

## **APPENDIX 11C – OREGON DEFAULT VALUES**

This appendix provides recommended default values for the analysis of freeway segments and facilities in Oregon. The default values are intended to streamline analysis using the APM methodologies. Whenever possible, segment- and facility-specific values should be used instead of these defaults. Exhibit 1 presents Oregon default values and indicates the source data for each value as applicable. Appendix 11E shows where these default values can be entered in various software packages.

**Exhibit 1 Oregon Default Values for Freeway Analysis**

Required Data and Units	Source	Suggested Default Value		
Peak hour factor (PHF)	HCM 6 <sup>th</sup> Edition	Rural	0.88	
		Urban	0.94	
Truck percentage	HCM 7 <sup>th</sup> Edition	Rural	26%	
		Small urban	19%	
		Medium urban	10%	
		Large urban	7%	
Terrain type	HPMS, ODOT vertical grade information	Generally level, with a few exceptions in the Cascade Range and Blue Mountains (see Exhibit 11-28)		
Area type	HPMS	No default, use urban or rural based on HPMS		
Weave volumes	Traffic counts	$(\text{Ramp-to-ramp flow}) = [(\text{on-ramp flow}) / (\text{mainline flow})] \times (\text{off-ramp flow})$		
Capacity adjustment factors	PPEAG, HCM 7 <sup>th</sup> Edition, Exhibit 11-15	CAF <sub>ramp</sub>	0.95	
		CAF <sub>weave</sub>	0.90	
		CAF <sub>meter</sub>	1.03	
		CAF <sub>CAV</sub>	1.00	
		CAF <sub>pop</sub> (rural)	0.939	
		CAF <sub>pop</sub> (urban)	0.968	
Acceleration lane length	ODOT 2012 HDM	750 ft		
Deceleration lane length	ODOT 2012 HDM	500 ft		
Free-flow speed	ODOT TransGIS	Speed limit or curve advisory speed + 5 mph		
Ramp free-flow speed	HCM 7 <sup>th</sup> Edition, ODOT 2012 HDM	Loop ramps	35 mph	
		Diamond ramps	45 mph	
Jam density	HCM 7 <sup>th</sup> Edition	190 pc/mi/ln		
Queue discharge capacity drop	HCM 7 <sup>th</sup> Edition	7%		
Bottleneck capacities (pc/h/ln)	Florida DOT defaults for freeway segments	Urban merge and diverge freeway segments	3 lanes	2,100
			2 or 4+ lanes	2,000
		Urban weaving freeway segments	3 lanes	2,200
			2 or 4+ lanes	2,100
		Rural merge and diverge segments	3 lanes	1,900
			2 or 4+ lanes	1,800
K- and D-factors, lane width, shoulder type/width, median type/width	ODOT TransGIS	No default, obtain from TransGIS		

For general terrain type, the HPMS database provides a useful reference for determining level (1), rolling (2), and mountainous (3) terrain types. The definitions used by HPMS are provided in Exhibit 2; note that these differ slightly from the HCM 7<sup>th</sup> Edition definitions. In addition, note that HPMS only provides terrain information for one direction of a highway and that the terrain

type could be considered “level” in the downhill direction, but “rolling” or “mountainous” in the uphill direction.

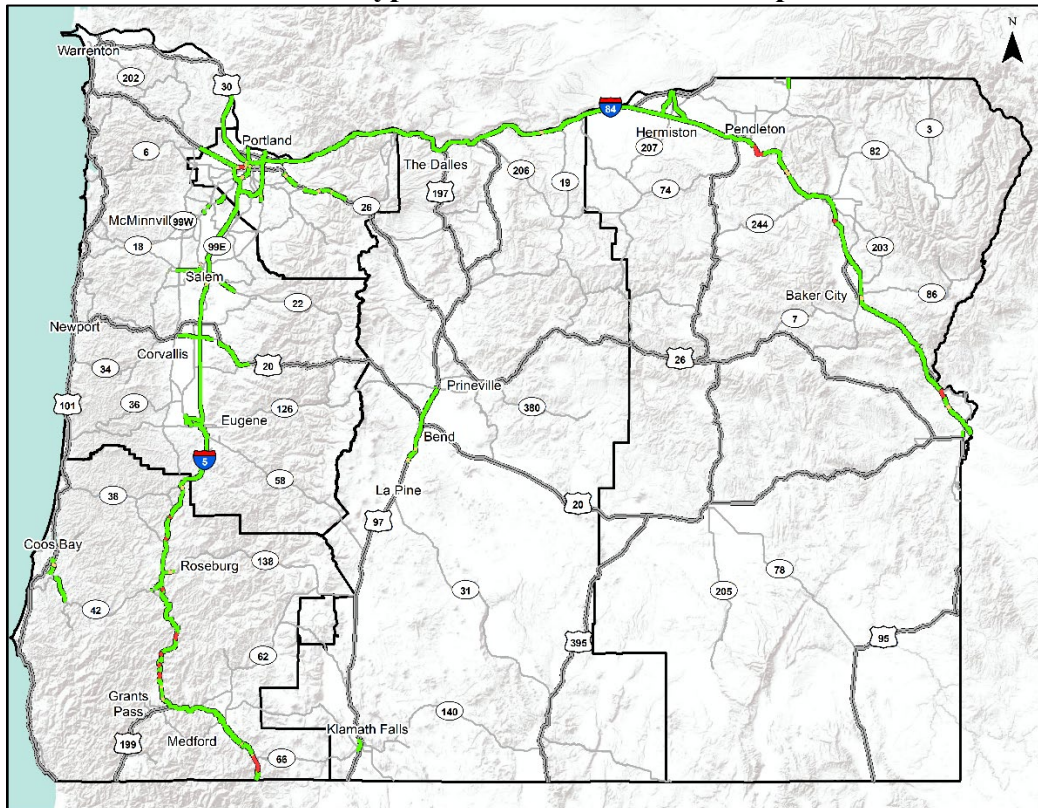
**Exhibit 2 HPMS Definitions of Terrain Types**

Code	Description
1	<b>Level:</b> Any combination of grades and horizontal or vertical alignment that permits heavy vehicles to maintain the same speed as passenger cars; this generally includes short grades of no more than 2 percent.
2	<b>Rolling:</b> Any combination of grades and horizontal or vertical alignment that causes heavy vehicles to reduce their speeds substantially below those of passenger cars but that does not cause heavy vehicles to operate at crawl speeds for any significant length of time.
3	<b>Mountainous:</b> Any combination of grades and horizontal or vertical alignment that causes heavy vehicles to operate at extremely low speeds for significant distances or at frequent intervals.

