

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



2010 Actuarial Valuation Report



Office of the State Actuary

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Report Preparation

Office of the State Actuary

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Photo Credit: Charles Middleton, "Fire Fighter Saving Girl."

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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, 2010 April 2012

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, 2010, under the funding policy established by the LEOFF 2 Retirement Board. These contribution requirements are purely informational since, according to state law, this "off-cycle" valuation is not used to determine contribution rates. This valuation also provides information on the funding progress and developments in the plan over the past year.

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,

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

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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 policies described in this section. However, this is not a rate-setting valuation so the results of this report are informational only. This report provides information on the contribution rates, the funding progress, and developments in the plan over the past year. This report also discloses the data, methods, and assumptions we used to develop the contribution rates. This report is not intended to satisfy the accounting requirements under the Governmental Accounting Standards Board rules.

Contribution Rates

The Office of the State Actuary (OSA) determined the member, employer, and state contribution rates as a percentage of salary based on the long-term funding policy adopted by the LEOFF 2 Retirement Board (the Board). The summary table below shows contribution rates based on the 2010 valuation along with comparable rates from the previous valuation. The Board adopted new economic assumptions in the 2011 Interim, effective with this valuation. The Actuarial Exhibits section of this report shows how we developed these rates.

Contribution Rates		
	2010	2009
Member	7.57%	7.40%
Employer*	4.54%	4.44%
State	3.03%	2.96%

**Excludes administrative expense rate.*

During the 2010 Interim, the Board adopted a stable contribution rate policy for 2011-2017 to prevent the recognition of a short-term decrease in contribution rates and to manage the risk of increasing contribution rates in the future. Please see the Actuarial Certification letter for further details on this temporary funding policy. The table below shows the contribution rates adopted by the Board for the period 2011-2017.

Adopted Contribution Rates*	
Member	8.46%
Employer**	5.08%
State	3.38%

**Adopted for period 2011-2017.*

***Excludes administrative expense rate.*

Contribution Rate-Setting Cycle

Under current Washington State law, in July of even-numbered years, the Board reviews the basic contribution rates recommended by the Board-retained actuary based on an actuarial valuation performed on asset, participant, and plan information compiled in odd-numbered years. In calculating basic contribution rates, the Board-retained actuary applies the statutory funding policies described in this section. The Board then 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 after 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.

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 2010 Results

The following comments summarize the key changes from the last valuation. Please see the Actuarial Certification for additional comments on the 2010 valuation results.

The actual investment return on the market value of assets was above the assumed rate of 8 percent. The actual, annualized investment return on the market value of assets was 13.21 percent. The rate of investment return on the actuarial value of assets was lower than the assumed rate of 8 percent.

Gains or losses to liabilities and salaries also impact contribution rates. These occur when annual economic and demographic experience differs from our long-term assumptions or when there are changes in plan provisions, 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.

In the 2011 Interim, the Board adopted new economic assumptions, resulting in a liability increase and a decrease in the present value of future salaries, both of which caused an additional contribution rate increase.

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. The Future Value of Fully Projected Benefits represents the total expected value of all future benefit payments for all members 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 valuation interest rate each year, there would be enough money to pay all future benefit payments for current members.

The Projected Unit Credit Liability identifies the portion of the Present Value of Future Benefits that has been earned as of the valuation date. The Unfunded Actuarial Accrued Liability (UAAL) represents the excess, if any, of the Present Value of Future Benefits earned at the valuation date over the Actuarial Value of Assets. In other words, the UAAL equals the present value of benefits earned at the valuation date not covered by current actuarial assets.

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		
(Dollars in Millions)	2010	2009
Future Value of Fully Projected Benefits	\$64,201	\$70,938
Present Value of Fully Projected Benefits	\$8,204	\$7,394
Projected Unit Credit Liability	\$5,078	\$4,349
Unfunded Actuarial Accrued Liability	N/A	N/A
Valuation Interest Rate	7.50%	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. To limit the volatility in contribution rates and funded status due to short-term market volatility, we smooth (or defer) the difference between actual and expected annual investment returns over a period not to exceed 8 years. The Actuarial Value of Assets equals the Market Value of Assets less the Total Deferred Investment Gains and (Losses) at the valuation date. The Actuarial Value of Assets can never be less than 70 percent or greater than 130 percent of the Market Value of Assets.

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)	2010	2009
Market Value of Assets	\$5,081	\$4,309
Actuarial Value of Assets	6,043	5,564
Contributions*	257	257
Disbursements	58	44
Investment Return	569	(1,223)
Other**	\$6	\$3
Rate of Return on Assets***	13.21%	(22.84%)

*Employee and Employer.

**Includes transfers, restorations, payables, etc.

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

Funded Status

The funded status helps readers evaluate 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 present value of earned benefits covered by today's actuarial assets. A plan with a 100 percent funded status has one dollar in actuarial assets for each dollar of earned (or accrued) liability at the valuation date. A plan more/less than 100 percent funded is not automatically considered over-funded/at-risk.

We use the Projected Unit Credit (PUC) actuarial cost method to report the funded status of the plan. The PUC method takes into account future salary and service growth for purposes of determining future benefit amounts and eligibility for those benefits, but only reflects service credit earned at the valuation date for determining earned (or accrued) benefits.

Comparing the PUC liabilities to the Actuarial Value of Assets provides an appropriate measure of a plan's funded status. Under current Governmental Accounting Standards Board (GASB) rules, the PUC method is one of several acceptable measures of a plan's funded status. Use of another cost method could also be considered appropriate and could produce materially different results.

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. We also provide a history of funded status since 1986 and funded status under alternate assumptions and methods in the Actuarial Exhibits section.

Funded Status		
(Dollars in millions)	2010	2009
a. Projected Unit Credit Liability	\$5,078	\$4,349
b. Market Value of Assets	\$5,081	\$4,309
c. Deferred Gains/(Losses)	(\$961)	(\$1,256)
d. Actuarial Value of Assets (b-c)	\$6,043	\$5,564
e. Unfunded Liability (a-d)	(\$965)	(\$1,215)
f. Projected Unit Credit Funded Ratio (d/a)	119%	128%

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, 2010, along with comparable information from last year's valuation. See the Participant Data section of this report for additional information.

Participant Data		
	2010	2009
Active Members		
Number	16,775	16,951
Total Salaries (in millions)	\$1,490	\$1,443
Average Annual Salary	\$88,828	\$85,097
Average Attained Age	42.2	41.6
Average Service	13.3	12.7
Retirees and Beneficiaries		
Number	1,639	1,367
Average Annual Benefit	\$29,851	\$27,708
Terminated Members		
Number Vested	781	672
Number "Non-Vested"	1,707	1,663

Key Assumptions

The next table displays key economic assumptions used in the actuarial valuation for the plan year ending June 30, 2010, along with comparable information from last year's valuation. See the Actuarial Methods and Assumptions in the Appendices for a detailed listing of assumptions used in this valuation.

