

October 2020

City of Cornelius/2165

Oregon Public Employees Retirement System

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, 2019. 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, 2021. 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, 2019, including Senate Bill 1049 which was enacted in June 2019. The report also reflects the Tier 1/Tier 2 reamortization provisions of Senate Bill 1049. 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 actuarial.services@pers.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 2020
City of Cornelius/2165

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 October 2019.

The actuarial computations presented in this report are for purposes of determining the contribution rates effective from July 2021 to June 2023 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 appendices 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 2020
City of Cornelius/2165

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 which are consistent with the principles prescribed by the Actuarial Standards Board and the Code of Professional Conduct and Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States published by the American Academy of Actuaries. 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,

A handwritten signature in black ink, appearing to read 'Matt Larrabee'.

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

A handwritten signature in black ink, appearing to read 'Scott Preppernau'.

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



ACTUARIAL VALUATION REPORT DECEMBER 31, 2019

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

INDEPENDENT EMPLOYERS

City of Cornelius -- #2165

October 2020

CONTENTS

Executive Summary	1
<i>Employer Contribution Rates</i>	1
<i>Accounting Information</i>	3
<i>Principal Valuation Results</i>	5
▪ Employer	5
▪ Tier 1/Tier 2	6
▪ OPSRP	7
▪ Retiree Healthcare	7
Side Account Information	8
Tier 1/Tier 2 Valuation Results	10
<i>Assets</i>	10
<i>Liabilities</i>	11
<i>Unfunded Accrued Liability (UAL)</i>	13
<i>Contribution Rate Development</i>	15
Data	20
Brief Summary of Actuarial Methods and Assumptions	22
Brief Summary of Changes in Plan Provisions	24
Glossary	25

Executive Summary

Milliman has prepared this report for City of Cornelius to:

- Provide summary December 31, 2019 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, 2021 through June 30, 2023, and
- Provide employer-specific valuation results for side accounts and Tier 1/Tier 2 assets and liabilities as of December 31, 2019.

This report summarizes the valuation results for the OPSRP and RHIA. The full development of these results can be found in the December 31, 2019 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 City of Cornelius.

Employer Contribution Rates

The following table summarizes the employer contribution rates effective July 1, 2021 through June 30, 2023 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, 2021 for City of Cornelius

		Payroll	
		OPSRP	
	Tier 1/Tier 2	General Service	Police & Fire
Pension			
Normal cost rate	14.98%	8.64%	13.00%
Tier 1/Tier 2 UAL rate ¹	6.20%	6.20%	6.20%
OPSRP UAL rate	1.69%	1.69%	1.69%
Side account rate relief ²	0.00%	0.00%	0.00%
Member redirect offset ³	(2.45%)	(0.70%)	(0.70%)
Net employer pension contribution rate	20.42%	15.83%	20.19%
Retiree Healthcare			
Normal cost rate	0.05%	0.00%	0.00%
UAL rate	0.00%	0.00%	0.00%
Net retiree healthcare rate	0.05%	0.00%	0.00%
Total net employer contribution rate	20.47%	15.83%	20.19%

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.

² The side account rate relief shown may be reduced such that the net pension contribution rate does not go below 0.00%.

³ Redirected member contributions under Senate Bill 1049 (2.50% of payroll for Tier 1/Tier 2 and 0.75% of payroll for OPSRP) will offset employer contribution rates. Redirect does not apply to members with monthly pay below a threshold. The values shown in the table incorporate an estimate of the effect of this limitation.

Executive Summary

Employer Contribution Rates (continued)

Range of Potential Tier 1/Tier 2 Total Pension Contribution Rates for the July 2023 to June 2025 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, 2023, which will depend on the funded status as of December 31, 2021. 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, 2019 is 80%.

Funded Status as of December 31, 2021	70% to 130%	Under 60% or Over 140%
2021-2023 Tier 1/Tier 2 Normal Cost + Tier 1/Tier 2 UAL Rate	21.18%	21.18%
Minimum 2023-2025 Rate	16.94%	12.70%
Maximum 2023-2025 Rate	25.42%	29.66%

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 (GASB 68), which replaced Statement No. 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)
12/31/2014	\$16,019,875	\$18,417,725	\$2,397,850	87%	\$2,121,002	113%
12/31/2015	15,857,678	18,608,088	2,750,410	85%	2,206,856	125%
12/31/2016	16,471,134	20,114,537	3,643,403	82%	2,381,110	153%
12/31/2017	17,521,552	20,786,017	3,264,465	84%	2,541,322	128%
12/31/2018	16,549,790	21,845,438	5,295,649	76%	2,628,351	201%
12/31/2019	17,906,405	22,333,267	4,426,862	80%	2,874,438	154%

Executive Summary

Accounting Information (continued)

Retiree Healthcare

In June 2015, the GASB issued Statement No. 75 (GASB 75), which replaced Statement No. 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.