Exhibit 3 provides a color-coded map of the 2015 Oregon HPMS GIS shapefile for the three terrain types. For a more detailed assessment, ODOT’s vertical grade information can be used to obtain facility-specific grades:

[http://highway.odot.state.or.us/cf/highwayreports/elevation\\_parms\\_xls.cfm](http://highway.odot.state.or.us/cf/highwayreports/elevation_parms_xls.cfm).

**Exhibit 3 HPMS Terrain Type for Interstates and Principal Arterials**



Note: **Green** = level terrain, **yellow** = rolling terrain, **red** = mountainous terrain.

## **Reliability Default Values**

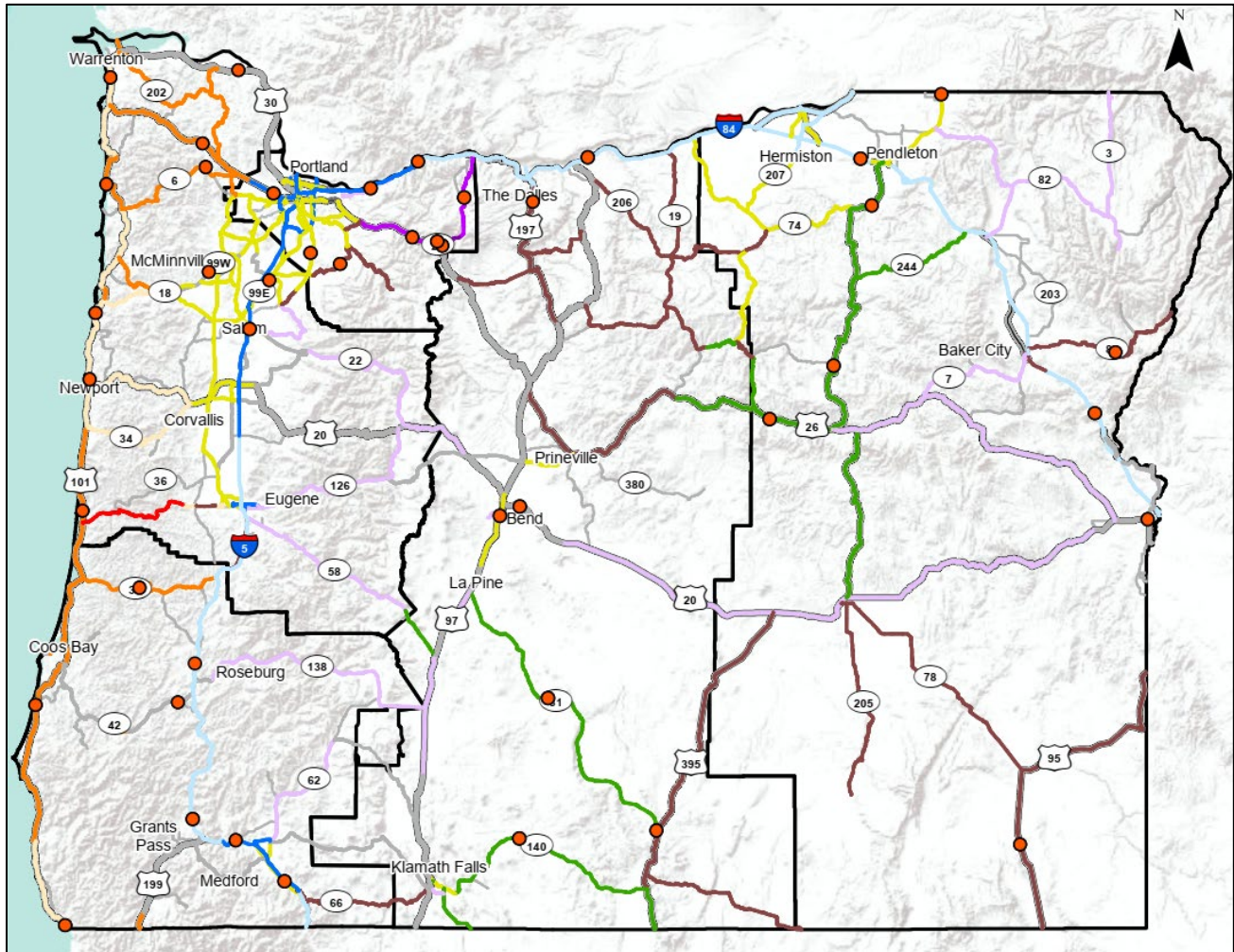
### **Default Demand Factors**

Annual travel demand varies between freeway facilities based on how and why the facility is used by the travelling public. ODOT has developed 11 distinct thematic travel demand trends to represent the various types of annual volume profiles present throughout the state. Exhibit 4 illustrates the thematic trends of all roadways within the national and state highway system in Oregon, with additional information provided in Chapter 5. These thematic trends include:

- Agricultural.
- Coastal Destination.
- Coastal Destination Route.
- Commuter.
- Interstate—Nonurbanized.
- Interstate—Urbanized.
- Recreational—Summer.
- Recreational—Summer and Winter.
- Recreational—Winter.
- Summer.
- Summer < 2,500 AADT.

Default reliability demand multiplier factors were developed for each thematic trend by obtaining continuously collected traffic counts from Automatic Traffic Recorders (ATR) at various locations across the state. Default demand factors assume a reference day of Sunday in January. Exhibit 5 summarizes the default demand factors for each thematic trend based on ATR data.

