previous service segments with the employer								
General Service	16	67	N/A	83	20	69	N/A	89
Police & Fire	8	20	N/A	28	11	22	N/A	33
Total	24	87	N/A	111	31	91	N/A	122
Dormant Members								
General Service	12	64	31	107	11	64	30	105
Police & Fire	10	10	1	21	10	11	3	24
Total	22	74	32	128	21	75	33	129
Retired Members and Beneficiaries								
General Service	41	136	10	187	40	130	7	177
Police & Fire	70	4	0	74	69	4	0	73
Total	111	140	10	261	109	134	7	250
Grand Total Number of Members	**178**	**413**	**415**	**1,006**	**182**	**423**	**373**	**978**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

Age	Years of Service									
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34			1							**1**
35-39			1	4						**5**
40-44			4	9	1					**14**
45-49	1		3	14	6	2				**26**
50-54			4	21	2	4				**31**
55-59		1	1	16	1	3				**22**
60-64		1		25	1	1				**28**
65-69				4				1		**5**
70-74				1						**1**
75+										
Total	**1**	**2**	**14**	**94**	**11**	**10**	**0**	**1**	**0**	**133**

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39	6	530
40-44	12	280
45-49	17	556
50-54	15	1,156
55-59	24	701
60-64	12	412
65-69	9	393
70-74	1	947
75+		
Total	96	621

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45	1	421
45-49	1	138
50-54	12	1,339
55-59	18	1,528
60-64	49	924
65-69	61	1,169
70-74	62	939
75-79	26	561
80-84	19	590
85-89	2	536
90-94		
95-99		
100+		
Total	251	979

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	$6.5 million added to OPSRP normal cost. $37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called "funding method," a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called “actuarial present value,” the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer’s accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer’s accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer’s accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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October 2018

Yamhill Fire Protection District/2878
Oregon Public Employees Retirement System

Dear Sir or Madam:

As part of our engagement with the Oregon Public Employees Retirement Board, we performed a system-wide actuarial valuation of the Oregon Public Employees Retirement System ("PERS" or "the System") as of December 31, 2017. The attached report, which is an informational supplement to the system-wide report, provides you with employer-specific contribution rates that will become effective July 1, 2019. Information to assist you in preparing your required financial reporting disclosures under Statement 68 and Statement 75 of the Governmental Accounting Standards Board (GASB) will be provided separately by PERS and is not included in this report.

This report reflects the System's benefit provisions in effect as of December 31, 2017. The full development of the valuation results for the OPSRP and Retiree Health Insurance Account (RHIA) programs can be found in the separate system-wide actuarial valuation report. Costs of the IAP (Individual Account Program) are not included in this or the system-wide actuarial valuation report. Further, costs of pension obligation bond payments are not included in this or the system-wide actuarial valuation report.

If you have any questions about this report, please contact Debra Hembree, Actuarial Services Coordinator at Oregon PERS, at 503 603 7704 or Debra.Hembree@state.or.us.

Contents of Report

The executive summary provides the basic information you need including:

- Contribution rates for Tier 1/Tier 2, OPSRP general service, and OPSRP police and fire payroll, and
- A summary of principal valuation results.

The remainder of the report provides additional information including:

- Side account balances, transactions and rate relief,
- Detailed development of Tier 1/Tier 2 valuation results,
- A brief summary of methods and assumptions, and
- A brief summary of any changes in System benefit provisions.

Additional information is provided in the system-wide actuarial valuation report, which is available at www.oregon.gov/PERS/Pages/Financials/Actuarial-Financial-Information.aspx.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

A valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While a valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in July 2017.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2019 to June 2021 for System employers. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and with our understanding of the System benefit provisions described in the appendixes of this report. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman

October 2018
Yamhill Fire Protection District/2878

This report is prepared solely for the use and benefit of the Oregon Public Employees Retirement System, the employer named above, or its auditors solely for the purpose of completing an audit related to the matters herein. To the extent that this report is not subject to disclosure under applicable public records laws, it may not be provided to other third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of this report. Milliman's consent to release this report to any third party may be conditioned on the third party signing a release except for situations where such release is prohibited by law.

