

2014 Actuarial Valuation



Washington State
Volunteer Fire Fighters' and Reserve Officers'
Relief and Pension Fund

OCTOBER 2015



Board for Volunteer Fire Fighters and Reserve Officers

Olympia Forum Building
605 E 11th Avenue #112
PO Box 114, Olympia, WA 98507
Phone: 360.753.7318
Toll Free: 877.753.7318
Fax: 360.586.1987
bvff.wa.gov

Report prepared by the Office of the State Actuary



Office of the State Actuary

"Securing tomorrow's pensions today."

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

Kelly Burkhart
Graham Dyer
Michael Harbour
Luke Masselink, ASA, EA, MAAA
Lauren Rafanelli
Christi Steele
Keri Wallis

Mitchell DeCamp
Aaron Gutierrez, MPA, JD
Lisa Hawbaker
Darren Painter
Frank Serra
Kyle Stineman
Lisa Won, ASA, FCA, MAAA

2100 Evergreen Park Dr., SW Suite 150
PO Box 40914
Olympia, Washington 98504-0914

Phone: 360.786.6140
TDD: 711
Fax: 360.586.8135

state.actuary@leg.wa.gov
osa.leg.wa.gov

VFF members: If you have photos you would like to submit for consideration and inclusion in future reports, please submit high-res images to state.actuary@leg.wa.gov.

To obtain a copy of this report in alternative format call 360.786.6140 or 711 for TDD.

CONTENTS

Letter of Introduction	1
SECTION ONE:	
SUMMARY OF KEY RESULTS	3
Intended Use	5
Funding Policy	5
Contribution Rates	6
Actuarial Liabilities	6
Assets	7
Funded Status	7
Participant Data	8
Actuarial Gain/Loss	8
Significant Changes since the Prior Valuation	9
SECTION TWO:	
ACTUARIAL EXHIBITS	11
Actuarial Certification Letter	13
Contribution Rates	15
Actuarial Liabilities	17
Assets	19
Funded Status	22
Economic Experience	25
Demographic Experience	26
Actuarial Gain/Loss	26
Effect of Plan, Assumption, and Method Changes	30
Plan Changes	30
Assumption Changes	30
Method Changes	30
SECTION THREE:	
PARTICIPANT DATA	31
SECTION FOUR:	
APPENDICES	35
Actuarial Assumptions	36
Actuarial Methods	44
Summary of Plan Provisions	46
Glossary	51





Office of the State Actuary

"Securing tomorrow's pensions today."

Volunteer Fire Fighters' and Reserve Officers' Relief and Pension Fund Actuarial Valuation Report As of June 30, 2014

Released October 2015

As required under RCW 41.24.320, this report documents the results of the actuarial valuation the Office of the State Actuary (we) performed on the Volunteer Fire Fighters' and Reserve Officers' Relief and Pension Fund of Washington.

Our primary purpose for performing this valuation is to determine the pension and relief contribution requirements for the plan as of June 30, 2014, under the funding policy established by the Board for Volunteer Fire Fighters and Reserve Officers. This valuation also provides information on the funding progress and developments in the plan over the past year. We organized this report into the following four sections:

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

The **Summary of Key Results** provides a high-level summary of the valuation results. The next two sections of the report provide detailed actuarial asset and liability information and membership data. The **Appendices** summarize the actuarial assumptions and methods, major plan provisions, and supporting information used to perform this valuation.

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

Lisa A. Won, ASA, FCA, MAAA
Deputy State Actuary

Michael Harbour
Senior Actuarial Analyst

PO Box 40914 | Olympia, Washington 98504-0914 | state.actuary@leg.wa.gov | osa.leg.wa.gov
Phone: 360.786.6140 | Fax: 360.586.8135 | TDD: 711

SECTION ONE: SUMMARY OF KEY RESULTS



Intended Use

The purpose for performing the Volunteer Fire Fighters' and Reserve Officers' (VFF) Relief and Pension Fund Actuarial Valuation is to:

- Develop contribution rates to pre-fund the pension and relief benefits under the funding policy established by the Board for Volunteer Fire Fighters and Reserve Officers (the Board).
- Measure the pension system's funding progress.
- Compare actual experience with assumptions used.
- Detect significant demographic changes.
- Highlight significant plan, assumption, and method changes.

We do not intend this report to satisfy the accounting requirements under the Governmental Accounting Standards Board rules.

Funding Policy

The Board relies on systematic actuarial funding to finance the on-going cost of the pension and relief plans. Under this financing approach, we reduce the cost of future pension and relief payments by the expected long-term return on invested contributions. The plan's assets are first allocated to pre-fund the pension benefits. Any assets above the pension plan's accrued liability are allocated to the relief plan. This is a cost-sharing plan that relies on contributions from employees and employers, while the state contributes 40 percent of the annual Fire Insurance Premium Tax collected. Please refer to the **Appendices** for additional details on the actuarial funding methods.



Contribution Rates

We determine the pension and relief contribution rates by performing an actuarial valuation. Consistent with current Board funding policy, we determine the per-person level dollar contribution rate required to pre-fund pension benefits using the Entry Age Normal (EAN) Funding Method. This rate includes the Normal Cost (NC) rate, plus a rate to amortize the Unfunded Actuarial Accrued Liability (UAAL). We determine the per-person level dollar contribution rate required to pre-fund relief benefits using the Aggregate Funding Method.

Per Person Annual Contributions		
Valuation Year	2013	2014
Pension Rate		
Employee	\$30	\$30
Employer	30	30
State	62	39
Normal Cost Rate	\$122	\$99
State UAAL Rate	11	0
Total Pension Rate	\$134	\$99
Relief Rate		
Employer	\$30	\$30
State	369	315
Total Relief Rate	\$399	\$345
Operating Expenses		
Administration and Expenses	\$37	\$35

Members of the pension plan and their employers are charged a set pension rate. Only employers of members are charged a set rate for relief costs. Emergency medical service districts and reserve law enforcement officers' employers pay the full cost of their benefits. Under current funding policy, the state covers all remaining plan costs through the collection of

taxes on fire insurance premiums.

The operating expense rate is not actually collected and is provided for informational purposes only. We determined this rate based on actual annual costs from the prior year.

Actuarial Liabilities

Actuarial Liabilities		
(Dollars in Millions)	2013	2014
Present Value of Future Benefits		
Pension Benefits	\$189.1	\$189.7
Relief Benefits	\$25.2	\$24.0
Pension Plan*		
Entry Age Normal Accrued Liability	\$183.6	\$185.5
Unfunded Actuarial Accrued Liability	\$1.1	\$0.0
Valuation Interest Rate	7.00%	7.00%

**We do not calculate an actuarial accrued liability for the relief plan since the relief benefits are paid as they are incurred. Relief benefits are not earned or accrued as a member's service increases.*

Assets

Consistent with the Board's adopted funding policy, assets are first allocated to the pension benefits. Any assets above the pension's Actuarial Accrued Liability (AAL) are allocated to the relief benefits.

Assets		
<i>(Dollars in Millions)</i>	2013	2014
Market Value of Assets	\$177.1	\$204.2
Actuarial Value of Assets	182.5	189.0
Contributions*	1.1	1.0
Disbursements	12.9	12.8
Investment Return	19.7	33.2
Other**	\$5.4	\$5.7
Rate of Return on Assets***	12.0%	18.7%

*Includes Employee, Employer, and Relief contributions.

**Includes the Fire Insurance Premium Tax less Administrative Expenses.

***This is the dollar-weighted rate of return on the Market Value of Assets.

Funded Status

The funded status of the pension plan compares the plan's assets to the earned pension liabilities of its members. We determined this by comparing the Actuarial Value of Assets (AVA) to the EAN accrued pension liabilities calculated using the long-term interest rate assumption.

Based on the current funding policy, any assets above the pension plan AAL are allocated to fund the relief benefits. As a result, the pension plan would remain 100 percent funded when total assets exceed the pension AAL. We do not calculate an AAL for the relief plan since the relief benefits are paid as they are incurred. Relief benefits are not earned or accrued as a member's service increases. As such, a relief funded status is not calculated.

Pension Funded Status		
<i>(Dollars in Millions)</i>	2013	2014
a. Entry Age Normal Accrued Liability	\$183.6	\$185.5
b. Actuarial Value of Assets Allocated to Pensions	182.5	185.5
c. Unfunded Liability (a-b)	\$1.1	\$0.0
d. Funded Ratio (b/a)	99%	100%

Note: Totals may not agree due to rounding.

Participant Data

Changes in the size and composition of plan membership play a major role in the results of the valuation. We observed the changes below in plan membership since last year's valuation.

Changes in Participant Data			
	2013	2014	Increase
Actives			
Number of Active Members in Relief Plan	12,290	12,151	(1%)
Number of Active Members in Pension Plan	10,230	10,093	(1%)
Percent of Volunteers Covered by Pension Plan	83%	83%	(0%)
Average Age	41.6	41.5	(0%)
Average Years of Service	10.8	10.8	(1%)
Inactives			
Number of Retirees/Beneficiaries	4,117	4,208	2%
Number of Terminated Vested Members	6,123	6,092	(1%)
Number of Survivors (Line of Duty)	14	11	(21%)
Number of Members with Permanent Disabilities	13	14	8%

Actuarial Gain/Loss

The table below describes the various sources that contribute to the change in contribution rates from one year to the next. For each source, we compare the actual amount experienced by the plan to the amount we assumed. Any difference will increase or decrease the contribution requirements accordingly. The changes in contribution rates shown in the following table represent a summary of the Pension and Relief contribution rates. The Actuarial Gain/Loss tables in the **Actuarial Exhibits** section of the report provide further detail.

Change in Contribution Rates by Source	Pension NC*	Pension UAAL	Relief NC
2013 Contribution Rate	\$122.31	\$11.31	\$398.83
Expected Contribution Rate Change	0.00	2.47	0.00
Liability (Gains) / Losses	14.94	(14.02)	17.74
Asset (Gains) / Losses	0.00	0.25	(29.69)
PV of Future Service (Gains) / Losses	(15.89)	0.00	(38.83)
Incremental Changes (Gains) / Losses	(22.73)	0.00	(2.93)
Other (Gains) / Losses	0.00	0.00	0.00
Total Change	(\$23.68)	(\$11.31)	(\$53.69)
2014 Preliminary Contribution Rate	\$98.64	\$0.00	\$345.13
Laws of 2015	0.00	0.00	0.00
2014 Contribution Rate	\$98.64	\$0.00	\$345.13

*Please see the Methods section of the Appendix for details on the modified version of the EAN cost method used. Non-standard sources of annual gain/loss are produced as a result.

