

WASHINGTON STATE

Law Enforcement Officers' and Fire Fighters' Plan 2 Retirement Board



2009 Actuarial Valuation Report



Office of the State Actuary

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Letter of Introduction Law Enforcement Officers' and Fire Fighters' Retirement System Plan 2 Actuarial Valuation Report As of June 30, 2009 October 2010

As required under Chapter 41.45 RCW, this report documents the results of an actuarial valuation of the Law Enforcement Officers' and Fire Fighters' Retirement System Plan 2 (LEOFF 2).

The primary purpose of this valuation is to determine contribution requirements for LEOFF 2 for the plan year ending June 30, 2009, under the funding policy established by the LEOFF 2 Retirement Board. This valuation also provides information on the funding progress and developments in the plan over the past year.

We provide additional information on future contribution requirements and funding levels in our 2010 Risk Assessment, along with information on the financial risks faced by the plan and the tools we have available to measure and manage these risks. The Risk Assessment is available on our website at the address noted at the bottom of this page.

This report is organized into the following four sections:

- ❖ Summary of Key Results.
- ❖ Actuarial Exhibits.
- ❖ Participant Data.
- ❖ Appendices.

The Summary of Key Results section provides a high-level summary of the valuation results for LEOFF 2. The next two sections of the report provide detailed actuarial asset and liability information and participant data. The Appendices provide a summary of the principal actuarial assumptions and methods, a summary of the major plan provisions, and additional information used to prepare this valuation.

I encourage you to submit any questions you might have concerning this report to our regular address or our e-mail address at actuary.state@leg.wa.gov. I also invite you to visit our website, listed below, for further information regarding the actuarial funding of the Washington State retirement systems.

Sincerely,

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Summary of Key Results



Summary of Key Results

Intended Use

The purpose of this report is to develop contribution rates required to fund the Law Enforcement Officers' and Fire Fighters' Retirement System (LEOFF) Plan 2 based on the statutory funding policy described in this section. This report also discloses the data, methods, and assumptions we used to develop the contribution rates. We don't intend this report to satisfy the accounting requirements under the Governmental Accounting Standards Board (GASB) rules.

Contribution Rates

We determined the member, employer, and state contribution rates as a percentage of salary. The summary table below shows contribution rates based on the 2009 valuation along with comparable rates from the previous valuation. The Actuarial Exhibits section of this report shows how we developed these rates.

Contribution Rates		
	2009	2008
Member	7.40%	7.23%
Employer*	4.44%	4.34%
State	2.96%	2.89%

**Excludes administrative expense rate.*

Contribution Rate-Setting Cycle

Under current Washington State law, in July of even-numbered years, the LEOFF 2 Retirement Board (the Board) reviews the basic contribution rates recommended by the Board-retained actuary. These recommendations are based on an actuarial valuation performed on asset, participant, and plan information compiled in odd-numbered years. The Board adopts contribution rates for LEOFF Plan 2 as provided under RCW 41.26.720(1)(a). The rates remain in place for the ensuing biennium, subject to revision by the Legislature.

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 by the Board. 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 to:

- ❖ Provide a dependable and systematic process for funding the benefits to members and retirees of the Washington State Retirement Systems.
- ❖ Continue to fully fund LEOFF Plan 2 as provided by law.
- ❖ Establish long-term employer contribution rates that will remain a relatively predictable proportion of the future state budgets.
- ❖ Fund, to the extent feasible, all benefits 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.

The Board adopted minimum contribution rates equal to 90 percent of the normal cost rate calculated under the Entry Age Normal (EAN) actuarial cost method.

During the 2008 Interim, the Board adopted long-term stable contribution rates equal to 100 percent of the normal cost rate calculated under the EAN actuarial cost method. These rates were adopted for the period 2009-13.

During the 2010 Interim, the Board adopted long-term stable contribution rates equal to the rates currently being collected. These rates match those adopted in the 2008 Interim plus an additional 0.01 percent member and employer rate to cover the cost of 2009 Legislation. These rates were adopted for the period 2011-17.

Adopted Contribution Rates*	
Member	8.46%
Employer**	5.08%
State	3.38%
*Adopted for period 2011-2017.	
**Excludes administrative expense rate.	

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

Comments on 2009 Results

The following comments summarize the key changes from the last valuation. Please see the Actuarial Certification for additional comments on the 2009 valuation results.

The most significant change since the last valuation was the actuarial loss on assets. The actual investment return on the market value of assets was -22.84 percent compared to the assumed rate of 8 percent. This loss of nearly 31 percent will be smoothed over the next eight years based on the asset valuation method prescribed by the Legislature. As a result, we expect to see upward pressure on future contribution rates and a decrease in projected funded status while we recognize this asset loss. Actual contribution rate increases and future funded status will depend on future contribution levels, actual investment returns, and future plan provisions. Additional information on future contribution rates and projected funded status is available in our *2010 Risk Assessment* on our website.

The actuarial loss on assets was offset in part by the minimum contributions to the plan that were higher than otherwise required.

Liability and salary gains or losses also impact contribution rates. These occur when annual economic and demographic experience differ from our long-term assumptions or when there are changes in plan provisions or actuarial assumptions or methods.

Overall, the liabilities increased more than expected resulting in an actuarial loss to the plan. In addition, the present value of future salaries increased more than expected so the salary base for collecting contributions is larger; this results in an actuarial gain to the plan.

Actuarial gains will reduce contribution rates; actuarial losses will increase contribution rates. Under a reasonable set of actuarial assumptions and methods, actuarial gains and losses will offset over long-term experience periods.

Detailed gain and loss information can be found in the Actuarial Exhibits section of this report.

Actuarial Liabilities

The table below summarizes key measures of actuarial liability along with the liabilities from last year's valuation. See the Actuarial Exhibits section of this report for additional information on the plan's actuarial liabilities. Also, see the Glossary for brief explanations of the actuarial terms.

Actuarial Liabilities		
<i>(Dollars in millions)</i>	2009	2008
Present Value of Fully Projected Benefits	\$7,394	\$6,596
Unfunded Actuarial Accrued Liability	N/A	N/A
Projected Unit Credit Liability	\$4,349	\$3,786
Valuation Interest Rate	8.00%	8.00%

Plan Assets

The next table shows the market value of assets and actuarial (or smoothed) value of assets along with approximate rates of investment return. See the Actuarial Exhibits section of this report for additional information on the plan's assets as well as the development of the actuarial value of assets.

Assets		
(Dollars in millions)	2009	2008
Market Value of Assets	\$4,309	\$5,315
Actuarial Value of Assets	5,564	5,053
Contributions*	257	235
Disbursements	44	35
Investment Return	(1,223)	(70)
Other**	\$3	\$1
Rate of Return on Assets***	(22.84%)	(1.22%)

*Employee and Employer.

**Includes transfers, restorations, payables, etc.

***This is the time-weighted rate of return on the Market Value of Assets. The Actuarial Value of Assets is used in determining contribution rates.

Funded Status

We use the Projected Unit Credit (PUC) actuarial cost method to report the funded status of the plan. The PUC actuarial cost method projects future benefits under the plan, using salary growth and other assumptions, and applies the service that has been earned as of the valuation date to determine accrued (earned) liabilities. Comparing the PUC liabilities to the actuarial value of assets provides an appropriate measure of a plan's funded status.

We did not use the PUC cost method to determine contribution requirements in this valuation. Please see the Glossary for a more detailed explanation of PUC.

The next table displays the funded status for LEOFF Plan 2.

Funded Status		
(Dollars in millions)	2009	2008
a. Projected Unit Credit Liability	\$4,349	\$3,786
b. Actuarial Value of Assets	5,564	5,053
c. Unfunded Liability (a-b)	(\$1,215)	(\$1,266)
d. Projected Unit Credit Funded Ratio (b/a)	128%	133%

Note: Totals may not agree due to rounding.

Participant Data

The following table summarizes the participant data used in the actuarial valuation for the plan year ending June 30, 2009, along with comparable information from last year's valuation. See the Participant Data section of this report for additional information.

Participant Data		
	2009	2008
Active Members		
Number	16,951	16,626
Total Salaries (in millions)	\$1,443	\$1,345
Average Annual Salary	\$85,097	\$80,889
Average Attained Age	41.6	41.2
Average Service	12.7	12.3
Retirees and Beneficiaries		
Number	1,367	1,134
Average Annual Benefit	\$27,708	\$25,489
Terminated Members		
Number Vested	672	649
Number "Non-Vested"	1,663	1,531

Key Assumptions

The next table displays key economic assumptions used in the actuarial valuation. These assumptions remain unchanged from the previous year's valuation. See the Actuarial Methods and Assumptions in the Appendices for a detailed listing of assumptions used in this valuation.

Key Assumptions	
Valuation Interest Rate	8.00%
Salary Increase	4.50%
Inflation	3.50%
Growth in Membership	1.25%

Actuarial Exhibits





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**Actuarial Certification Letter
Law Enforcement Officers' and Fire Fighters'
Retirement System Plan 2
Actuarial Valuation Report
As of June 30, 2009
October 2010**

This report documents the results of an actuarial valuation of the Law Enforcement Officers' and Fire Fighters' Retirement System Plan 2 (LEOFF 2) as defined under Chapter 41.26 of the Revised Code of Washington. The primary purpose of this valuation is to determine contribution requirements for the retirement plan as of the June 30, 2009, valuation date under the funding policy established by the LEOFF 2 Retirement Board (the Board). This valuation also provides information on the funding progress and developments in the plan over the past year. This valuation report should not be used for other purposes.

The valuation results summarized in this report involve calculations that require assumptions about future economic and demographic events. We believe that the assumptions and methods used in the underlying valuation are reasonable and appropriate for the primary purpose stated above. The use of another set of assumptions and methods, however, could also be reasonable and could produce materially different results.

The assumptions used in this valuation for investment return, inflation, salary growth, and membership growth were prescribed by the Legislature. The Board adopted updates to the demographic assumptions as part of their review of the 2001 – 2006 experience study results and adoption of the associated contribution rates. Additionally, the Board adopted new disability assumptions in the 2010 Interim. See the [LEOFF 2 Disability Experience Study](#) available on the LEOFF 2 website. The Legislature was responsible for the selection of the actuarial cost and asset valuation methods. In our opinion, all methods, assumptions, and calculations are reasonable and are in conformity with generally accepted actuarial principles and standards of practice as of the date of this publication.

The Department of Retirement Systems (DRS) provided us with member and beneficiary data. We checked the data for reasonableness as appropriate based on the purpose of the valuation. The Washington State Investment Board (WSIB) and DRS provided financial and asset information. An audit of the financial and participant data was not performed. We relied on all the information provided as complete and

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accurate. In our opinion, this information is adequate and substantially complete for purposes of this valuation.

The asset smoothing method adopted during the 2003 Legislative session (Chapter 11, Laws of 2003, E1) was intended to address the volatility of contribution rates under the aggregate funding method when used in combination with the existing asset allocation policy of WSIB. The combination of the current asset smoothing method with any other funding method or asset allocation policy may not be appropriate.

The undersigned, with actuarial credentials, meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Sincerely,

Matthew M. Smith, FCA, EA, MAAA
State Actuary

Lisa A. Won, ASA, MAAA
Actuary

Contribution Rates

Member and Employer Rate Summary		
	2009	2008
Member	7.40%	7.23%
Employer*	4.44%	4.34%
State (Normal Cost)	2.96%	2.89%
State (Plan 1 UAAL)	0.00%	0.00%
Total State	2.96%	2.89%

*Excludes administrative expense rate.

Development of Employer/State Rates	
a. Total Normal Cost	14.80%
b. Employee Normal Cost (a x 50%)	7.40%
c. Total Employer/State Contribution (a - b)	7.40%
d. State Normal Cost (a x 20%)	2.96%
e. Employer Normal Cost (c - d)	4.44%
f. Cost to Amortize Plan 1 UAAL	0.00%
g. Total Employer Contribution Rate (e + f)	4.44%

Note: The state pays 20% of the total normal cost for LEOFF 2.

