2018
Actuarial
Valuation
Report

I. SUMMARY OF KEY RESULTS

Intended Use

The purpose of this report is to develop contribution rates required to fund the Washington State retirement systems based on a June 30, 2018, measurement date, and the funding policy described in this section. This report provides information on the contribution rates, funding progress, and developments in the plans over the past year. This report also discloses the data, assumptions, and methods we, the Office of the State Actuary (OSA), used to develop the contribution rates. This report is not intended to satisfy the accounting requirements under the Governmental Accounting Standards Board (GASB) rules.

Similarly, this actuarial valuation is not intended to report on the overall health or financial condition of the pension system. Such information can be found in the 2019 Report on Financial Condition (RFC), which we issue every two years. The key measures we use in the RFC to assess the health of a pension plan include funding level, adequacy and affordability of contributions, and risk.

Commentary on Risk

In the course of developing our actuarial valuation we make hundreds of assumptions, such as the level of returns on future investments, the rate of mortality for retirees, and the number of members contributing to the pension system annually. In some cases, small changes in these assumptions or unexpected plan experience can lead to significant changes in measurements, like the calculation of a plan's contribution rates or the projection of a plan's funded status. This can affect plan risk, and these sensitivities can evolve as the plans grow and mature over time. The Legislature's response to these changes and their action governing the state's pension system also affects plan risk. To help readers better understand some of these risks and their potential impacts at a system-wide level, we have developed a "Commentary on Risk" webpage which can be found on our website.

Contribution Rates

We determine the member and employer contribution rates as a percentage of salary. The summary table to the right shows contribution rates based on the 2018 valuation, along with rates from the previous valuation. Throughout this report, we reconcile how plan experience compared to our assumptions over the valuation year. In doing so, we compare the contribution rates calculated under this valuation against those rates calculated under the 2017 valuation. Please note, however, that the 2018 contribution rates calculated in this valuation will not be collected, as 2018 is not a rate-setting year under the current contribution rate-setting cycle. The **Actuarial Exhibits** section of this report shows how we developed the contribution rates for 2018.

No member or employer/state contributions are required for the LEOFF Plan 1 as the plan remains fully funded. See RCW 41.26.080(2).

Minimum employer contribution rates adopted by the Legislature for the PERS Plan 1 and the TRS Plan 1 became effective at the beginning of the 2015-17 Biennium. The employer contribution rate for PERS 1 remains above the minimum. Ignoring recent benefit improvements, the TRS 1 employer contribution rate is below the minimum. However, the final calculated TRS 1 employer contribution rate is above the minimum due to the supplemental contribution rate increases for recent benefit enhancements. For more information, please refer to the contribution rate development in the **Actuarial Exhibits** section.

Calculated Contribution Rates

	Plan 1		Plans 2/3	
	2018	2017	2018	2017
PERS				
Member*	6.00%	6.00%	7.46%	7.90%
Total Employer	11.56%	12.68%	11.56%	12.68%
TRS				
Member*	6.00%	6.00%	8.02%	7.77%
Total Employer	14.51%	15.33%	14.51%	15.33%
SERS				
Member*	N/A	N/A	8.02%	8.25%
Total Employer	N/A	N/A	12.10%	13.01%
PSERS				
Member	N/A	N/A	7.09%	7.20%
Total Employer	N/A	N/A	11.17%	11.96%
LEOFF				
Member	0.00%	0.00%	8.67%	8.59%
Employer	0.00%	0.00%	5.20%	5.15%
State	0.00%	0.00%	3.47%	3.44%
WSPRS				
Member	8.45%	8.45%	8.45%	8.45%
Employer (State)	20.41%	22.13%	20.41%	22.13%

Note: Employer rates exclude administrative expense rate.

**Plan 3 members do not contribute to the defined benefit plan.*

Projected Contribution Rates

In addition to calculating contribution rates in this report, we also estimate contribution rates for future biennia based upon projected assets and liabilities. These projected rates can be found on our website. Please note that these projected rates are subject to change based on modifications to plan provisions, assumptions, and the actual experience of the systems.

Contribution Rate-Setting Cycle

Under current Washington State law, in July of even-numbered years, the Pension Funding Council (PFC) reviews the basic contribution rates that we calculate. These rates are based on an actuarial valuation performed on asset, participant, and plan information compiled in odd-numbered years. In calculating basic contribution rates, we apply the statutory funding policies described in this section.

The PFC may adopt changes to contribution rates by an affirmative vote of at least four members. The basic rates adopted by the PFC will remain in place for the ensuing biennium, subject to revision by the Legislature. The LEOFF 2 Board performs these duties for LEOFF 2 under the same cycle.