Significant Changes since the Prior Valuation

The following comments summarize the highlights of changes from the last valuation. Please see the **Actuarial Certification Letter** for additional comments on the 2014 valuation results.

Since the *2013 Volunteer Fire Fighters' and Reserve Officers' Relief and Pension Fund Actuarial Valuation Report (VAVR)*, the most significant impact to the plan can be attributed to updating the demographic assumptions as part of the *VFF 2008-2013 Pension Experience Study*. Updates to the termination rates had the largest impact. This assumption change, combined with our retirement assumption changes, resulted in approximately a one percent decrease in today's value of all future pension benefits.

The plan also experienced actuarial gains and losses as a result of economic and demographic experience that differed from our long-term assumptions. 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.

The rate of investment return on the actuarial value of assets for the plan year was higher than the assumed rate of 7 percent, which decreased contribution rates.

The plan experienced both liability gains and losses. Liabilities increased less than expected due to higher turnover and fewer active duty-related disablements and deaths, which decreased contribution rates. Liabilities increased more than expected due to new entrants, which increased contribution rates.

The Present Value of Future Service increased more than expected due to new entrants, so the number of years for collecting contributions is larger and this results in an actuarial gain to the system, thus lowering contribution rates.

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

SECTION TWO: ACTUARIAL EXHIBITS





Office of the State Actuary

"Securing tomorrow's pensions today."

Actuarial Certification Letter Volunteer Fire Fighters' and Reserve Officers' Relief and Pension Fund Actuarial Valuation Report As of June 30, 2014

Released October 2015

We prepared this report for the Board for Volunteer Fire Fighters and Reserve Officers (the Board). This report documents the results of the actuarial valuation we performed on the Volunteer Fire Fighters' and Reserve Officers' Pension and Relief Benefits as defined under Chapter 41.24 of the Revised Code of Washington. The primary purpose for performing this valuation is to determine the contribution requirements for the pension and relief plans as of the valuation date June 30, 2014, consistent with the Board's adopted funding policy. This report should not be used for other purposes. Please replace this report when a more recent report becomes available.

To produce the valuation results summarized in this report, we performed calculations requiring assumptions about future economic and demographic events. As part of the 2009 Actuarial Valuation Report of the Relief Benefits, healthcare actuaries from Milliman reviewed the healthcare assumptions and methods we used for the relief plan for reasonableness. We relied on Milliman's expertise for these assumptions and methods since we are not healthcare actuaries. We updated the medical trend rates based upon the *2015 PEBB OPEB Report*. We also developed new termination and retirement assumptions used for this valuation in the *VFF 2008-2013 Pension Experience Study*. Several other demographic assumptions rely on experience from other Washington State retirement systems and are detailed in the *2007-2012 Demographic Experience Study*.

We believe that the assumptions and methods used in the 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 Board adopted the investment rate of return assumption used in this valuation, the amortization policy for the Unfunded Actuarial Accrued Liability (UAAL), and the asset valuation method. We believe the asset valuation method will reduce the UAAL contribution rate volatility produced by the Entry Age Normal (EAN) Actuarial Funding Method when used in combination with the existing asset allocation policy of the Washington State Investment Board (WSIB). The combination of the current asset smoothing method with any other funding method or asset allocation policy may not be appropriate.

PO Box 40914 | Olympia, Washington 98504-0914 | state.actuary@leg.wa.gov | osa.leg.wa.gov
Phone: 360.786.6140 | Fax: 360.586.8135 | TDD: 711



The Board established a fund to provide for both pension and relief benefits. The Board adopted the policy to pre-fund the pension benefits using the EAN Actuarial Funding Method. The Board also adopted the policy to pre-fund the relief benefits using the Aggregate Actuarial Funding Method. Unless noted otherwise, we selected all other assumptions and methods used in this valuation.

Under current funding policy, certain plan costs are paid by members, employers, and the state. The contribution rate charged to individual members or employers is not intended to cover the full actuarial costs of the plan. However, annual plan income (including state contributions from fire insurance premium taxes, but excluding investment income), continues to exceed the annual actuarial requirements for the plan.

The Board provided us with member, beneficiary, and relief benefit data. We checked the data for reasonableness as appropriate based on the purpose of the valuation. WSIB and the Office of the State Treasurer provided financial and asset information. An audit of the data and financial information 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 Board and OSA are actively working together to further improve the quality of the data. We previously recommended the Board implement a new data collection process for the relief benefits. A more detailed reporting of medical expenditures on an individual member basis and collecting additional beneficiary data is important in preparing for future experience studies. We use experience studies to set the assumptions upon which the projected costs of the plan are based. In addition, continued improvement in the quality of the participant data will increase the reliability of future valuation results.

In our opinion, all methods, assumptions, and calculations are reasonable and are in conformity with generally accepted actuarial principles and standards of practice as of the date of this publication.

The undersigned, with actuarial credentials, meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. While this report is intended to be complete, we are available to offer extra advice and explanations as needed.

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

Lisa A. Won, ASA, FCA, MAAA
 Deputy State Actuary

Contribution Rates

We used the Entry Age Normal (EAN) Funding Method to determine the pension contribution rates as a level dollar amount. This method divides the contribution rate into two parts: a Normal Cost (NC) rate and a rate to amortize the Unfunded Actuarial Accrued Liability (UAAL). We used the Aggregate Funding Method to determine the relief contribution rates as a level dollar amount.

The total pension contribution rate, which is the sum of the NC and UAAL pension rates, and the relief contribution rate should be sufficient to fund all projected pension and relief benefits of today's members. However, this assumes:

- Member contributions, employer contributions, and premium taxes are collected regularly.
- Benefit provisions remain the same.
- Assumptions prove reasonable.

We do not expect a smooth pattern of future contributions due to the variability of the premium tax on fire insurance policies. The plan receives a portion of the annual premium taxes, which serve as a main source of revenue for the system. See the **Actuarial Methods** section of the Appendices for more detail. Additionally, the method for allocating assets between the pension and relief plans could amplify the annual volatility of the relief contribution rate.

Pension and Relief Plans Required Annual Contributions		
	Per Person*	Total
Pension Benefits	(Dollars in Ones)	(Dollars in Thousands)
Entry Age Normal Cost	\$98.64	\$996
Cost of UAAL	0.00	0
Total Pension Rate	\$98.64	\$996
Relief Benefits		
Aggregate Normal Cost	\$345.13	\$4,194
Total Relief Rate	\$345.13	\$4,194
Operating Expenses		
Administration and Expenses**	\$34.77	\$422
Total for Pension, Relief, and Expenses	\$478.54	\$5,612

*The Per Person rate is based on the number of active members in the data.

**Estimated using actual dollars.

Notes: Totals may not agree due to rounding.

ACTUARIAL EXHIBITS

Development of Pension Plan Normal Cost*	
<i>(Dollars in Thousands)</i>	Total
Future Value of Fully Projected Benefits	\$664,509
a. Present Value of Fully Projected Benefits (PVFB)	\$189,701
b. Entry Age Normal Actuarial Accrued Liability (AAL)	\$185,510
c. Present Value of Future Normal Costs (PVFNC) (a - b)	\$4,191
d. Present Value of Future Service (PVFS)**	42,490
e. Per Person Entry Age Normal Cost (c / d in Dollars)	\$99
f. Number of Active Members in Pension Plan	10,093
g. Entry Age Normal Cost (e x f)	\$996

*Please see the Methods section of the Appendix for details on the modified version of the EAN cost method used.

**We calculated the Pension PVFS over all active pension members.

Note: Totals may not agree due to rounding.

Development of Pension Plan UAAL	
<i>(Dollars in Thousands)</i>	Total
Future Value of Fully Projected Benefits	\$664,509
a. Present Value of Fully Projected Benefits (PVFB)	\$189,701
b. Actuarial Value of Assets (AVA) Allocated to Pensions	\$185,510
c. Unfunded PVFB (a - b)	\$4,191
d. Present Value of Future Normal Costs (PVFNC)	\$4,191
e. Unfunded Actuarial Accrued Liability (UAAL) (c - d)	\$0
f. Contribution to Amortize the UAAL (Rolling 15-Year)	\$0
g. Number of Active Members in Pension Plan	10,093
h. Per Person UAAL Contribution (f / g in Dollars)	\$0

Note: Totals may not agree due to rounding.

Development of Relief Plan Normal Cost	
<i>(Dollars in Thousands)</i>	Total
Future Value of Fully Projected Benefits	\$71,015
a. Present Value of Fully Projected Benefits (PVFB)	\$24,004
b. Actuarial Value of Assets (AVA)*	\$3,451
c. Unfunded PVFB (a - b)	\$20,553
d. Present Value of Future Service (PVFS)**	59,551
e. Per Person Aggregate Normal Cost (c / d in Dollars)	\$345
f. Number of Active Members in Relief Plan	12,151
g. Aggregate Normal Cost (e x f)	\$4,194

*We use the excess assets above those allocated to the pension plan for purposes of calculating an aggregate normal cost rate.

**We calculated the Relief PVFS over all active relief members.

Note: Totals may not agree due to rounding.

Actuarial Liabilities

Present Value of Benefits – Pension Plan*		
<i>(Dollars in Thousands)</i>		
Liability Measures	EAN AAL**	Fully Projected
Active Members		
Retirement	\$41,686	\$43,728
Termination	14,449	16,219
Death Benefits	1,008	1,081
Withdrawal	1,692	1,997
Total Actives	\$58,834	\$63,026
Inactive Members		
Retirees	\$75,843	\$75,843
Terminated Vested	44,417	44,417
Survivor	6,415	6,415
Total Inactives	\$126,675	\$126,675
2014 Total	\$185,510	\$189,701
2013 Total	\$183,578	\$189,055

*Includes pension benefits only.

**Entry Age Normal Actuarial Accrued Liability.

Note: Totals may not agree due to rounding.

Present Value of Benefits - Relief Plan*	
<i>(Dollars in Thousands)</i>	
Liability Measures	Fully Projected
Active Members	
Duty Disability	\$3,214
Duty-Related Death	3,098
Medical and Temporary Disability	11,804
Total Actives	\$18,116
Inactive Members	
Survivor	\$2,677
Disability	3,211
Total Inactives	\$5,888
2014 Total	\$24,004
2013 Total	\$25,213

*Includes relief benefits only.