The tables on the following page show the development of the normal cost rates. Consistent with the Board's funding policy to maintain stable and adequate contribution rates, the normal cost rates include minimum contribution rates. The minimum rates are 90 percent of the normal cost calculated under the EAN funding method.

Development of Normal Cost Rates		
<i>(Dollars in millions)</i>		
1. Calculation of Member Rate		
a.	Present Value of Fully Projected Benefits	\$7,366
b.	Valuation Assets	5,564
c.	Unfunded Fully Projected Benefits (a - b)	1,802
Present Value of Projected Salaries to Current Members (PVS)		
d.	Plan 1 PVS	N/A
e.	Plan 2 PVS	17,298
f.	Weighted PVS (2d + 2e)	\$34,597
g.	Employee Normal Cost (c / f)	5.21%
h.	Employee Minimum Contribution Rate	7.31%
i.	Employee Contribution Rate with Minimum	7.31%
j.	Change In Plan Provisions (Laws of 2010)	0.09%
k.	Employee Contribution Rate (i + j)	7.40%
2. Calculation of Employer/State Rate		
a.	Present Value of Fully Projected Benefits	\$7,366
b.	Valuation Assets	5,564
c.	Unfunded Fully Projected Benefits (a - b)	1,802
d.	Present Value of Employee Contributions	901
e.	Employer/State Responsibility (c - d)	\$901
f.	Plan 2 PVS	\$17,298
g.	Employer/State Normal Cost (e / f)	5.21%
h.	Employer/State Minimum Contribution Rate	7.31%
i.	Employer/State Contribution Rate with Minimum	7.31%
j.	Change In Plan Provisions (Laws of 2010)	0.09%
k.	Total Employer/State Contribution Rate (i + j)	7.40%
3. Contribution Rates Adopted for 2011-17		
a.	Employee Contribution Rate*	8.46%
b.	Employer/State Contribution Rate (a - b)*	5.08%
c.	State Contribution Rate*	3.38%
d.	Total Contribution Rate (a + b + c)	16.92%

Note: Totals may not agree due to rounding.

**LEOFF 2 rate: 50% Employee, 30% Employer, 20% State.*

Amortization of the Plan 1 Unfunded Actuarial Accrued Liability (UAAL)*	
<i>(Dollars in millions)</i>	LEOFF 1
a. Actuarial Present Value of Fully Projected Benefits	\$4,501
b. Valuation Assets	5,612
c. Actuarial Present Value of Future Normal Costs	0
d. UAAL (a - b - c)	(1,111)
e. Expected UAAL Contributions to 2011	0
f. Remaining UAAL (d - e)	(\$1,111)
g. Amortization Date	6/30/2024
h. Present Value of Projected Salaries beyond 2011	\$16,187
i. Preliminary Rate (f / h)**	(6.86%)
j. Change In Plan Provisions (Laws of 2010)	0.00%
k. Contribution Rate to Amortize the UAAL (i + j)**	(6.86%)

Note: Totals may not agree due to rounding.

*Please see the Washington State 2009 Actuarial Valuation, available on OSA's website, for the details supporting the LEOFF Plan 1 results shown in this report.

**No LEOFF 1 UAAL contributions are required when the plan is fully funded under current funding policy.

Actuarial Liabilities

Present Value of Fully Projected Benefits	
<i>(Dollars in millions)</i>	
Active Members	
Retirement	\$6,042
Termination	83
Death	51
Disability	356
Return of Contributions on Termination	79
Return of Contributions on Death	73
Total Active	\$6,683
Inactive Members	
Terminated	\$111
Service Retired	493
Disability Retired	53
Survivors	25
Total Inactive	\$683
Laws of 2010	28
2009 Total	\$7,394
2008 Total	\$6,596

Note: Totals may not agree due to rounding.

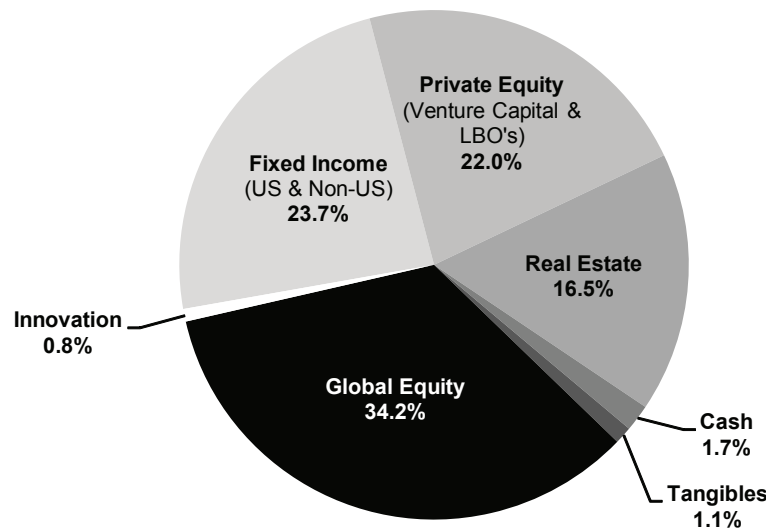
Present Value of Projected Unit Credit Benefits*	
<i>(Dollars in millions)</i>	
Active Members	
Retirement	\$3,267
Termination	47
Death	33
Disability	211
Return of Contributions on Termination	43
Return of Contributions on Death	39
Total Active	\$3,639
Inactive Members	
Terminated	\$111
Service Retired	493
Disability Retired	53
Survivors	25
Total Inactive	\$683
Laws of 2010	27
2009 Total	\$4,349
2008 Total	\$3,786

Note: Totals may not agree due to rounding.

* Calculated using the Projected Unit Credit (PUC) cost method.
This method was not used to determine contribution requirements.

Plan Assets

Retirement Commingled Trust Fund (CTF) Asset Allocation



Cash: Highly liquid, very safe investments that can be easily converted into cash, such as Treasury Bills and money-market funds.

Fixed Income: Securities representing debt obligations and usually having fixed payments and maturities. Different types of fixed income securities include government and corporate bonds, mortgage-backed securities, asset-backed securities, convertible issues, and may also include money-market instruments.

Innovation: Fund that provides the ability to invest in a broad range of assets that fall outside the traditional asset classes or management style of existing asset classes.

Global Equity: Shares of U.S. and non-U.S. corporations that trade on public exchanges or “over-the-counter.” The ownership of a corporation is represented by shares that are claimed on the corporation’s earnings and assets.

Private Equity: The infusion of equity capital into a private company (one which is not available on the public markets). Private equity investments include securities that are not listed on a public exchange and are not easily accessible to most individuals. These investments range from initial capital in start-up enterprises to leveraged buyouts of mature corporations.

Real Estate: An externally-managed selection of partnership investments with the majority of the partnerships invested in high-quality real estate leased to third parties.

Tangibles: The tangible asset portfolio invests in sectors such as infrastructure, timber, agriculture, natural resources, commodities, or other sectors consistent with the goals of the asset class.

Change in Market Value of Assets	
<i>(Dollars in millions)</i>	
2008 Market Value	\$5,315
Revenue	
Contributions	
Employee	128
Employer/State	129
Total Contributions	257
Investment Return	(1,223)
Restorations	2
Transfers In	1
Miscellaneous	0
Total Revenue	(\$963)
Disbursements	
Monthly Benefits	37
Refunds	7
Total Benefits	44
Transfers Out	0
Expenses	0
Total Disbursements	\$44
Payables	\$0
 2009 Market Value	 \$4,309
2009 Actuarial Value	\$5,564
Ratio (AV/MV)	129%

Note: Totals may not agree due to rounding.

Calculation of Actuarial Value of Assets		
<i>(Dollars in millions)</i>		
a.	Market Value at 6/30/2009	\$4,309
b.	Deferred Investment Gains and (Losses)	
	Plan Year Ending	Percent Deferred
	6/30/2009	87.50% (1,447)
	6/30/2008	75.00% (368)
	9/30/2007	62.50% 290
	9/30/2006	50.00% 142
	9/30/2005	37.50% 108
	9/30/2004	0.00% 0
	9/30/2003	12.50% 19
	Total	(\$1,256)
c.	Market Value less Deferral (a - b)	\$5,564
d.	70% of Market Value of Assets	\$3,016
e.	130% of Market Value of Assets	\$5,601
f.	Actuarial Value of Assets*	\$5,564

Note: Totals may not agree due to rounding.

**Actuarial Value of Assets can never be less than 70% or greater than 130% of the market value of assets.*

Investment Gains and (Losses) for Prior Year		
<i>(Dollars in Millions)</i>		
a.	2008 Market Value (at WSIB)	\$5,300
b.	Total Cash Flow	216
c.	2009 Market Value (at WSIB)	4,294
d.	Actual Return (c - b - a)	(\$1,222)
e.	Weighted Asset Amount	\$5,389
f.	Expected Return (8% x e)	431
g.	Investment Gain/(Loss) for Prior Year (d - f)	(1,653)
h.	Dollar-Weighted Rate of Return	(22.64%)

Funded Status

We report a plan's funded status by comparing the plan's current assets to the present value of earned pensions of its members. A plan's funded status can vary significantly, depending on the assumptions and methods used to determine the value of the plan's assets and liabilities. For this valuation report, we present two funded status measures.

The first funded status measure compares the Actuarial Value of Assets (AVA) to the PUC liabilities calculated using a long-term interest assumption. The second measure compares the Market Value of Assets (MVA) to the PUC liabilities calculated using a short-term interest assumption. The next sections describe these measures in more detail and display the resulting funded status for the plan. Please see the Glossary for an explanation of the PUC actuarial cost method.

We include information for LEOFF Plan 1 because the prior funding policy required the state to amortize any LEOFF 1 Unfunded Actuarial Accrued Liability (UAAL) not later than June 30, 2024, using projected salaries of both LEOFF 1 and LEOFF 2 members.

Funded Status on an Actuarial Value Basis

We report the funded status on an actuarial value basis as the ratio of the AVA to the PUC liability calculated using the 8 percent valuation interest rate assumption. We assume the plan is on-going and, therefore, we use the same long-term assumptions to develop the assets and liabilities as we used for determining the contribution requirements of the plan. We don't expect the assumptions to match actual experience over short-term periods. However, we do expect these assumptions to reasonably approximate average annual experience over long-term periods. This measure of funded status is consistent with the state's current funding policy and financing plan for future retirement benefits.

We use an asset valuation method to determine the AVA. This asset valuation method smoothes the inherent volatility in the MVA by deferring a portion of annual investment gains or losses for a certain number of years. Investment gains and losses occur when the annual return on investments varies from the long-term assumed rate of 8 percent. The AVA provides a more stable measure of the plan's assets on an on-going basis.

We use the PUC actuarial cost method to determine the present value of earned pensions. The PUC liabilities are actuarial liabilities based on members' earned service credit as of the valuation date. They include future assumed salary increases and reflect future service credits for determining benefit eligibility. The PUC liabilities are discounted to the valuation date using the valuation interest rate to determine the present value (today's value). The valuation interest rate is consistent with the long-term expected return on invested contributions.

The following table displays the funded status on an actuarial value basis for LEOFF 2.

Funded Status on an Actuarial Value Basis*			
(Dollars in millions)		LEOFF 2	LEOFF 1
Projected Unit Credit Liability		\$4,349	\$4,477
Valuation Assets		\$5,564	\$5,612
Unfunded Liability		(\$1,215)	(\$1,135)
Funded Ratio			
	2009 **	128%	125%
2008 **		133%	128%
2007 **		129%	123%
2006 **		116%	117%
2005 **		114%	114%
2004		117%	109%
2003		125%	112%
2002		137%	119%
2001 **		154%	129%
2000 **		161%	136%
1999		154%	125%
1998		160%	117%
1997 **		155%	108%
1996		130%	89%
1995		126%	80%
1994 **		124%	68%
1993		127%	68%
1992		128%	65%
1991		154%	66%
1990		153%	65%
1989 **		158%	65%
1988		153%	66%
1987		157%	69%
1986		142%	57%

Note: Totals may not agree due to rounding.

