



Virginia  
Retirement  
System

**GASB STATEMENT NO. 75 REPORT**

**FOR THE**

**LINE OF DUTY ACT OF THE**

**VIRGINIA RETIREMENT SYSTEM**

**PREPARED AS OF JUNE 30, 2017**



June 19, 2018

Board of Trustees  
Virginia Retirement System  
1200 E. Main Street  
Richmond, VA 23219

Ladies and Gentlemen:

Presented in this report is information to assist the Virginia Retirement System in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 75 for the fiscal year ending June 30, 2018 (Reporting Date). This report has been prepared as of June 30, 2017 (the Measurement Date).

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of June 30, 2016. The valuation was based upon data, furnished by the Virginia Retirement System staff, concerning active, inactive and retired members along with pertinent financial information.

To the best of our knowledge, this report is complete and accurate. The necessary calculations were performed by, and under the supervision of, independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems.

The calculations were prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board and, in our opinion, meet the requirements of GASB 75.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the System and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the System. In addition, the calculations were completed in compliance with the laws governing the System. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.



Board of Trustees  
June 19, 2018  
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Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Alisa Bennett'.

Alisa Bennett, FSA, EA, FCA, MAAA  
Principal and Consulting Actuary

A handwritten signature in blue ink, appearing to read 'Larry Langer'.

Larry Langer, ASA, EA, FCA, MAAA  
Principal and Consulting Actuary

A handwritten signature in blue ink, appearing to read 'Bradley R. Wild'.

Bradley R. Wild, ASA, FCA, MAAA  
Actuary



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**REPORT OF THE ANNUAL GASB STATEMENT NO. 75  
REQUIRED INFORMATION FOR THE  
VIRGINIA RETIREMENT SYSTEM  
PREPARED AS OF JUNE 30, 2017**

**SECTION I – INTRODUCTION**

The Governmental Accounting Standards Board issued Statement No. 75 (GASB 75), “*Accounting and Financial Reporting for Postemployment Benefits Other Than Opebs*,” in June 2015. GASB 75’s effective date is for an employer’s fiscal year beginning after June 15, 2017. This report, prepared as of June 30, 2017 (the Measurement Date), presents information to assist the Virginia Retirement System (VRS) in providing the required information under GASB 75 to the participating employers of VRS. Much of the material provided in this report is based on the results of the GASB 74 report for the Virginia Retirement System which was issued on December 14, 2017. See that report for more information on the member data, actuarial assumptions and methods used in developing the GASB 74 results.

The Net OPEB Liability (NOL) shown in the GASB Statement No. 74 Report for the Virginia Retirement System prepared as of June 30, 2017 and submitted December 14, 2017 is the collective NOL used for purposes of GASB 75. Please refer to that report for the derivation of the collective NOL.

OPEB Expense (OE) includes amounts for service cost (the normal cost under the Entry Age Normal actuarial cost method for the year), interest on the Total OPEB Liability (TOL), changes in benefit structure, amortization of increases/decreases in liability due to actuarial experience and actuarial assumption changes, and amortization of investment gains/losses. The actuarial experience and assumption change impacts are amortized over the average expected remaining service life of the plan membership as of the Measurement Date, and investment gains/losses are amortized over five years. The development of the collective OE is shown in Section V.



The unamortized portions of each year's experience, assumption changes and investment gains/losses are used to develop deferred inflows and outflows, which also must be included in the employer's financial statements. The development of the collective deferred inflows and outflows is shown in Section III.

For the Line of Duty Act plan, these collective amounts have been allocated based on actual contributions made to VRS during the measurement period to determine the proportionate share to each participating employer. For the Line of Duty Act plan, these collective amounts have been based on covered payroll during the measurement period to determine the proportionate share to each participating employer. Schedule A of this report shows the total amount of employer contributions for the year ending June 30, 2017 from each participating employer and the proportionate share percentages that have been determined based on these contributions.

Based on these percentages we have determined the proportionate share amounts of the NOL, OE and Deferred Inflows and Outflows for each participating employer. These amounts are shown in Schedules B and D.

Section II of this report is a summary of the principal results of the collective amounts under GASB 75. Sections III and IV provide the results of all the necessary calculations, presented in the order laid out in GASB 75 for note disclosure and Required Supplementary Information (RSI).