Note: Totals may not agree due to rounding.

ACTUARIAL EXHIBITS

Fully Projected Benefit Payments											
(Dollars in Thousands)											
VFF - Pension Benefits											
Year	Future Value	Present Value	Year	Future Value	Present Value	Year	Future Value	Present Value	Year	Future Value	Present Value
2014	\$10,587	\$10,235	2039	\$13,913	\$2,478	2064	\$5,380	\$177	2089	\$383	\$2
2015	11,071	10,003	2040	13,616	2,267	2065	5,059	155	2090	312	2
2016	11,556	9,758	2041	13,296	2,069	2066	4,749	136	2091	251	1
2017	12,041	9,502	2042	12,967	1,885	2067	4,451	119	2092	199	1
2018	12,578	9,277	2043	12,621	1,715	2068	4,165	104	2093	155	1
2019	13,071	9,009	2044	12,247	1,555	2069	3,889	91	2094	120	1
2020	13,555	8,732	2045	11,857	1,407	2070	3,623	79	2095	91	0
2021	13,958	8,403	2046	11,458	1,271	2071	3,367	69	2096	69	0
2022	14,358	8,078	2047	11,121	1,153	2072	3,121	60	2097	51	0
2023	14,718	7,739	2048	10,749	1,041	2073	2,885	51	2098	37	0
2024	15,052	7,397	2049	10,400	942	2074	2,658	44	2099	27	0
2025	15,272	7,014	2050	10,040	850	2075	2,440	38	2100	19	0
2026	15,460	6,636	2051	9,683	766	2076	2,232	33	2101	14	0
2027	15,610	6,262	2052	9,353	691	2077	2,033	28	2102	9	0
2028	15,685	5,881	2053	9,033	624	2078	1,843	23	2103	6	0
2029	15,727	5,510	2054	8,708	562	2079	1,662	20	2104	4	0
2030	15,704	5,143	2055	8,372	505	2080	1,490	17	2105	3	0
2031	15,611	4,778	2056	8,052	454	2081	1,328	14	2106	2	0
2032	15,487	4,430	2057	7,749	408	2082	1,175	11	2107	1	0
2033	15,343	4,101	2058	7,427	366	2083	1,031	9	2108	1	0
2034	15,188	3,794	2059	7,096	327	2084	897	8	2109	0	0
2035	14,998	3,502	2060	6,762	291	2085	774	6	2110	0	0
2036	14,769	3,223	2061	6,409	258	2086	660	5	2111	0	0
2037	14,511	2,959	2062	6,061	228	2087	557	4	2112	0	0
2038	\$14,205	\$2,707	2063	\$5,714	\$201	2088	\$465	\$3	2113	\$0	\$0
Total										\$664,509	\$189,701

Fully Projected Benefit Payments											
(Dollars in Thousands)											
VFF - Relief Benefits											
Year	Future Value	Present Value	Year	Future Value	Present Value	Year	Future Value	Present Value	Year	Future Value	Present Value
2014	\$2,137	\$2,066	2039	\$1,196	\$213	2064	\$488	\$16	2089	\$144	\$1
2015	2,098	1,895	2040	1,165	194	2065	470	14	2090	129	1
2016	2,059	1,739	2041	1,134	176	2066	452	13	2091	115	1
2017	2,020	1,594	2042	1,102	160	2067	433	12	2092	101	0
2018	1,981	1,461	2043	1,071	145	2068	414	10	2093	88	0
2019	1,944	1,340	2044	1,038	132	2069	395	9	2094	75	0
2020	1,908	1,229	2045	1,004	119	2070	378	8	2095	63	0
2021	1,873	1,128	2046	969	107	2071	361	7	2096	53	0
2022	1,839	1,035	2047	932	97	2072	346	7	2097	43	0
2023	1,806	950	2048	895	87	2073	333	6	2098	35	0
2024	1,770	870	2049	857	78	2074	320	5	2099	28	0
2025	1,732	796	2050	819	69	2075	309	5	2100	22	0
2026	1,694	727	2051	781	62	2076	298	4	2101	17	0
2027	1,654	664	2052	746	55	2077	288	4	2102	13	0
2028	1,614	605	2053	713	49	2078	278	4	2103	10	0
2029	1,573	551	2054	682	44	2079	268	3	2104	7	0
2030	1,531	501	2055	654	39	2080	258	3	2105	5	0
2031	1,490	456	2056	630	36	2081	247	3	2106	3	0
2032	1,448	414	2057	608	32	2082	236	2	2107	2	0
2033	1,408	376	2058	588	29	2083	224	2	2108	2	0
2034	1,369	342	2059	571	26	2084	212	2	2109	1	0
2035	1,331	311	2060	554	24	2085	199	2	2110	1	0
2036	1,296	283	2061	538	22	2086	186	1	2111	0	0
2037	1,261	257	2062	522	20	2087	172	1	2112	0	0
2038	\$1,228	\$234	2063	\$506	\$18	2088	\$158	\$1	2113	\$0	\$0
Total										\$71,015	\$24,004

Assets

Change in Market Value of Assets	
<i>(Dollars in Thousands)</i>	
Market Value as of June 30, 2013	\$177,134
Revenue	
Member Pension Contributions	\$95
Employer Pension Contributions	449
Relief Plan Contributions	503
Investment Earnings Net of Expenses	33,170
Net Fire Insurance Premium Tax*	5,683
Total Revenue	\$39,900
Disbursements	
Refunds	\$22
Expenses	7
Disability and Survivor Benefits	694
Miscellaneous	0
Medical Benefits	1,452
Retirement Pensions (monthly and lump sums)	10,665
Total Disbursements	\$12,839
Market Value as of June 30, 2014	\$204,195

*VFF allocated \$700K to their admin account.

Actual admin costs for the prior year were approximately \$422K.

Note: Totals may not agree due to rounding.



ACTUARIAL EXHIBITS

Calculation of the Actuarial Value of Assets				
Assets as of June 30, 2013				
<i>(Dollars in Thousands)</i>				
a. Market Value of Assets			\$177,134	
b. Deferred Investment Gains (Losses)			(5,317)	
c. Actuarial Value of Assets (a-b)			\$182,451	
d. Ratio of Actuarial Value to Market Value (c/a)			103%	
Assets as of June 30, 2014				
<i>(Dollars in Thousands)</i>				
a. Market Value at 6/30/2014			\$204,195	
b. Deferred Gains and (Losses)				
	Plan Year Ending	Years Deferred	Years Remaining	
	6/30/2014	8	7	17,525
	6/30/2013	5	3	4,707
	6/30/2012	6	3	(4,318)
	6/30/2011	8	4	8,495
	6/30/2010	4	0	0
	6/30/2009	8	2	(9,711)
	12/31/2008	8	1	(1,465)
	Total Deferral			\$15,234
c. Market Value less Deferral (a - b)				\$188,961
d. 70% of Market Value of Assets				\$142,937
e. 130% of Market Value of Assets				\$265,454
f. Actuarial Value of Assets*				\$188,961
g. Ratio of Actuarial Value to Market Value (f/a)				93%

*The actuarial value of assets may not exceed 130% nor drop below 70% of the market value of assets.

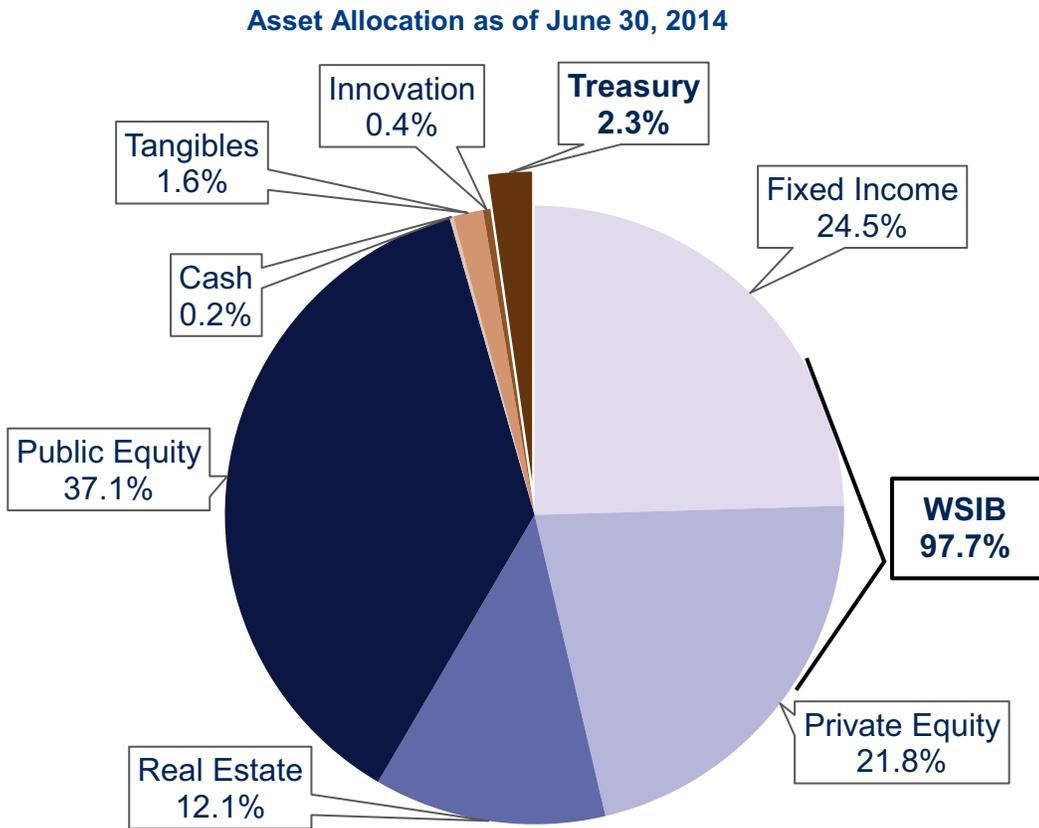
Note: Totals may not agree due to rounding.

The Board for Volunteer Fire Fighters and Reserve Officers (the Board) established the plan’s asset fund to pay for both pension and relief benefits. They chose to allocate the assets to pensions up to the Actuarial Accrued Liability (AAL) for the pension plan with any remaining assets allocated to relief benefits. The table below summarizes the allocation of the assets to the pension and relief plans.