*Liabilities valued using the Projected Unit Credit (PUC) cost method at an interest rate of 8%. All assets have been valued under the actuarial asset method.

**Assumptions changed.

The present value of actuarial liabilities is sensitive to the interest rate assumption. The following tables show how the funded status changes when we use different interest rate assumptions. We calculated liabilities using a 7 percent and 9 percent interest rate to show this sensitivity.

Funded Status at a 7% Interest Rate Assumption*			
<i>(Dollars in millions)</i>		LEOFF 2	LEOFF 1
Projected Unit Credit Liability		\$5,214	\$4,927
Valuation Assets		\$5,564	\$5,612
Unfunded Liability		(\$351)	(\$685)
Funded Ratio			
2009		107%	114%
2008		111%	117%
2007		107%	111%

Note: Totals may not agree due to rounding.

**Liabilities valued using the Projected Unit Credit (PUC) cost method at an interest rate of 7%. All assets have been valued under the actuarial asset method.*

Funded Status at a 9% Interest Rate Assumption			
<i>(Dollars in millions)</i>		LEOFF 2	LEOFF 1
Projected Unit Credit Liability		\$3,672	\$4,093
Valuation Assets		\$5,564	\$5,612
Unfunded Liability		(\$1,892)	(\$1,519)
Funded Ratio			
2009		152%	137%
2008		159%	141%
2007		154%	135%

Note: Totals may not agree due to rounding.

**Liabilities valued using the Projected Unit Credit (PUC) cost method at an interest rate of 9%. All assets have been valued under the actuarial asset method.*

Funded Status on a Market Value Basis

We report the funded status on a market value basis as the ratio of the MVA to the PUC liability calculated using a 5.5 percent interest rate assumption. The funded status on a market value basis provides a measure of the plan's health if the plan is "settled" or "immunized" on the valuation date. Immunizing a pension plan means attaching assets to liabilities so the assets maturing each year match the expected pension payments due from the pension plan each year. A plan can be settled by purchasing annuities on the open market for each member, or immunized by investing the assets in bonds with payment streams that match the expected benefit payments. Expected benefit payments would include growth for future salary inflation, which is why we have used the PUC liability measure instead of a purely accrued liability measure.

Because LEOFF 2 is open and on-going, we only present the market value funded status for the closed LEOFF Plan 1. Although LEOFF 1 is closed to new members, it is not settled and has not been immunized. However, there is an opportunity to immunize the plan in the future. LEOFF 1 is considered an on-going plan because current annuitants continue to receive their benefits from the retirement trust fund, and current active members continue to accrue benefits under the plan. However, because the plan is closed to new members, the future benefit payments are more predictable, have a shorter duration, and would be easier to immunize. The decision to settle or immunize LEOFF 1 is complex and would require additional actuarial analysis and information that is outside the scope of this report.

The following table displays the market value funded status for LEOFF 1 as described above.

Funded Status on a Market Value Basis*		
<i>(Dollars in millions)</i>		LEOFF Plan 1
Projected Unit Credit Liability		\$5,764
Market Value of Assets		\$4,355
Unfunded Liability		\$1,409
Funded Ratio		
	2009	76%
	2008	107%
	2007	114%
	2006	102%
	2005	94%
	2004	82%

Note: Totals may not agree due to rounding.

**Liabilities have been valued using an interest rate of 5.5% while assets are their market value. The 5.5% interest rate approximates the "risk-free" rate of return on assets. This method was not used to determine contribution requirements.*

Both funded status measures vary based on the measurement (valuation) date and the market conditions on that date. The market value measure, however, is more volatile because the asset value has no smoothing and the ability to immunize the plan depends on current bond yields and annuity purchase rates.

Actuarial Gains/Losses

Change in Employer and State Contribution Rate by Source	
Change in Employer Rate	
2008 Contribution Rate Before Laws of 2009	(5.29%)
Remove Rate Floor / Ceiling	(1.02%)
Prior Liability and Funding Method Changes	0.00%
2008 Adjusted Contribution Rate	(6.31%)
Liability Gains/Losses	0.66%
Asset Gains/Losses	0.53%
Present Value of Future Salaries Gains/Losses	(0.01%)
Incremental Changes	0.36%
Other Gains/Losses	(0.01%)
Total Change	1.53%
2009 Preliminary Contribution Rate	(4.78%)
Increase from Applied Rate Floor	0.85%
Decrease from Applied Rate Ceiling	0.00%
Rate to Amortize Prior Liability	0.00%
Excess Member Rate	N/A
Laws of 2010	0.03%
2009 Adjusted Contribution Rate	(3.90%)

The LEOFF contribution rate is the State's portion for Plan 2 (20% of the Normal Cost) plus the UAAL rate for Plan 1.

Change in Employer and State Normal Cost by Source	
Change in Normal Costs	
2008 Normal Cost Before Laws of 2009	2.89%
Remove Rate Floor / Ceiling	(1.02%)
Remove Prior Employer Liability	0.00%
2008 Adjusted Normal Cost Rate	1.87%
Liabilities	
Salaries	(0.01%)
Termination	(0.01%)
Retirement	(0.01%)
Growth / Return to Work	0.21%
Other Liabilities	0.03%
Total Liability Gains/Losses	0.21%
Asset Gains/Losses	(0.02%)
Present Value of Future Salaries Gains/Losses	(0.11%)
Incremental Changes	
Plan Change	0.00%
Method Change	0.00%
Assumption Change	0.14%
Correction Change	0.00%
Total Incremental Changes Gains/Losses	0.14%
Other Gains/Losses	(0.01%)
Total Change	0.21%
2009 Preliminary Normal Cost	2.08%
Increase from Applied Rate Floor	0.85%
Rate to Amortize Prior Employer Liability	0.00%
Laws of 2010	0.03%
2009 Adjusted Normal Cost	2.96%

The LEOFF contribution rate is the State's portion for Plan 2 (20% of the Normal Cost) plus the UAAL rate for Plan 1.

Change in State UAAL Rate by Source	
Change in UAAL Rate	
2008 UAAL Rate Before Laws of 2009	(8.18%)
Remove Rate Floor / Ceiling	0.00%
2008 Adjusted UAAL Rate	(8.18%)
Liabilities	
Salaries	0.03%
Termination	0.00%
Retirement	(0.03%)
Return to Work	0.03%
Inflation (CPI)	0.24%
Other Liabilities	0.18%
Total Liability Gains/Losses	0.45%
Asset Gains/Losses	0.55%
Present Value of Future Salaries Gains/Losses	0.10%
Incremental Changes	
Plan Change	0.22%
Method Change	0.00%
Assumption Change	0.00%
Correction Change	0.00%
Total Incremental Changes Gains/Losses	0.22%
Other Gains/Losses	0.00%
Total Change	1.32%
2009 Preliminary UAAL Rate	(6.86%)
Increase from Applied Rate Floor	N/A
Decrease from Applied Rate Ceiling	0.00%
Laws of 2010	0.00%
2009 Adjusted UAAL Rate	(6.86%)

Note: The LEOFF contribution rate is the UAAL rate for plan 1. The plan has a surplus of assets over liabilities, so no rate is required under current funding policy.

Effect of Plan, Assumption, and Method Changes

In addition to experience gains or losses, significant changes in plan provisions or actuarial assumptions and methods will also impact contribution rates.

Plan Changes

- ✦ LEOFF 2 Shared Leave (Chapter 50, Laws of 2010).
- ✦ LEOFF 2 Medical Premiums (Chapter 259, Laws of 2010).
- ✦ Public Safety Duty Death Benefits (Chapter 261, Laws of 2010).

Assumption Changes

- ✦ We updated the Early Retirement Factors and Joint & Survivor Factors based on results of the 2001-2006 demographic experience study and adoption by the LEOFF 2 Board.
- ✦ We performed an experience study for the LEOFF Plan 2 disability assumptions based on recent experience data. Both the disability rates and the percent of disabilities assumed to be catastrophic changed as a result of this study.
- ✦ We increased our assumed ratio of survivors selecting annuities in accordance with Chapter 523, Laws of 2009.

Method Changes

- ✦ We refined the LEOFF Plan 2 inactive death benefit in our model to include the survivor's option to select 150 percent of the member's savings in lieu of a monthly benefit.

Effect of Changes on the Current Valuation

The following table shows the effect of the above changes on the current actuarial valuation results.

Effect of Plan, Assumption, and Method Changes	
Before Changes	
Present Value Fully Projected Benefits	\$7,253
Present Value Projected Unit Credit Benefits	4,304
Actuarial Value of Assets	5,564
Unfunded Liability	(1,260)
Employer Contribution Rate	4.38%
After Changes	
Present Value Fully Projected Benefits	\$7,394
Present Value Projected Unit Credit Benefits	4,349
Actuarial Value of Assets	5,564
Unfunded Liability	(1,215)
Employer Contribution Rate	4.44%
Increase/(Decrease) in Rate	0.06%

Before and after changes include actuarial gains and losses for the year ending 6/30/2009.

The LEOFF contribution rate is the Employer's portion only (30% of the Plan 2 Normal Cost).

Both before and after contribution rates include rate minimums.

Participant Data



Participant Data

Overview of System Membership

LEOFF 2 - Law Enforcement Officers' and Fire Fighters' Retirement System Plan 2 (Chapter 41.26 RCW).

Membership includes fire fighters; emergency medical technicians; law enforcement officers including sheriffs; university, port, and city police officers; and Department of Fish and Wildlife enforcement officers.

Active Membership By Employer	
State Agencies	114
Higher Education	107
Community Colleges	0
K-12	0
Counties	2,914
County Sub Divisions	47
First Class Cities	5,015
Other Cities	5,198
Ports	173
Education Service District	0
Fire Districts	3,383
Public Utility District	0
Water Districts	0
Energy Northwest	0
Unions	0
TOTAL	16,951

The following table summarizes participant data changes from last year's valuation to this year's valuation. We divide the participant data into two main categories.

- ❖ Actives - members accruing benefits in the plan.
- ❖ Annuitants - members and beneficiaries receiving benefits from the plan.

Participant Data

Reconciliation of Participant Data	
2008 Actives	16,626
Transfers	0
Hires/Rehires	861
New Retirees	(182)
Deaths	(10)
Terminations	(344)
2009 Actives	16,951
2008 Annuitants	1,134
New Retirees	230
Annuitant Deaths	(5)
New Survivors	13
Other	(5)
2009 Annuitants	1,367
Ratio of Actives to Annuitants	12.40

Summary of Plan Participants

Summary of Plan Participants		
	2009	2008
Active Members		
Number	16,951	16,626
Total Salaries (millions)	\$1,443	\$1,345
Average Age	41.6	41.2
Average Service	12.7	12.3
Average Salary	\$85,097	\$80,889
Terminated Members		
Number Vested	672	649
Number "Non-Vested"	1,663	1,531
Retirees		
Number of Retirees (All)	1,367	1,134
Average Monthly Benefit, All Retirees	\$2,309	\$2,124
Number of New "Service Retirees"	199	188
Average Monthly Benefit, New "Service Retirees"	\$3,015	\$2,652

Appendices



Appendices

Actuarial Methods and Assumptions

To calculate the contribution rates necessary to pre-fund the plan's benefits, an actuary uses economic assumptions, demographic assumptions, and an actuarial cost method.

Economic Assumptions

These generally include the annual rate of return on plan assets, annual rate of inflation, and annual rate of salary growth. The economic assumptions used in this actuarial valuation are prescribed by the Legislature and shown in the following table.

Economic Assumptions	
Annual Growth in Membership	1.25%
Interest on Member Contributions ¹	5.50%
Return on Investment Earnings ²	8.00%
Inflation ³	3.50%
General Salary Increases (includes inflation) ⁴	4.50%
Annual COLA ⁵	3.00%

¹Annual rate, compounded quarterly, as set by the director of the Department of Retirement Systems.

²Annual rate, compounded annually.