City of Cornelius

	Actuarial Valuation as of	
	December 31, 2019	December 31, 2018
T1/T2 UAL	\$4,426,862	\$5,295,648
Allocated pooled OPSRP UAL	472,545	474,585
Side account	0	0
Net unfunded pension actuarial accrued liability	4,899,407	5,770,233
Combined valuation payroll	2,874,438	2,628,351
Net pension UAL as a percentage of payroll	170%	220%
Calculated side account rate relief	0.00%	0.00%
Allocated pooled RHIA UAL	(\$59,875)	(\$38,526)

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 the combined valuation payroll 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, 2019	December 31, 2018
Normal cost	\$188,188	\$179,559
Tier 1/Tier 2 valuation payroll	1,255,998	1,216,180
Tier 1/Tier 2 pension normal cost rate	14.98%	14.76%
Tier 1/ Tier 2 Actuarial accrued liability	\$22,333,267	\$21,845,438
Actuarial asset value	17,906,405	16,549,790
Tier 1/Tier 2 Unfunded actuarial accrued liability	4,426,862	5,295,648
Tier 1/ Tier 2 Funded status	80%	76%
Combined valuation payroll	\$2,874,438	\$2,628,351
Tier 1/Tier 2 UAL as a percentage of payroll	154%	201%
Tier 1/Tier 2 UAL rate	6.20%	6.42%
(includes Multnomah Fire District #10)		
Tier 1/Tier 2 active members ¹	15	15
Tier 1/Tier 2 dormant members	9	13
Tier 1/Tier 2 retirees and beneficiaries	60	59

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, 2019	December 31, 2018
General service normal cost	\$582.1	\$519.9
OPSRP general service valuation payroll	6,740.9	5,973.4
General service normal cost rate	8.64%	8.70%
Police and fire normal cost	\$119.5	\$104.9
OPSRP police and fire valuation payroll	919.0	802.5
Police and fire normal cost rate	13.00%	13.07%
Actuarial accrued liability	\$8,082.2	\$6,738.0
Actuarial asset value	6,190.4	4,783.0
Unfunded actuarial accrued liability	1,891.8	1,955.0
Funded status	77%	71%
Combined valuation payroll	\$11,533.7	\$10,852.0
UAL as a percentage of payroll	16%	18%
UAL rate	1.69%	1.76%

Retiree Healthcare

(\$ in millions)	Actuarial Valuation as of	
	December 31, 2019	December 31, 2018
RHIA		
Normal cost	\$1.9	\$2.2
Tier 1 / Tier 2 valuation payroll	3,873.9	4,076.1
Normal cost rate	0.05%	0.05%
Actuarial accrued liability	\$403.9	\$411.7
Actuarial asset value	644.1	570.7
Unfunded actuarial accrued liability	(240.3)	(159.1)
Funded status	159%	139%
Combined valuation payroll	\$11,533.7	\$10,852.0
UAL as a percentage of payroll	(2%)	(1%)
UAL rate	0.00%	0.00%

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, 2018	N/A		
2. Deposits made during 2019			
3. Administrative expenses			
4. Amount transferred to employer reserves during 2019			
5. Side account earnings during 2019			
6. Side account as of December 31, 2019 (1. + 2. + 3. + 4. + 5.)			

Side Account Information

Side Account Balances

	December 31, 2019	December 31, 2018
Side Account 1	0	0
Side Account 2	0	0
Side Account 3	0	0
Side Account 4	0	0
Side Account 5	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 default fixed period ends 18 years after the first rate-setting valuation following its creation, though employers can select a shorter period under certain specified circumstances. 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.

December 31, 2019			December 31, 2018			
Combined valuation payroll		\$2,874,438	Combined valuation payroll		\$2,628,351	
	Side account balance	Amortization factor	Side account rate	Side account balance	Amortization factor	Side account rate
1.	0		0.00%	0		0.00%
2.	0		0.00%	0		0.00%
3.	0		0.00%	0		0.00%
4.	0		0.00%	0		0.00%
5.	0		0.00%	0		0.00%
Total	\$0		0.00%	\$0		0.00%

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, 2019	December 31, 2018
1. Member reserves	\$2,195,224	\$2,160,282
2. Employer reserves	11,109,269	9,683,076
3. Benefits in force reserve	4,601,912	4,706,432
4. Total market value of assets (1. + 2. + 3.)	\$17,906,405	\$16,549,790