RCW 41.45.070 requires that a temporary and supplemental contribution rate increase be charged to fund the cost of benefit enhancements enacted following the adoption of the basic rates. Supplemental contribution rates are included in the basic rates at the beginning of the next contribution rate-setting cycle.

Funding Policy

Washington State relies on systematic actuarial funding to finance the on-going cost of the state retirement systems. Under this financing approach, we reduce the cost of future pension payments by the expected long-term return on invested contributions.

The state's funding policy is found in Chapter 41.45 RCW — Actuarial Funding of State Retirement Systems. It includes the following goals:

- Provide a dependable and systematic process for funding the benefits to members and retirees of the Washington State retirement systems.
- Fully fund the retirement system Plans 2 and 3, and WSPRS, as provided by law.
- Fully amortize the total cost of LEOFF Plan 1 not later than June 30, 2024.
- Fully amortize the Unfunded Actuarial Accrued Liability (UAAL) in PERS Plan 1 and TRS Plan 1 within a rolling ten-year period using methods and assumptions that balance needs for increased benefit security, decreased contribution rate volatility, and affordability of pension contribution rates.
- Establish long-term employer contribution rates that will remain a relatively predictable proportion of future state budgets.
- Fund, to the extent feasible, all benefits for Plans 2 and 3 members over the working lives of those members so that the taxpayers who receive the benefit of those members' service pay the cost of those benefits.

Based on the funding policy, the same contribution rate is charged to employers within each system regardless of the plan in which employees hold membership (except for LEOFF). In addition, all benefit increases that become effective after June 30, 2009, for PERS Plan 1 and TRS Plan 1 members, are funded over a fixed ten-year period.

If all actuarial assumptions are realized and all future contributions required under this funding policy are made, we expect the funding policy to accumulate sufficient assets to provide for all future benefits for current members when due.

The Washington State Investment Board (WSIB) directs the investment of retirement system contributions. RCW 43.33A.110 requires WSIB to maximize investment returns at a prudent level of risk.

Comments on 2018 Results

Many factors can influence how actuarial valuation results change from one measurement date to the next. Those factors include changes in the covered population, changes in plan provisions, assumptions and methods, and experience that varies from our expectations.

For this valuation, we observed no significant changes in the retirement system population. We also made no significant changes to our actuarial methods. We did modify our TRS general salary increase assumption from 3.50 percent to 8.00 percent for one year to reflect the impact of higher than expected salary increases provided under collective bargaining agreements adopted in the summer of 2018.

There were also a few plan provision changes, such as the expansion of the statutory list of presumptive occupational diseases for certain members of LEOFF and PERS. See the **Summary of Plan Provisions** section of this report for more details.

During the 2019 Legislative Session, House Bill 2144 (C 366 L19) was passed which transferred $300 million from the LEOFF Plan 2 trust fund to the plan's Benefit Improvement Account (BIA), effective July 1, 2019. We reflected the anticipated impact of this law on LEOFF Plan 2's assets in this valuation.

In terms of annual plan experience, the actual rate of investment return on the Market Value of Assets (MVA) was 10.20 percent, which was above the assumed rate. The rate of investment return on the Actuarial Value of Assets (AVA) was 9.43 percent, which was also higher than expected for the valuation year. Salaries grew more than expected for all plans except LEOFF Plan 1, which has a very small remaining active population. With regard to the covered population, the most significant change we observed occurred in WSPRS Plan 2, whose active population increased by approximately 9 percent over the valuation year.

Detailed gain and loss information by system can be found in the **Actuarial Exhibits** section of this report. Please see the **Actuarial Certification Letter** for additional comments on the valuation results.

Actuarial Liabilities

The next table summarizes key measures of actuarial liability along with the liabilities from last year's valuation. The Future Value of Fully Projected Benefits represents the total expected value of all future benefit payments for all members of all systems as of the valuation date. The Present Value of Fully Projected Benefits represents today's value of the Future Value of Fully Projected Benefits when we discount future benefit payments with the valuation interest rate. In other words, if we invest the Present Value of Fully Projected Benefits as a lump sum amount at the valuation date and earn the currently assumed valuation interest rate each year, we anticipate there would be enough money to pay all expected future benefit payments for current members.