³Based on the CPI: Urban Wage Earners & Clerical Workers, Seattle-Tacoma-Bremerton, WA - All Items.

⁴Excludes longevity, merit or step increases that usually apply to members in the early part of their careers.

⁵Based on the CPI (3% maximum per year).

Demographic Assumptions

These include rates of retirement, rates at which members become disabled, turnover rates, mortality rates, and several other demographic assumptions as disclosed later in this section.

Actuarial Cost Methods

The future benefit obligations (or costs of the plan) are spread over the working lifetimes of the plan members based on the actuarial cost method (or funding method) in place for the plan. This produces a future stream of contributions to pre-fund the plan's benefits. Different cost methods pre-fund plans at different rates. Some put more money in earlier whereas others put more money in later.

Actuarial cost methods generally have two parts, which serve to:

- ❖ Fund future benefits in a consistent manner from year to year.
- ❖ Make up for any shortfalls in prior funding, including differences in funding when experience differs from assumptions.

The two parts of an actuarial cost method are:

- ❖ The Normal Cost - the value of future benefits earned in the current plan year.
- ❖ Amortization of the Unfunded Actuarial Accrued Liability (UAAL) - the amount of past service liability that exceeds the value of the plan's assets.

The Legislature was responsible for the selection of the actuarial cost and asset valuation methods. The actuarial cost methods used for LEOFF are as follows:

LEOFF Plan 1: A variation of the Frozen Initial Liability Cost Method is used to determine the normal cost and the actuarial accrued liability for retirement, termination, and ancillary benefits. Under this method, the UAAL is equal to the unfunded actuarial present value of projected benefits less the actuarial present value of future normal costs for all active members and is reset at each valuation date. The present value of future normal costs is based on the Aggregate normal cost rate for Plan 2 and the resulting UAAL is amortized by June 30, 2024, as a level percentage of projected system payroll. The projected payroll includes pay from Plan 2 as well as projected payroll from future new entrants.

LEOFF Plan 2: The Aggregate Cost Method is used to determine the normal cost and the actuarial accrued liability. Under this method, the unfunded actuarial present value of fully projected benefits is amortized over the future payroll of the active group. Members pay 50 percent of the total normal cost. The entire contribution is considered normal cost and no UAAL exists.

We use the Projected Unit Credit (PUC) cost method to report the plan's funded status. The PUC cost method projects future benefits under the plan, using salary growth and other assumptions, and applies the service that has been earned as of the valuation date to determine accrued liabilities. Comparing the PUC liabilities to the actuarial value of assets on the valuation date provides an appropriate measure of a plan's funded status. Please see the Glossary for a further explanation of the PUC cost method.

We use the actuarial value of assets to calculate contribution rates, unfunded liabilities, and the plan's funded status. Because the market value of assets can be volatile from one year to the next, an asset valuation method is generally used to adjust the market value of assets and smooth the effects of short-term volatility. The adjusted assets are called the actuarial value of assets, or valuation assets.

For this valuation, we calculate the actuarial value of assets using an asset smoothing method. This smoothing method was adopted during the 2003 Legislative Session. Each year, beginning with the application of this smoothing method, we determine the amount the actual investment return exceeds (or falls below) the expected investment return and we smooth that year's gain (or loss) based on the scale in the following table.

Annual Gain/Loss		
Rate of Return	Smoothing Period	Annual Recognition
15% and up	8 years	12.50%
14-15%	7 years	14.29%
13-14%	6 years	16.67%
12-13%	5 years	20.00%
11-12%	4 years	25.00%
10-11%	3 years	33.33%
9-10%	2 years	50.00%
7-9%	1 year	100.00%
6-7%	2 years	50.00%
5-6%	3 years	33.33%
4-5%	4 years	25.00%
3-4%	5 years	20.00%
2-3%	6 years	16.67%
1-2%	7 years	14.29%
1% and lower	8 years	12.50%

Additionally, to ensure the actuarial value of assets maintains a reasonable relationship to the market value of assets, a 30 percent corridor is in place. This means the actuarial value of assets may not exceed 130 percent nor drop below 70 percent of the market value of assets in any valuation.

Changes in Methods and Assumptions since the Last Valuation

- ✦ We implemented new administrative factors.
- ✦ We changed disability rates and the assumed percent of members with disabilities receiving total disability benefits.
- ✦ We increased our assumed ratio of survivors selecting annuities in accordance with Chapter 523, Laws of 2009.
- ✦ We refined the inactive death benefit in our model to include the survivor's option to select 150 percent of the member's savings in lieu of a monthly benefit.

Appendices

Demographic Assumptions

RP-2000 Mortality Rates			50% Scale AA		
Combined Healthy Table					
Age	Male	Female	Age	Male	Female
20	0.000345	0.000191	20	0.009500	0.008000
21	0.000357	0.000192	21	0.009000	0.008500
22	0.000366	0.000194	22	0.008500	0.008500
23	0.000373	0.000197	23	0.007500	0.008000
24	0.000376	0.000201	24	0.006500	0.007500
25	0.000376	0.000207	25	0.005000	0.007000
26	0.000378	0.000214	26	0.003000	0.006000
27	0.000382	0.000223	27	0.002500	0.006000
28	0.000393	0.000235	28	0.002500	0.006000
29	0.000412	0.000248	29	0.002500	0.006000
30	0.000444	0.000264	30	0.002500	0.005000
31	0.000499	0.000307	31	0.002500	0.004000
32	0.000562	0.000350	32	0.002500	0.004000
33	0.000631	0.000394	33	0.002500	0.004500
34	0.000702	0.000435	34	0.002500	0.005000
35	0.000773	0.000475	35	0.002500	0.005500
36	0.000841	0.000514	36	0.002500	0.006000
37	0.000904	0.000554	37	0.002500	0.006500
38	0.000964	0.000598	38	0.003000	0.007000
39	0.001021	0.000648	39	0.003500	0.007500
40	0.001079	0.000706	40	0.004000	0.007500
41	0.001142	0.000774	41	0.004500	0.007500
42	0.001215	0.000852	42	0.005000	0.007500
43	0.001299	0.000937	43	0.005500	0.007500
44	0.001397	0.001029	44	0.006000	0.007500
45	0.001508	0.001124	45	0.006500	0.008000
46	0.001616	0.001223	46	0.007000	0.008500
47	0.001734	0.001326	47	0.007500	0.009000
48	0.001860	0.001434	48	0.008000	0.009000
49	0.001995	0.001550	49	0.008500	0.009000
50	0.002138	0.001676	50	0.009000	0.008500
51	0.002449	0.001852	51	0.009500	0.008000
52	0.002667	0.002018	52	0.010000	0.007000
53	0.002916	0.002207	53	0.010000	0.006000
54	0.003196	0.002424	54	0.010000	0.005000
55	0.003624	0.002717	55	0.009500	0.004000
56	0.004200	0.003090	56	0.009000	0.003000
57	0.004693	0.003478	57	0.008500	0.002500
58	0.005273	0.003923	58	0.008000	0.002500
59	0.005945	0.004441	59	0.008000	0.002500
60	0.006747	0.005055	60	0.008000	0.002500
61	0.007676	0.005814	61	0.007500	0.002500
62	0.008757	0.006657	62	0.007500	0.002500
63	0.010012	0.007648	63	0.007000	0.002500
64	0.011280	0.008619	64	0.007000	0.002500
65	0.012737	0.009706	65	0.007000	0.002500
66	0.014409	0.010954	66	0.006500	0.002500
67	0.016075	0.012163	67	0.006500	0.002500
68	0.017871	0.013445	68	0.007000	0.002500
69	0.019802	0.014860	69	0.007000	0.002500

RP-2000 Mortality Rates			50% Scale AA		
Combined Healthy Table					
Age	Male	Female	Age	Male	Female
70	0.022206	0.016742	70	0.007500	0.002500
71	0.024570	0.018579	71	0.007500	0.003000
72	0.027281	0.020665	72	0.007500	0.003000
73	0.030387	0.022970	73	0.007500	0.003500
74	0.033900	0.025458	74	0.007500	0.003500
75	0.037834	0.028106	75	0.007000	0.004000
76	0.042169	0.030966	76	0.007000	0.004000
77	0.046906	0.034105	77	0.006500	0.003500
78	0.052123	0.037595	78	0.006000	0.003500
79	0.057927	0.041506	79	0.005500	0.003500
80	0.064368	0.045879	80	0.005000	0.003500
81	0.072041	0.050780	81	0.004500	0.003500
82	0.080486	0.056294	82	0.004000	0.003500
83	0.089718	0.062506	83	0.004000	0.003500
84	0.099779	0.069517	84	0.003500	0.003500
85	0.110757	0.077446	85	0.003500	0.003000
86	0.122797	0.086376	86	0.003500	0.002500
87	0.136043	0.096337	87	0.003000	0.002000
88	0.150590	0.107303	88	0.002500	0.002000
89	0.166420	0.119154	89	0.002500	0.001500
90	0.183408	0.131682	90	0.002000	0.001500
91	0.199769	0.144604	91	0.002000	0.001500
92	0.216605	0.157618	92	0.001500	0.001500
93	0.233662	0.170433	93	0.001500	0.001000
94	0.250693	0.182799	94	0.001500	0.001000
95	0.267491	0.194509	95	0.001000	0.001000
96	0.283905	0.205379	96	0.001000	0.001000
97	0.299852	0.215240	97	0.001000	0.000500
98	0.315296	0.223947	98	0.000500	0.000500
99	0.330207	0.231387	99	0.000500	0.000500
100	0.344556	0.237467	100	0.000500	0.000500
101	0.358628	0.244834	101	0.000000	0.000000
102	0.371685	0.254498	102	0.000000	0.000000
103	0.383040	0.266044	103	0.000000	0.000000
104	0.392003	0.279055	104	0.000000	0.000000
105	0.397886	0.293116	105	0.000000	0.000000
106	0.400000	0.307811	106	0.000000	0.000000
107	0.400000	0.322725	107	0.000000	0.000000
108	0.400000	0.337441	108	0.000000	0.000000
109	0.400000	0.351544	109	0.000000	0.000000
110	0.400000	0.364617	110	0.000000	0.000000

Scale AA represents annual improvements in mortality rates.

Scale AA represents annual improvements in mortality rates.