No third party recipient of this report should rely upon Milliman's work contained herein. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the System. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Additional information is provided in the system-wide actuarial valuation report.

Sincerely,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

Milliman

ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

Yamhill Fire Protection District -- #2878

October 2018

CONTENTS

Executive Summary

Milliman has prepared this report for Yamhill Fire Protection District to:

- Provide summary December 31, 2017 valuation results for the Oregon Public Service Retirement Plan (OPSRP) and the Retiree Health Insurance Account (RHIA),
- Provide employer-specific contribution rates effective July 1, 2019 through June 30, 2021, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2017.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2017 system-wide actuarial valuation report. This report develops employer-specific Tier 1/Tier 2 and side account rates and applies the results from the system-wide valuation to Yamhill Fire Protection District.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2019 through June 30, 2021 for each type of payroll. There are separate normal cost rates for each of the payrolls based on the benefit structure supported by that payroll. The other rates apply to all payrolls regardless of the benefit structure to which they are attributed.

Employer Rates Effective July 1, 2019 for Yamhill Fire Protection District

	Payroll		
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	12.23%	8.40%	13.03%
Tier 1/Tier 2 UAL rate[1]	1.26%	1.26%	1.26%
OPSRP UAL rate	1.45%	1.45%	1.45%
Side account rate relief	0.00%	0.00%	0.00%
Net pension contribution rate	**14.94%**	**11.11%**	**15.74%**
Retiree Healthcare			
Normal cost rate	0.06%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	**0.06%**	**0.00%**	**0.00%**
Total net employer contribution rate	**15.00%**	**11.11%**	**15.74%**

In this report, the payroll of Tier 1 and Tier 2 members is referred to as Tier 1/Tier 2 valuation payroll. Combined valuation payroll refers to the payroll for Tier 1/Tier 2 members, OPSRP general service members and OPSRP police and fire members.

1 *Includes Multnomah Fire District #10 rate.*

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Employer Pension Contribution Rates for the July 2021 to June 2023 Biennium

The rate collar limits changes in contribution rates, but does not limit changes in rates for individual employers related to side accounts. The table below shows the possible minimum and maximum rates first effective as of July 1, 2021, which will depend on the funded status as of December 31, 2019. If the employer's funded status excluding side accounts is less than 60 percent or greater than 140 percent, the rate collar doubles in size. If the employer's funded status excluding side accounts is between 60 and 70 percent or between 130 and 140 percent, the size of the rate collar is increased on a graded scale. Also, please note that by Board policy, independent employers with less than 2,500 employees cannot have a Tier 1/Tier 2 pension rate less than 6 percent of payroll (excludes side accounts and OPSRP UAL rates). The rates shown are before any adjustment for side account offsets or the 6 percent minimum independent employer contribution rate.

For comparison, the funded status as of December 31, 2017 is 100%.

Funded Status as of December 31, 2019	70% to 130%	Under 60% or Over 140%
2019-2021 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	13.49%	13.49%
Minimum 2021-2023 Rate	10.49%	7.49%
Maximum 2021-2023 Rate	16.49%	19.49%

Executive Summary

Accounting Information

Milliman is not an accounting or audit firm and cannot provide accounting advice. Milliman is not responsible for the interpretation of, or compliance with, accounting standards; citations to, and descriptions of accounting standards provided in this report are for reference purposes only. The information provided in this section is intended to assist the employer in completing its financial statements, but any accounting determination should be reviewed by your auditor.

Pension

In June 2012 the GASB issued Statement No. 68, which replaced GASB 27 and governs employer financial reporting for fiscal years beginning after June 15, 2014. The new standard replaced many of the key elements of the prior reporting requirements. Under the new rules, employers are required to record a balance sheet liability for their unfunded pension obligations. In addition, the timing and coordination of plan and employer reporting has changed under the new requirements. GASB 68 information for employers will be provided separately by PERS and is not included in this report.

