



## Office of the State Actuary

*"Securing tomorrow's pensions today."*

September 25, 2012

Mr. Steve Nelsen  
Executive Director  
LEOFF Plan 2 Retirement Board  
P.O. Box 40918  
Olympia, Washington 98504-0918

### **RE: PRELIMINARY ANALYSIS OF ADMINISTRATIVE FACTORS**

Dear Steve:

We have completed our preliminary analysis of the impact to several administrative factors as a result of the changes to the economic assumptions adopted by the Law Enforcement Officers' and Fire Fighters' Plan 2 Retirement Board (Board) during the 2011 Interim. This analysis also includes an update to the projected mortality improvements to reflect more current data.

Please find attached summary tables showing the impact of these changes on each of the following administrative factors:

- ❖ Early retirement factors for WAC 415-02-320 (Appendix B).
- ❖ Monthly benefit per \$1.00 of accumulation for WAC 415-02-340 (Appendix C).
- ❖ Joint and survivor option factors for WAC 415-02-380 (Appendix D).

Overall, we observed changes in the current factors that range from -3 percent to 9 percent. In some cases, a particular factor had much smaller changes. In other cases, the largest change in the factors occurred at ages prior to retirement eligibility and would only apply on a member's death or disability.

Administrative factors should be reviewed, and if necessary, updated anytime the underlying demographic or economic assumptions for the covered retirement systems change. The tables will be updated again after our 2007-2012 demographic experience study. They could also change with new member options or benefit changes in the future.



The attached appendices contain supporting information for each factor we analyzed. Appendix A supplies general information about data, assumptions, and methods used to develop the factors. Appendices B through D provide tables of key results for each factor that show the percent change from the current factors to the new factors. For each factor we provide a table of summary results for all ages covered by the factors. For some factors we also provide a summary table for retirement eligible ages only. All of the appendices should be used together with this cover letter to form a complete actuarial communication.

We developed the administrative factors based on our understanding of how the Department of Retirement Systems (DRS) applies them and according to policy decisions made by the Board. We intend this communication to be used by the Board and DRS only. If a party other than the Board or DRS reads this communication, they should address questions to the Board or DRS and seek professional guidance with the content and interpretation of this communication.

All of the data, assumptions, and methods we used in developing the administrative factors are reasonable and appropriate for this project. The use of another set of assumptions and methods, however, could also be reasonable and could produce materially different results.

We have not included the service credit restoration factors for WAC 415-02-370 in this communication. These factors will follow in a separate communication.

Please let me know if you have any questions concerning this analysis or the assumptions or methods used to develop it.

Sincerely,

Lisa A. Won, ASA, FCA, MAAA  
Actuary

cc: Kelly Fox,  
LEOFF 2 Board  
Kyle Stineman, Actuarial Analyst  
OSA

#### Attachments

Appendix A – General Data, Assumptions, and Methods  
Appendix B – Early Retirement Factors  
Appendix C – Monthly Benefit Per \$1.00 of Accumulation  
Appendix D – Joint and Survivor Option Factors

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## Appendix A – General Data, Assumptions, And Methods

### Purpose

Unless otherwise noted, the information contained in this appendix applies to all factors developed in this project.

### Data

We relied on the [June 30, 2011 Actuarial Valuation Report](#) (AVR) data whenever necessary to develop the administrative factors.

### Assumptions

We relied on the assumptions in the 2011 AVR and the following:

❖ **Economic Assumptions.**

Plan	Interest	Annual COLA
LEOFF 2	7.5%	3%

❖ **Mortality Assumptions:** We used the mortality improvement method developed in our [2001-2006 Experience Study Report](#) (ESR) to project the RP-2000 table to the year 2014 (“RP-2014”) for the underlying mortality assumption for the plan. We included mortality projections developed specifically for retirement-age members as shown in the table below.