Projected Mortality					Projected Disabled Mortality				
LEOFF					LEOFF				
Plan 1 - 2019		Plan 2 - 2034		Age	Plan 1 - 2019		Plan 2 - 2034		Age
Male	Female	Male	Female		Male	Female	Male	Female	
Offsets	-1	1	-1	1	2	2	0	0	
20	0.000288	0.000165	0.000249	0.000146	0.000306	0.000166	0.016316	0.005670	20
21	0.000290	0.000165	0.000253	0.000145	0.000316	0.000168	0.016598	0.005573	21
22	0.000303	0.000168	0.000267	0.000148	0.000322	0.000171	0.016885	0.005573	22
23	0.000316	0.000173	0.000282	0.000153	0.000328	0.000178	0.017474	0.005670	23
24	0.000329	0.000180	0.000298	0.000160	0.000337	0.000186	0.018082	0.005768	24
25	0.000340	0.000188	0.000316	0.000169	0.000350	0.000196	0.019034	0.005867	25
26	0.000353	0.000199	0.000337	0.000182	0.000372	0.000210	0.020379	0.006071	26
27	0.000360	0.000210	0.000347	0.000192	0.000393	0.000221	0.020730	0.006071	27
28	0.000364	0.000221	0.000351	0.000202	0.000423	0.000236	0.020730	0.006071	28
29	0.000375	0.000236	0.000361	0.000216	0.000476	0.000275	0.020730	0.006071	29
30	0.000393	0.000280	0.000378	0.000260	0.000536	0.000319	0.020730	0.006283	30
31	0.000423	0.000324	0.000408	0.000305	0.000602	0.000365	0.020730	0.006501	31
32	0.000476	0.000365	0.000458	0.000343	0.000669	0.000402	0.020730	0.006501	32
33	0.000536	0.000399	0.000516	0.000373	0.000737	0.000435	0.020730	0.006391	33
34	0.000602	0.000431	0.000580	0.000400	0.000802	0.000466	0.020730	0.006283	34
35	0.000669	0.000462	0.000645	0.000425	0.000862	0.000497	0.020730	0.006176	35
36	0.000737	0.000493	0.000710	0.000451	0.000918	0.000532	0.020730	0.006071	36
37	0.000802	0.000528	0.000772	0.000478	0.000971	0.000571	0.020730	0.005968	37
38	0.000855	0.000566	0.000817	0.000510	0.001016	0.000617	0.020379	0.005867	38
39	0.000903	0.000612	0.000857	0.000547	0.001065	0.000671	0.020035	0.005768	39
40	0.000948	0.000671	0.000892	0.000599	0.001123	0.000738	0.019696	0.005768	40
41	0.000992	0.000738	0.000927	0.000660	0.001189	0.000812	0.019362	0.005768	41
42	0.001040	0.000812	0.000965	0.000725	0.001266	0.000892	0.019034	0.005768	42
43	0.001096	0.000892	0.001009	0.000797	0.001354	0.000973	0.018712	0.005768	43
44	0.001160	0.000973	0.001060	0.000869	0.001437	0.001057	0.018394	0.005768	44
45	0.001236	0.001048	0.001121	0.000929	0.001527	0.001135	0.018082	0.005670	45
46	0.001322	0.001126	0.001189	0.000990	0.001623	0.001217	0.018781	0.006122	46
47	0.001403	0.001208	0.001253	0.001055	0.001724	0.001305	0.019450	0.006588	47
48	0.001491	0.001305	0.001322	0.001140	0.001830	0.001414	0.020094	0.007188	48
49	0.001584	0.001414	0.001394	0.001234	0.002076	0.001564	0.020712	0.007820	49
50	0.001683	0.001577	0.001469	0.001388	0.002239	0.001724	0.021307	0.008629	50
51	0.001786	0.001738	0.001548	0.001540	0.002429	0.001906	0.021879	0.009495	51
52	0.002026	0.001937	0.001743	0.001743	0.002640	0.002134	0.022427	0.010597	52
53	0.002203	0.002169	0.001895	0.001981	0.002999	0.002438	0.023348	0.011788	53
54	0.002409	0.002478	0.002072	0.002298	0.003480	0.002826	0.024267	0.013069	54
55	0.002662	0.002872	0.002307	0.002704	0.003926	0.003238	0.025619	0.014436	55
56	0.003047	0.003290	0.002661	0.003145	0.004454	0.003711	0.027012	0.015889	56
57	0.003566	0.003741	0.003137	0.003603	0.005063	0.004235	0.028447	0.017132	57
58	0.004023	0.004235	0.003566	0.004079	0.005792	0.004820	0.029934	0.018102	58
59	0.004527	0.004820	0.004013	0.004643	0.006600	0.005544	0.030949	0.019074	59
60	0.005104	0.005544	0.004524	0.005340	0.007529	0.006348	0.031995	0.020057	60
61	0.005839	0.006348	0.005215	0.006114	0.008691	0.007293	0.033656	0.021065	61
62	0.006653	0.007293	0.005943	0.007024	0.009791	0.008219	0.034823	0.022115	62
63	0.007651	0.008219	0.006886	0.007916	0.011146	0.009255	0.036687	0.023229	63
64	0.008761	0.009255	0.007885	0.008914	0.012628	0.010445	0.038044	0.024430	64

Projected Mortality					Projected Disabled Mortality				
(Continued)					(Continued)				
LEOFF					LEOFF				
Age Offsets	Plan 1 - 2019		Plan 2 - 2034		Plan 1 - 2019		Plan 2 - 2034		Age
	Male -1	Female 1	Male -1	Female 1	Male 2	Female 2	Male 0	Female 0	
65	0.009871	0.010445	0.008883	0.010060	0.014088	0.011598	0.039514	0.025739	65
66	0.011236	0.011598	0.010189	0.011171	0.015765	0.012821	0.041830	0.027180	66
67	0.012730	0.012821	0.011544	0.012348	0.017468	0.014170	0.043622	0.028769	67
68	0.014088	0.014170	0.012679	0.013648	0.019402	0.015964	0.044818	0.030523	68
69	0.015638	0.015964	0.014074	0.015376	0.021468	0.017689	0.046948	0.032452	69
70	0.017189	0.017689	0.015353	0.017038	0.023645	0.019676	0.048450	0.034565	70
71	0.019246	0.019518	0.017191	0.018658	0.026337	0.021663	0.050972	0.036242	71
72	0.021295	0.021663	0.019021	0.020708	0.029382	0.024009	0.053731	0.038690	72
73	0.023645	0.023817	0.021120	0.022597	0.032841	0.026255	0.056741	0.040626	73
74	0.026337	0.026255	0.023525	0.024910	0.036604	0.028927	0.060008	0.043400	74
75	0.029620	0.028695	0.026657	0.027021	0.041107	0.031652	0.064631	0.045576	75
76	0.033107	0.031652	0.029796	0.029805	0.045748	0.034891	0.068478	0.048671	76
77	0.037199	0.035172	0.033732	0.033370	0.051331	0.038831	0.073824	0.052853	77
78	0.041775	0.038831	0.038169	0.036842	0.057587	0.042922	0.079573	0.056404	78
79	0.046867	0.042922	0.043146	0.040723	0.065070	0.047507	0.085714	0.060175	79
80	0.052585	0.047507	0.048777	0.045073	0.073395	0.052666	0.092234	0.064186	80
81	0.058993	0.052666	0.055134	0.049968	0.082474	0.058478	0.099118	0.068467	81
82	0.066658	0.058478	0.062769	0.055482	0.092602	0.065037	0.106350	0.073050	82
83	0.074584	0.065037	0.070232	0.061705	0.102790	0.072564	0.111993	0.077967	83
84	0.083810	0.072564	0.079516	0.068846	0.114883	0.081053	0.119761	0.083254	84
85	0.093349	0.081706	0.088566	0.078106	0.127467	0.091266	0.125690	0.090472	85
86	0.103619	0.092001	0.098310	0.088610	0.141310	0.102473	0.131700	0.098361	86
87	0.115809	0.103298	0.110706	0.100242	0.157422	0.114879	0.140160	0.106977	87
88	0.129529	0.114879	0.124756	0.111481	0.175153	0.126958	0.148954	0.114405	88
89	0.143596	0.127979	0.138304	0.125130	0.190777	0.140538	0.155426	0.124455	89
90	0.159968	0.140538	0.155235	0.137409	0.208834	0.153186	0.171339	0.133080	90
91	0.176563	0.153186	0.171339	0.149775	0.225279	0.165890	0.186624	0.142249	91
92	0.193860	0.165890	0.189544	0.162196	0.243644	0.177926	0.205827	0.151967	92
93	0.210514	0.179357	0.205827	0.176685	0.260360	0.190846	0.222036	0.164733	93
94	0.227092	0.190846	0.222036	0.188004	0.276337	0.201512	0.238219	0.176685	94
95	0.245603	0.201512	0.241945	0.198510	0.294206	0.211504	0.258545	0.188004	95
96	0.262454	0.211504	0.258545	0.208354	0.309824	0.220060	0.274410	0.198510	96
97	0.278559	0.221829	0.274410	0.220171	0.324476	0.229199	0.289823	0.211611	97
98	0.296571	0.229199	0.294354	0.227486	0.341810	0.235574	0.309980	0.220171	98
99	0.312314	0.235574	0.309980	0.233814	0.355770	0.242883	0.324640	0.227486	99
100	0.329712	0.244834	0.329712	0.244834	0.371685	0.254498	0.344556	0.237467	100
101	0.344556	0.254498	0.344556	0.254498	0.383040	0.266044	0.358628	0.244834	101
102	0.358628	0.266044	0.358628	0.266044	0.392003	0.279055	0.371685	0.254498	102
103	0.371685	0.279055	0.371685	0.279055	0.397886	0.293116	0.383040	0.266044	103
104	0.383040	0.293116	0.383040	0.293116	0.400000	0.307811	0.392003	0.279055	104
105	0.392003	0.307811	0.392003	0.307811	0.400000	0.322725	0.397886	0.293116	105
106	0.397886	0.322725	0.397886	0.322725	0.400000	0.337441	0.400000	0.307811	106
107	0.400000	0.337441	0.400000	0.337441	0.400000	0.351544	0.400000	0.322725	107
108	0.400000	0.351544	0.400000	0.351544	0.400000	0.351544	0.400000	0.337441	108
109	0.400000	0.351544	0.400000	0.351544	0.400000	0.351544	0.400000	0.351544	109
110	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	110

Improvements in mortality are projected to the year specified for each plan based on 50% of Scale AA.

Service Retirement			Disablement		Ratio of Survivors Selecting Annuities*		
LEOFF 1		LEOFF 2	LEOFF 1	LEOFF 2	LEOFF 1	LEOFF 2	Age
Age	Male & Female	Male & Female	Male & Female	Male & Female	Male & Female	Male & Female	
20	0.00	0.00	0.0010	0.0001	0.00	0.00	20
21	0.00	0.00	0.0010	0.0002	0.00	0.00	21
22	0.00	0.00	0.0010	0.0002	0.00	0.00	22
23	0.00	0.00	0.0010	0.0002	0.00	0.00	23
24	0.00	0.00	0.0010	0.0003	0.00	0.00	24
25	0.00	0.00	0.0010	0.0003	0.00	0.00	25
26	0.00	0.00	0.0024	0.0004	0.00	0.00	26
27	0.00	0.00	0.0038	0.0005	0.00	0.00	27
28	0.00	0.00	0.0052	0.0005	0.00	0.00	28
29	0.00	0.00	0.0066	0.0007	0.00	0.00	29
30	0.00	0.00	0.0080	0.0008	0.00	0.00	30
31	0.00	0.00	0.0094	0.0009	0.00	0.00	31
32	0.00	0.00	0.0107	0.0010	0.00	0.00	32
33	0.00	0.00	0.0121	0.0011	0.00	0.00	33
34	0.00	0.00	0.0135	0.0012	0.00	0.00	34
35	0.00	0.00	0.0149	0.0013	0.00	0.07	35
36	0.00	0.00	0.0163	0.0015	0.00	0.07	36
37	0.00	0.00	0.0190	0.0018	0.00	0.07	37
38	0.00	0.00	0.0205	0.0020	0.00	0.07	38
39	0.00	0.00	0.0220	0.0021	0.00	0.07	39
40	0.00	0.00	0.0235	0.0023	0.57	0.17	40
41	0.00	0.00	0.0249	0.0024	0.57	0.17	41
42	0.00	0.00	0.0264	0.0025	0.57	0.17	42
43	0.00	0.00	0.0279	0.0027	0.57	0.17	43
44	0.00	0.00	0.0360	0.0028	0.57	0.17	44
45	0.00	0.00	0.0400	0.0030	0.57	0.27	45
46	0.00	0.00	0.0468	0.0033	0.57	0.27	46
47	0.00	0.00	0.0532	0.0038	0.57	0.27	47
48	0.00	0.00	0.0592	0.0044	0.57	0.27	48
49	0.00	0.00	0.0648	0.0049	0.57	0.27	49

Rates have been rounded for display purposes.

*Refers to survivor who selects annuity payments (rather than a lump sum payment) upon active or terminated vested member's death.

The LEOFF 2 ratio is 0.607 for duty-related deaths.