Schedule of Funding Progress

Under GASB 27, the Schedule of Funding Progress for Tier 1/Tier 2 pension liabilities was reported in the Required Supplementary Information. This schedule is no longer required now that GASB 68 has replaced GASB 27. However, for additional information and the sake of historical comparison, the updated schedule is shown below for the last several valuations. For employers with side accounts, the actuarial value of assets in this Schedule includes the value of the employer's side accounts.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (b - a)	Funded Ratio (a ÷ b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) ÷ c)
12/31/2012	$0	$0	$0	0%	$31,785	0%
12/31/2013	1	0	(1)	100%	74,622	0%
12/31/2014	4	0	(4)	0%	113,496	0%
12/31/2015	11	0	(11)	100%	94,927	0%
12/31/2016	23	0	(23)	0%	76,251	0%
12/31/2017	262	0	(262)	100%	76,392	0%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

In June 2015, the GASB issued Statement 75, which replaced GASB 45 and governs employer financial reporting for retiree healthcare obligations for fiscal years beginning after June 15, 2017. In general, the changes required by GASB 75 parallel those that occurred for pension reporting when GASB 68 replaced GASB 27. Accounting information for reporting the Retiree Health Insurance Account (RHIA) under GASB 75 will be provided separately and is not included in this report.

Executive Summary

Principal Valuation Results

A summary of principal valuation results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or plan provisions between the two valuations are described later in this report. More detailed information can be found in the system-wide actuarial valuation report.

Yamhill Fire Protection District

	Actuarial Valuation as of	
	December 31, 2017	**December 31, 2016**
T1/T2 UAL	($262)	($23)
Allocated pooled OPSRP UAL	11,512	13,128
Side account	0	0
Net unfunded pension actuarial accrued liability	11,250	13,105
Combined valuation payroll	76,392	76,251
Net pension UAL as a percentage of payroll	15%	17%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	($875)	($10)

In the above exhibit, UAL amounts for the pools (OPSRP and RHIA) are allocated pro-rata based on the ratio of an employer's combined valuation payroll to that of the applicable pool. Pool total results are summarized on page 7 of this report. Allocated amounts shown above differ from the proportionate share of Net Pension Liability (NPL) that will be allocated to employers under GASB 68.

Executive Summary

Principal Valuation Results (continued)

Tier 1/Tier 2

	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
Normal cost	$158	$154
Tier 1/Tier 2 valuation payroll	1,292	1,295
Tier 1/Tier 2 pension normal cost rate	12.23%	11.89%
Tier 1/ Tier 2 Actuarial accrued liability	$0	$0
Actuarial asset value	262	23
Tier 1/Tier 2 Unfunded actuarial accrued liability	(262)	(23)
Tier 1/ Tier 2 Funded status	0%	0%
Combined valuation payroll	$76,392	$76,251
Tier 1/Tier 2 UAL as a percentage of payroll	0%	0%
Tier 1/Tier 2 UAL rate (includes Multnomah Fire District #10)	1.26%	1.60%
Tier 1/Tier 2 active members [1]	0	0
Tier 1/Tier 2 dormant members	0	0
Tier 1/Tier 2 retirees and beneficiaries	0	0

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Executive Summary

Principal Valuation Results (continued)

OPSRP

($ in millions)	Actuarial Valuation as of	
	December 31, 2017	December 31, 2016
General service normal cost	$435.7	$402.9
OPSRP general service valuation payroll	5,187.5	4,746.4
General service normal cost rate	8.40%	8.49%
Police and fire normal cost	$86.6	$80.6
OPSRP police and fire valuation payroll	664.5	609.4
Police and fire normal cost rate	13.03%	13.22%
Actuarial accrued liability	$5,634.7	$4,717.0
Actuarial asset value	4,116.5	3,021.4
Unfunded actuarial accrued liability	1,518.2	1,695.6
Funded status	73%	64%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	15%	17%
UAL rate	1.45%	1.56%