## SECTION II – SUMMARY OF COLLECTIVE AMOUNTS

### LINE OF DUTY ACT

(\$ in Thousands)

<b>Valuation Date (VD):</b>	July 1, 2016
<b>Prior Measurement Date:</b>	June 30, 2016
<b>Measurement Date (MD):</b>	June 30, 2017
<b>Reporting Date (RD):</b>	June 30, 2018
<b>Single Equivalent Interest Rate (SEIR):</b>	
Long-Term Expected Rate of Return	4.75%
Municipal Bond Index Rate at Prior Measurement Date	3.01%
Municipal Bond Index Rate at Measurement Date	3.56%
Year in which Fiduciary Net Position is Projected to be Depleted	N/A
Single Equivalent Interest Rate at Prior Measurement Date	3.01%
Single Equivalent Interest Rate at Measurement Date	3.56%
<b>Net OPEB Liability:</b>	
Total OPEB Liability (TOL)	\$266,252
Fiduciary Net Position (FNP)	<u>3,461</u>
Net OPEB Liability (NOL = TOL – FNP)	\$262,791
FNP as a percentage of TOL	1.30%
<b>OPEB Expense (OE)</b>	\$23,059
<b>Deferred Outflow of Resources</b>	\$0
<b>Deferred Infow of Resources</b>	\$27,590



**SECTION III – FINANCIAL STATEMENT NOTES**

The material presented herein will follow the order presented in GASB 75. Paragraph numbers are provided for ease of reference. Amounts are shown in aggregate.

**Paragraph 89:** The information required is to be prepared by VRS and/or the individual employer.

**Paragraph 90:** The information required is to be prepared by the individual employer.

**Paragraph 91 (a) – (b):** The information required is to be prepared by VRS.

**Paragraph 92-93:** This paragraph requires information regarding the actuarial assumptions used to measure the TOL. The actuarial assumptions utilized in developing the TOL are outlined in Schedule G. The total OPEB liability was determined based on an actuarial valuation as of June 30, 2016, using the following actuarial assumptions, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2017.

Price Inflation	2.50 percent
Salary increases, including price inflation	State Employees: 3.50 to 5.35 percent State Police: 3.50 to 4.75 percent VaLORS: 3.50 to 4.75 percent Political Subdivisions: General Employees: 3.50 – 5.35 percent Public Safety: 3.50 to 4.75 percent
Long-term Rate of Return, net of investment expense, including price inflation	3.56 percent
Municipal Bond Index Rate	
Prior Measurement Date	3.01 percent
Measurement Date	3.56 percent
Year FNP is projected to be depleted	2017
Single Equivalent Interest Rate, net of plan investment expense, including price inflation	
Prior Measurement Date	3.01 percent
Measurement Date	3.56 percent
Healthcare Cost Trend Rates	
Medical Trend Assumption (Under Age 65)	7.75% - 5.00%





Medical Trend Assumption (Ages 65 and Older) 5.75% - 5.00%  
Year of Ultimate Trend Rate Fiscal Year Ended 2023

**Mortality**

Pre-retirement mortality rates were based on the RP-2014 Active Healthy Mortality Table with base rates projected to 2020 using Scale BB.

Post-retirement mortality rates were based on the RP-2014 Retiree Healthy Mortality Table with base rates projected to 2020 using Scale BB.

Disability mortality rates were based on the RP-2014 Disabled Mortality Rates projected to 2020 using Scale BB.

Each table has setbacks and weighting adjustments depending on the group covered. Refer to Appendix C for a full description for each group.

The actuarial assumptions used to determine the TOL as of the June 30, 2016 valuation were based on the results of an actuarial experience study for the period from July 1, 2012 through June 30, 2016.

**Paragraph 94:**

- (a) Discount rate.** The discount rate used to measure the total opeb liability was 3.56 percent.
- (b) Projected cash flows:** The projection of cash flows used to determine the discount rate assumed that System member contributions will be made on a pay as you go basis.
- (c) Long term rate of return:** The following analysis relies on the 10-year forward returns outlook provided by VRS as of January 23, 2017.