Key Assumptions		
	2010	2009
Valuation Interest Rate	7.50%	8.00%
Salary Increase	3.75%	4.50%
Inflation	3.00%	3.50%
Growth in Membership*	1.25%	1.25%

**Applies to the LEOFF 1 funding method only.*

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, 2010
April 2012**

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, 2010, valuation date under the funding policy established by the LEOFF 2 Retirement Board (the Board). These contribution requirements are purely informational since, according to state law, this “off-cycle” valuation is not used to determine contribution rates. 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. Please replace this report with a more recent report when available.

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. Actual results may vary from our expectations.

The assumptions used in this valuation for investment return, inflation, and salary growth were adopted by the LEOFF 2 Board in the 2011 Interim. The membership growth assumption was 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.

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The results shown in this report do not match the LEOFF 2 results shown in OSA's 2010 Statewide Actuarial Valuation Report (AVR) because the Board adopted assumption changes after the AVR was published, effective with this valuation.

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 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.

During the 2010 Interim, the Board adopted a stable contribution rate policy for 2011-2017 to prevent the recognition of a short-term decrease in contribution rates and to manage the risk of increasing contribution rates in the future. This temporary funding policy produces contribution rates, at June 30, 2010, that exceed the requirements under the plan's actuarial cost method and long-term funding policy. In our opinion, this temporary policy is reasonable and consistent with the Board's risk management goals. The adoption of contribution rates below the current stable rates could also be reasonable, but potentially inconsistent with the Board's risk management goals.

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		
	2010	2009
Member	7.57%	7.40%
Employer*	4.54%	4.44%
State (Normal Cost)	3.03%	2.96%
State (Plan 1 UAAL)	0.00%	0.00%
Total State	3.03%	2.96%

*Excludes administrative expense rate.

Development of Employer/State Rates	
	LEOFF 2
a. Total Normal Cost	15.14%
b. Employee Normal Cost (a x 50%)	7.57%
c. Total Employer/State Contribution (a - b)	7.57%
d. State Normal Cost (a x 20%)	3.03%
e. Employer Normal Cost (c - d)	4.54%
f. Cost to Amortize UAAL	0.00%
g. Total Employer Contribution Rate (e + f)	4.54%

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 Law Enforcement Officers' and Fire Fighters' Retirement System Plan 2 Retirement Board's (the Board) 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	
(Dollars in millions)	LEOFF 2
1. Calculation of Member Rate	
a. Future Value of Fully Projected Benefits	\$64,201
b. Present Value of Fully Projected Benefits	8,204
c. Valuation Assets	6,043
d. Unfunded Fully Projected Benefits (b - c)	2,161
e. Plan 1 Present Value of Future Salaries (PVS)	N/A
f. Plan 2 PVS	16,925
g. Weighted PVS (2e + 2f)	\$33,850
h. Employee Normal Cost (d / g)	6.38%
i. Employee Entry Age Normal Cost Rate [EANC]	8.41%
j. Employee Minimum Contribution Rate [90% EANC]	7.57%
k. Employee Contribution Rate with Minimum	7.57%
l. Change In Plan Provisions (Laws of 2011)	0.00%
m. Employee Contribution Rate (k + l)	7.57%
2. Calculation of Employer/State Rate	
a. Present Value of Fully Projected Benefits	\$8,204
b. Valuation Assets	6,043
c. Unfunded Fully Projected Benefits (a - b)	2,161
d. Present Value of Employee Contributions	1,080
e. Employer/State Responsibility (c - d)	\$1,080
f. Plan 2 PVS	\$16,925
g. Employer/State Normal Cost (e / f)	6.38%
h. Employer Entry Age Normal Cost Rate [EANC]	8.41%
i. Employer/State Minimum Contribution Rate [90% EANC]	7.57%
j. Employer/State Contribution Rate with Minimum	7.57%
k. Change In Plan Provisions (Laws of 2011)	0.00%
l. Total Employer/State Contribution Rate (j + k)	7.57%
3. Contribution Rates Adopted for 2011-17	
a. Employee Contribution Rate*	8.46%
b. Employer Contribution Rate (a - c)*	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)	
(Dollars in millions)	LEOFF 1
a. Future Value of Fully Projected Benefits	\$11,668
b. Present Value of Fully Projected Benefits (PVFB)	4,400
c. Valuation Assets	5,561
d. Actuarial Present Value of Future Normal Costs	0
e. UAAL (b - c - d)	(1,161)
f. Expected UAAL Contributions to 2013	0
g. Remaining UAAL (e - f)	(\$1,161)
h. Amortization Date	6/30/2024
i. Present Value of Projected Salaries beyond 2013*	\$14,230
j. Preliminary Rate (g / i)**	(8.16%)
k. Change In Plan Provisions (Laws of 2011)	0.00%
l. Contribution Rate to Amortize the UAAL (j + k)**	(8.16%)

Note: Totals may not agree due to rounding. Please see the 2010 Statewide Actuarial Valuation Report (AVR) for supporting information on the LEOFF 1 UAAL rate.

**We calculated the Present Value of Projected Salaries beyond 2013 using the economic assumptions disclosed in the AVR over LEOFF 1 salaries and the economic assumptions disclosed in this report over LEOFF 2 salaries.*

***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	
(Dollars in millions)	LEOFF 2
Active Members	
Retirement	\$6,522
Termination	91
Death	62
Disability	390
Return of Contributions on Termination	80
Return of Contributions on Death	79
Total Active	\$7,224
Inactive Members	
Terminated	\$201
Service Retired	674
Disability Retired	67
Survivors	38
Total Inactive	\$980
Laws of 2011	0
2010 Total	\$8,204
2009 Total	\$7,394

Note: Totals may not agree due to rounding.