Retiree Healthcare

($ in millions)	Actuarial Valuation as of	
RHIA	December 31, 2017	December 31, 2016
Normal cost	$2.5	$3.0
Tier 1 / Tier 2 valuation payroll	4,246.9	4,516.7
Normal cost rate	0.06%	0.07%
Actuarial accrued liability	$437.6	$463.7
Actuarial asset value	553.3	465.0
Unfunded actuarial accrued liability	(115.7)	(1.3)
Funded status	126%	100%
Combined valuation payroll	$10,098.9	$9,872.6
UAL as a percentage of payroll	(1%)	0%
UAL rate	0.00%	0.42%

Side Account Information

Reconciliation of Side Accounts

The following table reconciles the total side account from the beginning of the year to the end of the year. Side account transfers were calculated by PERS and made on a monthly basis. The amount of these transfers is shown in the table below.

All information in this table has been provided by PERS.

	New	Continuing	Total
1. Side account as of December 31, 2016	**N/A**		
2. Deposits made during 2017			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2017			
5. Side account earnings during 2017			
6. Side account as of December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***			

Side Account Information

Side Account Balances

	December 31, 2017	December 31, 2016
Side account 1	$0	$0
Side account 2	0	0
Side account 3	0	0
Total	**$0**	**$0**

Development of Side Account Rate

The rate relief attributable to an employer's side account is determined by amortizing the side account balance on the valuation date over a fixed period, and expressing the result as a percentage of combined valuation payroll. For side accounts established prior to December 31, 2009, the fixed period ends December 31, 2027. For side accounts established at a later date, the fixed period ends 18 years after the first rate-setting valuation following its creation.

	December 31, 2017	December 31, 2016
1. Total side account	$0	$0
2. Combined valuation payroll	76,392	76,251
3. Average Amortization factor	8.312	8.994
4. Total side account rate *(-1. ÷ 2. ÷ 3.)* [1]	0.00%	0.00%

[1] *For employers with more than one side account, the total side account rate is determined by calculating the rate on each side account separately and adding the rates together.*

Tier 1/Tier 2 Valuation Results

Assets

A summary of the market value of pension assets, and reconciliation from the prior year are shown below.

Summary of Market Value of Tier 1/Tier 2 Pension Assets

	December 31, 2017	December 31, 2016
1. Member reserves	$0	$0
2. Employer reserves	262	23
3. Benefits in force reserve	0	0
4. Total market value of assets *(1. + 2. + 3.)*	**$262**	**$23**

The market value of member and employer reserves is provided by PERS. The benefits in force reserve provided by PERS is allocated each year among employers in proportion to their liabilities for retired members and beneficiaries.

Reconciliation of Tier 1/Tier 2 Pension Assets

	December 31, 2016 to December 31, 2017
1. Market value of assets at beginning of year	$23
2. Regular employer contributions	283
3. Benefit payments and expenses	0
4. Adjustments [1]	(108)
5. Interest credited	64
6. Total transferred from side accounts	0
7. Market value of assets at end of year *(1. + 2. + 3. + 4. + 5. + 6.)*	**$262**

[1] *Note the adjustment item above includes a reallocation of the benefits in force reserve, transfers to Multnomah Fire District #10, and other adjustments made by PERS.*

Tier 1/Tier 2 Valuation Results

Liabilities

Normal Cost

The normal cost represents the value of benefits assigned to the next year of service by the actuarial cost method. If all actuarial assumptions are met, the normal cost represents the amount that would need to be contributed each year to fund plan benefits. Amounts shown below include assumed administrative expenses, which are allocated pro-rata based on normal cost.

Summary of Normal Cost by Tier/Member Classification

	December 31, 2017	December 31, 2016
Tier 1 Police & Fire	$0	$0
Tier 1 General Service	0	0
Tier 2 Police & Fire	158	154
Tier 2 General Service	0	0
Total	**$158**	**$154**

Change in Tier 1/Tier 2 Normal Cost

The following table shows the impact of the assumption, method, and plan changes on normal cost as of December 31, 2017.

	Before Changes	After Changes	Net Change
Normal Cost	$158	$158	$0

Tier 1/Tier 2 Valuation Results

Liabilities

Actuarial Accrued Liability

The actuarial accrued liability represents the value of benefits allocated to service performed before the valuation date by the actuarial cost method. If all actuarial assumptions are met, the actuarial accrued liability represents the amount of assets that would need to be accumulated as of the valuation date to provide for the portion of benefits allocated to service already performed.