### Exhibit 4: ODOT Thematic Trend Classification



#### Legend

- ATR station used to generate demand factors
- Agricultural
- Coastal Destination
- Coastal Destination Route
- Commuter
- Fixed
- Interstate - Non-Urbanized
- Interstate - Urbanized
- Recreational - Summer
- Recreational - Summer and Winter
- Recreational - Winter
- Summer
- Summer < 2,500 AADT



**Exhibit 5: Default Demand Factors based on Thematic Trends**

	AGRICULTURAL							COASTAL DESTINATION							COASTAL DESTINATION ROUTE						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
January	1.00	1.17	1.24	1.08	1.26	1.39	1.17	1.00	1.20	1.25	1.16	1.26	1.38	1.16	1.00	1.06	1.01	0.86	1.01	1.22	1.07
February	1.25	1.42	1.47	1.43	1.49	1.71	1.45	1.18	1.30	1.34	1.29	1.30	1.48	1.48	1.25	1.15	1.11	1.07	1.09	1.33	1.46
March	1.59	1.63	1.69	1.74	1.88	2.10	1.73	1.33	1.41	1.43	1.42	1.48	1.63	1.47	1.65	1.25	1.25	1.23	1.38	1.70	1.47
April	2.03	1.89	1.91	1.94	2.04	2.34	2.14	1.36	1.47	1.50	1.47	1.54	1.71	1.63	1.69	1.30	1.29	1.25	1.32	1.67	1.72
May	2.51	2.49	2.26	2.36	2.51	2.93	2.55	1.64	1.59	1.54	1.56	1.57	1.78	1.71	2.27	1.72	1.42	1.48	1.51	1.91	2.03
June	2.87	2.61	2.63	2.66	2.85	3.20	2.71	1.67	1.73	1.74	1.78	1.73	1.92	1.81	2.41	1.77	1.66	1.73	1.72	2.14	2.29
July	3.07	2.80	2.67	2.89	3.00	3.29	2.95	1.90	2.02	1.91	2.03	2.01	2.13	2.04	2.71	2.17	2.02	2.18	2.12	2.47	2.67
August	3.75	2.80	3.22	2.90	3.08	3.55	3.43	1.85	1.98	2.00	2.03	2.06	2.14	2.00	2.65	2.17	2.06	2.18	2.28	2.57	2.65
September	3.03	3.02	2.74	2.81	3.10	3.64	2.92	1.73	1.77	1.78	1.79	1.79	1.98	1.87	2.48	2.08	1.73	1.74	1.76	2.22	2.32
October	2.69	2.63	2.52	2.51	2.56	2.85	2.43	1.34	1.51	1.51	1.53	1.55	1.71	1.52	1.76	1.48	1.40	1.44	1.50	1.87	1.74
November	1.88	2.02	2.00	2.20	2.04	2.34	1.96	1.12	1.33	1.35	1.38	1.28	1.56	1.38	1.42	1.24	1.22	1.29	1.22	1.62	1.53
December	1.27	1.48	1.74	1.69	1.78	1.86	1.62	1.12	1.16	1.32	1.38	1.41	1.44	1.32	1.21	1.10	1.19	1.23	1.27	1.38	1.36
	COMMUTER							INTERSTATE - NONURBANIZED							INTERSTATE - URBANIZED						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
January	1.00	1.45	1.51	1.38	1.58	1.71	1.23	1.00	1.26	1.25	1.05	1.32	1.44	1.03	1.00	1.42	1.49	1.29	1.48	1.63	1.17
February	1.21	1.66	1.70	1.67	1.68	1.81	1.47	1.22	1.43	1.41	1.40	1.50	1.61	1.30	1.27	1.62	1.68	1.65	1.71	1.75	1.53
March	1.33	1.73	1.80	1.81	1.83	1.96	1.54	1.53	1.52	1.59	1.64	1.76	1.97	1.55	1.44	1.67	1.74	1.77	1.84	1.93	1.61
April	1.47	1.85	1.91	1.91	1.94	2.08	1.72	1.96	1.90	1.87	1.91	2.06	2.23	1.89	1.56	1.78	1.80	1.82	1.89	1.98	1.71
May	1.61	1.89	1.98	2.02	2.04	2.19	1.80	1.47	1.50	1.37	1.41	1.57	1.78	1.36	1.63	1.79	1.83	1.89	1.94	2.07	1.74
June	1.68	2.03	2.10	2.11	2.15	2.29	1.88	1.73	1.61	1.54	1.59	1.74	1.98	1.54	1.73	1.93	1.95	1.99	2.02	2.14	1.82
July	1.79	2.14	2.05	2.19	2.24	2.34	1.98	2.19	2.00	1.88	2.09	2.23	2.39	2.14	1.79	1.97	1.84	2.03	2.10	2.16	1.88
August	1.75	2.07	2.16	2.15	2.18	2.29	1.94	2.20	2.01	1.99	1.96	2.19	2.36	2.05	1.75	1.99	2.00	2.02	2.09	2.16	1.86
September	1.56	1.86	2.00	2.01	2.05	2.20	1.81	1.75	1.93	1.72	1.64	1.88	2.22	1.78	1.53	1.70	1.75	1.77	1.82	1.99	1.70
October	1.51	1.91	1.96	1.97	1.99	2.10	1.75	1.88	1.88	1.83	1.89	2.06	2.28	1.75	1.57	1.81	1.81	1.84	1.90	2.03	1.73
November	1.30	1.80	1.86	1.89	1.73	1.90	1.59	1.61	1.51	1.58	1.73	1.53	1.68	1.50	1.44	1.74	1.79	1.83	1.74	1.86	1.65
December	1.26	1.54	1.74	1.77	1.81	1.90	1.55	1.12	1.25	1.52	1.55	1.67	1.68	1.39	1.23	1.52	1.71	1.76	1.81	1.84	1.54
	RECREATIONAL - SUMMER							RECREATIONAL - SUMMER/WINTER							RECREATIONAL - WINTER						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
January	1.00	1.11	1.04	0.98	1.11	1.25	0.96	1.00	0.57	0.27	0.36	0.46	0.57	1.06	1.00	0.69	0.41	0.41	0.55	0.79	1.03
February	1.17	1.21	1.20	1.21	1.25	1.38	1.22	1.00	0.44	0.37	0.29	0.23	0.51	1.14	1.10	0.61	0.49	0.42	0.44	0.77	1.19
March	1.44	1.31	1.36	1.39	1.48	1.68	1.33	0.94	0.31	0.26	0.29	0.34	0.48	0.73	1.12	0.52	0.47	0.46	0.57	0.82	0.92
April	1.70	1.52	1.49	1.50	1.61	1.82	1.60	0.59	0.22	0.19	0.15	0.18	0.43	0.65	0.96	0.49	0.45	0.41	0.48	0.81	0.93
May	2.00	1.91	1.69	1.77	1.86	2.15	1.79	0.38	0.25	0.17	0.20	0.20	0.28	0.44	0.90	0.64	0.49	0.53	0.59	0.85	0.84
June	2.30	2.04	1.98	2.02	2.10	2.43	2.04	0.47	0.32	0.29	0.31	0.30	0.37	0.40	1.50	0.89	0.79	0.85	0.88	1.24	1.21
July	2.68	2.27	2.10	2.23	2.30	2.59	2.45	0.63	0.43	0.39	0.40	0.40	0.51	0.60	1.87	1.17	1.05	1.10	1.16	1.53	1.67
August	2.53	2.20	2.26	2.22	2.36	2.60	2.35	0.53	0.37	0.38	0.37	0.40	0.45	0.56	1.68	1.05	1.09	1.10	1.20	1.47	1.55
September	2.01	1.95	1.83	1.88	1.97	2.33	1.90	0.65	0.62	0.68	0.66	0.72	0.74	0.67	1.17	0.98	0.85	0.85	0.93	1.12	1.06
October	1.72	1.65	1.63	1.68	1.74	1.91	1.51	0.38	0.26	0.22	0.23	0.23	0.27	0.33	0.84	0.53	0.46	0.46	0.51	0.69	0.75
November	1.37	1.38	1.39	1.52	1.36	1.54	1.34	0.29	0.12	0.12	0.15	0.13	0.19	0.37	0.79	0.37	0.37	0.43	0.41	0.66	0.83
December	1.17	1.19	1.35	1.33	1.39	1.48	1.25	0.72	0.35	0.40	0.53	0.48	0.34	0.77	1.03	0.61	0.68	0.75	0.79	0.75	1.12