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, 2018 to December 31, 2019
1. Market value of assets at beginning of year	\$16,549,790
2. Regular employer contributions	223,291
3. Benefit payments and expenses	(1,039,175)
4. Adjustments ¹	103,921
5. Interest credited	2,068,579
6. Total transferred from side accounts	0
7. Market value of assets at end of year (1. + 2. + 3. + 4. + 5. + 6.)	\$17,906,405

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, 2019	December 31, 2018
Tier 1 Police & Fire	\$0	\$0
Tier 1 General Service	71,283	68,117
Tier 2 Police & Fire	20,732	20,355
Tier 2 General Service	96,173	91,087
Total	\$188,188	\$179,559

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, 2019.

	Before Changes	After Changes	Net Change
Normal Cost	\$188,188	\$188,188	\$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, 2019	December 31, 2018
Active Members		
▪ Tier 1 Police & Fire	\$1,893,646	\$1,799,236
▪ Tier 1 General Service	2,581,643	2,516,377
▪ Tier 2 Police & Fire	1,706,619	1,563,793
▪ Tier 2 General Service	3,269,289	3,049,522
▪ Total Active Members	\$9,451,197	\$8,928,928
Dormant Members	494,207	634,758
Retired Members and Beneficiaries	12,387,863	12,281,753
Total Actuarial Accrued Liability	\$22,333,267	\$21,845,438

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, 2019.

	Before Changes	After Changes	Net Change
Actuarial Accrued Liability	\$22,333,267	\$22,333,267	\$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, 2019	December 31, 2018
1. Actuarial accrued liability	\$22,333,267	\$21,845,438
2. Actuarial value of assets	17,906,405	16,549,790
3. Unfunded accrued liability (1. – 2.)	4,426,862	5,295,648
4. Funded percentage (2. ÷ 1.)	80%	76%
5. Combined valuation payroll	\$2,874,438	\$2,628,351
6. Unfunded accrued liability as % of combined valuation payroll (3. ÷ 5.)	154%	201%

Reconciliation of UAL Bases

Beginning with the December 31, 2013 actuarial valuation, the PERS Board established a policy to amortize the Tier 1/Tier 2 UAL over a 20-year period, with each subsequent odd-year valuation establishing a new 20 year closed-period amortization schedule for new Tier 1/Tier 2 UAL amounts 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. As part of Senate Bill 1049, passed in 2019, the Legislature directed the PERS Board to enact a one-time re-amortization of Tier 1/Tier 2 UAL over 22 years. This means that, effective with the December 31, 2019 rate-setting valuation, the entire unamortized Tier 1/Tier 2 UAL for each rate pool and independent employer will be re-amortized over a 22 year period as a level percentage of projected future payroll. For the December 31, 2021 and subsequent odd-year valuations, the PERS Board will again have authority to set the amortization schedule. It is anticipated that the policy of 20-year closed-period amortization schedules will be reintroduced at that point.

Amortization Base	UAL December 31, 2018	Payment	Interest	UAL December 31, 2019	Next Year's Payment
December 31, 2019	N/A	N/A	N/A	\$4,426,862	\$293,053
Total				\$4,426,862	\$293,053

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, 2018	\$21,845,438
b. Normal cost at December 31, 2018 (excluding assumed expenses)	169,846
c. Benefit payments during 2019	(1,031,495)
d. Interest at 7.20% to December 31, 2019	1,541,852
e. Expected actuarial accrued liability before changes (a. + b. + c. + d.)	22,525,642
f. Change in actuarial accrued liability due to assumption, method, and plan changes	0
g. Expected actuarial accrued liability at December 31, 2019 (e. + f.)	22,525,642
2. Actuarial accrued liability at December 31, 2019	22,333,267
3. Gain/(loss) on actuarial accrued liability (1.g. - 2.)	192,375
4. Expected actuarial value of assets	
a. Actuarial value of assets at December 31, 2018	16,549,790
b. Contributions for 2019 ¹	223,291
c. Benefit payments and expenses during 2019	(1,039,175)
d. Interest at 7.20% to December 31, 2019	1,162,213
e. Expected actuarial value of assets at December 31, 2019 (a. + b. + c. + d.)	16,896,118
5. Actuarial value of assets at December 31, 2019	17,906,405
6. Gain/(loss) on actuarial value of assets (5. - 4.e.)	1,010,287
7. Total actuarial gain/(loss) (3. + 6.)	\$1,202,662

Unfunded Accrued Liability Reconciliation

A reconciliation of the Tier 1/Tier 2 UAL from December 31, 2018 is provided below.