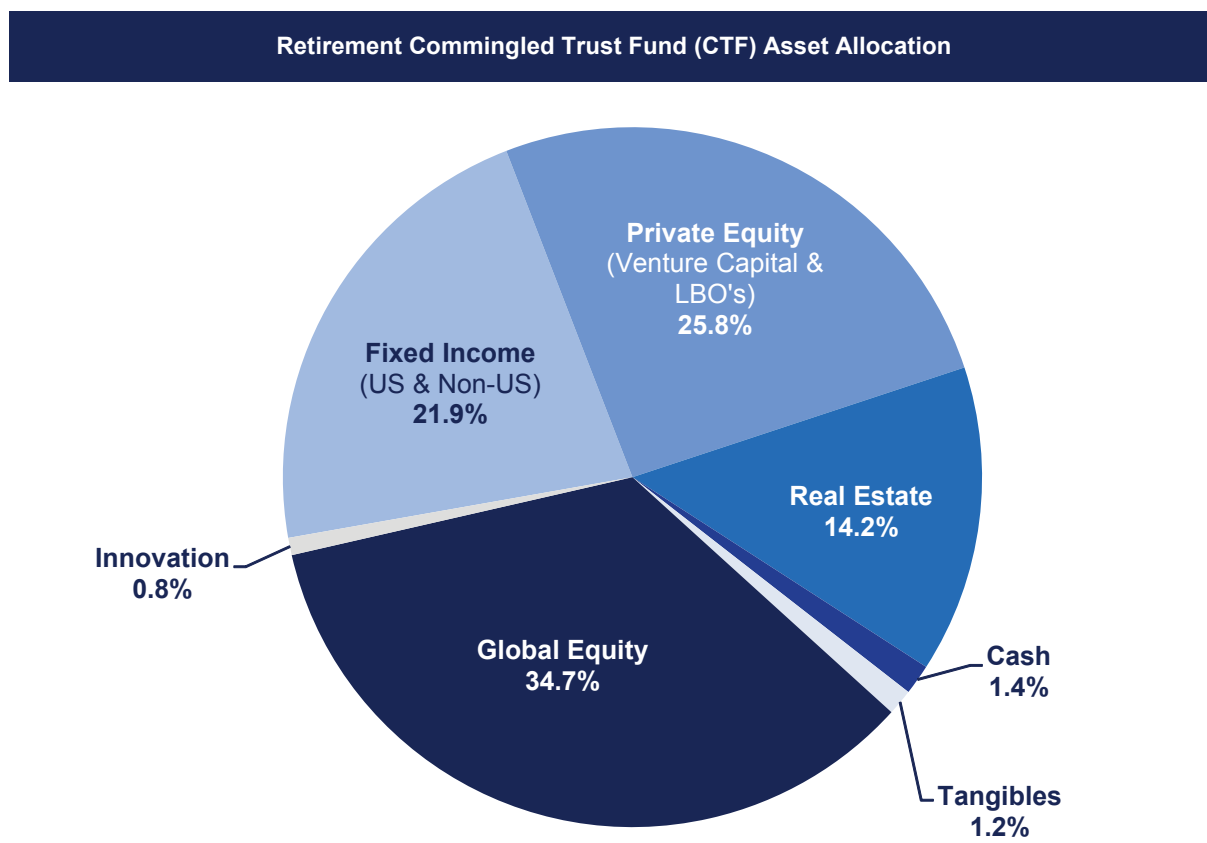
Present Value of Projected Unit Credit (PUC) Benefits*	
(Dollars in millions)	LEOFF 2
Active Members	
Retirement	\$3,671
Termination	52
Death	43
Disability	242
Return of Contributions on Termination	45
Return of Contributions on Death	44
Total Active	\$4,098
Inactive Members	
Terminated	\$201
Service Retired	674
Disability Retired	67
Survivors	38
Total Inactive	\$980
Laws of 2011	0
2010 Total	\$5,078
2009 Total	\$4,349

Note: Totals may not agree due to rounding.

* Calculated using the PUC cost method. This method was not used to determine contribution requirements.

Future Value of Fully Projected Benefits					
LEOFF - Plan 2					
(Dollars in Millions)	Projected Value	Present Value	Year	Projected Value	Present Value
2010	\$79	\$76	2060	\$1,049	\$27
2011	103	92	2061	975	24
2012	131	109	2062	901	20
2013	160	125	2063	827	17
2014	193	139	2064	754	15
2015	228	153	2065	683	12
2016	265	166	2066	614	10
2017	305	177	2067	548	9
2018	349	189	2068	485	7
2019	394	198	2069	425	6
2020	442	207	2070	369	5
2021	495	215	2071	317	4
2022	551	223	2072	269	3
2023	612	231	2073	226	2
2024	675	236	2074	188	2
2025	738	241	2075	154	1
2026	807	245	2076	124	1
2027	878	248	2077	99	1
2028	950	249	2078	77	1
2029	1,023	250	2079	60	0
2030	1,096	249	2080	45	0
2031	1,170	247	2081	34	0
2032	1,243	244	2082	25	0
2033	1,313	240	2083	18	0
2034	1,381	235	2084	13	0
2035	1,446	229	2085	9	0
2036	1,507	222	2086	6	0
2037	1,564	214	2087	4	0
2038	1,618	206	2088	3	0
2039	1,662	197	2089	2	0
2040	1,698	187	2090	1	0
2041	1,729	177	2091	1	0
2042	1,752	167	2092	0	0
2043	1,768	157	2093	0	0
2044	1,773	146	2094	0	0
2045	1,771	136	2095	0	0
2046	1,761	126	2096	0	0
2047	1,745	116	2097	0	0
2048	1,723	106	2098	0	0
2049	1,691	97	2099	0	0
2050	1,655	88	2100	0	0
2051	1,612	80	2101	0	0
2052	1,565	72	2102	0	0
2053	1,513	65	2103	0	0
2054	1,456	58	2104	0	0
2055	1,396	52	2105	0	0
2056	1,332	46	2106	0	0
2057	1,264	41	2107	0	0
2058	1,194	36	2108	0	0
2059	\$1,122	\$31	2109	\$0	\$0
Total				\$64,201	\$8,204

Plan Assets



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>	LEOFF 2
2009 Market Value	\$4,309
Revenue	
Contributions	
Employee	128
Employer/State	128
Total Contributions	257
Investment Return	569
Restorations	5
Transfers In	1
Miscellaneous	0
Total Revenue	\$831
Disbursements	
Monthly Benefits	46
Refunds	11
Total Benefits	57
Transfers Out	0
Expenses	1
Total Disbursements	\$58
Payables	\$0
2010 Market Value	\$5,081
2010 Actuarial Value	\$6,043
Ratio (AV/MV)	119%
<i>Note: Totals may not agree due to rounding.</i>	

Calculation of Actuarial Value of Assets			
<i>(Dollars in millions)</i>			LEOFF 2
a.	Market Value at 6/30/2010		\$5,081
b. Deferred Investment Gains and (Losses)			
Plan Year Ending	Years Deferred	Years Remaining	
6/30/2010	5	4	175
6/30/2009	8	6	(1,240)
6/30/2008	8	5	(307)
6/30/2007	8	4	232
9/30/2006	8	3	107
9/30/2005	8	2	72
Total Deferral			(\$961)
c.	Market Value less Deferral (a - b)		\$6,043
d.	70% of Market Value of Assets		\$3,557
e.	130% of Market Value of Assets		\$6,606
f.	Actuarial Value of Assets*		\$6,043

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	
(Dollars in Millions)	LEOFF 2
a. 2009 Market Value (at WSIB)	\$4,294
b. Total Cash Flow	203
c. 2010 Market Value (at WSIB)	5,066
d. Actual Return (c - b - a)	\$569
e. Weighted Asset Amount	\$4,382
f. Expected Return (8% x e)	351
g. Investment Gain/(Loss) for Prior Year (d - f)	219
h. Dollar-Weighted Rate of Return	12.99%

Note: Totals may not agree due to rounding.