	SUMMER							SUMMER < 2500 AADT						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
January	1.00	1.26	1.30	1.12	1.29	1.46	1.10	1.00	1.34	1.46	1.22	1.50	1.65	1.14
February	1.23	1.43	1.43	1.43	1.43	1.64	1.45	1.31	1.73	1.81	1.70	1.75	1.88	1.56
March	1.43	1.47	1.50	1.51	1.58	1.82	1.48	1.69	1.90	2.02	2.04	2.13	2.31	1.82
April	1.55	1.57	1.58	1.58	1.67	1.89	1.65	2.02	2.16	2.18	2.18	2.29	2.47	2.18
May	1.70	1.72	1.65	1.68	1.72	1.98	1.68	2.24	2.39	2.32	2.41	2.55	2.79	2.24
June	1.77	1.77	1.73	1.77	1.81	2.07	1.80	2.42	2.58	2.49	2.56	2.68	2.96	2.38
July	1.87	1.92	1.78	1.93	1.92	2.12	1.93	2.65	2.65	2.53	2.68	2.77	3.05	2.74
August	1.87	1.92	1.90	1.94	2.00	2.19	1.95	3.01	2.69	2.93	2.80	3.03	3.21	2.99
September	1.75	1.79	1.76	1.75	1.81	2.10	1.80	2.47	2.77	2.93	2.99	3.11	3.27	2.63
October	1.52	1.63	1.62	1.63	1.69	1.90	1.56	1.99	2.30	2.31	2.33	2.46	2.63	2.04
November	1.32	1.49	1.50	1.57	1.47	1.70	1.45	1.83	2.08	2.20	2.24	2.06	2.24	1.95
December	1.18	1.32	1.45	1.47	1.49	1.62	1.34	1.42	1.70	1.95	1.97	2.03	2.14	1.76

### Default Incident Rates

Oregon-specific default values for incident rates and duration are currently not developed due to the lack of available data. Furthermore, incident rates are highly variable based on the geometry and other physical characteristics for a given freeway segment. It is recommended that facility-specific incident rates are developed using the procedures described in Appendix 11F.

If data is not currently available, Exhibit 6 summarizes the national default incident rates provided in the Highway Capacity Manual 7<sup>th</sup> Edition (HCM7).

### Exhibit 6: HCM7 Default Freeway Incident Severity Distribution and Duration Parameters

Parameter	Incident Severity Type				
	Shoulder Closure	1 Lane Closure	2 Lane Closure	3 Lane Closure	4 Lane Closure
Distribution (%)	75.4	19.6	3.1	1.9	0.0
Duration (mean)	34.0	34.6	53.6	67.9	67.9
Duration (std. dev.)	15.1	13.8	13.9	21.9	21.9
Duration (min)	8.7	16.0	30.5	36.0	36.0
Duration (max)	58.0	58.2	66.9	93.3	93.3

Capacity adjustment factors for various incident severity types are provided in Appendix 11B.