Time Span In Years	Mean Return	Standard Deviation	Returns by Percentile				
			5 <sup>th</sup>	25 <sup>th</sup>	50 <sup>th</sup>	75 <sup>th</sup>	95 <sup>th</sup>
1	7.30%	10.16%	-8.55%	0.23%	6.83%	13.86%	24.79%
5	6.92%	4.52%	-0.35%	3.82%	6.83%	9.92%	14.52%
10	6.87%	3.19%	1.70%	4.69%	6.83%	9.00%	12.21%
20	6.85%	2.26%	3.18%	5.31%	6.83%	8.36%	10.60%
30	6.84%	1.84%	3.84%	5.59%	6.83%	8.08%	9.90%
50	6.84%	1.43%	4.50%	5.87%	6.83%	7.79%	9.20%

This analysis is based on the target asset allocation as shown below:

Asset Class	Policy Allocation
Public Equity	40.00%
Fixed Income	15.00%
Credit Strategies	15.00%
Real Assets	15.00%
Private Equity	15.00%

The percentile results are the percentage of compound random returns over the time span shown that are expected to be less than the amount indicated. Thus for the 10-year time span, 5% of the rates of return will be below 1.70% and 95% will be above that. As the time span increases, the results begin to converge. Over a 50 year time span, the results indicate a 25% chance that the returns will be below 5.87% and a 25% chance they will be above 7.79%. There is a 50% chance the returns will be 6.83% or above and a 50% chance the return will be below 6.83%.



Many investment firms and investment consulting firms produce estimates of future asset returns. While it might seem desirable to directly compare these estimates, asset class expectations are dependent on the construction of the portfolio. Other investment consultants may have in mind a different blend of large versus small stocks or growth versus value equities. There are also comparison challenges in certain asset classes such as international stock (emerging or developed markets), bonds (duration and credit quality), and alternatives (a very broadly interpreted category). For this reason, we believe trying to compare the expected return developed by VRS with the assumptions of another group of investment professionals may lead to an invalid comparison. Since VRS has qualified professionals on its staff and is in the best position to understand its own portfolio and the reasonable expectations given their investment style, we prefer to rely heavily on their analysis.

While we like the idea of using a forward looking model, the weakness with that approach is that the assumptions being used are set by investment managers and consultants who are typically focusing on a much shorter time period (five to ten years). Therefore, those assumptions may not necessarily be appropriate for the longer timeframe used by actuaries (30 to 50 years). The fact that the capital market assumptions are short-term assumptions is evident by the fact that most investment consulting firms change their capital market assumptions at least annually.

If the investment return assumption was set equal to the expected return based on the capital market assumptions each year or even in every experience study, it could create significant volatility in the funded ratios and amortization periods. Our goal is to choose an assumption that will be reasonable in the long term (30 to 50 years) with adjustment only when there are compelling changes to investment policy or evidence of a change in the long-term trends in the capital markets.

- (d) **Municipal bond rate:** To measure the total opeb liability for this plan, the Single Equivalent Interest Rate (SEIR) we have used is the applicable municipal bond index rate of 3.56%, based on the Bond Buyer General Obligation 20-year Municipal Bond Index published monthly by the Board of Governors of the Federal Reserve System as of the measurement date of June 30, 2017.
- (e) **Periods of projected benefit payments:** Projected future benefit payments for all current System members were projected through 2123.



**(f) Assumed asset allocation:** The target asset allocation and best estimates of arithmetic real rates of return for each major asset class as provided by the System for use in the last actuarial experience study for the four-year period ending June 30, 2016 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Public Equity	40.00%	4.54%
Fixed Income	15.00%	0.69%
Credit Strategies	15.00%	3.96%
Real Assets	15.00%	5.76%
Private Equity	15.00%	9.53%
Total	100.00%	

**(g) Sensitivity analysis:** This paragraph requires disclosure of the sensitivity of the net OPEB liability to changes in the discount rate. The following presents the net OPEB liability of the Line of Duty Act plan, calculated at the municipal bond index rate of 3.56%, as well as what the net OPEB liability would be if it were calculated using a discount rate that is 1-percentage-point lower (2.56%) or 1-percentage-point higher (4.56%) than the current rate (\$ thousands). We show each employer's share in Schedule D.

**LINE OF DUTY ACT**  
(\$ in Thousands)

	1% Decrease (2.56%)	Current Discout Rate (3.56%)	1% Increase (4.56%)
Net OPEB Liability	\$297,986	\$262,791	\$233,356

	1% Decrease in Healthcare Trend Rate	Current Healthcare Trend Rate	1% Increase in Healthcare Trend Rate
Net OPEB Liability	\$222,981	\$262,791	\$312,133



**Paragraph 96(a):** This paragraph requires disclosure of the employer's proportionate share of the collective NOL and, if an employer has a special funding situation, the portion of the non-employer contributing entities' proportionate share of the collective NOL that is associated with the employer. These amounts are shown in Schedule D.