Service Retirement (Continued)			Disablement (Continued)		Ratio of Survivors Selecting Annuities* (Continued)		
	LEOFF 1	LEOFF 2	LEOFF 1	LEOFF 2	LEOFF 1	LEOFF 2	
Age	Male & Female	Male & Female	Male & Female	Male & Female	Male & Female	Male & Female	Age
50	0.07	0.05	0.0700	0.0056	0.57	0.30	50
51	0.07	0.04	0.0748	0.0061	0.57	0.30	51
52	0.07	0.04	0.0792	0.0065	0.57	0.30	52
53	0.07	0.09	0.0832	0.0070	0.57	0.30	53
54	0.11	0.11	0.0868	0.0075	0.57	0.30	54
55	0.12	0.14	0.0900	0.0080	0.57	0.40	55
56	0.12	0.14	0.0928	0.0084	0.57	0.40	56
57	0.15	0.14	0.0952	0.0090	0.57	0.40	57
58	0.16	0.19	0.0972	0.0095	0.57	0.40	58
59	0.16	0.19	0.0988	0.0097	0.57	0.40	59
60	0.23	0.19	0.1000	0.0100	0.57	0.53	60
61	0.25	0.24	0.1008	0.0104	0.57	0.53	61
62	0.25	0.24	0.1012	0.0107	0.60	0.57	62
63	0.25	0.24	0.1012	0.0110	0.60	0.57	63
64	0.25	0.24	0.1008	0.0114	0.60	0.57	64
65	0.25	0.24	0.1000	0.0118	0.60	0.57	65
66	0.25	0.24	0.0756	0.0121	0.60	0.57	66
67	0.25	0.24	0.0544	0.0125	0.60	0.57	67
68	0.25	0.24	0.0364	0.0129	0.60	0.57	68
69	0.25	0.24	0.0216	0.0133	0.60	0.57	69
70	1.00	1.00	0.0000	0.0000	0.60	0.57	70
71	1.00	1.00	0.0000	0.0000	0.60	0.57	71
72	1.00	1.00	0.0000	0.0000	0.60	0.57	72
73	1.00	1.00	0.0000	0.0000	0.60	0.57	73
74	1.00	1.00	0.0000	0.0000	0.60	0.57	74
75	1.00	1.00	0.0000	0.0000	0.60	0.57	75
76	1.00	1.00	0.0000	0.0000	0.60	0.57	76
77	1.00	1.00	0.0000	0.0000	0.60	0.57	77
78	1.00	1.00	0.0000	0.0000	0.60	0.57	78
79	1.00	1.00	0.0000	0.0000	0.60	0.57	79
80+	1.00	1.00	0.0000	0.0000	0.60	0.57	80+

Rates have been rounded for display purposes.

*Refers to survivor who selects annuity payments (rather than a lump sum payment) upon active or terminated vested member's death.

The LEOFF 2 ratio is 0.607 for duty-related deaths.

Termination			Percent Vested*		Step Salary Increases		
Service Years	LEOFF 1	LEOFF 2	LEOFF 1	LEOFF 2	LEOFF		Service Years
	Male & Female	Male & Female	Male & Female	Male & Female	% Increase	Salary Ratio	
0	0.1072	0.1070	0.00	0.00	11.00%	1.840	0
1	0.0482	0.0481	0.00	0.00	11.00%	1.657	1
2	0.0246	0.0245	0.00	0.00	7.70%	1.493	2
3	0.0217	0.0216	0.00	0.00	6.10%	1.386	3
4	0.0206	0.0204	0.00	0.00	4.00%	1.307	4
5	0.0198	0.0197	1.00	0.24	2.80%	1.256	5
6	0.0194	0.0193	1.00	0.24	2.00%	1.222	6
7	0.0193	0.0192	1.00	0.24	1.60%	1.198	7
8	0.0180	0.0179	1.00	0.24	1.50%	1.179	8
9	0.0175	0.0174	1.00	0.24	1.40%	1.162	9
10	0.0172	0.0170	1.00	0.24	1.70%	1.146	10
11	0.0153	0.0151	1.00	0.24	1.30%	1.127	11
12	0.0151	0.0150	1.00	0.24	1.30%	1.112	12
13	0.0145	0.0144	1.00	0.27	1.30%	1.098	13
14	0.0116	0.0114	1.00	0.27	1.30%	1.084	14
15	0.0108	0.0107	1.00	0.27	1.30%	1.070	15
16	0.0106	0.0105	1.00	0.27	1.10%	1.056	16
17	0.0085	0.0084	1.00	0.33	1.10%	1.045	17
18	0.0087	0.0086	1.00	0.44	1.10%	1.033	18
19	0.0086	0.0085	1.00	0.44	1.10%	1.022	19
20	0.0088	0.0087	1.00	0.69	1.10%	1.011	20
21	0.0085	0.0084	1.00	0.82	0.00%	1.000	21
22	0.0082	0.0081	1.00	0.88	0.00%	1.000	22
23	0.0076	0.0075	1.00	0.91	0.00%	1.000	23
24	0.0072	0.0071	1.00	0.91	0.00%	1.000	24

Rates have been rounded for display purposes.

**Denotes ratio of members who do not withdraw their savings when they leave employment.*

Termination			Percent Vested*		Step Salary Increases		
(Continued)			(Continued)		(Continued)		
LEOFF 1 LEOFF 2			LEOFF 1 LEOFF 2		LEOFF		
Service Years	Male & Female	Male & Female	Male & Female	Male & Female	% Increase	Salary Ratio	Service Years
25	0.0067	0.0066	1.00	0.91	0.00%	1.000	25
26	0.0077	0.0076	1.00	0.91	0.00%	1.000	26
27	0.0070	0.0069	1.00	0.91	0.00%	1.000	27
28	0.0062	0.0061	1.00	0.91	0.00%	1.000	28
29	0.0018	0.0017	1.00	0.91	0.00%	1.000	29
30	0.0016	0.0015	1.00	0.91	0.00%	1.000	30
31	0.0016	0.0015	1.00	0.91	0.00%	1.000	31
32	0.0016	0.0015	1.00	0.91	0.00%	1.000	32
33	0.0016	0.0015	1.00	0.91	0.00%	1.000	33
34	0.0016	0.0015	1.00	0.91	0.00%	1.000	34
35	0.0016	0.0015	1.00	0.91	0.00%	1.000	35
36	0.0016	0.0015	1.00	0.91	0.00%	1.000	36
37	0.0016	0.0015	1.00	0.91	0.00%	1.000	37
38	0.0016	0.0015	1.00	0.91	0.00%	1.000	38
39	0.0016	0.0015	1.00	0.91	0.00%	1.000	39
40	0.0016	0.0015	1.00	0.91	0.00%	1.000	40
41	0.0016	0.0015	1.00	0.91	0.00%	1.000	41
42	0.0016	0.0015	1.00	0.91	0.00%	1.000	42
43	0.0016	0.0015	1.00	0.91	0.00%	1.000	43
44	0.0016	0.0015	1.00	0.91	0.00%	1.000	44
45	0.0016	0.0015	1.00	0.91	0.00%	1.000	45
46	0.0016	0.0015	1.00	0.91	0.00%	1.000	46
47	0.0016	0.0015	1.00	0.91	0.00%	1.000	47
48	0.0016	0.0015	1.00	0.91	0.00%	1.000	48
49	0.0016	0.0015	1.00	0.91	0.00%	1.000	49
50	0.0016	0.0015	1.00	0.91	0.00%	1.000	50

Rates have been rounded for display purposes.

**Denotes ratio of members who do not withdraw their savings when they leave employment.*

Certain and Life Annuities: Years Certain	
LEOFF 1	3
LEOFF 2	5

Member/Beneficiary Age Difference (In Years)		
	Male Member	Female Member
LEOFF	3	(2)

Age difference is Member age minus Beneficiary age.

Duty-Related Death Assumption	
	Duty Death Rate*
LEOFF 1	0.0376%
LEOFF 2	0.0376%

**The duty death rate is a constant probability applied, regardless of age. The non-duty death rate is obtained by subtracting duty death rate from mortality rate in any given age.*

Duty-Related Disability Assumption	
Age	Duty Disability Rate*
20	97.15%
25	95.71%
30	94.30%
35	92.85%
40	91.45%
50	85.75%
55+	82.90%

**Probability of disability being duty-related; geometrically interpolated between given values. Applies to LEOFF 2 only. Table represents a summary of rates.*

Additional Duty-Related Assumptions for LEOFF 2	
Percent of disabilities assumed to be catastrophic	12%
Percent of deaths assumed to be caused by occupational diseases for fire fighters	
Age	Rate
20-49	14.742%
50-69	27.393%
Percent of Final Average Salary paid for catastrophic disability benefits (including offset adjustments).	33.86%

Average Ratio of Survivors of Inactive Deaths Selecting Annuities*	
LEOFF 2	26%

**Refers to survivor who selects annuity payments (rather than a lump sum payment) if a currently terminated vested member dies before retirement age.*

Miscellaneous Assumptions/Methods

We include the following miscellaneous assumptions and methods in this valuation:

- ✦ Minimum and maximum allowable ages are set in the data as follows:

	Non-Annuitants	Annuitants
Minimum Age	16	20
Maximum Age	80	110

- ✦ Default entry salaries, usually increased for past service, are assigned for active members with less than two months' service during the valuation year.
- ✦ Historical salaries for vested terminated members are not provided in the valuation data. Beginning with the 2008 valuation year, we first look to see if we kept a historical salary for such a member in the prior year's data. If so, we copy the salary to the current year's data. If a member was active in the prior year and terminated in the current year, we copy the prior year's salary to the current year's salary and keep it as historical. Additionally, in 2009 we searched our data for actual salaries up to ten years prior for terminated vested members who did not already have historical salaries listed. To estimate salaries for the remaining terminated vested members, we use the following procedure: First, a salary appropriate for LEOFF 2 and the member's total past service is assigned. These salaries are determined as of a given base year. Second, the salary is divided by the general salary increase assumption for each year the member has been inactive as measured from the base year.
- ✦ While the Department of Retirement Systems reports salaries earned during the year prior to the valuation date, the salaries used in the first year of the valuation process have received an additional merit salary increase. In other words, the valuation software projects salaries to the coming year, beginning the day after the valuation date.
- ✦ LEOFF 2 uses a midyear decrement timing assumption.
- ✦ Termination rates are discontinued after members are eligible to retire.

Summary of Plan Provisions

Summary of Plan Provisions	
Effective Date of Plan	10/1/77
Date Closed to New Entrants	Open
Statutory Reference	Chapter 41.26 RCW
Normal Retirement Eligibility (age/service)	53/5
Accrued Benefit Formula	2% x YOS x AFC; 0.25% per month pre-retirement COLA with 20 years of service
Computation of FAS/AFC	Average compensation earnable for the highest 60 consecutive months
Credited Service	Monthly, based on hours worked each month
Vesting	5 years
Vested Benefits Upon Termination	Refund of employee contributions (x 150% if 10 YOS) plus interest, or deferred retirement allowance
Early Retirement Eligibility (age/service)	50/20
Early Retirement Reduction Factors	3% ERF with 20 YOS
Disability Retirement Benefit	Non-duty: accrued benefit, actuarially reduced; Duty, occupational: accrued benefit without actuarial reduction, minimum 10% of AFC; Duty, total: 70% of AFC with offsets for Social Security and L&I benefits, not to exceed 100% of AFC.
COLA	Lesser of CPI* or 3%
Minimum Benefit per Month per YOS	n/a
Changes in Plan Provisions Since Last Valuation	Public Safety Duty Death Benefits (C 261 L 10); Shared Leave (C 50 L 10); Medical Premiums (C 259 L 10)

*CPI: Urban Wage Earners & Clerical Workers, Seattle-Tacoma-Bremerton, WA - All Items.

Early Retirement Factors		
Years Early	LEOFF 2*	Subsidized 3%**
0	1.0000	1.00
1	0.9100	0.97
2	0.8300	0.94
3	0.7570	0.91
4	0.6910	N/A
5	0.6310	N/A
6	0.5770	N/A
7	0.5270	N/A
8	0.4830	N/A
9	0.4420	N/A
10	0.4050	N/A
11	0.3710	N/A
12	0.3410	N/A
13	0.3130	N/A
14	0.2870	N/A
15	0.2640	N/A
16	0.2420	N/A
17	0.2230	N/A
18	0.2050	N/A
19	0.1880	N/A
20	0.1730	N/A
21	0.1590	N/A
22	0.1470	N/A
23	0.1350	N/A
24	0.1250	N/A
25	0.1150	N/A
26	0.1060	N/A
27	0.1000	N/A
28	0.1000	N/A
29	0.1000	N/A
30+	0.1000	N/A

*Only applies to non-duty disabilities and deaths.