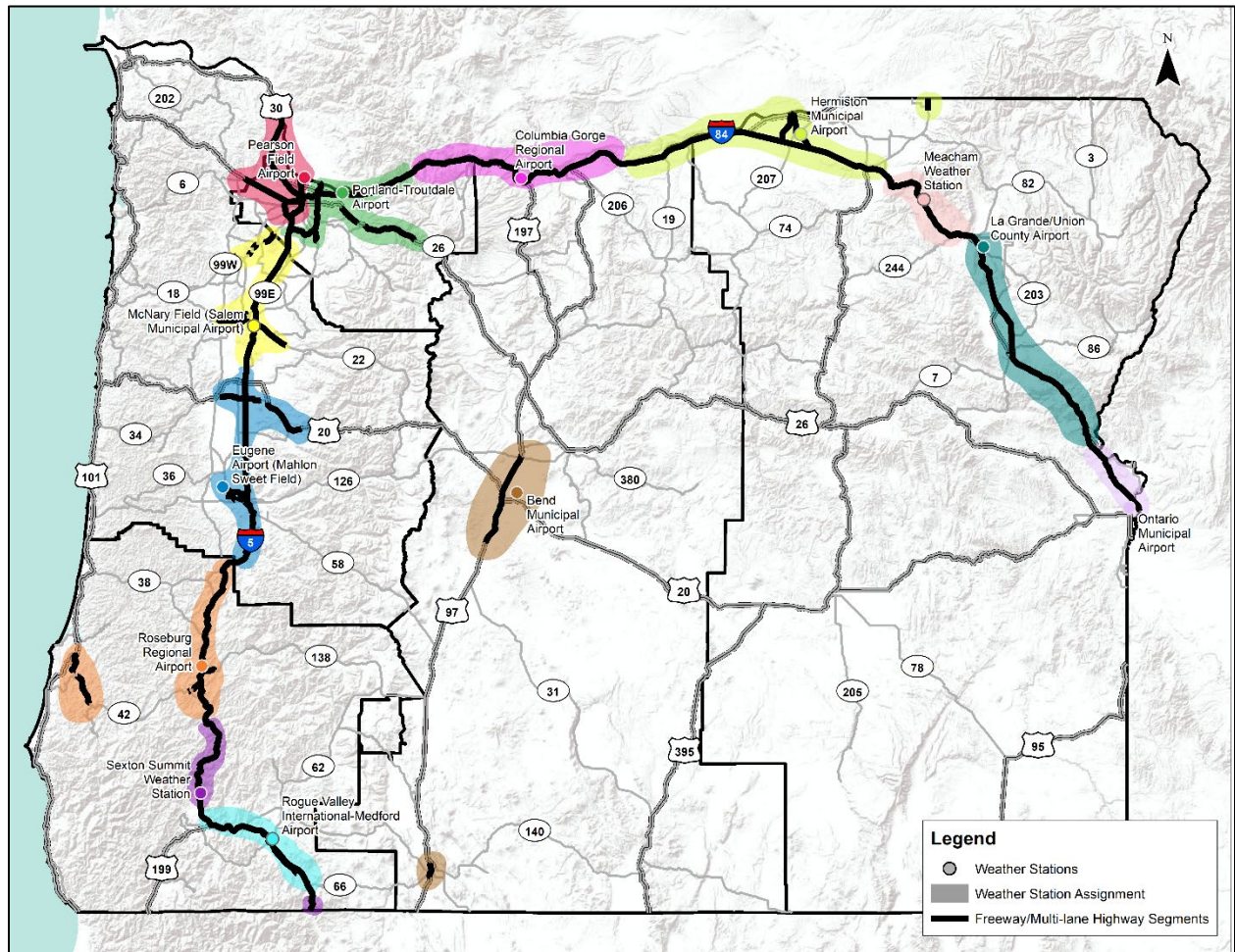
### Default Weather Data

Oregon-specific default values were developed using data from weather stations located across the state.

Exhibit 7 summarizes the freeway/geographic area and the corresponding weather stations used to developed Oregon-specific default weather data. Exhibit 8 through Exhibit 20 summarize Oregon-specific default weather data for each of the weather stations.

**Exhibit 7: Weather stations and the corresponding freeway/geographic area**

Weather stations	Freeway/Geographic Area
Portland, Portland-Troutdale Airport (KTTD)	I-84 in Multnomah County
Dallesport FAA Airport (KDLS)	I-84 in Hood River County, Wasco County, and Sherman County
Pearson Field Airport (KVUO)	I-5, I-405, OR-217, and US-26 in ODOT Region 1
Eugene, Mahlon Sweet Field (KEUG)	I-5 in Lane County and Linn County; I-105
Salem, McNary Field (KSLE)	I-5 in Marion County
Rogue Valley International Airport (KMFR)	I-5 in Josephine County and Jackson County
Roseburg, Roseburg Regional Airport (KRBG)	I-5 in Douglas County
Sexton Summit (KSXT)	I-5 Mountain passes in Region 3
Hermiston, Hermiston Municipal Airport (KHRI)	I-84 in Gilliam, Morrow, Umatilla County; I-82
La Grande/Union County Airport (KLGD)	I-84 in Union and Baker County
Meacham (KMEH)	I-84 in Mountain passes in Region 5
Ontario Municipal Airport (KONO)	I-84 in Malheur County
Bend Airport AWOS (KBDN)	US 97 Freeway sections in Deschutes County and Klamath Falls





**Exhibit 8: Default Weather Inputs from Portland-Troutdale Airport (KTTD)**

Month	Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather	
Weather Probability	January	0.85%	0.03%	0.74%	0.09%	0.01%	0.00%	0.00%	1.32%	1.22%	0.01%	95.73%
	February	0.57%	0.01%	0.49%	0.03%	0.00%	0.00%	0.00%	0.33%	0.55%	0.00%	98.02%
	March	1.02%	0.00%	0.16%	0.12%	0.00%	0.00%	0.00%	0.16%	0.17%	0.00%	98.36%
	April	0.65%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.13%	0.17%	0.00%	99.04%
	May	0.66%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.04%	0.00%	99.21%
	June	0.58%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.00%	0.00%	99.32%
	July	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.88%
	August	0.05%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.93%
	September	0.50%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.13%	0.08%	0.00%	99.26%
	October	1.29%	0.17%	0.00%	0.00%	0.00%	0.00%	0.00%	0.43%	0.51%	0.00%	97.59%
	November	1.53%	0.13%	0.11%	0.00%	0.00%	0.00%	0.00%	0.49%	0.46%	0.00%	97.29%
December	0.78%	0.07%	1.56%	0.01%	0.01%	0.00%	0.00%	0.90%	0.51%	0.00%	96.16%	
Average Duration (minutes)	86.2	67.0	143.2	38.1	12.0	0.0	0.0	83.0	108.3	6.0	-	