Plan	Average Retirement Age	Projection Year
LEOFF 2	55	2032

See the Methods section below for a description of the development of projected mortality assumptions.

❖ **Mortality Blending:** We used the retirement, disability, and mortality rates as disclosed in the AVR to blend mortality assumptions (see the Methods section below for a description of the process).

❖ **Percent Male/Female:** We assumed 90 percent male and 10 percent female for primary members. These percentages match those in the ESR.



## ***Methods***

### ***Development of Underlying Mortality Assumptions***

We blended healthy and disabled mortality assumptions using the following method:

- ❖ We multiplied the RP-2014 healthy mortality rates by the probability that benefit commencement is from a healthy cause. Healthy causes include service retirement and the death of an active member. Where retirement rates vary by service, we used active membership counts by service and age to develop weighted average retirement rates.
- ❖ We multiplied the RP-2014 disabled mortality rates by the probability a member will take a disability benefit. In other words, we multiplied the RP-2014 disabled mortality rates by the probability of a benefit commencing due to a non-healthy cause.
- ❖ We added the weighted rates above to come up with male and female RP-2014 blended mortality assumptions by age for the plan.

We incorporated mortality improvements for each year after 2014 as follows:

- ❖ We used data from the AVR to find the historical average retirement age of the service and disability retirees for the plan.
- ❖ We determined that we should project mortality improvements based on the plan's expected retirement age rather than the plan's average active member age, to improve actuarial equivalence.
- ❖ We projected the blended mortality rates from RP-2014 to the projected mortality improvement year. We incorporated expected mortality improvements using 50 percent of Scale AA, as developed in the ESR and applied in the AVR.



## Appendix B – Early Retirement Factors

Below we show a summary of the percent change from the current factors for all ages followed by a table that includes retirement eligible ages only. The summary tables show the minimum percent change, the average percent changed, and the maximum percent change we observed.

Percent Change in Factors For All Ages	
	LEOFF 2
Minimum	0.44%
Average	4.87%
Maximum	9.43%

Percent Change in Factors For Retirement Eligible Ages	
	LEOFF 2
Minimum	0.44%
Average	0.74%
Maximum	1.06%

As an example, we observed a new Early Retirement Factor (ERF) of 0.116 for 26 years early compared to the current ERF of 0.106. This represents a 9.43 percent change. However, when we look at the comparison for ages when members are eligible to retire, the maximum percent change we observe is 1.06 percent.



### **Appendix C – Monthly Benefit Per \$1.00 of Accumulation**

Below we show a summary of the percent change from the current factors for all ages followed by a table that includes retirement eligible ages only. The summary tables show the minimum percent change, the average percent changed, and the maximum percent change we observed.

<b>Percent Change in Factors For All Ages</b>	
<b>LEOFF 2</b>	
<b>Minimum</b>	3.42%
<b>Average</b>	5.81%
<b>Maximum</b>	7.68%

<b>Percent Change in Factors For Retirement Eligible Ages</b>	
<b>LEOFF 2</b>	
<b>Minimum</b>	3.42%
<b>Average</b>	4.99%
<b>Maximum</b>	6.30%



## **Appendix D – Joint and Survivor Option Factors**

Below we show a summary of the percent change from the current factors for all ages under each of the Joint and Survivor Options 2, 3, and 4. The summary tables show the minimum percent change, the average percent changed, and the maximum percent change we observed.

<b>Joint &amp; Survivor Option 2 Factors</b>	
<b>LEOFF 2</b>	
Minimum	(2.83%)
Average	(1.27%)
Maximum	(0.12%)

<b>Joint &amp; Survivor Option 3 Factors</b>	
<b>LEOFF 2</b>	
Minimum	(1.65%)
Average	(0.72%)
Maximum	(0.06%)

<b>Joint &amp; Survivor Option 4 Factors</b>	
<b>LEOFF 2</b>	
Minimum	(2.09%)
Average	(0.92%)
Maximum	(0.08%)