1. UAL at December 31, 2018	\$5,295,648
2. Expected increase	333,875
3. Liability (gain)/loss	(192,375)
4. Asset (gain)/loss	(1,010,287)
5. Change due to changes in assumptions, methods, and plan provisions	0
6. UAL at December 31, 2019 (1. + 2. + 3. + 4. + 5.)	\$4,426,862

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. Normal cost rates shown below are before any offset for redirected member contributions under Senate Bill 1049.

Development of Tier 1/Tier 2 Total Normal Cost Rate

	December 31, 2019			December 31, 2018		
	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	71,283	444,363	16.04%	68,117	429,165	15.87%
Tier 2 Police & Fire	20,732	116,700	17.77%	20,355	115,627	17.60%
Tier 2 General Service	96,173	694,935	13.84%	91,087	671,388	13.57%
Total	\$188,188	\$1,255,998	14.98%	\$179,559	\$1,216,180	14.76%

An independent employer that has no Tier 1/Tier 2 active payroll will be assigned the weighted average normal cost rate 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, 2019	December 31, 2018
1. Total Tier 1/Tier 2 UAL	\$4,426,862	\$5,295,648
2. Next year's Tier 1/Tier 2 UAL payment	293,053	350,566
3. Combined valuation payroll	2,874,438	2,628,351
4. Tier 1/Tier 2 UAL rate (2. ÷ 3.)	10.20%	13.34%

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, 2021 Rates calculated as of December 31, 2019	Advisory July 1, 2021 Rates calculated as of December 31, 2018
1. Tier 1/Tier 2 pension contribution rates		
a. Tier 1/Tier 2 pension normal cost rate	14.98%	14.76%
b. Tier 1/Tier 2 UAL rate	10.20%	13.34%
c. Multnomah Fire District #10 rate	0.14%	0.14%
d. Total Tier 1/Tier 2 pension rate (a. + b. + c.)	25.32%	28.24%

Tier 1/Tier 2 Valuation Results

Contribution Rate Development

Adjustments Due to Rate Collar and Minimum Rate Requirements

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 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, 2019 through June 30, 2021, develops the maximum and minimum contribution rates effective July 1, 2021 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	17.65%
2. Employer contribution rate offset attributable to side accounts	0.00%
3. Current total Tier 1/Tier 2 pension contribution rate (1. – 2.)	17.65%
4. Size of rate collar	
a. 20% of current total contribution rate (20% x 3.)	3.53%
b. Preliminary size of rate collar (<i>maximum of 3% or a.</i>)	3.53%
c. Funded percentage	80%
d. Size of rate collar (<i>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.</i>)	3.53%
5. July 1, 2021 minimum total contribution rate (3. – 4.d. but not < 0%)	14.12%
6. July 1, 2021 maximum total contribution rate (3. + 4.d.)	21.18%
7. July 1, 2021 total pension rate, before adjustment	25.32%
8. Net adjustment due to rate collar (5. – 7., but not < 0, or 6. – 7., but not > 0)	(4.14%)
9. July 1, 2021 Tier 1/Tier 2 UAL rate, before collar	10.20%
10. July 1, 2021 Tier 1/Tier 2 UAL rate, after collar (8. + 9.)	6.06%
11. July 1, 2021 Tier 1/Tier 2 pension rate, after collar	21.18%
12. Tier 1/Tier 2 retiree healthcare rate	0.05%
13. Net adjustment due to 6% minimum (6% - 11. - 12., minimum 0%)	0.00%
14. July 1, 2021 Tier 1/Tier 2 pension normal cost rate, before minimum adjustment	14.98%
15. July 1, 2021 Tier 1/Tier 2 pension normal cost rate, after minimum adjustment (13. + 14.)	14.98%
16. July 1, 2021 Tier 1/Tier 2 pension rate, after minimum adjustment (11. + 13.)	21.18%

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, 2021 Rates calculated as of December 31, 2019	Advisory July 1, 2021 Rates calculated as of December 31, 2018
1. Tier 1/Tier 2 pension contribution rates		
a. Tier 1/Tier 2 pension normal cost rate	14.98%	14.76%
b. Tier 1/Tier 2 UAL rate	6.06%	6.28%
c. Multnomah Fire District #10 rate	0.14%	0.14%
d. Total Tier 1/Tier 2 pension rate (a. + b. + c., minimum of 5.95%)	21.18%	21.18%

Data

Demographic Information

Employer Valuation Payroll

	General Service	Police & Fire	Total
Tier 1	\$444,363	\$0	\$444,363
Tier 2	694,935	116,700	811,635
Tier 1/Tier 2 valuation payroll	1,139,298	116,700	1,255,998
OPSRP valuation payroll	1,133,948	484,492	1,618,440
Combined valuation payroll	\$2,273,246	\$601,192	\$2,874,438