Summary of Actuarial Accrued Liability by Tier/Member Classification

	December 31, 2017	December 31, 2016
Active Members		
▪ Tier 1 Police & Fire	$0	$0
▪ Tier 1 General Service	0	0
▪ Tier 2 Police & Fire	0	0
▪ Tier 2 General Service	0	0
▪ **Total Active Members**	**$0**	**$0**
Dormant Members	0	0
Retired Members and Beneficiaries	0	0
Total Actuarial Accrued Liability	**$0**	**$0**

Change in Tier 1/Tier 2 Actuarial Accrued Liability

The following table shows the impact of the assumption, method, and plan changes on the actuarial accrued liability as of December 31, 2017.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	$0	$0	$0

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Summary of UAL

The UAL represents the difference between the assets accumulated and the liability attributed to prior years of service by the cost method.

	December 31, 2017	December 31, 2016
1. Actuarial accrued liability	$0	$0
2. Actuarial value of assets	262	23
3. Unfunded accrued liability *(1. – 2.)*	(262)	(23)
4. Funded percentage *(2. ÷ 1.)*	100%	100%
5. Combined valuation payroll	$76,392	$76,251
6. Unfunded accrued liability as % of combined valuation payroll *(3. ÷ 5.)*	0%	0%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, each odd-year valuation establishes a 20-year closed-period amortization schedule for outstanding regular Tier 1/Tier 2 UAL amounts. For subsequent odd-year valuations, amortization schedules are calculated based on the total Tier 1/Tier 2 UAL as of that valuation date less the remaining unamortized balance of previously established Tier 1/Tier 2 UAL bases.

Amortization Base	UAL December 31, 2016	Payment	Interest	UAL December 31, 2017	Next Year's Payment
December 31, 2013	($1)	$0	$0	($1)	$0
December 31, 2015	($10)	($1)	($1)	($10)	($1)
December 31, 2017	N/A	N/A	N/A	($251)	($18)
Total				**($262)**	**($19)**

Tier 1/Tier 2 Valuation Results

Unfunded Accrued Liability (UAL)

Actuarial Gain or Loss since Prior Valuation

The system-wide actuarial valuation report contains a detailed analysis of gains and losses since the last valuation. The table below shows the gain or loss for the individual employer.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at December 31, 2016	$0
b. Normal cost at December 31, 2016 (excluding assumed expenses)	154
c. Benefit payments during 2017	0
d. Interest at 7.20% to December 31, 2017	6
e. Expected actuarial accrued liability before changes *(a. + b. + c. + d.)*	160
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2017 *(e. + f.)*	160
2. Actuarial accrued liability at December 31, 2017	0
3. Gain/(loss) on actuarial accrued liability *(1.g. – 2.)*	160
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2016	23
b. Contributions for 2017[1]	283
c. Benefit payments and expenses during 2017	0
d. Interest at 7.20% to December 31, 2017	12
e. Expected actuarial value of assets at December 31, 2017 *(a. + b. + c. + d.)*	318
5. Actuarial value of assets at December 31, 2017	262
6. Gain/(loss) on actuarial value of assets *(5. - 4.e.)*	(55)
7. Total actuarial gain/(loss) ***(3. + 6.)***	**$105**

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2016 is provided below.

1. UAL at December 31, 2016	**($23)**
2. Expected increase	(134)
3. Liability (gain)/loss	(160)
4. Asset (gain)/loss	55
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2017 ***(1. + 2. + 3. + 4. + 5.)***	**($262)**

[1] *Includes rate relief from side accounts.*

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Normal Cost Rate

For independent employers, the normal cost calculated previously is divided by projected payroll to determine a normal cost rate. The table below shows the development of the rate for each tier and member classification.