Allocation of Assets by Plan			
<i>(Dollars in Millions)</i>			
	Pension	Relief	Total
Actuarial Value of Assets	\$185.5	\$3.5	\$189.0

The assumed 7.0 percent investment Rate of Return (ROR) for the plan assets is based upon a weighted average of the expected ROR for the assets in the Treasury and the Washington State Investment Board (WSIB) accounts. On a long-term basis, we expect the Treasury investments to earn 4.0 percent per year and the WSIB investments to earn 7.5 percent per year net of expenses. The distribution of total plan assets between each account fluctuates by year and is monitored

by the Board to ensure adequate assets in the Treasury account to make benefit payments. The graph below shows details of the asset allocation for the plan.



The VFF asset allocation as of the valuation date includes assets in the WSIB CTF, which comprise a vast majority of the VFF assets. The remaining VFF assets are held in the Treasury and are invested in short-term bonds.

Annual Income vs. Costs	
<i>(Dollars in Thousands)</i>	
Pension and Relief Plans	Total
Actuarial Costs	
Entry Age Normal Cost	\$996
UAAL (Surplus)	0
Total Pension	996
Relief Aggregate Normal Cost	4,194
Total Actuarial Costs	\$5,189
Income	
State	
Fire Insurance Premium Tax	\$6,383
Administration and Expenses	(422)
Total State	\$5,961
Pension	
Employee	\$296
Employer	296
Other Pension*	23
Total Pension	\$615
Relief	
Employer**	\$356
Other Relief*	104
Total Relief	\$459
Total Income	\$7,034
Surplus (Deficit) Income	\$1,845

*Emergency Medical Services Districts and Reserve Law Enforcement Officers pay the full cost of their benefits.

**Relief fees based on the rate of \$30.00 per member.

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 today’s value of the earned pensions of its members. For this valuation report, we present the funded status on an Actuarial Value Basis (AVB). This measure compares the Actuarial Value of Assets (AVA) to the pension plan’s EAN liabilities calculated using a long-term interest rate assumption.

The funded status on an AVB assumes the plan is on-going and therefore uses the same long-term assumptions and methods to develop the assets and liabilities as used in determining the contribution requirements of the plan. We do not 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.

We use an asset valuation method to determine the AVA. This asset valuation method smooths

the inherent volatility in the Market Value of Assets (MVA) by deferring a portion of annual investment gains or losses for a certain number of years.

Investment gains and losses occur when the annual return on investments varies from the long-term assumed rate of 7 percent. The AVA provides a more stable measure of the plan's assets on an on-going basis.

We use the EAN Actuarial Cost Method to determine the present value of earned pensions (or accrued liability). The accrued liability is based on the difference between the pension's Present Value of Future Benefits and the pension's Present Value of Future Normal Cost. In other words, the accrued liability is the difference between today's value of all projected pension benefits paid by the plan and today's value of the future normal costs required by the pension plan's actuarial funding method. The EAN cost method determines each year's normal cost as a level annual amount that, if collected from each member's entry age to their projected retirement age, would completely fund their projected pension benefits. The EAN liabilities are discounted to the valuation date using the valuation interest rate to determine the present value (today's value). The valuation interest rate is consistent with the long-term expected return on invested contributions.

The funded status serves as an independent measure to assess the pension system's funding progress and is a consistent measure to compare to the funded statuses of other retirement systems.

Based on the funding policy adopted by the Board starting with the June 30, 2010 actuarial valuation, any assets above the pension plan AAL are allocated to fund the relief benefits. As a result, the funded status of the pension plan would remain 100 percent when total assets exceed the pension plan AAL.

We do not calculate an actuarial accrued liability for the relief plan since the relief benefits are paid as they are incurred. Relief benefits are not earned or accrued as a member's service increases. As such, a funded status is not calculated. Please see the Development of Relief Plan Normal Cost for a comparison of the present value of future relief benefits to the assets on hand for (allocated to) relief benefits.

ACTUARIAL EXHIBITS

Pension Funded Status on Actuarial Value Basis			
<i>(Dollars in Thousands)</i>			
Entry Age Normal Accrued Liability ¹	\$185,510		
Actuarial Value of Assets ²	185,510		
Unfunded Liability	\$0		
Funded Ratio			
June 30, 2014 ^{2,4}	100%		
June 30, 2013 ^{2,4}	99%	December 31, 2000 ⁴	144%
June 30, 2012 ²	100%	December 31, 1999	132%
June 30, 2011 ²	100%	December 31, 1998 ³	120%
June 30, 2010 ²	100%	December 31, 1997	144%
June 30, 2009 ³	102%	December 31, 1996	129%
June 30, 2008	105%	December 31, 1995 ⁴	118%
June 30, 2007 ⁴	107%	December 31, 1994	112%
December 31, 2006	103%	December 31, 1993 ⁴	114%
December 31, 2005 ⁴	95%	December 31, 1992	108%
December 31, 2004	113%	December 31, 1991 ³	103%
December 31, 2003	116%	December 31, 1990	111%
December 31, 2002 ³	122%	December 31, 1989 ⁴	112%
December 31, 2001 ⁴	142%	December 31, 1988	98%

¹ Prior to 2007 we used the Projected Unit Credit Liability to calculate the funded status.

² Excess assets above Pension AAL are allocated to Relief Benefits.

³ Benefits increased.

⁴ Actuarial assumptions changed.

The present value of actuarial liabilities is sensitive to the interest rate assumption. The table below shows how the funded status changes when we use different interest rate assumptions. We calculated the liabilities using a 6.25 percent and 7.75 percent ROR to show this sensitivity.

Pension Funded Status at Variable Interest Rate Assumptions			
<i>(Dollars in Thousands)</i>	6.25% ROR	7.00% ROR	7.75% ROR
Entry Age Normal Accrued Liability	\$202,837	\$185,510	\$170,570
Actuarial Value of Assets ¹	188,961	185,510	170,570
Unfunded Liability	\$13,876	\$0	\$0
Funded Ratio			
June 30, 2014 ^{1,3}	93%	100%	100%
June 30, 2013 ^{1,3}	91%	99%	100%
June 30, 2012 ¹	96%	100%	100%
June 30, 2011 ¹	95%	100%	100%
June 30, 2010 ¹	93%	100%	100%
June 30, 2009 ²	93%	102%	111%
June 30, 2008	96%	105%	115%
June 30, 2007 ³	98%	107%	117%

¹ Excess assets above Pension AAL are allocated to Relief Benefits.

² Benefits increased.

³ Actuarial assumptions changed.

Economic Experience

The economic experience will reflect the current economic, financial, and inflationary environment. These factors can change more rapidly than the factors affecting our demographic assumptions.

- **Investment Returns** — We assume future investment returns at a rate of 7 percent per year, net of expenses. The investment return assumption represents the average annual rate of return we expect the assets of the plan to earn over the long-term. Actual annual investment performance over short-term periods will deviate from this long-term assumption. To reduce volatility on contribution rates and reported funded status, the Board adopted an asset smoothing method that limits short-term fluctuation due to the underlying volatility in the MVA. The dollar-weighted annual rate of return was 18.7 percent on the MVA for the year ending June 30, 2014 (the valuation date).
- **Premium Tax** — As the state's contribution to the plan, the Office of the State Treasurer allocates 40 percent of the premium tax paid on fire insurance policies to fund the plan. The level of annual premium tax fluctuates because the amount of the contribution equals the total amount paid by insurers to guarantee associations, which varies from year to year.

Premium Taxes Contributed to Plan			
Year	(Dollars in Thousands)		
2014	\$6,383	2001	\$3,320
2013	\$5,958	2000	\$2,869
2012	\$5,602	1999	\$2,706
2011	\$5,815	1998	\$2,285
2010	\$5,685	1997	\$2,539
2009	\$5,794	1996	\$2,973
2008	\$5,853	1995	\$2,330
2007	\$5,689	1994	\$2,370
2006	\$5,186	1993	\$2,016
2005	\$4,808	1992	\$1,736
2004	\$4,726	1991	\$2,081
2003	\$4,112	1990	\$1,892
2002	\$3,605	1989	\$1,900

Demographic Experience

Actual vs. Expected Demographic Counts			
Counts by Decrement Type	Actual	Expected	Act/Exp
New Entrants	1,646	N/A	0.00
Retirements	97	195.8	0.50
Terminations	1,344	1,158.7	1.16
Active Deaths	6	23.0	0.26
Active Disabilities	0	1.3	0.00
Inactive Deaths*	200	249.9	0.80

*Excludes terminated and vested records that cashout or become missing records.

Actuarial Gain/Loss

Since the 2013 Volunteer Fire Fighters’ and Reserve Officers’ Relief and Pension Fund Actuarial Valuation Report, the key gains and losses that impacted the results of this valuation include the following.

- The pension and relief normal cost rates experienced liability losses, which increased contribution rates. Primarily, these losses are attributable to new members joining the plan, thus increasing the total liabilities. The addition of new members also produces a loss for medical liabilities.
- The pension UAAL rate experienced liability gains and losses. Primarily, the gains are attributable to the removal of liability for more active members terminating than expected and fewer terminated members started collecting their pensions than expected. Comparatively, the losses are attributable to new members joining the pension plan and members returning to active volunteer service.

- The annual investment rate of return on the MVA was 18.7 percent in 2014. The AVA increased by more than the 7 percent we expected. Overall, this produced an asset gain for the plan which decreased the pension UAAL contribution rate.
- Updating the data and assets from 2013 to 2014 resulted in the AVA exceeding the accrued liability. This reduced the pension UAAL rate to zero, thus allowing for a portion of the assets to be included in the relief contribution rate calculation.
- Implementing changes to the VFF demographic assumptions, along with updating how we calculate accrued liabilities to retain consistency with the underlying methodology we use for the other state retirement systems, further decreased plan liabilities and hence the contribution rates.
- The actual 2014 Present Value of Future Service (PVFS) was higher than we expected. As a result, this gain caused the pension and relief normal cost rates to decrease. The gain in the PVFS is attributable to new members who joined the pension and relief benefit plans.