Employer Member Census

	December 31							
	2019				2018			
	Tier 1	Tier 2	OPSRP	Total	Tier 1	Tier 2	OPSRP	Total
Active Members ¹								
General Service	5	9	20	34	5	9	17	31
Police & Fire	0	1	5	6	0	1	6	7
Total	5	10	25	40	5	10	23	38
Active Members with previous service segments with the employer								
General Service	1	9	N/A	10	2	10	N/A	12
Police & Fire	8	7	N/A	15	8	7	N/A	15
Total	9	16	N/A	25	10	17	N/A	27
Dormant Members								
General Service	1	6	2	9	2	7	1	10
Police & Fire	2	0	1	3	3	1	0	4
Total	3	6	3	12	5	8	1	14
Retired Members and Beneficiaries								
General Service	30	3	1	34	29	3	1	33
Police & Fire	27	0	0	27	27	0	0	27
Total	57	3	1	61	56	3	1	60
Grand Total Number of Members	74	35	29	138	76	38	25	139

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, 2019

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
<20										
20-24										
25-29										
30-34										
35-39										
40-44				1	1					2
45-49				1	3					4
50-54				1	1					2
55-59					1					1
60-64				1	1		2			4
65-69				2						2
70-74										
75+										
Total	0	0	0	6	7	0	2	0	0	15

Distribution of Employer Tier 1/Tier 2 Members as of December 31, 2019

Dormant Members			Retired Members and Beneficiaries		
Age	Count	Average Deferred Monthly Benefit	Age	Count	Average Monthly Benefit
<20			<45	3	1,094
20-24			45-49	1	1,093
25-29			50-54	5	1,819
30-34			55-59	3	212
35-39	1	232	60-64	12	1,409
40-44	1	880	65-69	14	1,614
45-49	2	755	70-74	9	859
50-54			75-79	5	2,508
55-59	3	389	80-84	4	980
60-64	1	4	85-89	3	1,900
65-69	1	846	90-94	1	30
70-74			95-99		
75+			100+		
Total	9	515	Total	60	1,392

Brief Summary of Actuarial Methods and Assumptions

A detailed summary of the actuarial methods and assumptions used to prepare the December 31, 2019 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:

<i>Actuarial cost method</i>	Entry Age Normal.
<i>Amortization method</i>	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. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
<i>Asset valuation method</i>	Market value of assets, excluding reserves.
<i>Contribution rate stabilization method (rate collar)</i>	The contribution rate stabilization method, also referred to as the rate collar, is applied separately to each Tier 1/Tier 2 experience sharing pool (State and Local Government Rate Pool, School Districts) and independent employer. The collar's centering point for Tier 1/Tier 2 calculations is the sum of the Tier 1/Tier 2 Normal Cost and Tier 1/Tier 2 UAL Rates currently in effect. In the subsequent biennium, the increase in the sum of those two rate components is limited by the collar to 20% of the current sum of those two rate components, or 3% of payroll, if greater. If the funded status excluding side accounts is less than 70%, the width of the collar widens on a graded scale, reaching 40% of the current sum of the two rate components or 6% of payroll, if greater, if funded status excluding side accounts is 60% or less. A separate but parallel rate collar calculation is performed for the sum of the OPSRP Normal Cost and OPSRP UAL rates based on the funded status of the OPSRP program.

Economic Assumptions

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

<i>Net investment return</i>	7.20% compounded annually on system assets.
<i>Interest crediting</i>	7.20% compounded annually on members' regular account balances. 7.20% compounded annually on members' variable account balances.
<i>Consumer price inflation</i>	2.50% per year.
<i>Future general wage inflation</i>	3.50% per year.
<i>Healthcare cost inflation</i>	Ranging from 5.8% in 2020 to 4.1% in 2094.
<i>Administrative Expenses</i>	\$8.0 million, added to OPSRP normal cost. \$32.5 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, 2018 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, 2018 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, 2018 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 since the December 31, 2018 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.

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 contribution rate setting methodology that defines the maximum biennium-to-biennium change in the sum of the normal cost rate and the associated UAL rate for a given experience-sharing pool. The width of the collar is determined by the pool's current normal cost rate, UAL 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 prior to GASB 75.

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.



Milliman
1455 SW Broadway, Suite 1600
Portland, OR 97201-3412
503 227 0634

This work product was prepared solely for Oregon Public Employees Retirement System for the purposes stated herein, and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.