Development of Tier 1/Tier 2 Normal Cost Rate

	December 31, 2017			December 31, 2016		
	Normal Cost	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**	**Normal Cost**	**Employer Tier 1/Tier 2 Valuation Payroll**	**Normal Cost Rate**
Tier 1 Police & Fire	$0	$0	0.00%	$0	$0	0.00%
Tier 1 General Service	0	0	0.00%	0	0	0.00%
Tier 2 Police & Fire	158	1,292	12.23%	154	1,295	11.89%
Tier 2 General Service	0	0	0.00%	0	0	0.00%
Total	**$158**	**$1,292**	**12.23%**	**$154**	**$1,295**	**11.89%**

An independent employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost of all independent employers as calculated in the system-wide actuarial valuation report.

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Development of Tier 1/Tier 2 UAL Rates

The UAL rate is determined by calculating the next year's scheduled payment to the UAL as a percentage of combined valuation payroll.

	December 31, 2017	December 31, 2016
1. Total Tier 1/Tier 2 UAL	($262)	($23)
2. Next year's Tier 1/Tier 2 UAL payment	(19)	(2)
3. Combined valuation payroll	76,392	76,251
4. Tier 1/Tier 2 UAL rate *(2. ÷ 3.)*	(0.02%)	0.00%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Pre-Rate Collar)

The following table summarizes the employer's pension contribution rate for Tier 1/Tier 2. The normal cost rates apply to Tier 1/Tier 2 payroll only, but all other rates apply to combined valuation payroll. These rates do not reflect adjustments due to the rate collar, the minimum 6 percent rate for independent employers with fewer than 2,500 members, or side accounts.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	12.23%	11.89%
b. Tier 1/Tier 2 UAL rate	(0.02%)	0.00%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c.)*	12.36%	12.03%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

Employer contribution rates are generally limited to change by no more than the greater of 3 percent of payroll or 20 percent from the current contribution rate. However, if the funded percentage excluding side accounts is below 60 percent or above 140 percent the rate collar doubles in size. If the funded percentage excluding side accounts is between 60 and 70 percent or 130 and 140 percent, the size of the collar is increased on a graded scale. In addition, for independent employers with less than 2,500 active members, the net employer Tier 1/Tier 2 contribution rate cannot be less than 6 percent of payroll. All collar and minimum rate calculations are performed prior to adjustments for side accounts and the OPSRP UAL rate.

The table below shows the current contribution rate for the period from July 1, 2017 through June 30, 2019, develops the maximum and minimum contribution rates effective July 1, 2019 based on the collar, and calculates the net adjustment due to the collar and minimum independent employer contribution rate. The net adjustment due to the rate collar is applied to the UAL rate. The net adjustment due to the 6 percent minimum independent employer contribution rate is applied to the pension normal cost rate.

1.	Current net Tier 1/Tier 2 pension contribution rate	16.86%
2.	Employer contribution rate attributable to side accounts	0.00%
3.	Current employer Tier 1/Tier 2 pension contribution rate *(1. – 2.)*	16.86%
4.	Size of rate collar	
	a. 20% of current employer contribution rate *(20% x 3.)*	3.37%
	b. Preliminary size of rate collar *(maximum of 3% or a.)*	3.37%
	c. Funded percentage	100%
	d. Size of rate collar *(If c. < 60% or c. > 140%, 2 x b. If c. is 70%-130%, b. Otherwise, a graded rate between b. and 2 x b.)*	3.37%
5.	July 1, 2019 minimum employer contribution rate *(3. – 4.d. but not < 0%)*	13.49%
6.	July 1, 2019 maximum employer contribution rate *(3. + 4.d.)*	20.23%
7.	July 1, 2019 total pension rate, before adjustment	12.36%
8.	Net adjustment due to rate collar *(5. – 7., but not < 0, or 6. – 7., but not > 0)*	1.13%
9.	July 1, 2019 Tier 1/Tier 2 UAL rate, before collar	(0.02%)
10.	July 1, 2019 Tier 1/Tier 2 UAL rate, after collar *(8. + 9.)*	1.11%
11.	July 1, 2019 Tier 1/Tier 2 pension rate, after collar	13.49%
12.	Tier 1/Tier 2 retiree healthcare rate	0.06%
13.	Net adjustment due to 6% minimum *(6% - 11. - 12., minimum 0%)*	0.00%
14.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	12.23%
15.	July 1, 2019 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment *(13. + 14.)*	12.23%
16.	July 1, 2019 Tier 1/Tier 2 pension rate, after minimum adjustment *(11. + 13.)*	13.49%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Tier 1/Tier 2 Employer Contribution Rate Summary (Post-Rate Collar)