**LEOFF 2 members must be at least age 50 with 20 or more years of service to qualify.

Projected Benefit Payments

Projected Benefit Payments					
LEOFF - Plan 2					
(\$ in Millions)	Projected Value	Present Value	Year	Projected Value	Present Value
Year					
2009	\$63	\$60	2059	\$1,273	\$26
2010	82	73	2060	1,191	23
2011	105	87	2061	1,107	19
2012	132	101	2062	1,023	17
2013	161	114	2063	939	14
2014	193	126	2064	856	12
2015	228	138	2065	775	10
2016	266	150	2066	696	8
2017	309	160	2067	620	7
2018	353	170	2068	547	6
2019	400	178	2069	479	5
2020	453	187	2070	415	4
2021	510	195	2071	355	3
2022	572	202	2072	301	2
2023	636	208	2073	252	2
2024	702	213	2074	208	1
2025	775	218	2075	170	1
2026	853	222	2076	136	1
2027	931	224	2077	108	1
2028	1,011	225	2078	84	0
2029	1,092	226	2079	64	0
2030	1,176	225	2080	49	0
2031	1,260	223	2081	36	0
2032	1,343	220	2082	26	0
2033	1,424	216	2083	19	0
2034	1,502	211	2084	13	0
2035	1,577	205	2085	9	0
2036	1,650	199	2086	6	0
2037	1,719	192	2087	4	0
2038	1,778	184	2088	3	0
2039	1,831	175	2089	2	0
2040	1,877	166	2090	1	0
2041	1,915	157	2091	1	0
2042	1,947	148	2092	0	0
2043	1,965	138	2093	0	0
2044	1,974	128	2094	0	0
2045	1,976	119	2095	0	0
2046	1,969	110	2096	0	0
2047	1,956	101	2097	0	0
2048	1,931	92	2098	0	0
2049	1,899	84	2099	0	0
2050	1,861	76	2100	0	0
2051	1,816	69	2101	0	0
2052	1,765	62	2102	0	0
2053	1,709	56	2103	0	0
2054	1,647	50	2104	0	0
2055	1,580	44	2105	0	0
2056	1,508	39	2106	0	0
2057	1,433	34	2107	0	0
2058	\$1,354	\$30	2108	\$0	\$0
Total				\$70,938	\$7,394

Age/Service Distribution

Age and Service Distribution of Active Law Enforcement Officers (Number of Actives and Average Annual Salary)															
Attained Age	LEOFF Plan 2														
	Attained Years of Service														
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	Total	
Under 25	32	70	30	7	1	0	0	0	0	0	0	0	0	140	
	\$54,723	\$55,123	\$64,015	\$71,213	*	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$57,922	\$0
25-29	54	201	209	168	117	84	0	0	0	0	0	0	0	833	\$0
	\$55,006	\$57,323	\$62,548	\$69,282	\$72,324	\$76,066	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$64,893	\$0
30-34	34	120	150	147	130	572	135	0	0	0	0	0	0	1,288	\$0
	\$54,418	\$57,766	\$64,944	\$69,416	\$71,990	\$78,709	\$82,914	\$0	\$0	\$0	\$0	\$0	\$0	\$73,216	\$0
35-39	23	85	93	96	94	567	751	148	0	0	0	0	0	1,857	\$0
	\$57,825	\$60,037	\$64,758	\$70,070	\$72,268	\$78,313	\$83,291	\$89,784	\$0	\$0	\$0	\$0	\$0	\$78,739	\$0
40-44	13	35	47	57	47	284	604	679	178	0	0	0	0	1,944	\$0
	\$53,765	\$58,291	\$64,968	\$71,127	\$71,942	\$78,972	\$84,877	\$90,255	\$96,130	\$0	\$0	\$0	\$0	\$85,039	\$0
45-49	6	15	9	27	18	144	257	456	525	109	0	0	0	1,566	\$0
	\$64,353	\$67,689	\$72,382	\$70,309	\$69,753	\$80,950	\$84,196	\$89,998	\$94,473	\$99,205	\$0	\$0	\$0	\$89,369	\$0
50-54	2	9	11	5	5	53	109	200	308	385	97	0	0	1,184	\$0
	\$91,012	\$69,611	\$82,250	\$59,309	\$65,300	\$75,035	\$79,970	\$87,099	\$93,532	\$101,990	\$101,162	\$0	\$0	\$93,190	\$0
55-59	3	1	3	4	4	35	56	58	119	189	116	0	0	588	\$0
	\$75,614	*	\$88,502	\$70,722	\$84,278	\$80,797	\$80,258	\$85,830	\$87,184	\$96,443	\$97,176	\$0	\$0	\$90,710	\$0
60-64	0	2	0	1	4	14	17	18	43	37	20	0	0	156	\$0
	\$0	\$51,748	\$0	*	\$95,828	\$81,413	\$91,101	\$84,672	\$84,739	\$90,989	\$97,130	\$0	\$0	\$87,967	\$0
65-69	0	0	1	0	0	4	0	5	4	3	1	0	0	18	\$0
	\$0	\$0	*	\$0	\$0	\$86,848	\$0	\$91,256	\$76,755	\$82,172	*	\$0	\$0	\$84,761	\$0
70 & Over	0	0	0	0	0	0	1	1	0	0	0	0	0	2	\$0
	\$0	\$0	\$0	\$0	\$0	\$0	*	*	\$0	\$0	\$0	\$0	\$0	\$97,911	\$0
Total	167	538	553	512	420	1,757	1,930	1,565	1,177	723	234	0	0	9,576	\$0
	\$56,261	\$58,087	\$64,542	\$69,670	\$72,329	\$78,652	\$83,693	\$89,499	\$93,324	\$99,475	\$98,875	\$0	\$0	\$82,192	\$0
Average:	Age	41.5	Number of Participants:		Vested		7,218		Males		8,659		Early Retirement Eligible:		487
	Service	12.4	Not Vested		2,358		Females				917		Normal Retirement Eligible:		1,182

*Annual Salary omitted for privacy reasons.
 Numbers of participants eligible for early and normal retirement are estimates only.

Age and Service Distribution of Active Fire Fighters (Number of Actives and Average Annual Salary) (Continued)																
LEOFF Plan 2																
Attained Age	Attained Years of Service															
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	Total		
Under 25	31	71	20	10	1	1	0	0	0	0	0	0	0	134		
	\$49,791	\$54,152	\$64,605	\$67,886	*	*	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$56,346		
25-29	44	133	124	125	72	87	0	0	0	0	0	0	0	585		
	\$51,092	\$57,417	\$64,636	\$72,294	\$79,856	\$83,093	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$68,231		
30-34	35	88	109	100	100	466	109	0	0	0	0	0	0	1,007		
	\$54,891	\$58,174	\$66,295	\$72,014	\$76,407	\$83,458	\$88,967	\$0	\$0	\$0	\$0	\$0	\$0	\$77,157		
35-39	23	39	40	70	61	449	531	134	0	0	0	0	0	1,347		
	\$52,987	\$59,383	\$63,539	\$74,148	\$82,865	\$84,619	\$90,235	\$93,959	\$0	\$0	\$0	\$0	\$0	\$85,242		
40-44	8	21	20	26	45	231	442	473	110	1	0	0	0	1,377		
	\$54,564	\$59,668	\$64,515	\$77,067	\$81,656	\$83,872	\$90,614	\$96,300	\$105,066	*	\$0	\$0	\$0	\$90,982		
45-49	1	2	5	16	22	118	192	396	368	148	4	0	0	1,272		
	\$57,553	\$79,987	\$74,698	\$87,274	\$87,274	\$83,899	\$87,227	\$98,457	\$102,493	\$108,030	\$95,454	\$0	\$0	\$97,018		
50-54	1	4	5	4	10	41	76	232	242	337	106	0	0	1,058		
	\$75,080	\$86,877	\$81,796	\$106,703	\$106,703	\$85,486	\$84,322	\$94,300	\$101,420	\$109,093	\$110,133	\$0	\$0	\$101,127		
55-59	1	1	1	5	4	28	26	61	107	179	65	0	0	478		
	\$97,759	\$97,759	\$74,436	\$97,759	\$74,436	\$85,306	\$85,627	\$95,904	\$99,512	\$105,848	\$105,794	\$0	\$0	\$100,448		
60-64	0	1	0	1	1	12	9	10	10	34	20	0	0	98		
	\$0	\$0	\$0	\$0	\$0	\$105,809	\$83,968	\$92,791	\$108,207	\$105,801	\$104,808	\$0	\$0	\$102,618		
65-69	0	0	0	1	1	4	2	3	5	3	0	0	0	19		
	\$0	\$0	\$0	\$0	\$0	\$81,957	\$115,658	\$75,980	\$110,141	\$84,098	\$0	\$0	\$0	\$88,440		
70 & Over	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total	144	360	324	358	317	1,437	1,387	1,309	842	702	195	0	0	7,375		
	\$53,151	\$57,584	\$65,607	\$73,472	\$81,028	\$84,184	\$89,426	\$96,267	\$102,255	\$107,749	\$107,839	\$0	\$0	\$88,870		
Average:	Age	41.8	Number of Participants:	Vested	5,789	Males	6,936	Early Retirement Eligible:	413							
	Service	13.0	Not Vested	1,586	Females	439	Normal Retirement Eligible:	979								

*Annual Salary omitted for privacy reasons.

Numbers of participants eligible for early and normal retirement are estimates only.

Age/Years Retired Distribution

Age and Years Retired Distribution of Service Retired Law Enforcement Officers (Number of Service Retired Members and Average Monthly Benefit)														
LEOFF Plan 2														
Attained Age	Attained Years Retired													
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	Total
Under 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
50-54	25	50	12	12	5	0	0	0	0	0	0	0	0	104
	\$2,901	\$2,525	\$2,910	\$2,875	\$3,035	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,725
55-59	20	63	78	68	54	59	0	0	0	0	0	0	0	342
	\$3,484	\$2,914	\$2,595	\$2,481	\$2,493	\$2,141	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,588
60-64	5	17	23	19	22	101	3	0	0	0	0	0	0	190
	\$3,796	\$2,697	\$2,705	\$2,535	\$2,339	\$1,704	\$840	\$0	\$0	\$0	\$0	\$0	\$0	\$2,112
65-69	3	2	6	7	11	37	25	0	0	0	0	0	0	91
	\$2,254	\$2,209	\$2,241	\$1,556	\$2,234	\$1,665	\$983	\$0	\$0	\$0	\$0	\$0	\$0	\$1,607
70-74	0	1	0	1	1	12	11	2	0	0	0	0	0	28
	\$0	\$0	\$0	\$0	\$0	\$1,518	\$1,110	\$142	\$0	\$0	\$0	\$0	\$0	\$1,305
75-79	0	0	1	0	0	0	4	4	0	0	0	0	0	9
	\$0	\$0	\$0	\$0	\$0	\$0	\$1,389	\$1,303	\$0	\$0	\$0	\$0	\$0	\$1,377
80-84	0	0	0	0	0	0	0	1	1	0	0	0	0	2
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$723
85-89	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90-94	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
95 & Over	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	53	133	120	107	93	209	43	7	1	0	0	0	0	766
	\$3,169	\$2,726	\$2,622	\$2,468	\$2,445	\$1,810	\$1,043	\$892	*	\$0	\$0	\$0	\$0	\$2,306
Average:	Years Retired	Age	59.5						Males					704
			4.0						Females					62

*Monthly benefit omitted for privacy reasons.