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 7.50 percent valuation interest rate assumption. We assume the plan is on-going and, therefore, we use the same long-term assumptions to develop the 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 smooths 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. We used an investment return of 8 percent in developing the actuarial value of assets for this year's report because it was the assumption in place for the measurement period (investment returns from July 1, 2009, through June 30, 2010). We will use an investment return assumption of 7.5 percent for next year's measurement period. 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.

Comparing the PUC liabilities to the Actuarial Value of Assets provides an appropriate measure of a plan's funded status. Under current Governmental Accounting Standards Board (GASB) rules, the PUC method is one of several acceptable measures of a plan's funded status. Use of another cost method could also be considered appropriate and could produce materially different results.

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		\$5,078	\$4,381
Valuation Assets		\$6,043	\$5,561
Unfunded Liability		(\$965)	(\$1,180)
Funded Ratio			
	2010 **	119%	127%
	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. See the 2010 Actuarial Valuation Report (AVR) for development of LEOFF 1 values.

**Liabilities valued using the PUC cost method at an interest rate of 7.50% in LEOFF 2 and 8% in LEOFF 1. 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.

Funded Status at a 1% Lower Interest Rate Assumption*		
(Dollars in millions)	LEOFF 2	LEOFF 1
Projected Unit Credit Liability	\$6,075	\$4,812
Valuation Assets	\$6,043	\$5,561
Unfunded Liability	\$32	(\$749)
Funded Ratio		
2010	99%	116%
2009	107%	114%
2008	111%	117%
2007	107%	111%

Note: Totals may not agree due to rounding. See the 2010 AVR for development of LEOFF 1 values.

*Liabilities valued using the PUC cost method at an interest rate of 7% for LEOFF 1, 6.5% for LEOFF 2. All assets have been valued under the actuarial asset method.

Funded Status at a 1% Higher Interest Rate Assumption*		
(Dollars in millions)	LEOFF 2	LEOFF 1
Projected Unit Credit Liability	\$4,297	\$4,013
Valuation Assets	\$6,043	\$5,561
Unfunded Liability	(\$1,746)	(\$1,548)
Funded Ratio		
2010	141%	139%
2009	152%	137%
2008	159%	141%
2007	154%	135%

Note: Totals may not agree due to rounding. See the 2010 AVR for development of LEOFF 1 values.

*Liabilities valued using the PUC cost method at an interest rate of 9% for LEOFF 1, 8.5% for LEOFF 2. 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*	
(Dollars in millions)	LEOFF 1
Projected Unit Credit Liability	\$5,610
Market Value of Assets	\$4,585
Unfunded Liability	\$1,025
Funded Ratio	
2010	82%
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 while maintaining consistency with the 3.5% inflation assumption used to project future benefit payments. 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

The next three tables display actuarial gains and losses, expressed as contribution rate changes. Actuaries use gain/loss analysis to compare actual changes to assumed changes in assets, liabilities, and salaries from various sources. We also use this analysis to determine:

- ◆ The accuracy of our valuation model and annual processing.
- ◆ Why contribution rates changed.
- ◆ To determine the reasonableness of the actuarial assumptions.

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

Change in Employer and State Contribution Rate by Source	
Change in Employer Rate	LEOFF
2009 Contribution Rate Before Laws of 2010	(3.93%)
Remove Rate Floor / Ceiling	(0.85%)
Prior Liability and Funding Method Changes	0.00%
2009 Adjusted Contribution Rate	(4.78%)
Liability Gains/Losses	(0.73%)
Asset Gains/Losses	1.09%
Present Value of Future Salaries Gains/Losses	(0.22%)
Incremental Changes	0.21%
Other Gains/Losses	(1.18%)
Total Change	(0.83%)
2010 Preliminary Contribution Rate	(5.61%)
Increase from Applied Rate Floor	0.48%
Decrease from Applied Rate Ceiling	0.00%
Rate to Amortize Prior Liability	0.00%
Excess Member Rate	N/A
Laws of 2011	0.00%
2010 Adjusted Contribution Rate	(5.13%)
<i>The LEOFF contribution rate is the State's portion for Plan 2 (20% of the Normal Cost) plus the UAAL rate for Plan 1.</i>	

Change in Employer and State Normal Cost by Source	
Change in Normal Costs	LEOFF 2
2009 Normal Cost Before Laws of 2010	2.93%
Remove Rate Floor / Ceiling	(0.85%)
Remove Prior Employer Liability	0.00%
2009 Adjusted Normal Cost Rate	2.08%
Liabilities	
Salaries	(0.11%)
Termination	(0.03%)
Retirement	(0.01%)
Growth / Return to Work	0.12%
Other Liabilities	0.04%
Total Liability Gains/Losses	0.01%
Asset Gains/Losses	0.08%
Present Value of Future Salaries Gains/Losses	(0.02%)
Incremental Changes	
Plan Change	0.03%
Method Change	0.00%
Assumption Change	0.38%
Correction Change	0.00%
Total Incremental Changes Gains/Losses	0.41%
Other Gains/Losses	(0.01%)
Total Change	0.47%
2010 Preliminary Normal Cost	2.55%
Increase from Applied Rate Floor	0.48%
Rate to Amortize Prior Employer Liability	0.00%
Laws of 2011	0.00%
2010 Adjusted Normal Cost	3.03%

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

Change in State UAAL Rate by Source	
Change in UAAL Rate	LEOFF 1
2009 UAAL Rate Before Laws of 2010	(6.86%)
Remove Rate Floor / Ceiling	0.00%
2009 Adjusted UAAL Rate	(6.86%)
Liabilities	
Salaries	(0.01%)
Termination	0.00%
Retirement	(0.03%)
Return to Work	0.00%
Inflation (CPI)	(0.88%)
Other Liabilities	0.18%
Total Liability Gains/Losses	(0.74%)
Asset Gains/Losses	1.01%
Present Value of Future Salaries Gains/Losses	(0.20%)
Incremental Changes	
Plan Change	0.00%
Method Change	0.00%
Assumption Change*	(0.20%)
Correction Change	0.00%
Total Incremental Changes Gains/Losses	(0.20%)
Other Gains/Losses	(1.17%)
Total Change	(1.30%)
2010 Preliminary UAAL Rate	(8.16%)
Increase from Applied Rate Floor	N/A
Decrease from Applied Rate Ceiling	0.00%
Laws of 2011	0.00%
2010 Adjusted UAAL Rate	(8.16%)

Note: The 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.

**Impact of LEOFF 2 assumption changes on LEOFF 1 UAAL rate..*

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

None.