The table below summarizes the employer's pension contribution rate for Tier 1 /Tier 2 after adjustments for the rate collar and the 6 percent of payroll minimum employer contribution rate.

	July 1, 2019 Rates calculated as of December 31, 2017	**Advisory July 1, 2019 Rates calculated as of December 31, 2016**
1. Tier 1/Tier 2 pension contribution rates		
a. Employer Tier 1/Tier 2 pension normal cost rate	12.23%	11.89%
b. Tier 1/Tier 2 UAL rate	1.11%	1.46%
c. Multnomah Fire District #10 rate	0.15%	0.14%
d. Total Tier 1/Tier 2 pension rate *(a. + b. + c., minimum of 5.94%)*	13.49%	13.49%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	$0	$0	$0
Tier 2	0	1,292	1,292
Tier 1/Tier 2 valuation payroll	0	1,292	1,292
OPSRP valuation payroll	1,407	73,693	75,100
Combined valuation payroll	**$1,407**	**$74,985**	**$76,392**

Employer Member Census

	December 31							
	2017				2016			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members [1]								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	1	1	0	0	1	1
Total	0	0	1	1	0	0	1	1
Active Members with previous service segments with the employer								
General Service	0	0	N/A	0	0	0	N/A	0
Police & Fire	0	2	N/A	2	0	2	N/A	2
Total	0	2	N/A	2	0	2	N/A	2
Dormant Members								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	1	1	0	0	1	1
Total	0	0	1	1	0	0	1	1
Retired Members and Beneficiaries								
General Service	0	0	0	0	0	0	0	0
Police & Fire	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Grand Total Number of Members	**0**	**2**	**2**	**4**	**0**	**2**	**2**	**4**

[1] *Active counts do not include concurrent employees who have a separate dominant employer.*

Data

Demographic Information (continued)

Employer Tier 1/Tier 2 Active Members as of December 31, 2017

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<20										
20-24										
25-29										
30-34										
35-39										
40-44										
45-49										
50-54										
55-59										
60-64										
65-69										
70-74										
75+										
Total	0	0	0	0	0	0	0	0	0	0

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2017

Dormant Members

Age	Count	Average Deferred Monthly Benefit
<20		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75+		
Total		

Retired Members and Beneficiaries

Age	Count	Average Monthly Benefit
<45		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75-79		
80-84		
85-89		
90-94		
95-99		
100+		
Total		

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2017 valuation can be found in the system-wide actuarial valuation report.

Actuarial Methods and Valuation Procedures

A brief summary of the methods used in this valuation is shown below:

Actuarial cost method	Entry Age Normal.
Amortization Method	The UAL is amortized as a level percentage of combined payroll. The OPSRP UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 16 year period. The Retiree Healthcare UAL as of December 31, 2007 and experience in each subsequent biennium is amortized over a closed 10 year period. All existing Tier 1/Tier 2 UAL was re-amortized over a 20 year period as of the December 31, 2013 rate-setting valuation. Gains and losses between subsequent odd-year valuations will be amortized as a level percentage of projected combined valuation payroll over a closed 20 year period.
Asset valuation method	Market value of assets, excluding reserves.
Contribution rate stabilization method (rate collar)	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts, OPSRP) or independent employer are confined to a collar based on the rate pool's prior pension contribution rate (excluding side account rate offsets). The new contribution rate generally will not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the current rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funding percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.

Economic Assumptions

A brief summary of the key economic assumptions used in this valuation is shown below:

Net investment return	7.20% compounded annually on system assets.
Interest crediting	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
Consumer price inflation	2.50% per year.
Future general wage inflation	3.50% per year.
Healthcare cost inflation	Ranging from 6.5% in 2018 to 4.2% in 2093.
Administrative Expenses	\$6.5 million added to OPSRP normal cost. \$37.5 million added to Tier 1/Tier 2 normal cost.