Age and Years Retired Distribution of Service Retired Fire Fighters (Number of Service Retired Members and Average Monthly Benefit)													
(Continued)													
Attained Age	LEOFF Plan 2												
	Attained Years Retired												
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over
Under 50	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
50-54	15	16	10	1	0	0	0	0	0	0	0	0	0
	\$3,560	\$3,265	\$2,867	*	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
55-59	9	24	31	29	24	22	0	0	0	0	0	0	0
	\$3,214	\$3,836	\$2,702	\$2,739	\$2,372	\$2,039	\$0	\$0	\$0	\$0	\$0	\$0	\$0
60-64	5	14	12	10	12	46	0	0	0	0	0	0	0
	\$2,949	\$3,258	\$3,056	\$2,593	\$2,831	\$2,163	\$0	\$0	\$0	\$0	\$0	\$0	\$0
65-69	1	7	8	3	5	17	3	0	0	0	0	0	0
	*	\$2,428	\$2,459	\$2,583	\$2,688	\$1,838	\$1,769	\$0	\$0	\$0	\$0	\$0	\$0
70-74	0	0	1	0	0	8	9	7	0	0	0	0	0
	\$0	\$0	*	\$0	\$0	\$2,088	\$1,156	\$804	\$0	\$0	\$0	\$0	\$0
75-79	0	0	0	0	0	1	5	3	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	*	\$1,732	\$967	\$0	\$0	\$0	\$0	\$0
80-84	0	0	0	0	0	0	0	3	1	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$883	*	\$0	\$0	\$0	\$0
85-89	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90-94	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
95 & Over	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	30	61	62	43	41	94	17	13	1	0	0	0	0
	\$3,304	\$3,392	\$2,742	\$2,717	\$2,545	\$2,066	\$1,434	\$860	*	\$0	\$0	\$0	\$0

Average: Age 60.7 Males 347
 Years Retired 4.3 Females 15

*Monthly benefit omitted for privacy reasons.

Age and Years Retired Distribution of All Law Enforcement Officers With Disabilities (Number of All Members With Disabilities and Average Monthly Benefit)																
(Continued)																
LEOFF Plan 2																
Attained Age	Attained Years Retired															
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	Total		
Under 50	0	6	2	4	5	5	0	0	0	0	0	0	0	22		
	\$0	\$1,382	\$1,660	\$1,438	\$1,179	\$622	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,198		
50-54	0	8	2	5	0	11	0	0	0	0	0	0	0	26		
	\$0	\$3,153	\$2,331	\$2,264	\$0	\$1,314	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,141		
55-59	0	3	6	5	6	8	0	0	0	0	0	0	0	28		
	\$0	\$2,856	\$2,269	\$2,069	\$2,577	\$2,067	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,305		
60-64	0	1	1	4	5	10	0	0	1	0	0	0	0	22		
	\$0	*	*	\$2,528	\$2,514	\$1,727	\$0	\$0	*	\$0	\$0	\$0	\$0	\$2,088		
65-69	0	0	1	0	1	4	1	0	0	0	0	0	0	7		
	\$0	\$0	*	\$0	*	\$1,129	*	\$0	\$0	\$0	\$0	\$0	\$0	\$1,244		
70-74	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
75-79	0	0	0	0	0	0	0	0	1	1	0	0	0	2		
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	*	*	\$0	\$0	\$0	\$241		
80-84	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
85-89	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
90-94	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
95 & Over	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
Total	0	18	12	18	17	38	1	0	2	1	0	0	0	107		
	\$0	\$2,475	\$2,338	\$2,085	\$2,034	\$1,471	*	\$0	\$294	*	\$0	\$0	\$0	\$1,885		
Average:		Age	55.0													
		Years Retired	4.7													
									Males							
									Females							
										89						
										18						

*Monthly benefit omitted for privacy reasons.

Age and Years Retired Distribution of All Fire Fighters With Disabilities (Number of All Members With Disabilities and Average Monthly Benefit)														
(Continued)														
LEOFF Plan 2														
Attained Age	Attained Years Retired													
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	Total
Under 50	0	0	2	3	2	3	0	0	0	0	0	0	0	10
	\$0	\$0	\$1,110	\$1,113	\$1,854	\$805	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,168
50-54	1	4	2	1	1	4	0	0	0	0	0	0	0	13
	*	\$2,527	\$2,674	*	*	\$1,178	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,250
55-59	3	6	2	4	4	3	0	0	0	0	0	0	0	22
	\$3,305	\$3,724	\$2,886	\$2,867	\$2,526	\$1,761	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,949
60-64	2	1	1	1	1	8	0	0	0	0	0	0	0	14
	\$3,325	*	*	*	*	\$2,161	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,300
65-69	0	0	0	0	2	1	1	1	0	0	0	0	0	5
	\$0	\$0	\$0	\$0	\$1,556	*	*	*	\$0	\$0	\$0	\$0	\$0	\$1,177
70-74	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
75-79	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
80-84	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
85-89	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90-94	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
95 & Over	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	6	11	7	9	10	19	1	1	0	0	0	0	0	64
	\$3,285	\$3,075	\$2,185	\$2,331	\$2,164	\$1,648	*	*	\$0	\$0	\$0	\$0	\$0	\$2,249

Average: Age 55.3 Males 56
 Years Retired 4.0 Females 8

*Monthly benefit omitted for privacy reasons.

Age and Years Retired Distribution of Survivors of Law Enforcement Officers (Number of Survivors and Average Monthly Benefit)														
(Continued)														
Attained Age	LEOFF Plan 2													
	Attained Years Retired													
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	Total
Under 50	0	2	2	0	1	5	0	0	0	0	0	0	0	10
	\$0	\$2,622	\$474	\$0	*	\$1,477	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,599
50-54	0	2	2	1	2	5	0	0	0	0	0	0	0	12
	\$0	\$1,647	\$1,886	*	\$1,664	\$1,349	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,564
55-59	0	0	2	1	0	5	1	0	0	0	0	0	0	9
	\$0	\$0	\$1,856	*	\$0	\$1,580	*	\$0	\$0	\$0	\$0	\$0	\$0	\$1,741
60-64	2	0	0	1	1	1	0	0	0	0	0	0	0	5
	\$1,116	\$0	\$0	*	*	*	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,857
65-69	0	0	0	0	0	3	2	0	0	0	0	0	0	5
	\$0	\$0	\$0	\$0	\$0	\$1,165	\$1,026	\$0	\$0	\$0	\$0	\$0	\$0	\$1,109
70-74	0	0	0	0	0	1	0	1	0	0	0	0	0	2
	\$0	\$0	\$0	\$0	\$0	*	\$0	*	\$0	\$0	\$0	\$0	\$0	\$1,017
75-79	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
80-84	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
85-89	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90-94	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
95 & Over	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	2	4	6	3	4	20	3	1	0	0	0	0	0	43
	\$1,116	\$2,134	\$1,405	\$3,205	\$1,987	\$1,375	\$891	*	\$0	\$0	\$0	\$0	\$0	\$1,565

Average:

Age	54.4
Years Retired	5.1

Males	2
Females	41

***Monthly benefit omitted for privacy reasons.**

Historical Data

Historical Data						
(Dollars in millions)	2009	2008	2007 ¹	2006	2005	2004
Contribution Information						
Employer Rate	4.44%	4.34%	4.56%	4.66%	4.86%	4.57%
State Rate	2.96%	2.89%	3.04%	3.11%	3.24%	3.03%
Employee Rate	7.40%	7.23%	7.60%	7.77%	8.10%	7.60%
Funded Status						
Projected Unit Credit Liability	\$4,349	\$3,786	\$3,386	\$3,323	\$2,932	\$2,521
Market Value of Assets	\$4,309	\$5,315	\$5,185	\$4,339	\$3,614	\$2,984
Actuarial Value of Assets	\$5,564	\$5,053	\$4,360	\$3,844	\$3,329	\$2,947
Unfunded Liability	(\$1,215)	(\$1,266)	(\$974)	(\$521)	(\$397)	(\$426)
Funded Ratio	127.9%	133.4%	128.8%	115.7%	113.5%	116.9%
Participant Data						
Number of Actives	16,951	16,626	16,099	15,718	15,168	14,754
Total Annual Salaries	\$1,443	\$1,345	\$1,234	\$1,172	\$1,092	\$1,020
Number of Terminated Vested	672	649	629	597	570	521
Number of Terminated, Not Vested	1,663	1,531	1,433	1,362	1,285	1,233
Number of Retirees and Beneficiaries	1,367	1,134	924	779	574	432
Total Annual Benefits	\$38	\$29	\$22	\$17	\$11	\$8
Assumptions						
Valuation Interest Rate	8.00%	8.00%	5.94%	8.00%	8.00%	8.00%
Salary Increase	6.61%	6.61%	5.49%	7.40%	7.40%	7.60%
Inflation ²	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Growth in Membership	1.25%	1.25%	0.94%	1.25%	1.25%	1.25%
Actuarial Experience						
Return on Market Value	(22.64%)	(1.33%)	16.61%	15.77%	17.55%	13.64%
Return on Actuarial Value	5.72%	11.04%	10.03%	10.80%	9.30%	4.10%
Salary Increase	6.69%	7.65%	4.31%	5.50%	5.90%	5.20%
Inflation	4.48%	3.79%	3.73%	3.02%	1.57%	1.41%
Growth in Membership	1.53%	2.62%	1.83%	2.66%	1.85%	0.33%
COLA ³	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%

¹For the 2007 valuation, the salary, interest, and growth rates were not annualized. They reflect the actual valuation period of nine months.

²Based on the assumption for prior year's CPI: Urban Wage Earners & Clerical Workers, Seattle-Tacoma-Bremerton, WA - All Items.

³COLA is based on the CPI (3% maximum per year).

Glossary

Actuarial Accrued Liability

Computed differently under different funding methods, the actuarial accrued liability generally represents the portion of the present value of fully projected benefits attributable to service credit earned (or accrued) as of the valuation date.

Actuarial Gain or Loss

A pension plan incurs actuarial gains or losses when the actual experience of the pension plan does not exactly match assumptions. For example, an actuarial gain would occur if assets earned 10 percent for a given year since the assumed interest rate in the valuation is 8 percent.

Actuarial Value of Assets

The value of pension plan investments and other property used by the actuary for the purpose of an actuarial valuation (sometimes referred to as valuation assets). Actuaries commonly select an asset valuation method that smoothes the effects of short-term volatility in the market value of assets.

Entry Age Normal (EAN) Actuarial Cost Method

The EAN cost method is a standard actuarial funding method. The annual cost of benefits under EAN is comprised of two components:

Normal cost; plus

Amortization of the unfunded actuarial accrued liability.

The normal cost is determined on an individual basis, from a member's age at plan entry, and is designed to be a level percentage of pay throughout a member's career.

Funded Ratio

The ratio of a plan's actuarial value of assets to the present value of earned pensions. Actuaries use several methods to measure a plan's actuarial value of assets and liabilities.

Market Value of Assets (MVA)

The market value of assets is the value of the pension fund based on the value of the assets as they would trade on an open market, including accrued income and expenses.

Normal Cost

Computed differently under different funding methods, the normal cost generally represents the portion of the cost of projected benefits allocated to the current plan

year. The employer normal cost equals the total normal cost of the plan reduced by employee contributions.

Present Value of Fully Projected Benefits

Computed by projecting the total future benefit payments from the plan, using actuarial assumptions (i.e., probability of death or retirement, salary increases, etc.), and discounting the payments to the valuation date using the valuation interest rate to determine the present value (today's value).

Projected Unit Credit (PUC) Actuarial Cost Method

The PUC cost method is a standard actuarial funding method. The annual cost of benefits under PUC is comprised of two components:

Normal cost; plus

Amortization of the unfunded actuarial accrued liability.

The PUC normal cost is the estimated present value of projected benefits current plan members will earn in the year following the valuation date. It represents today's value of one year of earned benefits.

Present Value of Future Salaries (PVFS)

The value of future expected salaries discounted with interest to the valuation date.

Unfunded Actuarial Accrued Liability (UAAL)

The excess, if any, of the actuarial accrued liability over the actuarial value of assets. In other words, the present value of benefits earned to date that not covered by current plan assets.

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