Change in Pension Normal Cost Rate by Source*	
2013 Pension Normal Cost Rate	\$122.31
Liabilities	
Termination	(\$5.73)
Retirement	0.21
Mortality	0.26
Growth / Return to Work	18.44
Other Liabilities	1.76
Total Liabilities (Gains) / Losses	\$14.94
PV of Future Service (Gains) / Losses	(\$15.89)
Incremental Changes	
Plan Changes	0.00
Method Changes	(11.94)
Assumption Changes	(10.79)
Correction Changes	0.00
Total Incremental Changes (Gains) / Losses	(\$22.73)
Other (Gains) / Losses	\$0.00
Total Change	(\$23.68)
2014 Preliminary Pension Normal Cost Rate	\$98.64
Laws of 2015	0.00
2014 Pension Normal Cost Rate	\$98.64

**Please see the Methods section of the Appendix for details on the modified version of the EAN cost method used. Non-standard sources of annual gain/loss are produced as a result.*

Change in Pension UAAL Rate by Source	
2013 Pension UAAL Rate	\$11.31
Expected UAAL Rate Change	\$2.47
Liabilities	
Termination	(\$7.43)
Retirement	(1.55)
Mortality	(9.91)
Growth / Return to Work	11.32
Other Liabilities	(6.44)
Total Liabilities (Gains) / Losses	(\$14.02)
Assets	
Investment Return	(\$14.46)
Allocation of Excess Pension Assets*	14.71
Total Assets (Gains) / Losses	\$0.25
Incremental Changes	
Plan Changes	\$0.00
Method Changes	0.00
Assumption Changes	0.00
Data Changes	0.00
Total Incremental Changes (Gains) / Losses	\$0.00
Other (Gains) / Losses	\$0.00
Total Change	(\$11.31)
2014 Preliminary Pension UAAL Rate	\$0.00
Laws of 2015	0.00
2014 Pension UAAL Rate	\$0.00

**Based on the funding policy adopted by the Board, assets are allocated to Pension benefits first (up to the pension plan accrued liability), and to Relief second.*

Change in Relief Normal Cost Rate by Source	
2013 Relief Normal Cost Rate	\$398.83
Liabilities	
Termination	(\$6.55)
Retirement	(0.03)
Disability	(9.06)
Mortality	(11.20)
Growth / Return to Work	18.53
Other Non-Medical	2.02
Medical	23.00
Other Liabilities	1.02
Total Liabilities (Gains) / Losses	\$17.74
Assets	
Investment Return	(\$0.25)
Allocation of Excess Pension Assets*	(29.44)
Total Assets (Gains) / Losses	(\$29.69)
PV of Future Service (Gains) / Losses	(\$38.83)
Incremental Changes	
Plan Changes	\$0.00
Method Changes	8.52
Assumption Changes	(11.45)
Correction Changes	0.00
Total Incremental Changes (Gains) / Losses	(\$2.93)
Other (Gains) / Losses	\$0.00
Total Change	(\$53.69)
2014 Preliminary Relief Normal Cost Rate	\$345.13
Laws of 2015	0.00
2014 Relief Normal Cost Rate	\$345.13

**Based on the funding policy adopted by the Board, assets are allocated to Pension benefits first (up to the pension plan accrued liability), and to Relief second.*



Effect of Plan, Assumption, and Method Changes

Plan Changes

- None.

Assumption Changes

- **Termination Rates** — We updated the termination assumption consistent with our analysis as part of the *VFF 2008-2013 Pension Experience Study*. This comprises a majority of the contribution rate impact from assumption changes as outlined in the gain/loss analysis.
- **Retirement Rates** — We updated the retirement assumptions consistent with our analysis as part of the *VFF 2008-2013 Pension Experience Study*. This assumption change decreased liabilities and correspondingly lowered required contribution rates.
- **Medical Trend Rates** — We updated the Uniform Medical Plan (UMP) Non-Medicare (without excise tax) medical inflation rates based upon our [2015 OPEB Report](#). The impact of this change decreased the relief contribution rate by approximately 3 percent.

Method Changes

- **Entry Age Normal (EAN) Cost Methodology** — We corrected how our valuation software calculates a member's entry age under the Entry Age Normal actuarial cost method. Prior to the correction the funding age was rounded resulting in an entry age one year higher in some cases.

Per Person Annual Contribution Rates				
Valuation Year	2013 Final	Data & Asset Changes*	Incremental Changes**	2014 Final
Pension Rate				
Employee	\$30	\$0	\$0	\$30
Employer	30	0	0	30
State	62	(1)	(23)	39
Normal Cost Rate	\$122	(\$1)	(\$23)	\$99
State UAAL or (Surplus) Rate	11	(11)	0	0
Total Pension Rate	\$134	(\$12)	(\$23)	\$99
Relief Rate				
Employer	\$30	\$0	\$0	\$30
State	369	(42)	(11)	315
Total Relief Rate	\$399	(\$42)	(\$11)	\$345

*This represents the impact on contribution rates resulting from updated asset values and demographics of the VFF population from the previous valuation date.

**This represents the impact on contribution rates attributable to plan, assumption, and method changes.

SECTION THREE: PARTICIPANT DATA

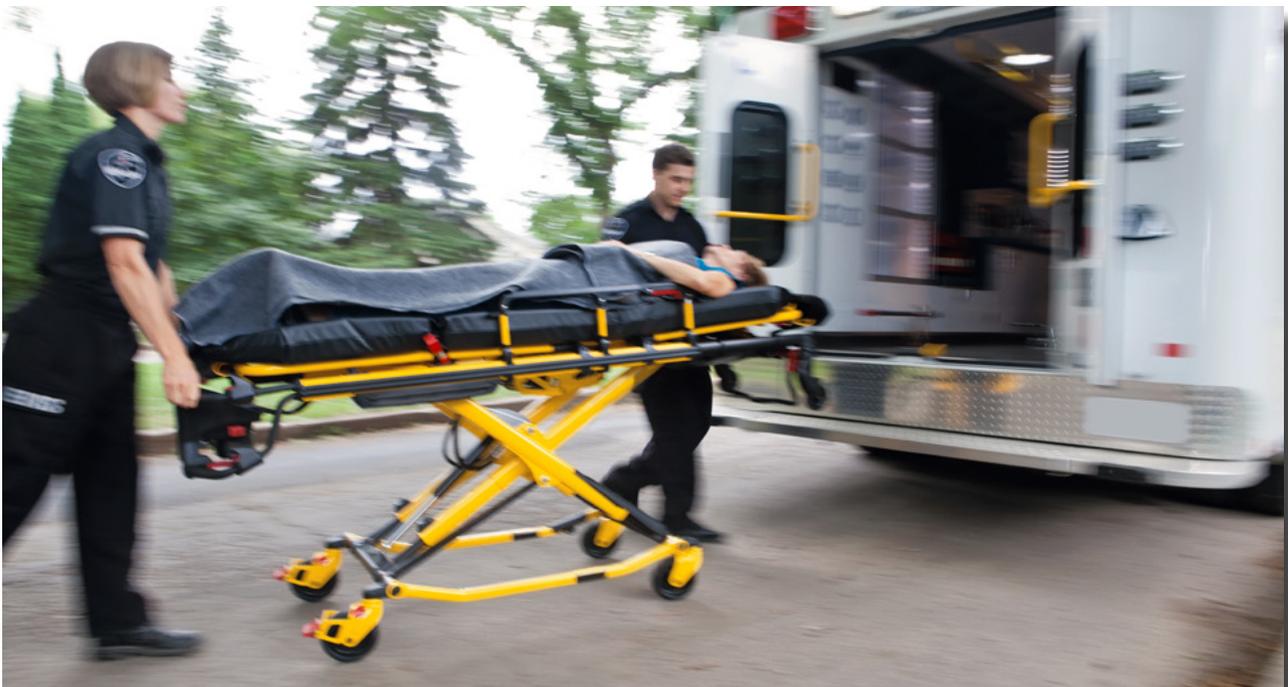


PARTICIPANT DATA

Membership Data						
Actives	2010	2011	2012	2013	2014	
Number of Members in Relief System	13,327	12,982	12,631	12,290	12,151	
Average Age	39.9	40.1	40.2	40.6	40.4	
Average Total Service	8.5	8.5	8.7	9.8	9.6	
Number of Emergency Medical Technicians	66	67	57	64	73	
Number of Reserve Law Enforcement Officer	274	257	238	228	227	
Number of Active Members Also Receiving a Pension	N/A	19	37	86	54	
Number of Members in Pension System	10,812	10,562	10,432	10,230	10,093	
Percent of Volunteers Covered	81%	81%	83%	83%	83%	
Average Age	41.5	41.5	41.5	41.6	41.5	
Average Total Service	9.9	9.9	9.9	10.8	10.8	
Average Pension Benefit Service	8.9	8.9	8.9	8.9	8.9	
Number of Emergency Medical Technicians	39	36	31	35	35	
Number of Reserve Law Enforcement Officer	239	232	210	203	198	
Retirees						
Number of Retirees/Beneficiaries	3,712	3,836	3,971	4,117	4,208	
Average Age	74.0	74.2	74.3	74.4	74.6	
Number of New Retirees	202	207	237	214	220	
Average Annual Benefit	\$2,177	\$2,188	\$2,198	\$2,201	\$2,217	
Total Annual Benefit Payments	\$8,081,282	\$8,392,458	\$8,729,864	\$9,062,937	\$9,330,521	
Terminated Vested						
Number of Terminated Vested	6,119	6,142	6,174	6,123	6,092	
Relief Annuities						
Number of Duty-Death Survivors	14	14	14	14	11	
Average Age	72.2	73.1	74.1	75.2	71.6	
Average Annual Benefit	\$19,853	\$19,853	\$20,264	\$20,984	\$21,425	
Number of Duty-Related Disabled	13	13	13	13	14	
Average Age	64.2	65.2	66.2	67.2	67.6	
Average Annual Benefit	\$22,300	\$22,300	\$22,762	\$23,571	\$24,184	

Pension Active Members - Age and Membership Service Distribution										
Membership Service	Attained Age									Total
	< 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+	
1	501	189	160	100	73	44	25	22	33	1,147
2	329	197	111	110	75	54	42	26	29	973
3-4	423	314	199	175	138	103	65	58	88	1,563
5-9	175	437	387	334	269	214	179	145	170	2,310
10-14	0	93	217	230	206	190	169	148	161	1,414
15-19	0	0	60	133	134	160	152	129	140	908
20-24	0	0	0	39	111	151	153	150	166	770
25 +	0	0	0	0	11	85	203	325	384	1,008
Total	1,428	1,230	1,134	1,121	1,017	1,001	988	1,003	1,171	10,093