Actuarial Liabilities		
(Dollars in Millions)	**2018**	**2017**
All Systems		
Future Value of Fully Projected Benefits	$705,427	$655,649
Present Value of Fully Projected Benefits	117,706	110,871
Actuarial Accrued Liability*	$98,061	$92,791
Valuation Interest Rate**	7.50%	7.50%

**Calculated using Entry Age Normal (EAN) cost method.*

***7.40% in LEOFF 2.*

The Actuarial Accrued Liability identifies the portion of the present value of future benefits that has been accrued as of the valuation date based on the Entry Age Normal (EAN) actuarial cost method.

See the **Actuarial Exhibits** section of this report for a summary of actuarial liabilities by system and plan. For projected benefit payments by year for each system and plan, please visit the Interactive Reports page on our website. Also, see the Glossary on our website for brief explanations of the actuarial terms.

Assets

The table to the right shows the combined MVA and AVA along with approximate rates of investment return for all the systems combined.

To limit the volatility in contribution rates and funded status due to short-term market fluctuations, we smooth (or defer recognition of) the difference between actual and expected annual investment returns over a period not to exceed eight years. The number of years over which we smooth is dependent on the magnitude of the gain or loss. The AVA equals the MVA less the Total Deferred Investment Gains and (Losses) at the valuation date. The AVA can never be less than 70 percent or greater than 130 percent of the MVA.

See the **Actuarial Exhibits** section of this report for a summary of assets by system and plan, and for the development of the AVA.

Assets		
(Dollars in Millions)	**2018**	**2017**
All Systems		
Market Value of Assets (MVA)	$92,057	$84,853
Actuarial Value of Assets (AVA)	86,855	80,168
Contributions[1]	3,700	3,084
Disbursements	4,620	4,093
Investment Return	8,048	10,505
Other[2]	$77	$83
MVA Return[3]	10.20%	13.44%
AVA Return[4]	9.43%	9.17%

[1] Employee and Employer.

[2] Includes transfers, restorations, payables, etc.

[3] Time-weighted rate of return on the MVA, net of expenses.

[4] The AVA is used in determining contribution rates.

Funded Status

Funded status is one of many measures that helps explain the health of a pension plan. A history of funded status measured consistently over a defined period helps readers evaluate a plan's funding progress over time. The funded status represents the portion of the actuarial accrued liability covered by today's actuarial assets. A plan with a 100 percent funded status has one dollar in actuarial assets for each dollar of accrued liability at the valuation date. A plan with a funded status of at least 100 percent is generally considered to be on target with its financing plan. However, a plan more/less than 100 percent funded is not automatically considered over-funded/at-risk.

Funded Status		
(Dollars in Millions)	**2018**	**2017**
All Systems		
a. Accrued Liability*	$98,061	$92,791
b. Market Value of Assets	92,057	84,853
c. Deferred Gains/(Losses)	5,202	4,685
d. Actuarial Value of Assets (b - c)	86,855	80,168
Unfunded Liability (a - d)	$11,206	$12,623
Funded Ratio (d / a)	89%	86%

Note: Totals may not agree due to rounding.

**Liabilities valued using Entry Age Normal cost method.*

The table to the right displays the funded status for all the systems combined. We provide this table for summarization purposes only. Absent a qualified merger or plan termination, assets from an individual qualified retirement plan may not be used to fund benefits from another plan. See the **Actuarial Exhibits** section of this report for the funded status by system and plan.

Participant Data

The table to the right summarizes participant data used in the actuarial valuation for the plan year ending June 30, 2018, along with information from last year's valuation. See the **Participant Data** section of this report for participant data summarized by system and plan.

Participant Data		
All Systems	**2018**	**2017**
Active Members		
Number	323,491	317,677
Total Salaries *(in Millions)*	$21,255	$20,031
Average Annual Salary	$65,704	$63,054
Average Attained Age	46.6	46.8
Average Service	11.3	11.5
Retirees and Beneficiaries		
Number	185,139	177,685
Average Annual Benefit	$23,144	$22,768
Terminated Members		
Number Vested	63,040	61,519
Number Non-Vested*	140,254	135,108

**Members who terminated without a vested lifetime benefit but are eligible for a refund of their employee contributions with interest that currently reside in the trust.*

Key Assumptions

This table displays key economic assumptions used in the actuarial valuation. There were no changes in these assumptions from our prior year's valuation. As noted in the **Comments on 2018 Results** section, we did modify the general salary increase assumption for TRS members for one year. For all future years for TRS, we relied on the long-term assumption of 3.50 percent.

Key Assumptions	
All Systems	
Valuation Interest Rate*	7.50%
General Salary Increase	3.50%
Inflation	2.75%
Growth in Membership**	0.95%

**7.40% in LEOFF 2.*

***1.25% in TRS. Used for the amortization of PERS 1 and TRS 1 UAAL only.*