**Paragraph 96(b):** This paragraph requires disclosure of the employer's proportion of the collective NOL and the change in the proportion since the prior measurement date. These amounts are shown in Schedules B and D.



**Paragraph 96(c):** June 30, 2016 is the actuarial valuation date upon which the TOL is based. The following tables show the TOL as well as the NOL.

**LINE OF DUTY ACT  
(\$ in Thousands)**

Changes in the Net OPEB Liability	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (a) - (b)
Balances at June 30, 2016	\$281,054	\$2,708	\$278,346
Changes for the year:			
Service Cost	17,648		17,648
Interest	8,305		8,305
Benefit Changes	0		0
Difference between expected and actual experience	0		0
Changes in assumptions	(30,500)		(30,500)
Contributions - employer	0	11,024	(11,024)
Contributions - employee		0	0
Net investment income	0	683	(683)
Benefit payments	(10,255)	(10,255)	0
Administrative expense	0	(1,283)	1,283
Other changes	0	584	(584)
Net changes	(\$14,802)	\$753	(\$15,555)
Balances at June 30, 2017	\$266,252	\$3,461	\$262,791

TOL Roll Forward	Actual	Actual Before Assumption Changes	Expected
(a) TOL as of June 30, 2016	\$ 251,933	\$281,054	\$281,054
(b) Entry Age normal Cost for period June 30, 2016-June 30, 2017	\$15,245	\$17,133	\$17,133
(c) Actual Benefit Payments	10,255	\$10,255	\$10,255
(d) TOL as of June 30, 2017	\$266,252	\$296,752	\$296,752
= [(a+b) * (1+i)]-[c * (1+(i/2)) ]			
(e) Changes in Assumptions		(30,500)	
(f) Difference between expected and actual experience			0



**Paragraphs 96(d)-(e):** VRS adopted updated assumptions based on the experience study for the period June 30, 2012 to June 30, 2016. Please refer to Section IV, Paragraph 98 for a summary of the changes. In addition, the interest rate changed for the Line of duty Act plan using the municipal bond index rate (3.01% as of June 30, 2016 and 3.56% as of June 30, 2017).

**Paragraph 96(f):** There were no changes between the measurement date of the collective net opeb liability and the employer's reporting date.

**Paragraph 96(g):** Please see Section V of the report for the development of the collective OPEB expense. OE for each employer is shown in Schedule B.

**Paragraph 96(h):** Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce opeb expense they are labeled deferred inflows. If they will increase opeb expense they are labeled deferred outflows. The amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average remaining service life of the active and inactive System members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five year period.

The following tables show the detail of the deferred outflows (inflows) for the Line of Duty Act plan.



**LINE OF DUTY ACT**  
**(\$ in Thousands)**

<b>Year</b>	<b>Type</b>	<b>Losses (a)</b>	<b>(Gains) (b)</b>	<b>Recognition Period (Years) (c)</b>	<b>Amounts Recognized in OPEB Expense through June 30, 2018 (d) = (a) or (b) / (c)</b>	<b>Deferred Outflows of Resources (a) or (a) - (d)</b>	<b>Deferred Inflows of Resources (b) or (b) - (d)</b>
2016-2017	Experience	\$ 0	\$ 0	9.10	\$ 0	\$ 0	\$ 0
2016-2017	Assumptions	0	(30,500)	9.10	(3,352)	0	(27,148)
2016-2017	Investment	0	(552)	5.00	(110)	<u>0</u>	<u>(442)</u>
						<u>\$0</u>	<u>(\$27,590)</u>





The tables below provides a summary of the deferred inflows and outflows as of the Measurement Date. The allocation of deferred inflows and outflows for the Line of Duty Act plan and for the cost-sharing employers is provided in Schedule B.

**LINE OF DUTY ACT**  
**(\$ in Thousands)**

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$0	\$0
Changes of assumptions	0	27,148
Net difference between projected and actual earnings on plan investments	0	442
Employer contributions subsequent to the Measurement Date	<u>0</u>	<u>0</u>
		-
Total	<u>\$0</u>	<u>\$27,590</u>



**Paragraph 96(i)(1)-(2):** The collective amounts reported as deferred outflows of resources and deferred inflows of resources related to opebs will be recognized in opeb expense as follows (\$ thousands). For the Line of Duty Act plan and for the cost-sharing employers, we show each employer’s schedule in Schedule C.