Assumption and Method Changes

- ◆ The Board adopted new long-term economic assumptions to be used in the 2010 LEOFF 2 valuation.
- ◆ We changed the benefit structure for survivors in accordance with Chapter 261, Laws of 2010.
- ◆ We added non-pension benefits for members totally disabled in accordance with Chapter 259, Laws of 2010

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	LEOFF 2
Present Value Fully Projected Benefits	\$7,929
Present Value Projected Unit Credit Benefits	4,859
Actuarial Value of Assets	6,043
Unfunded Liability	(1,183)
Employer Contribution Rate	4.44%
After Changes	
Present Value Fully Projected Benefits	\$8,204
Present Value Projected Unit Credit Benefits	5,078
Actuarial Value of Assets	6,043
Unfunded Liability	(965)
Employer Contribution Rate	4.54%
Increase/(Decrease) in Rate	0.10%

Before and after changes include actuarial gains and losses for the year ending 6/30/2010.

Both before and after contribution rates include rate minimums.

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

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	113
Higher Education	108
Community Colleges	0
K-12	0
Counties	2,824
County Sub Divisions	46
First Class Cities	5,012
Other Cities	5,012
Ports	172
Education Service District	0
Fire Districts	3,488
Public Utility District	0
Water Districts	0
Energy Northwest	0
Unions	0
TOTAL	16,775

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.

Reconciliation of Participant Data	
2009 Actives	16,951
Transfers	0
Hires/Rehires	511
New Retirees	(203)
Deaths	(21)
Terminations	(463)
2010 Actives	16,775
2009 Annuitants	1,367
New Retirees	260
Annuitant Deaths	(12)
New Survivors	25
Other	(1)
2010 Annuitants	1,639
Ratio of Actives to Annuitants	10.23

Summary of Plan Participants

Summary of Plan Participants		
	2010	2009
Active Members		
Number	16,775	16,951
Total Salaries (millions)	\$1,490	\$1,443
Average Age	42.2	41.6
Average Service	13.3	12.7
Average Salary	\$88,828	\$85,097
Terminated Members		
Number Vested	781	672
Number "Non-Vested"	1,707	1,663
Retirees		
Number of Retirees (All)	1,639	1,367
Average Monthly Benefit, All Retirees	\$2,488	\$2,309
Number of New "Service Retirees"	237	199
Average Monthly Benefit, New "Service Retirees"	\$3,228	\$3,015

Appendices



Actuarial Methods and Assumptions

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

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. Use of another cost method could also be considered appropriate and could produce materially different results. Please see the Glossary for a further explanation of the PUC cost method.

We use the plan's 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. Since the economic assumptions recently adopted by the Board apply beginning July 1, 2010, we use an expected asset return of 8 percent to smooth the asset gains or (losses) through June 30, 2010, based on the scale in the following table. We plan to revise this schedule for next year's report consistent with the new 7.5 percent rate of return assumption.

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.

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 the LEOFF Plan 2 Retirement Board, and are 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	7.50%
Inflation ³	3.00%
General Salary Increases (includes inflation) ⁴	3.75%
Annual COLA ⁵	3.00%

¹Annual rate, compounded quarterly.

²Annual rate, net of expenses and 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.

Changes in Methods and Assumptions since the Last Valuation

- ◆ We changed the benefit structure for survivors in accordance with Chapter 261, Laws of 2010.
- ◆ We added non-pension benefits for members totally disabled in accordance with Chapter 259, Laws of 2010.
- ◆ We changed the long-term economic assumptions for interest rate, general salary growth, and inflation consistent with the Board adoption in 2011.

Demographic Assumptions

Our mortality rates include an assumption for future mortality improvements. We took three distinct steps to build our mortality assumptions. First, we applied mortality improvements to the RP-2000 mortality table using 50 percent of Scale AA to 2003, the midpoint of our latest experience study period. Next, we developed age offsets for each plan. Finally, we projected the mortality rates into the future, also using 50 percent of Scale AA, to reflect continued mortality improvements. The tables on the following pages show RP-2000 and 50 percent of Scale AA, both published by the Society of Actuaries. The tables that follow show the age offsets we used, the year to which we projected mortality improvements, and the resulting projected mortality rates for each plan. Please see the 2001-2006 Experience Study for more details regarding the development of these rates.

Section 4: Appendices

RP-2000 Mortality Rates			50% Scale AA		
Combined Healthy Table					
Age	Male	Female	Age	Male	Female
20	0.000345	0.000191	20	0.0095	0.0080
21	0.000357	0.000192	21	0.0090	0.0085
22	0.000366	0.000194	22	0.0085	0.0085
23	0.000373	0.000197	23	0.0075	0.0080
24	0.000376	0.000201	24	0.0065	0.0075
25	0.000376	0.000207	25	0.0050	0.0070
26	0.000378	0.000214	26	0.0030	0.0060
27	0.000382	0.000223	27	0.0025	0.0060
28	0.000393	0.000235	28	0.0025	0.0060
29	0.000412	0.000248	29	0.0025	0.0060
30	0.000444	0.000264	30	0.0025	0.0050
31	0.000499	0.000307	31	0.0025	0.0040
32	0.000562	0.000350	32	0.0025	0.0040
33	0.000631	0.000394	33	0.0025	0.0045
34	0.000702	0.000435	34	0.0025	0.0050
35	0.000773	0.000475	35	0.0025	0.0055
36	0.000841	0.000514	36	0.0025	0.0060
37	0.000904	0.000554	37	0.0025	0.0065
38	0.000964	0.000598	38	0.0030	0.0070
39	0.001021	0.000648	39	0.0035	0.0075
40	0.001079	0.000706	40	0.0040	0.0075
41	0.001142	0.000774	41	0.0045	0.0075
42	0.001215	0.000852	42	0.0050	0.0075
43	0.001299	0.000937	43	0.0055	0.0075
44	0.001397	0.001029	44	0.0060	0.0075
45	0.001508	0.001124	45	0.0065	0.0080
46	0.001616	0.001223	46	0.0070	0.0085
47	0.001734	0.001326	47	0.0075	0.0090
48	0.001860	0.001434	48	0.0080	0.0090
49	0.001995	0.001550	49	0.0085	0.0090
50	0.002138	0.001676	50	0.0090	0.0085
51	0.002449	0.001852	51	0.0095	0.0080
52	0.002667	0.002018	52	0.0100	0.0070
53	0.002916	0.002207	53	0.0100	0.0060
54	0.003196	0.002424	54	0.0100	0.0050
55	0.003624	0.002717	55	0.0095	0.0040
56	0.004200	0.003090	56	0.0090	0.0030
57	0.004693	0.003478	57	0.0085	0.0025
58	0.005273	0.003923	58	0.0080	0.0025
59	0.005945	0.004441	59	0.0080	0.0025
60	0.006747	0.005055	60	0.0080	0.0025
61	0.007676	0.005814	61	0.0075	0.0025
62	0.008757	0.006657	62	0.0075	0.0025
63	0.010012	0.007648	63	0.0070	0.0025
64	0.011280	0.008619	64	0.0070	0.0025