Relief Active Members - Age and Membership Service Distribution										
Membership Service	Attained Age									Total
	< 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60+	
1	1,016	380	303	181	122	78	63	50	78	2,271
2	453	253	153	133	94	65	54	34	51	1,290
3-4	476	363	229	194	152	115	72	70	114	1,785
5-9	203	470	419	348	291	228	195	166	239	2,559
10-14	0	96	225	238	210	196	174	154	183	1,476
15-19	0	0	60	133	134	160	153	132	146	918
20-24	0	0	0	39	111	151	155	153	177	786
25 +	0	0	0	0	11	86	205	328	436	1,066
Total	2,148	1,562	1,389	1,266	1,125	1,079	1,071	1,087	1,424	12,151



PARTICIPANT DATA

Pension Retirees*					
Age	Number of Retirees	Average Annual Benefit	Age	Number of Retirees	Average Annual Benefit
60	13	\$1,316	76	181	\$1,998
61	14	\$1,433	77	183	\$2,104
62	19	\$1,995	78	153	\$2,116
63	56	\$2,006	79	154	\$2,096
64	97	\$1,898	80	130	\$2,226
65	136	\$2,330	81	112	\$2,304
66	193	\$2,315	82	115	\$2,170
67	250	\$2,302	83	92	\$2,223
68	237	\$2,296	84	112	\$2,237
69	232	\$2,359	85	95	\$2,286
70	214	\$2,242	86	88	\$2,254
71	224	\$2,313	87	77	\$2,280
72	225	\$2,250	88	62	\$2,175
73	203	\$2,310	89	63	\$2,155
74	170	\$2,162	90 +	121	\$2,156
75	187	\$2,231	Total	4,208	\$2,217

*Includes beneficiaries of service retirees.

Line-of-Duty Death Survivors		
Age	Number of Survivors	Average Annual Benefit
<60	3	\$21,425
60-74	2	21,425
75-89	4	21,425
90+	2	\$21,425
Total	11	\$21,425

Retirees with Disabilities		
Age	Number of Retirees	Average Annual Benefit
<60	2	\$23,571
60-74	7	24,490
75-89	5	24,000
90+	0	\$0
Total	14	\$24,184

SECTION FOUR: APPENDICES



Actuarial Assumptions

Decrement Rates

- Disability Rates** — To value disability benefits under the relief plan, we used the duty disability rates developed for the 2009 relief valuation. We assume duty related disability rates increase with age. The older the Volunteer Fire Fighter (VFF) relief member is, the higher the probability of duty-related disability.

Probability of Disability*	
Age	Rate
19	0.000%
20	0.008%
25	0.009%
30	0.010%
35	0.011%
40	0.012%
45	0.013%
50	0.014%
55	0.015%
60	0.016%
65	0.017%
70	0.018%
75	0.019%
79	0.020%
80	0.000%

**The rates are linearly interpolated between the ages.*



- **Termination Rates** — Termination rates are modeled as a function of Membership Service. Rates increase at 25 years when members reach the maximum pension benefit level.

Probability of Termination	
Service Years*	All Ages
0	17%
1	18%
2	19%
3	19%
4	18%
5	15%
6	14%
7	13%
8	12%
9	11%
10	10%
11	9%
12	9%
13	9%
14	9%
15	7%
16	6%
17	6%
18	6%
19	5%
20	5%
21	5%
22	5%
23	6%
24	8%
25	13%
26	11%
27+	9%

**The service based reduction factors for pension benefits improve at 10, 15, 20, and 25 years of membership service. For calculating the Pension PVFS, we assume 100% termination at 25 years of service.*



- **Retirement Rates** — Retirement rates begin at age 60 for active members. We assume that terminated members with vested benefits will defer retirement to age 65.

Probability of Retirement*		
Age	Rate	
	MS < 25	MS >= 25
59	0%	0%
60	7%	7%
61	9%	9%
62	11%	11%
63	9%	9%
64	12%	12%
65	38%	90%
66-79	19%	90%
80	100%	100%

**For calculating the Pension PVFS, we assume 100% retirement at 25 years of service.*

- Mortality Rates** — We use the Public Employees’ Retirement System (PERS) mortality rates for the VFF plan. The PERS rates are based on the RP-2000 Combined Healthy and RP-2000 Disabled Mortality Tables with generational improvements using 100 percent of Scale BB. The Society of Actuaries published both the RP-2000 and Scale BB tables. Please see osa.leg.wa.gov for the actuarial valuation report for more details on the development of these tables.

Base Mortality Rates and Projection Scale									
RP-2000 Healthy		100% Scale BB*		RP-2000 Healthy		100% Scale BB*			
Age	Male	Female	Male	Female	Age	Male	Female	Male	Female
19	0.000000	0.000000	0.000	0.000	42	0.001215	0.000852	0.003	0.003
20	0.000345	0.000191	0.003	0.003	43	0.001299	0.000937	0.003	0.003
21	0.000357	0.000192	0.003	0.003	44	0.001397	0.001029	0.003	0.003
22	0.000366	0.000194	0.003	0.003	45	0.001508	0.001124	0.003	0.003
23	0.000373	0.000197	0.003	0.003	46	0.001616	0.001223	0.003	0.003
24	0.000376	0.000201	0.003	0.003	47	0.001734	0.001326	0.003	0.003
25	0.000376	0.000207	0.003	0.003	48	0.001860	0.001434	0.003	0.003
26	0.000378	0.000214	0.003	0.003	49	0.001995	0.001550	0.003	0.003
27	0.000382	0.000223	0.003	0.003	50	0.002138	0.001676	0.003	0.003
28	0.000393	0.000235	0.003	0.003	51	0.002449	0.001852	0.003	0.003
29	0.000412	0.000248	0.003	0.003	52	0.002667	0.002018	0.003	0.003
30	0.000444	0.000264	0.003	0.003	53	0.002916	0.002207	0.003	0.003
31	0.000499	0.000307	0.003	0.003	54	0.003196	0.002424	0.003	0.004
32	0.000562	0.000350	0.003	0.003	55	0.003624	0.002717	0.003	0.005
33	0.000631	0.000394	0.003	0.003	56	0.004200	0.003090	0.003	0.006
34	0.000702	0.000435	0.003	0.003	57	0.004693	0.003478	0.004	0.007
35	0.000773	0.000475	0.003	0.003	58	0.005273	0.003923	0.005	0.008
36	0.000841	0.000514	0.003	0.003	59	0.005945	0.004441	0.006	0.009
37	0.000904	0.000554	0.003	0.003	60	0.006747	0.005055	0.007	0.010
38	0.000964	0.000598	0.003	0.003	61	0.007676	0.005814	0.008	0.011
39	0.001021	0.000648	0.003	0.003	62	0.008757	0.006657	0.009	0.012
40	0.001079	0.000706	0.003	0.003	63	0.010012	0.007648	0.010	0.012
41	0.001142	0.000774	0.003	0.003	64	0.011280	0.008619	0.011	0.012

*Scale BB represents annual improvements in mortality rates.

APPENDICES

Base Mortality Rates and Projection Scale <i>(continued)</i>									
RP-2000 Healthy		100% Scale BB*		RP-2000 Healthy		100% Scale BB*			
Age	Male	Female	Male	Female	Age	Male	Female	Male	Female
65	0.012737	0.009706	0.012	0.012	88	0.150590	0.107303	0.013	0.012
66	0.014409	0.010954	0.013	0.012	89	0.166420	0.119154	0.012	0.012
67	0.016075	0.012163	0.014	0.012	90	0.183408	0.131682	0.011	0.011
68	0.017871	0.013445	0.015	0.012	91	0.199769	0.144604	0.010	0.010
69	0.019802	0.014860	0.015	0.012	92	0.216605	0.157618	0.009	0.009
70	0.022206	0.016742	0.015	0.012	93	0.233662	0.170433	0.008	0.008
71	0.024570	0.018579	0.015	0.012	94	0.250693	0.182799	0.007	0.007
72	0.027281	0.020665	0.015	0.012	95	0.267491	0.194509	0.006	0.006
73	0.030387	0.022970	0.015	0.012	96	0.283905	0.205379	0.005	0.005
74	0.033900	0.025458	0.015	0.012	97	0.299852	0.215240	0.004	0.004
75	0.037834	0.028106	0.015	0.012	98	0.315296	0.223947	0.004	0.004
76	0.042169	0.030966	0.015	0.012	99	0.330207	0.231387	0.003	0.003
77	0.046906	0.034105	0.015	0.012	100	0.344556	0.237467	0.003	0.003
78	0.052123	0.037595	0.015	0.012	101	0.358628	0.244834	0.002	0.002
79	0.057927	0.041506	0.015	0.012	102	0.371685	0.254498	0.002	0.002
80	0.064368	0.045879	0.015	0.012	103	0.383040	0.266044	0.001	0.001
81	0.072041	0.050780	0.015	0.012	104	0.392003	0.279055	0.001	0.001
82	0.080486	0.056294	0.015	0.012	105	0.397886	0.293116	0.000	0.000
83	0.089718	0.062506	0.015	0.012	106	0.400000	0.307811	0.000	0.000
84	0.099779	0.069517	0.015	0.012	107	0.400000	0.322725	0.000	0.000
85	0.110757	0.077446	0.015	0.012	108	0.400000	0.337441	0.000	0.000
86	0.122797	0.086376	0.015	0.012	109	0.400000	0.351544	0.000	0.000
87	0.136043	0.096337	0.014	0.012	110	1.000000	1.000000	0.000	0.000

*Scale BB represents annual improvements in mortality rates.

For display purposes only, we show a unisex mortality table below based upon the percent male assumption described later in this section and applied it to the active and retired member population. We use the opposite percent male assumption when applying the mortality table to surviving spouses.