**Exhibit 9: Default Weather Inputs from Columbia Gorge Regional Airport (KDLs)**

Month	Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather	
Weather Probability	January	0.46%	0.00%	2.43%	0.29%	0.05%	0.00%	0.00%	1.29%	0.81%	0.00%	94.68%
	February	0.13%	0.00%	1.50%	0.07%	0.00%	0.00%	0.00%	0.53%	0.43%	0.00%	97.34%
	March	0.12%	0.00%	0.31%	0.03%	0.00%	0.00%	0.00%	0.15%	0.08%	0.00%	99.31%
	April	0.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	99.85%
	May	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.87%
	June	0.08%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.90%
	July	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.99%
	August	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.99%
	September	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%	0.00%	99.89%
	October	0.19%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.11%	0.13%	0.00%	99.54%
	November	0.17%	0.00%	0.58%	0.04%	0.00%	0.00%	0.00%	0.28%	0.25%	0.00%	98.69%
December	0.47%	0.01%	3.83%	0.42%	0.12%	0.00%	0.00%	1.36%	1.29%	0.00%	92.51%	
Average Duration (minutes)	77.6	77.6	6.0	169.0	89.2	38.0	0.0	0.0	90.7	108.4	0.0	

**Exhibit 10: Default Weather Inputs from Pearson Field Airport (KVUO)**

Month	Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather	
Weather Probability	January	1.12%	0.04%	0.66%	0.04%	0.05%	0.00%	0.00%	2.32%	2.31%	0.00%	93.46%
	February	0.78%	0.01%	0.51%	0.07%	0.01%	0.00%	0.00%	0.78%	0.83%	0.00%	97.00%
	March	1.03%	0.01%	0.15%	0.04%	0.00%	0.00%	0.00%	0.31%	0.30%	0.00%	98.16%
	April	0.49%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.18%	0.10%	0.00%	99.22%
	May	0.52%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	99.40%
	June	0.40%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.53%
	July	0.10%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.88%
	August	0.05%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.93%
	September	0.46%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.11%	0.06%	0.00%	99.31%
	October	1.05%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.70%	0.52%	0.00%	97.61%
	November	1.32%	0.06%	0.08%	0.00%	0.00%	0.00%	0.00%	1.07%	0.54%	0.00%	96.93%
December	1.49%	0.09%	1.25%	0.03%	0.00%	0.00%	0.00%	1.52%	0.93%	0.00%	94.69%	
Average Duration (minutes)	0.0	84.2	71.5	168.5	38.9	30.0	0.0	0.0	91.1	103.5	-	

**Exhibit 11: Default Weather Inputs from Eugene, Mahlon Sweet Field (KEUG)**

Month	Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather	
Weather Probability	January	1.07%	0.01%	0.56%	0.13%	0.03%	0.00%	0.00%	4.45%	6.75%	2.50%	84.49%
	February	1.32%	0.04%	0.52%	0.15%	0.03%	0.00%	0.00%	2.23%	2.75%	0.63%	92.32%
	March	1.11%	0.01%	0.32%	0.25%	0.11%	0.00%	0.00%	0.64%	0.55%	0.27%	96.74%
	April	0.57%	0.00%	0.04%	0.00%	0.00%	0.00%	0.00%	0.68%	0.39%	0.13%	98.20%
	May	0.32%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.18%	0.12%	0.04%	99.31%
	June	0.26%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.22%	0.07%	0.06%	99.35%
	July	0.07%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.07%	0.00%	0.00%	99.85%
	August	0.08%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	0.01%	0.00%	99.81%
	September	0.40%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.64%	0.46%	0.08%	98.40%
	October	0.99%	0.13%	0.01%	0.00%	0.01%	0.00%	0.00%	2.33%	2.33%	1.01%	93.19%
	November	1.40%	0.08%	0.11%	0.00%	0.00%	0.00%	0.00%	2.37%	3.11%	1.39%	91.53%
December	1.60%	0.07%	0.83%	0.05%	0.04%	0.00%	0.05%	3.63%	5.09%	1.64%	87.00%	
Average Duration (minutes)	86.1	63.6	103.1	57.2	49.0	0.0	12.0	89.0	130.7	126.5	-	

**Exhibit 12: Default Weather Inputs from Salem, McNary Field (KSLE)**

Month	Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather	
Weather Probability	January	1.14%	0.01%	0.81%	0.07%	0.04%	0.00%	0.00%	3.72%	3.48%	0.00%	90.73%
	February	0.89%	0.03%	0.77%	0.09%	0.03%	0.00%	0.00%	0.86%	1.17%	0.00%	96.17%
	March	1.20%	0.01%	0.44%	0.23%	0.04%	0.00%	0.00%	0.30%	0.32%	0.01%	97.45%
	April	0.58%	0.03%	0.04%	0.00%	0.00%	0.00%	0.00%	0.18%	0.13%	0.00%	99.04%
	May	0.47%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.00%	99.42%
	June	0.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.06%	0.00%	99.67%
	July	0.04%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.95%
	August	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.91%
	September	0.33%	0.04%	0.04%	0.00%	0.00%	0.00%	0.00%	0.18%	0.08%	0.00%	99.32%
	October	1.14%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	1.12%	1.49%	0.00%	96.16%
	November	1.49%	0.14%	0.13%	0.00%	0.00%	0.00%	0.00%	1.99%	1.73%	0.00%	94.53%
December	1.42%	0.04%	0.87%	0.17%	0.03%	0.00%	0.00%	2.65%	2.45%	0.00%	92.37%	
Average Duration (minutes)	81.3	47.9	98.2	62.7	31.5	0.0	0.0	90.9	135.2	6.0	-	