RP-2000 Mortality Rates			50% Scale AA		
Combined Healthy Table					
Age	Male	Female	Age	Male	Female
65	0.012737	0.009706	65	0.0070	0.0025
66	0.014409	0.010954	66	0.0065	0.0025
67	0.016075	0.012163	67	0.0065	0.0025
68	0.017871	0.013445	68	0.0070	0.0025
69	0.019802	0.014860	69	0.0070	0.0025
70	0.022206	0.016742	70	0.0075	0.0025
71	0.024570	0.018579	71	0.0075	0.0030
72	0.027281	0.020665	72	0.0075	0.0030
73	0.030387	0.022970	73	0.0075	0.0035
74	0.033900	0.025458	74	0.0075	0.0035
75	0.037834	0.028106	75	0.0070	0.0040
76	0.042169	0.030966	76	0.0070	0.0040
77	0.046906	0.034105	77	0.0065	0.0035
78	0.052123	0.037595	78	0.0060	0.0035
79	0.057927	0.041506	79	0.0055	0.0035
80	0.064368	0.045879	80	0.0050	0.0035
81	0.072041	0.050780	81	0.0045	0.0035
82	0.080486	0.056294	82	0.0040	0.0035
83	0.089718	0.062506	83	0.0040	0.0035
84	0.099779	0.069517	84	0.0035	0.0035
85	0.110757	0.077446	85	0.0035	0.0030
86	0.122797	0.086376	86	0.0035	0.0025
87	0.136043	0.096337	87	0.0030	0.0020
88	0.150590	0.107303	88	0.0025	0.0020
89	0.166420	0.119154	89	0.0025	0.0015
90	0.183408	0.131682	90	0.0020	0.0015
91	0.199769	0.144604	91	0.0020	0.0015
92	0.216605	0.157618	92	0.0015	0.0015
93	0.233662	0.170433	93	0.0015	0.0010
94	0.250693	0.182799	94	0.0015	0.0010
95	0.267491	0.194509	95	0.0010	0.0010
96	0.283905	0.205379	96	0.0010	0.0010
97	0.299852	0.215240	97	0.0010	0.0005
98	0.315296	0.223947	98	0.0005	0.0005
99	0.330207	0.231387	99	0.0005	0.0005
100	0.344556	0.237467	100	0.0005	0.0005
101	0.358628	0.244834	101	0.0000	0.0000
102	0.371685	0.254498	102	0.0000	0.0000
103	0.383040	0.266044	103	0.0000	0.0000
104	0.392003	0.279055	104	0.0000	0.0000
105	0.397886	0.293116	105	0.0000	0.0000
106	0.400000	0.307811	106	0.0000	0.0000
107	0.400000	0.322725	107	0.0000	0.0000
108	0.400000	0.337441	108	0.0000	0.0000
109	0.400000	0.351544	109	0.0000	0.0000
110	0.400000	0.364617	110	0.0000	0.0000

Scale AA represents annual improvements in mortality rates.

Projected Mortality Assumptions					Projected Disabled Mortality Assumptions				
Offsets	LEOFF				LEOFF				Age
	Plan 1 - 2019		Plan 2 - 2034		Plan 1 - 2019		Plan 2 - 2034		
	-1	1	-1	1	2	2	0	0	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Age
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 Assumptions (Continued)					Projected Disabled Mortality Assumptions (Continued)				
LEOFF					LEOFF				
Plan 1 - 2019		Plan 2 - 2034			Plan 1 - 2019		Plan 2 - 2034		
Offsets	-1	1	-1	1	2	2	0	0	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Age
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*		Age
LEOFF 1		LEOFF 2	LEOFF 1		LEOFF 1	LEOFF 2	
Male & Female	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 for all ages.

Service Retirement (Continued)			Disablement (Continued)		Ratio of Survivors Selecting Annuities* (Continued)		Age
LEOFF 1		LEOFF 2	LEOFF 1	LEOFF 2	LEOFF 1	LEOFF 2	
Male & Female	Male & Female	Male & Female	Male & Female	Male & Female	Male & Female	Male & Female	
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 for all ages.

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.*

LEOFF 2 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.*

Joint and 100 Percent Survivor Option Factors*		
	Male Membes	Female Members
LEOFF 2	0.866	0.891

** Applied to on-going survivor benefits in the event of a non-duty, pre-retirement death. Based on our member/beneficiary age difference assumptions and the option factors in WAC 415-02-380. Reductions apply to non-duty death benefits only.*

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 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	AFC Protection (C 5 L 11)
*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.

Age/Service Distribution

Age and Service Distribution of Active Law Enforcement Officers (Number of Actives and Average Annual Salary)															
LEOFF Plan 2															
Attained Age	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Over	Total	
Under 25	14	28	22	7	1	0	0	0	0	0	0	0	0	72	
	\$51,031	\$64,110	\$66,183	\$70,653	*	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$62,903	
25-29	38	87	207	195	129	119	0	0	0	0	0	0	0	775	
	\$55,558	\$60,971	\$67,229	\$69,469	\$74,483	\$78,375	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$69,437	
30-34	31	61	119	158	169	543	117	0	0	0	0	0	0	1,198	
	\$57,679	\$65,782	\$67,975	\$71,445	\$75,792	\$80,388	\$83,961	\$0	\$0	\$0	\$0	\$0	\$0	\$76,345	
35-39	18	35	85	100	106	551	683	157	0	0	0	0	0	1,735	
	\$57,286	\$68,966	\$68,159	\$70,103	\$73,645	\$81,207	\$86,178	\$91,610	\$0	\$0	\$0	\$0	\$0	\$81,869	
40-44	12	24	38	54	58	300	619	666	198	0	0	0	0	1,969	
	\$53,350	\$61,169	\$64,544	\$69,842	\$75,469	\$80,368	\$86,604	\$92,238	\$95,432	\$0	\$0	\$0	\$0	\$86,721	
45-49	4	7	15	13	31	133	303	405	610	121	0	0	0	1,642	
	\$47,720	\$68,249	\$75,766	\$75,432	\$75,689	\$79,606	\$87,205	\$92,197	\$97,764	\$107,879	\$0	\$0	\$0	\$92,675	
50-54	5	6	11	10	8	58	107	179	341	341	149	0	0	1,215	
	\$68,617	\$97,833	\$74,111	\$77,619	\$67,044	\$77,715	\$85,041	\$89,053	\$94,820	\$103,087	\$108,416	\$0	\$0	\$95,675	
55-59	0	3	1	3	4	25	64	78	123	154	201	0	0	656	
	\$0	\$92,012	*	\$109,804	\$59,908	\$78,742	\$82,492	\$88,106	\$93,904	\$99,583	\$104,531	\$0	\$0	\$95,907	
60-64	0	0	2	1	2	15	16	22	47	37	44	0	0	186	
	\$0	\$0	\$55,173	*	\$108,994	\$84,303	\$83,090	\$88,090	\$87,445	\$92,569	\$99,894	\$0	\$0	\$90,788	
65-69	1	0	0	1	0	5	0	2	7	3	3	0	0	22	
	\$0	\$0	\$0	*	\$0	\$98,806	\$0	\$101,313	\$82,343	\$80,628	\$97,306	\$0	\$0	\$87,384	
70 & Over	0	0	0	0	0	0	1	0	1	1	0	0	0	3	
	\$0	\$0	\$0	\$0	\$0	\$0	*	\$0	*	*	\$0	\$0	\$0	\$94,679	
Total	123	251	500	542	508	1,749	1,910	1,509	1,327	657	397	0	0	9,473	
	\$55,886	\$65,079	\$67,645	\$70,764	\$74,823	\$80,420	\$86,142	\$91,522	\$95,843	\$102,437	\$105,421	\$0	\$0	\$85,826	
Average:	Age	42.1	Number of Participants:			Vested	7,320	Males	8,552	Early Retirement Eligible:	502				
	Service	13.1	Not Vested			2,153	Females	921	Normal Retirement Eligible:	1,296					