Mortality Rates Projected to 2028

Age	Member	Survivor	Disabled												
19	0.000303	0.000190	0.019360	42	0.001016	0.000746	0.019360	65	0.007855	0.006337	0.034203	88	0.091750	0.071266	0.109924
20	0.000303	0.000190	0.019360	43	0.001084	0.000816	0.019360	66	0.008639	0.007113	0.034687	89	0.104310	0.079613	0.117963
21	0.000303	0.000190	0.019360	44	0.001161	0.000894	0.019360	67	0.009519	0.008002	0.035255	90	0.118628	0.090887	0.131379
22	0.000313	0.000192	0.019360	45	0.001250	0.000980	0.019360	68	0.010343	0.008859	0.035916	91	0.134518	0.103287	0.146991
23	0.000320	0.000194	0.019360	46	0.001351	0.001068	0.020483	69	0.011493	0.009801	0.037660	92	0.150809	0.116548	0.163763
24	0.000327	0.000197	0.019360	47	0.001450	0.001160	0.021611	70	0.012733	0.010835	0.039574	93	0.168269	0.130584	0.181552
25	0.000330	0.000201	0.019360	48	0.001557	0.001257	0.022745	71	0.014284	0.012200	0.041673	94	0.186747	0.145195	0.200354
26	0.000330	0.000206	0.019360	49	0.001671	0.001357	0.023885	72	0.015808	0.013534	0.043967	95	0.206081	0.160189	0.219844
27	0.000333	0.000212	0.019360	50	0.001793	0.001466	0.025034	73	0.017555	0.015051	0.046467	96	0.226122	0.175382	0.239904
28	0.000336	0.000220	0.019360	51	0.001923	0.001583	0.026190	74	0.019550	0.016734	0.049177	97	0.246748	0.190596	0.260458
29	0.000347	0.000231	0.019360	52	0.002196	0.001758	0.027351	75	0.021798	0.018561	0.052101	98	0.260458	0.199954	0.273660
30	0.000364	0.000243	0.019360	53	0.002392	0.001915	0.028517	76	0.024306	0.020518	0.055232	99	0.281458	0.214276	0.294479
31	0.000392	0.000260	0.019360	54	0.002610	0.002044	0.029642	77	0.027066	0.022638	0.058565	100	0.294479	0.221803	0.306911
32	0.000441	0.000300	0.019360	55	0.002855	0.002190	0.030762	78	0.030082	0.024963	0.062087	101	0.315648	0.234647	0.328319
33	0.000498	0.000342	0.019360	56	0.003228	0.002400	0.031878	79	0.033405	0.027545	0.065781	102	0.328319	0.242246	0.340343
34	0.000558	0.000384	0.019360	57	0.003632	0.002660	0.032122	80	0.037106	0.030435	0.069628	103	0.350022	0.258862	0.361082
35	0.000621	0.000425	0.019360	58	0.003948	0.002908	0.032339	81	0.041214	0.033664	0.073610	104	0.361082	0.270070	0.370191
36	0.000684	0.000464	0.019360	59	0.004314	0.003187	0.032537	82	0.046087	0.037312	0.077712	105	0.380708	0.290350	0.387409
37	0.000743	0.000503	0.019360	60	0.004730	0.003505	0.032730	83	0.051458	0.041404	0.081918	106	0.387409	0.303593	0.390781
38	0.000799	0.000541	0.019360	61	0.005220	0.003877	0.032929	84	0.057344	0.045996	0.086221	107	0.390781	0.317030	0.392273
39	0.000852	0.000584	0.019360	62	0.005778	0.004327	0.033146	85	0.063774	0.051155	0.090616	108	0.392273	0.330453	0.393744
40	0.000905	0.000630	0.019360	63	0.006423	0.004934	0.033446	86	0.070810	0.056963	0.095099	109	0.393744	0.343697	0.395154
41	0.000958	0.000683	0.019360	64	0.007156	0.005643	0.033794	87	0.080631	0.063715	0.102309	110	1.000000	1.000000	1.000000

*Blended for display purposes using the 90% Male assumption. Utilizes PERS age offset assumption of -1 Male, -1 Female.

Pension Benefit Assumptions

- **Purchase of Membership Service Credit** — We assume all eligible members will purchase service credits for each year they did not make past pension contributions. As a result, we value all benefits, except for return of contributions, with eligibility and benefit amounts based on membership service instead of benefit service.
- **Ratio of Survivors Selecting Annuities** — Upon the death of a terminated vested member, we assume 31 percent of members will have a surviving spouse who elects to receive a pension annuity. This assumption includes both the probability that the member has a spouse and the probability that the spouse elects to receive an annuity, instead of a return of contributions. Upon the death of an active member, we assume this probability increases with age as shown in the table above. These assumptions are consistent with those selected for PERS 2.

Ratio of Survivors Taking Annuities	
Age	Rate
39	0.000%
40	2.106%
45	13.847%
50	25.656%
55	37.464%
60	49.273%
62+	57.296%

Note: This assumption has been blended based upon our 90% Male assumption for display purposes only.



- **Joint and Survivor Reduction Factor** — We assume a reduction factor of 0.785 will be applied to joint and survivor pension annuities. We base this assumption on the assumed age difference between male and female members and their spouses. We assume male members are three years older and female members are one year younger than their spouses, consistent with PERS 2.

Relief Benefit Assumptions

The following assumptions were developed in the *2009 Actuarial Valuation of the Relief Benefits*, the *2013 Economic Experience Study*, and the *2007-2012 Demographic Experience Study* for the plans administered by the Department of Retirement Systems.

- **Annual Cost-of-Living Adjustment (COLA)** — We assume a 2.75 percent annual COLA for applicable annuity-based benefits since they are fully indexed benefits. COLAs provided for the relief benefits are based on the change in the Consumer Price Index (CPI) for U.S. Urban Wage Earners and Clerical Workers. COLAs are applied to temporary and permanent disability payments. Additionally, spouses and/or children of permanently disabled VFF relief members and spouses and/or children of VFF relief members killed in the line of duty will receive COLAs on their benefits.
- **Duty-Related Death Rate** — We assume the VFF duty-related death rate is 1/12,000 = 0.0083 percent. The duty-related death rate is a constant probability, regardless of age.
- **Member Duration on Temporary Disability** — We assume members who receive temporary disability benefits will return to active volunteering within six months. These benefits are included in the total relief costs.
- **Percent Married** — We assume that 64.2 percent of the active population is married, consistent with the Law Enforcement Officers' and Fire Fighters' (LEOFF) Plan 2. We apply this assumption to the duty-related death and disability annuities provided to the spouse of the member.
- **Duration of Spousal Long-Term Disability Annuity** — We assume a spouse receiving the Long-Term Disability beneficiary annuity will be paid for the member's lifetime. We do not make an assumption for divorce.
- **Duration of Spousal Duty-Related Death Annuity** — We assume a spouse receiving the duty-related death beneficiary annuity will be paid for the spouse's lifetime. We do not make an assumption for remarriage.
- **Number of Dependent Children** — We assume 0.61 constant over all ages of VFF relief members.
- **Duration of Child Annuity** — We assume the average age of a child receiving a VFF relief annuity is eight years old. As a result, we assume that the child based annuities will be paid for ten years.
- **Annual Medical Inflation** — To estimate future medical costs, we chose to apply the medical inflation assumptions from our [2015 Other Post-Employment Benefits Actuarial Valuation Report](#). Based upon the self-insured nature of the VFF relief plan, we

Medical Inflation	
Valuation Year	Rate
2014 - 2015	4.5%
2016	3.7%
2017	4.6%
2018 - 2019	5.5%
2020 - 2021	5.6%
2022 - 2023	5.7%
2024 - 2030	5.8%
2031 - 2036	5.9%
2037	5.8%
2038 - 2039	5.7%
2040 - 2045	5.6%
2046 - 2060	5.5%
2061 - 2062	5.4%
2063	5.3%
2064	5.2%
2065 - 2066	5.1%
2067	5.0%
2068 - 2069	4.9%
2070	4.8%
2071+	4.7%

assumed the medical inflation trend is consistent with the 2015 Uniform Medical Plan Non-Medicare rates excluding the provision for excise taxes since we assume they do not apply to this plan.

Miscellaneous Assumptions

- **Valuation Interest Rate** — We assumed an annual investment rate of return of 7 percent.
- **Percent Male** — We assume 90 percent male for the entire population consistent with LEOFF 2. We only use this assumption when the gender of a spouse is unknown. Otherwise, we use the gender as reported by the Board for Volunteer Fire Fighters (the Board).

Actuarial Methods

Asset Valuation Method

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 (AVA) or valuation assets. The asset valuation method adopted by the Board, provides up to eight years of smoothing for asset returns and is used in combination with the funding method (Actuarial Cost Method) described below.

We determine the AVA by adjusting the Market Value of Assets (MVA) to reflect the difference between the actual investment return and the expected investment return during each of the last eight years or, if fewer, the completed years since adoption, at the following annual recognition rates per year.

Annual Gain/Loss		
Rate of Return	Smoothing Period	Annual Recognition
14% and up	8 years	12.50%
13-14%	7 years	14.29%
12-13%	6 years	16.67%
11-12%	5 years	20.00%
10-11%	4 years	25.00%
9-10%	3 years	33.33%
8-9%	2 years	50.00%
6-8%	1 year	100.00%
5-6%	2 years	50.00%
4-5%	3 years	33.33%
3-4%	4 years	25.00%
2-3%	5 years	20.00%
1-2%	6 years	16.67%
0-1%	7 years	14.29%
0% and lower	8 years	12.50%

Note: The actuarial value of assets may not exceed 130% nor drop below 70% of the market value of assets.

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

Actuarial Cost Method

The Entry Age Normal (EAN) Actuarial Cost Method is comprised of two components:

- Normal Cost (NC).
- Unfunded Actuarial Accrued Liability (UAAL).

We develop the pension contribution rate as the sum of the NC and an amount to amortize the UAAL.

We use the EAN Actuarial Cost Method to develop the

pension contribution rates. The Pension NC is the level dollar amount, calculated individually, that would fund each member's pension benefits from their date of entry in the plan to their assumed retirement.

The UAAL represents the excess of the Present Value of Future Benefits (PVFB) over the Present Value of Future Normal Costs (PVFNC) and the AVA. In other words, the amount of liabilities that are not covered by the sum of current assets and future contributions.

In equation form: $UAAL = PVFB - PVFNC - AVA$.

Such an excess can arise for numerous reasons. For example:

- Benefits granted for service prior to establishment of the plan.
- Retroactive benefit increases or benefit improvements.
- Changes to actuarial assumptions and methods.
- Actual experience under the plan that varies from the assumptions.

We developed the UAAL contribution rate in this valuation as a level dollar amount, amortized over a rolling 15-year period. That means we recalculate the UAAL contribution rate each year using a new 15-year period.