**Exhibit 13: Default Weather Inputs from Rogue Valley International Airport (KMFR)**

Month	Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather	
Weather Probability	January	0.60%	0.01%	0.89%	0.16%	0.03%	0.00%	0.00%	3.67%	8.82%	0.00%	85.82%
	February	0.61%	0.01%	0.56%	0.06%	0.00%	0.00%	0.00%	1.15%	2.12%	0.00%	95.49%
	March	0.46%	0.03%	0.12%	0.00%	0.01%	0.00%	0.00%	0.23%	0.31%	0.00%	98.85%
	April	0.29%	0.00%	0.06%	0.00%	0.00%	0.00%	0.00%	0.06%	0.01%	0.00%	99.58%
	May	0.21%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.03%	0.00%	99.73%
	June	0.18%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.79%
	July	0.04%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	0.01%	0.00%	99.85%
	August	0.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.17%	0.00%	0.00%	99.77%
	September	0.19%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.65%	0.01%	0.00%	99.12%
	October	0.48%	0.03%	0.01%	0.00%	0.00%	0.00%	0.00%	0.34%	0.44%	0.00%	98.70%
	November	0.53%	0.04%	0.10%	0.00%	0.00%	0.00%	0.00%	2.30%	4.29%	0.00%	92.74%
December	0.70%	0.04%	1.42%	0.04%	0.01%	0.00%	0.00%	3.99%	7.61%	0.00%	86.19%	
Average Duration (minutes)	82.6	42.0	87.4	55.5	24.0	0.0	0.0	89.7	174.5	0.0	-	

**Exhibit 14: Default Weather Inputs from Roseburg, Roseburg Regional Airport (KRBG)**

Month	Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather	
Weather Probability	January	1.10%	0.03%	0.51%	0.12%	0.05%	0.00%	0.00%	3.38%	7.54%	0.00%	87.26%
	February	1.11%	0.04%	0.25%	0.04%	0.00%	0.00%	0.00%	1.42%	2.49%	0.00%	94.64%
	March	1.14%	0.00%	0.05%	0.03%	0.01%	0.00%	0.00%	0.85%	1.28%	0.00%	96.64%
	April	0.38%	0.00%	0.10%	0.01%	0.00%	0.00%	0.00%	0.18%	0.33%	0.00%	99.00%
	May	0.24%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	99.72%
	June	0.19%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%	0.00%	99.71%
	July	0.11%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.00%	99.85%
	August	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.97%
	September	0.33%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.47%	0.17%	0.00%	99.00%
	October	0.73%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.97%	2.59%	0.00%	95.68%
	November	1.25%	0.04%	0.17%	0.00%	0.00%	0.00%	0.00%	2.68%	5.05%	0.00%	90.81%
December	1.55%	0.04%	0.51%	0.05%	0.04%	0.00%	0.00%	3.36%	5.98%	0.00%	88.47%	
Average Duration (minutes)	92.2	50.0	77.0	44.0	27.0	0.0	0.0	91.0	178.9	0.0	-	

**Exhibit 15: Default Weather Inputs from Sexton Summit (KSXT)**

Month	Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather	
Weather Probability	January	0.59%	0.05%	6.34%	0.70%	0.58%	0.00%	0.00%	4.81%	16.63%	0.00%	70.30%
	February	0.81%	0.09%	6.79%	0.89%	0.59%	0.00%	0.00%	5.13%	18.28%	0.00%	67.42%
	March	0.60%	0.03%	8.29%	1.24%	0.89%	0.00%	0.00%	5.40%	20.45%	0.00%	63.11%
	April	0.26%	0.01%	6.11%	0.63%	0.25%	0.00%	0.00%	4.96%	14.77%	0.00%	73.01%
	May	0.29%	0.03%	1.07%	0.15%	0.04%	0.00%	0.00%	3.41%	14.89%	0.00%	80.11%
	June	0.22%	0.03%	0.04%	0.01%	0.01%	0.00%	0.00%	2.25%	9.93%	0.00%	87.49%
	July	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.12%	3.97%	0.00%	94.82%
	August	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.67%	2.31%	0.00%	96.95%
	September	0.31%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	2.82%	5.59%	0.00%	91.27%
	October	0.57%	0.04%	0.71%	0.12%	0.11%	0.00%	0.00%	3.32%	16.02%	0.00%	79.11%
	November	0.83%	0.10%	3.96%	0.71%	0.43%	0.00%	0.00%	5.28%	25.37%	0.00%	63.32%
December	0.88%	0.08%	9.18%	1.25%	0.80%	0.00%	0.00%	5.74%	19.22%	0.00%	62.85%	
Average Duration (minutes)	84.3	57.7	120.1	77.9	83.8	0.8	0.0	85.3	223.3	0.0	-	



**Exhibit 16: Default Weather Inputs from Hermiston, Hermiston Municipal Airport (KHRI)**

Month		Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather
Weather Probability	January	0.04%	0.00%	2.20%	0.11%	0.01%	0.00%	0.19%	1.67%	1.87%	0.00%	93.91%
	February	0.01%	0.00%	1.36%	0.00%	0.00%	0.00%	0.00%	0.68%	2.23%	0.00%	95.71%
	March	0.18%	0.00%	0.08%	0.01%	0.00%	0.00%	0.00%	0.11%	0.24%	0.00%	99.38%
	April	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.01%	0.00%	99.88%
	May	0.17%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.81%
	June	0.11%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.87%
	July	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.97%
	August	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	99.97%
	September	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%	0.00%	99.89%
	October	0.15%	0.00%	0.05%	0.00%	0.00%	0.00%	0.00%	0.25%	0.38%	0.00%	99.17%
	November	0.03%	0.00%	0.67%	0.00%	0.00%	0.00%	0.00%	1.54%	1.37%	0.00%	96.39%
December	0.11%	0.00%	3.15%	0.09%	0.01%	0.00%	0.34%	1.86%	4.33%	0.00%	90.12%	
Average Duration (minutes)		59.9	12.0	182.3	53.0	12.0	0.0	92.0	84.4	170.0	0.0	-