*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	17	36	46	7	5	0	0	0	0	0	0	0	0	111
	\$53,141	\$54,772	\$62,692	\$65,263	\$80,073	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$59,606
25-29	29	82	115	113	98	98	0	0	0	0	0	0	0	535
	\$53,108	\$58,596	\$66,692	\$73,466	\$78,974	\$86,234	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$71,975
30-34	22	60	92	108	120	453	116	0	0	0	0	0	0	971
	\$53,774	\$59,074	\$68,167	\$74,187	\$80,275	\$86,807	\$89,370	\$0	\$0	\$0	\$0	\$0	\$0	\$80,674
35-39	6	36	48	49	65	435	487	115	0	0	0	0	0	1,241
	\$53,645	\$57,871	\$70,190	\$71,601	\$78,596	\$87,603	\$94,234	\$95,932	\$0	\$0	\$0	\$0	\$0	\$88,173
40-44	4	21	24	22	27	286	458	473	132	1	0	0	0	1,448
	\$60,331	\$59,444	\$65,568	\$71,527	\$84,161	\$87,547	\$93,922	\$99,602	\$104,820	*	\$0	\$0	\$0	\$93,950
45-49	4	6	4	5	22	116	203	364	369	130	7	0	0	1,230
	\$98,901	\$60,375	\$65,754	\$83,864	\$75,035	\$87,390	\$92,282	\$100,433	\$106,136	\$108,907	\$127,537	\$0	\$0	\$99,784
50-54	1	2	2	5	6	48	83	215	268	277	160	0	0	1,067
	*	\$71,979	\$58,624	\$89,915	\$102,493	\$94,500	\$87,621	\$97,709	\$104,534	\$110,185	\$119,361	\$0	\$0	\$104,809
55-59	1	3	2	1	2	27	34	68	109	155	152	0	0	554
	*	\$107,515	\$109,470	*	\$122,483	\$84,736	\$88,930	\$98,541	\$104,127	\$111,369	\$111,031	\$0	\$0	\$105,391
60-64	0	0	1	0	2	13	9	11	20	32	34	0	0	122
	\$0	\$0	*	\$0	\$101,293	\$108,932	\$82,499	\$102,489	\$105,677	\$105,760	\$113,675	\$0	\$0	\$105,790
65-69	0	0	0	0	1	3	4	3	6	4	1	0	0	22
	\$0	\$0	\$0	\$0	*	\$67,759	\$117,736	\$89,673	\$110,238	\$105,935	*	\$0	\$0	\$98,077
70 & Over	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	\$0	\$0	\$0	\$0	\$0	\$0	*	\$0	\$0	\$0	\$0	\$0	\$0	*
Total	84	246	334	310	348	1,479	1,395	1,249	904	599	354	0	0	7,302
	\$55,695	\$58,868	\$67,131	\$73,494	\$80,232	\$87,560	\$92,934	\$99,124	\$105,244	\$109,979	\$115,276	\$0	\$0	\$92,723

Average: Age 42.3 Service 13.5 Number of Participants: Vested 5,799 Not Vested 1,503 Males 6,878 Females 424 Early Retirement Eligible: 418 Normal Retirement Eligible: 1,099

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

Average:	Age	59.8	
	Years Retired	4.3	
			Males 833
			Females 71

*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)													
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
Under 50	0	0	0	0	0	0	0	0	0	0	0	0	0
50-54	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
55-59	11	25	6	7	0	0	0	0	0	0	0	0	0
60-64	\$3,575	\$3,440	\$2,721	\$3,035	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
65-69	28	27	27	30	24	36	0	0	0	0	0	0	0
70-74	\$3,993	\$3,230	\$3,613	\$2,848	\$2,656	\$2,222	\$0	\$0	\$0	\$0	\$0	\$0	\$0
75-79	7	15	21	14	14	53	8	0	0	0	0	0	0
80-84	\$2,910	\$3,657	\$3,690	\$2,994	\$3,112	\$2,490	\$1,524	\$0	\$0	\$0	\$0	\$0	\$0
85-89	4	3	7	9	3	26	4	0	0	0	0	0	0
90-94	\$2,390	\$1,736	\$2,480	\$2,484	\$2,289	\$2,210	\$2,004	\$0	\$0	\$0	\$0	\$0	\$0
95 & Over	0	0	0	1	1	8	8	7	0	0	0	0	0
Total	\$0	\$0	\$0	\$0	\$0	\$2,152	\$1,327	\$928	\$0	\$0	\$0	\$0	\$0
	0	0	0	0	0	0	6	6	0	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	\$1,655	\$932	\$0	\$0	\$0	\$0	\$0
	0	0	0	0	0	0	1	1	2	0	0	0	0
	\$0	\$0	\$0	\$0	\$0	\$0	*	*	\$747	\$0	\$0	\$0	\$0
	0	0	0	0	0	0	0	1	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	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
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$3,621	\$3,333	\$3,422	\$2,823	\$2,800	\$2,330	\$1,612	\$939	\$747	\$0	\$0	\$0	\$0
	50	70	61	61	42	123	27	15	2	0	0	0	0
	451												
	\$2,791												
Average:	Age 60.9 Years Retired 4.4												
	Males 434 Females 17												