We use the Aggregate Funding Method to calculate the relief contribution rates. Compared to the EAN Funding Method, the Aggregate Funding Method does not separately amortize a UAAL. The Relief NC is the level dollar amount that would fund all projected future relief benefits of today's members. The relief plan's NC contribution rate is developed by amortizing the relief's Unfunded PVFB over the Present Value of Future Service (PVFS) of the active relief group. The Unfunded PVFB represents the excess of the PVFB over the AVA allocated to the relief plan.

Present Value of Future Service

The actuarial cost methods utilize the PVFS for all applicable members to calculate the contribution rates. The expected total years of future service depends on when we assume members will leave active service. Our current termination, retirement, disability, and mortality rates reflect our best estimate of the future behavior of relief members.

Currently, the decrement rates extend beyond 25 years of service, which is the maximum number of pension payments members may make. For the purposes of determining the PVFS for pensions, we assume all members leave active service once they reach 25 years of service.

Methods for Medical Benefits

Duty-related medical benefits, temporary disability payments, and physical exams are valued using age-based premiums. The estimated "payments" for temporary disability and physical

exams are assumed to increase by the 2.75 percent inflation assumption. The medical benefits are assumed to increase by medical inflation. The per-person cost, as of the valuation date, for each benefit is \$124.04 for medical, \$14.08 for temporary disability, and \$10.24 for physicals. These costs include an adjustment from a mid-year timing to a beginning of year timing to properly model the premium payment within the technical limitation of our valuation software.

Operating Expenses

We used the actual administration and other miscellaneous expenses incurred last year to determine this year's operating expenses.

Summary of Plan Provisions

The following pension and relief benefits are provided to volunteer fire fighters.

- Optional membership in the retirement plan.
- Duty-related medical benefits.
- Temporary duty-related disability benefits.
- Permanent disability benefits for duty-related injuries.
- Death benefits for duty-related injuries.

These benefits are part of two distinct plans authorized by different sections of statute. The following section summarizes the benefits and contributions established under Chapter 41.24 RCW. This section is for reference only and does not detail the rules and regulations upon which the actuarial calculations are made. The dollars represent 2014 payment amounts.

Participation

RCW 41.24.010 (8)

- **“Participant”** means: (a) For purposes of relief, any reserve officer who is or may become eligible for relief under this chapter or any fire fighter or emergency worker; and (b) for purposes of retirement pension, any fire fighter, emergency worker, or reserve officer who is or may become eligible to receive a benefit of any type under the retirement provisions of this chapter, or whose beneficiary may be eligible to receive any such benefit.

Contributions

- **Pension** — If a member chooses to enroll, he/she contributes \$30 annually and the municipality also contributes \$30. Municipalities may pay the entire contribution for the member. Reserve law enforcement officers and emergency medical technicians are required to pay the full amount adopted annually by the Board. That amount for the 2015

calendar year was \$135.

- **Relief**— VFF members do not make contributions to the relief fund. Municipalities contribute \$30 annually on behalf of each member plus 1.5 percent of the annual salary of paid fire fighters not covered under LEOFF. Employers of reserve law enforcement officers and emergency medical technicians are required to pay the full amount adopted annually by the Board. That amount for the 2015 calendar year was \$215.
- **Fire Insurance Premium Tax**— 40 percent of the net premium taxes on fire insurance policies are paid into the plan.

Pension Benefits

Death Benefits

RCW 41.24.180

Non-Duty Death — If the member had less than ten years of service, the spouse will receive a refund of member contributions without interest. If the member had ten or more years of service, the spouse may elect an annuity or a refund of member and employer contributions without interest. The annuity is the member’s accrued benefit actuarially adjusted to reflect a 100 percent joint and survivor pension and further actuarially reduced to reflect the difference in the number of years between the fire fighter’s age at death and age 65.

Retirement Pensions

RCW 41.24.170

- Normal retirement is available at age 65 with at least ten years of membership service. Early retirement eligibility begins at age 60 with ten years of service, with the benefit amount reduced 8 percent per year when retirement occurs prior to age 65. In addition, under normal or early retirement, the pension is reduced for service less than 25 years as shown in the table below.
- The monthly pension benefit formula is:

$$(\$50 + \$10 \times \text{Benefit Service}) \times (\text{Membership Service Factor}) \times (\text{Age Factor})$$

- “Benefit Service” is the number of years the member made pension contributions. “Membership Service” is the number of years the member was a member of the relief plan. The maximum monthly pension benefit is \$300. There is no automatic post-retirement COLA applied to the benefit.

Membership Service Factor for Retirement

Membership Service Factor				
Membership Service Factor	10-14	15-19	20-24	25 +
	20%	35%	75%	100%

Age Factor for Retirement

Age Factor						
Age	60	61	62	63	64	65
Factor	60%	68%	76%	84%	92%	100%

Actuarially Equivalent Early Retirement Reduction Factors

We apply these factors to calculate the annuity benefit paid to survivors of active members who die from a non-duty related cause.

Actuarially Equivalent ERFs			
Member's Age	Factor	Member's Age	Factor
<35	10%	50	27%
35	10%	51	29%
36	10%	52	32%
37	10%	53	34%
38	11%	54	37%
39	12%	55	41%
40	13%	56	44%
41	14%	57	48%
42	15%	58	52%
43	16%	59	57%
44	17%	60	62%
45	18%	61	68%
46	20%	62	75%
47	21%	63	82%
48	23%	64	91%
49	25%	65	100%

Retirement Options

RCW 41.24.172

- The normal payment form of the benefit is a single-life annuity.
- Retirees have the option of selecting a 100 percent joint and survivor pop-up pension. The pension amount is reduced from the amount of the normal payment form to provide an ongoing survivor benefit. If the member dies first, the reduced pension continues to the spouse for their lifetime. If the spouse dies first, the pension pops up to the amount the member would have received under the single-life payment form.

Emergency Medical Service Districts

- Chapter 331, Laws of 1993 extended the membership provisions of the pension and relief plans to include Emergency Medical Service District (EMSD) Volunteers. The applicable RCW states the funding of the EMSD volunteers should be consistent with the most recent actuarial valuation.
- The funding of the system includes contributions from the members and their districts at a rate established in statute. The total of these is less than the normal cost. The balance of the normal cost comes from another revenue source, 40 percent of the state's premium tax on fire insurance policies. Since the premium tax is independent of the number of members, the addition of new members lowers the system's funding. To prevent this, the entire normal cost and administration expenses are paid by the EMSDs and their volunteers. Volunteers pay the fixed dollar rate established in statute. The EMSDs pay the fixed dollar rate plus any excess cost.

Reserve Law Enforcement Officers

- Chapter 11, Laws of 1995 extended the membership provisions of the pension plan to include Reserve Law Enforcement Officers. The pension provisions mirror those of the EMSDs.
- Chapter 148, Laws of 1999 extended the membership provisions of the relief plan to include Reserve Law Enforcement Officers. The relief provisions mirror those of the EMSDs.

Refund of Contributions

Upon termination from the pension system, the member may elect to receive a refund of their contributions without interest. If the member chooses this option, he/she then forfeits any earned pension benefits.

Buying Back Past Service

If a member misses a pension contribution payment in any year following enrollment in the plan, they may make the contribution at a later date. Interest is added at a rate of 1 percent per month.

Relief Benefits

Medical Benefits

RCW 41.24.035, 41.24.155, and 41.24.220

The Board will reimburse all duty-related medical charges, including:

- Physician fees, paid according to Labor and Industries' fee schedule.
- Hospital fees (room and care, x-rays, laboratory work, physical therapy).
- Screening physical exams for new entrants (up to \$100 per new member).

- Mileage for extended treatment not available locally to VFF members.
- Vocational rehabilitation and prescriptions.

Disability Payments

RCW 41.24.150

- **Duty Disability** — Members receive temporary duty disability payments of \$3,619.70 per month for up to six months. If the member is on disability for six consecutive months then the member is considered to be permanently disabled and they receive \$1,809.85 per month, their spouse receives \$362.51, and each dependent child receives \$156.14. Disability benefits are subject to a maximum of \$3,619.70 per month. Spouses will no longer be eligible to receive the beneficiary annuity if they get divorced from the VFF member.
- **Effective July 1, 2001** — Benefits are increased annually in line with the CPI Urban Wage Earners and Clerical Workers (CPI-W - All Cities).
- **Non-Duty Disability** — None.

Death Benefits

RCW 41.24.160, 41.24.230

- **Survivors** — Surviving spouses of members who die while on active duty shall be paid \$1,809.85 monthly. An additional \$506.84 is paid monthly to each of the member's surviving children while they are under 18 years old.
- **Effective July 1, 2001** — Benefits are increased annually in line with the U.S. CPI-W - All Cities.
- **Duty Death** — A lump sum of \$214,000 will be paid to a member's survivor if the member was killed in the line of duty.
- **Funeral and Burial Expenses** — A lump sum of \$2,000 is paid for members who die while on active duty. A \$500 lump sum is paid at the time of death for members who receive disability benefits.

Glossary

You can also use the OSA online Glossary.

Actuarial Accrued Liability (AAL)

Computed differently under different funding methods, the AAL 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 7 percent.

Actuarial Value of Assets (AVA)

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 often select an asset valuation method that smooths the effects of short-term volatility in the market value of assets.

Dollar-Weighted Rate of Return

The internal rate of return. This signifies the rate of return during a period with respect to the beginning balance and cash flows that occur during the period. Dollar-Weighted returns measure the actual impact the pension plan experiences during the period, which includes returns based on the timing of the cash flows during the period.

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 if all assumptions are realized and benefit provisions remain unchanged.

Funded Status

The ratio of a plan's actuarial value of assets to the present value of earned pensions at the valuation date.

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 is the total normal cost of the plan reduced by employee contributions.

Present Value of Future Benefits (PVFB)

Computed by projecting the total future benefit cash flow from the plan, using actuarial assumptions (such as the probability of death or retirement), and then discounting the cash flow to the valuation date using the valuation interest rate.

Time-Weighted Rate of Return

The geometric average rate of return. This signifies the rate of return during a period without respect to cash flows that occur during the period. Investment manager performance is typically based on time-weighted returns since they have no control over when the cash flows occur.

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 not covered by current plan assets.



Office of the State Actuary
"Securing tomorrow's pensions today."

2100 Evergreen Park Dr. SW Suite 150
Olympia, Washington 98504-0914
state.actuary@leg.wa.gov
osa.leg.wa.gov