**Exhibit 17: Default Weather Inputs from La Grande/Union County Airport (KLGD)**

Month		Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather
Weather Probability	January	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.27%	0.64%	0.57%	0.00%	98.51%
	February	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.29%	0.14%	0.00%	99.57%
	March	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.22%	0.18%	0.00%	99.60%
	April	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.06%	0.10%	0.00%	99.84%
	May	0.01%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	0.04%	0.00%	99.84%
	June	0.03%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.12%	0.11%	0.00%	99.73%
	July	0.02%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.03%	0.00%	99.89%
	August	0.01%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.05%	0.00%	99.89%
	September	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.09%	0.06%	0.00%	99.84%
	October	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.56%	0.53%	0.00%	98.89%
	November	0.02%	0.00%	0.03%	0.01%	0.00%	0.00%	0.11%	0.17%	0.29%	0.00%	99.38%
December	0.03%	0.00%	0.89%	0.06%	0.02%	0.00%	0.40%	0.56%	0.43%	0.00%	97.61%	
Average Duration (minutes)		19.9	16.7	10.2	1.7	0.9	0.2	73.0	30.7	50.7	0.0	-

**Exhibit 18: Default Weather Inputs from Meacham (KMEH)**

Month	Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather	
Weather Probability	January	1.04%	0.00%	8.32%	1.69%	0.42%	0.00%	1.21%	0.50%	0.08%	0.00%	86.74%
	February	0.55%	0.00%	8.69%	1.02%	0.42%	0.00%	0.48%	0.68%	0.31%	0.00%	87.85%
	March	1.21%	0.00%	7.28%	1.43%	0.74%	0.00%	0.16%	0.39%	0.09%	0.00%	88.70%
	April	1.01%	0.08%	5.90%	0.80%	0.20%	0.00%	0.00%	0.24%	0.07%	0.00%	91.69%
	May	0.89%	0.08%	1.21%	0.15%	0.18%	0.00%	0.00%	0.26%	0.05%	0.00%	97.18%
	June	0.82%	0.07%	0.04%	0.06%	0.17%	0.00%	0.00%	0.10%	0.01%	0.00%	98.74%
	July	0.05%	0.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.07%	0.00%	99.78%
	August	0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	99.74%
	September	0.40%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.06%	0.06%	0.00%	99.46%
	October	0.83%	0.05%	0.98%	0.19%	0.13%	0.00%	0.00%	0.44%	0.28%	0.00%	97.10%
	November	1.03%	0.08%	5.79%	1.11%	0.40%	0.00%	0.50%	0.26%	0.18%	0.00%	90.65%
	December	1.43%	0.07%	11.20 %	2.08%	0.95%	0.00%	1.87%	0.46%	0.25%	0.00%	81.69%
Average Duration (minutes)	92.0	65.9	146.8	94.8	95.7	0.4	430.0	73.9	84.9	0.0	-	

**Exhibit 19: Default Weather Inputs from Ontario Municipal Airport (KONO)**

Month	Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather	
Weather Probability	January	0.07%	0.00%	4.00%	0.28%	0.07%	0.00%	0.86%	2.45%	5.65%	0.00%	86.64%
	February	0.01%	0.00%	2.09%	0.13%	0.01%	0.00%	0.00%	0.81%	1.84%	0.00%	95.10%
	March	0.11%	0.00%	0.20%	0.03%	0.00%	0.00%	0.00%	0.13%	0.22%	0.00%	99.31%
	April	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	99.91%
	May	0.16%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.82%
	June	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.89%
	July	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.99%
	August	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.00%	0.00%	99.95%
	September	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	99.94%
	October	0.13%	0.00%	0.07%	0.00%	0.00%	0.00%	0.00%	0.09%	0.28%	0.00%	99.42%
	November	0.13%	0.00%	1.81%	0.03%	0.00%	0.00%	0.00%	0.49%	1.08%	0.00%	96.47%
	December	0.09%	0.00%	4.61%	0.28%	0.01%	0.00%	0.42%	2.16%	3.73%	0.00%	88.70%
Average Duration (minutes)	70.3	6.0	163.8	79.4	11.9	0.0	87.9	85.5	181.3	0.0	-	

**Exhibit 20: Default Weather Inputs from Bend Airport AWOS (KBDN)**

Month	Medium Rain	Heavy Rain	Light Snow	Light/ Medium Snow	Medium/ Heavy Snow	Heavy Snow	Severe Cold	Low Visibility	Very Low Visibility	Minimum Visibility	Normal Weather	
Weather Probability	January	0.04%	0.02%	3.53%	0.06%	0.10%	0.00%	0.00%	0.90%	1.82%	0.00%	93.53%
	February	0.03%	0.03%	4.15%	0.02%	0.02%	0.00%	0.01%	0.79%	1.28%	0.00%	93.66%
	March	0.03%	0.01%	1.49%	0.00%	0.00%	0.00%	0.00%	0.10%	0.35%	0.00%	98.04%
	April	0.04%	0.01%	1.07%	0.01%	0.01%	0.00%	0.00%	0.03%	0.00%	0.00%	98.84%
	May	0.11%	0.03%	0.01%	0.00%	0.00%	0.00%	0.00%	0.02%	0.02%	0.00%	99.80%
	June	0.05%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.01%	0.00%	99.90%
	July	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.99%
	August	0.02%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	99.97%
	September	0.02%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.00%	99.97%
	October	0.12%	0.05%	0.19%	0.00%	0.00%	0.00%	0.00%	0.17%	0.14%	0.00%	99.33%
	November	0.02%	0.01%	1.21%	0.01%	0.06%	0.22%	0.03%	0.25%	0.41%	0.00%	97.78%
December	0.05%	0.01%	3.95%	0.07%	0.17%	0.17%	0.76%	0.93%	1.95%	0.00%	91.95%	
Average Duration (minutes)	14.7	11.9	79.8	13.1	12.5	8.9	83.0	37.4	90.3	0.0	-	