*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)														
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	1	2	6	1	4	8	0	0	0	0	0	0	0	22
	*	\$1,096	\$1,390	*	\$1,257	\$962	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,208
50-54	0	3	5	2	5	7	3	0	0	0	0	0	0	25
	\$0	\$1,597	\$3,213	\$2,034	\$2,006	\$1,440	\$517	\$0	\$0	\$0	\$0	\$0	\$0	\$1,863
55-59	2	1	5	5	7	12	1	0	0	0	0	0	0	33
	\$2,737	*	\$3,093	\$2,767	\$2,324	\$2,316	*	\$0	\$0	\$0	\$0	\$0	\$0	\$2,519
60-64	1	2	2	2	4	16	3	0	1	0	0	0	0	31
	*	\$3,880	\$2,263	\$1,899	\$2,604	\$2,252	\$1,846	\$0	*	\$0	\$0	\$0	\$0	\$2,340
65-69	0	0	0	1	0	4	2	0	0	0	0	0	0	7
	\$0	\$0	\$0	*	\$0	\$1,055	\$786	\$0	\$0	\$0	\$0	\$0	\$0	\$1,281
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	2	0	0	0	2
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$248	\$0	\$0	\$0	\$248
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	4	8	18	11	20	47	9	0	1	2	0	0	0	120
	\$2,726	\$2,336	\$2,466	\$2,463	\$2,087	\$1,826	\$1,001	\$0	*	\$248	\$0	\$0	\$0	\$1,986

Average:

Age	55.7
Years Retired	5.2

*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	1	0	0	3	2	4	0	0	0	0	0	0	0	10
	*	\$0	\$0	\$1,103	\$1,038	\$858	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$936
50-54	1	2	4	2	2	5	0	0	0	0	0	0	0	16
	*	\$3,774	\$2,411	\$2,755	\$2,162	\$1,778	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,480
55-59	0	4	6	2	4	5	1	0	0	0	0	0	0	22
	\$0	\$2,889	\$3,579	\$2,973	\$2,953	\$2,031	*	\$0	\$0	\$0	\$0	\$0	\$0	\$2,874
60-64	0	3	2	1	1	10	1	0	0	0	0	0	0	18
	\$0	\$3,308	\$3,259	*	*	\$2,589	*	\$0	\$0	\$0	\$0	\$0	\$0	\$2,670
65-69	0	0	1	0	0	2	1	2	0	0	0	0	0	6
	\$0	\$0	*	\$0	\$0	\$1,603	*	\$635	\$0	\$0	\$0	\$0	\$0	\$1,260
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	\$2,151	\$3,225	\$3,004	\$2,097	\$2,410	\$1,984	\$1,399	\$635	\$0	\$0	\$0	\$0	\$0	\$2,332

Average:

Age55.9

Years Retired4.6

Males64

Females8

*Monthly benefit omitted for privacy reasons.

Age and Years Retired Distribution of Survivors of Fire Fighters (Number of Survivors 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	1	1	1	0	2	2	0	0	0	0	0	0	0	7
	*	*	*	\$0	\$2,227	\$1,840	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,855
50-54	0	1	1	0	1	1	0	0	0	0	0	0	0	4
	\$0	*	*	\$0	*	*	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,955
55-59	1	1	1	0	1	4	1	1	0	0	0	0	0	10
	*	*	*	\$0	*	\$2,424	*	*	\$0	\$0	\$0	\$0	\$0	\$1,929
60-64	0	1	0	1	0	1	0	0	0	0	0	0	0	3
	\$0	*	\$0	*	\$0	*	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,602
65-69	0	0	0	0	1	0	0	1	0	0	0	0	0	2
	\$0	\$0	\$0	\$0	*	\$0	\$0	*	\$0	\$0	\$0	\$0	\$0	\$1,554
70-74	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	*	\$0	\$0	\$0	\$0	\$0	*
75-79	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	\$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	1	0	0	0	0	0	1
	\$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	\$1,189	\$3,297	\$4,972	1	\$2,279	\$2,199	1	\$640	0	0	0	0	0	\$2,319

Average: Age 55.5 Males 1

 Years Retired 5.8 Females 28

*Monthly benefit omitted for privacy reasons.

Historical Data

Historical Data						
(Dollars in millions)	2010	2009	2008	2007 ¹	2006	2005
Contribution Information						
Employer Rate	4.54%	4.44%	4.34%	4.56%	4.66%	4.86%
State Rate	3.03%	2.96%	2.89%	3.04%	3.11%	3.24%
Employee Rate	7.57%	7.40%	7.23%	7.60%	7.77%	8.10%
Funded Status						
Projected Unit Credit Liability	\$5,078	\$4,349	\$3,786	\$3,386	\$3,323	\$2,932
Market Value of Assets	\$5,081	\$4,309	\$5,315	\$5,185	\$4,339	\$3,614
Actuarial Value of Assets	\$6,043	\$5,564	\$5,053	\$4,360	\$3,844	\$3,329
Unfunded Liability	(\$965)	(\$1,215)	(\$1,266)	(\$974)	(\$521)	(\$397)
Funded Ratio	119.0%	127.9%	133.4%	128.8%	115.7%	113.5%
Participant Data						
Number of Actives	16,775	16,951	16,626	16,099	15,718	15,168
Total Annual Salaries	\$1,490	\$1,443	\$1,345	\$1,234	\$1,172	\$1,092
Number of Terminated Vested	781	672	649	629	597	570
Number of Terminated, Not Vested	1,707	1,663	1,531	1,433	1,362	1,285
Number of Retirees and Beneficiaries	1,639	1,367	1,134	924	779	574
Total Annual Benefits	\$49	\$38	\$29	\$22	\$17	\$11
Assumptions²						
Return on Investments	8.00%	8.00%	8.00%	5.94%	8.00%	8.00%
Salary Increase	6.55%	6.61%	6.61%	5.49%	7.40%	7.40%
Inflation ³	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Growth in Membership	1.25%	1.25%	1.25%	0.94%	1.25%	1.25%
Actuarial Experience						
Return on Market Value	12.99%	(22.64%)	(1.33%)	16.61%	15.77%	17.55%
Return on Actuarial Value	4.84%	5.72%	11.04%	10.03%	10.80%	9.30%
Salary Increase	5.35%	6.69%	7.65%	4.31%	5.50%	5.90%
Inflation	0.44%	4.48%	3.79%	3.73%	3.02%	1.57%
Growth in Membership	0.17%	1.53%	2.62%	1.83%	2.66%	1.85%
COLA ⁴	0.44%-3%	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.

²The long-term economic assumptions changed in the 2011 interim beginning July 1, 2010, but expectations for the 2010 valuation period ending June 30, 2010, matched the prior year's assumptions.

³Based on the assumption for prior year's CPI: Urban Wage Earners & Clerical Workers, Seattle-Tacoma-Bremerton, WA - All Items.

⁴COLA 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 smooths the effects of short-term volatility in the market value of assets.

Entry Age Normal (EAN) Funding Method

The EAN funding 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 current assets to the present value of earned pensions. Actuaries use several methods to measure a plan's 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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