Brief Summary of Actuarial Methods and Assumptions

Changes Since Last Valuation

The key changes since the December 31, 2016 actuarial valuation are described briefly below and are described in additional detail in the system-wide report.

Changes in Actuarial Methods and Allocation Procedures

There were no changes in actuarial methods and allocation procedures since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA actuarial methods and allocation procedures is provided as part of the system-wide valuation report.

Changes in Assumptions

There were no changes in assumptions since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA assumptions is provided as part of the system-wide valuation report.

Brief Summary of Changes in Plan Provisions

There were no changes in plan provisions occurred since the December 31, 2016 actuarial valuation. A complete summary of the Tier 1/Tier 2, OPSRP, RHIA, and RHIPA plan provisions valued is provided as part of the system-wide actuarial valuation report.

Glossary

Actuarial Accrued Liability

The portion of the present value of prospective benefits allocated to service and compensation before the valuation date in accordance with the actuarial cost method.

Actuarial Asset Value

The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with an asset valuation method.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement and retirement; rates of investment earnings and other relevant items.

Actuarial Cost Method

Sometimes called “funding method,” a particular technique used by actuaries to establish the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Actuarial Gain or (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions, during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

Combined Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for both Tier 1/Tier 2 and OPSRP active members. This payroll is used to calculate UAL rates.

Cost Sharing Multiple-Employer Plan

A single plan used to provide pensions to the employees of more than one employer wherein pension obligations are pooled and plan assets can be used to pay the benefits of the employees of any employer that provides pension through the plan.

Employer Contribution Rate

Consists of the normal cost rate and the UAL rates, plus adjustments for other items such as side account rate offsets.

Funded Status

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Normal Cost

The annual cost allocated to the current year, under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

OPSRP Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for OPSRP active members. This payroll is used to calculate OPSRP normal cost rates.

Glossary

Pre-SLGRP Liability

The sum of Pre-SLGRP Pooled Liabilities and Transition Liabilities.

Pre-SLGRP Pooled Liability

The difference between the total UAL and the UAL attributable to the SLGRP for a pool of employers that joined the SLGRP. There are currently two pre-SLGRP pools. One was created for State Agencies and Community Colleges when the SLGRP was formed. The other one was created when the Local Government Rate Pool joined the SLGRP.

Present Value

Sometimes called "actuarial present value," the estimated cost (as of the valuation date) of a series of future payments. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Rate Collar

A methodology that defines the maximum permissible period-to-period change in the base employer contribution rate. The width of the rate collar is determined by the current contribution rate and funded status.

Required Supplementary Information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.

Statement No. 27 of the Governmental Accounting Standards Board (GASB 27)

The accounting standard governing a state or local governmental employer's accounting for pensions prior to GASB 68.

Statement No. 45 of the Governmental Accounting Standards Board (GASB 45)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions.

Statement No. 68 of the Governmental Accounting Standards Board (GASB 68)

The accounting standard governing a state or local governmental employer's accounting for pensions for fiscal years beginning after June 15, 2014.

Statement No. 75 of the Governmental Accounting Standards Board (GASB 75)

The accounting standard governing a state or local governmental employer's accounting for post-employment benefits other than pensions for fiscal years beginning after June 15, 2017.

Tier 1/Tier 2 Valuation Payroll

Projected payroll subject to PERS employer contribution rates for the calendar year following the valuation date for Tier 1 and Tier 2 active members. This payroll is used to calculate the Tier 1/Tier 2 normal cost rate.

Transition Liability

The difference between the total UAL and the UAL attributable to the SLGRP for an individual employer that joined the SLGRP or the Local Government Rate Pool.

Unfunded Accrued Liability (UAL)

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The UAL is divided by combined valuation payroll and an amortization factor to determine an initial pre-collar UAL rate. The final UAL rate can be adjusted by the rate collar.

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