**LINE OF DUTY ACT**  
**(\$ in Thousands)**

Measurement Period Ended June 30:		
2019	\$	(3,462)
2020	\$	(3,462)
2021	\$	(3,462)
2022	\$	(3,464)
2023	\$	(3,352)
Thereafter	\$	(10,388)

**Paragraph 96(j):** The amount of revenue recognized for the support provided by non-employer contributing entities for the participating employers. There are no non-employer contributing entities in VRS.



## **SECTION IV – REQUIRED SUPPLEMENTARY INFORMATION**

There are several tables of Required Supplementary Information (RSI) that need to be included in the employer's financial statements:

**Paragraph 97(a)(1)(a):** The employer's proportion (percentage) of the collective net opeb liability is provided in Schedule A.

**Paragraph 97(a)(1)(b):** The employer's proportionate share (amount) of the collective net opeb liability is provided in Schedule D.

**Paragraph 97(a)(1)(c):** The employer's covered-employee payroll is to be provided by each employer.

**Paragraph 97(a)(1)(d):** The employer's proportionate share (amount) of the collective net opeb liability as a percentage of the employer's covered payroll is the employer's share of the net opeb liability provided in Schedule D divided by the payroll to be provided by the employer.

**Paragraph 97(a)(1)(e):** The opeb plan's fiduciary net position as a percentage of the total opeb liability is provided in Section II in the Summary of Collective Amounts table.

**Paragraph 97(a)(2):** The employers do not have a special funding situation; therefore, paragraph 81(a)(2) does not apply.

**Paragraph 98:** Information about factors that significantly affect trends in the amounts reported in the schedules required by paragraph 97 should be presented as notes to the schedule.

**Changes of benefit terms:** There have been no significant changes to the System benefit provisions since the prior actuarial valuation. A hybrid plan with changes to the defined benefit plan structure and a new defined contribution component was adopted in 2012. The hybrid plan applies to most new employees hired on or after January 1, 2014 and not covered by enhanced hazardous duty benefits.

**Changes of assumption:** VRS adopted updated assumptions based on the experience study for the period June 30, 2012 to June 30, 2016. The changes are summarized in the tables below.



## Summary of Assumption Changes for State Level Plans

System	Assumption	Description
State	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020
	2. Retirement Rates	Lowered rates at older ages and changed final retirement age from 70 to 75
	3. Withdrawal Rates	Adjusted rates to better fit experience at each year age and service through 9 years of service
	4. Disability Rates	Adjusted rates to better match experience
	5. Salary Scale	No change
	6. Line of Duty/Disability	Increase rate from 14% to 25%
Teachers	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020
	2. Retirement Rates	Lowered rates at older ages and changed final retirement age from 70 to 75
	3. Withdrawal Rates	Adjusted rates to better fit experience at each year age and service through 9 years of service
	4. Disability Rates	Adjusted rates to better match experience
	5. Salary Scale	No change
SPORS	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020 and reduced margin for future improvement in accordance with experience
	2. Retirement Rates	Increased age 50 rates, and lowered rates at older ages
	3. Withdrawal Rates	Adjusted rates to better match experience
	4. Disability Rates	Adjusted rates to better match experience
	5. Salary Increases	No change
	6. Line of Duty/Disability	Increase rate from 60% to 85%
VaLORS	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020 and reduced margin for future improvement in accordance with experience
	2. Retirement Rates	Increased age 50 rates, and lowered rates at older ages
	3. Withdrawal Rates	Adjusted rates to better fit experience at each year age and service through 9 years of service
	4. Disability Rates	Adjusted rates to better match experience
	5. Salary Increases	No change
	6. Line of Duty/Disability	Decrease rate from 50% to 35%
JRS	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020
	2. Retirement Rates	Decreased rates at first retirement eligibility
	3. Withdrawal Rates	No change
	4. Disability Rates	Removed disability rates
	5. Salary Increases	No change



## Summary of Assumption Changes for Political Subdivisions

System	Assumption	Description
Locals Largest 10 (Non- Hazardous Duty)	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020
	2. Retirement Rates	Lowered rates at older ages and changed final retirement age from 70 to 75
	3. Withdrawal Rates	Adjusted rates to better fit experience at each year age and service through 9 years of service
	4. Disability Rates	Lowered rates
	5. Salary Increases	No change
	6. Line of Duty Disability	Increase rate from 14% to 20%
Locals Largest 10 (Hazardous Duty)	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020 and reduced margin for future improvement in accordance with experience
	2. Retirement Rates	Lowered rates at older ages
	3. Withdrawal Rates	Adjusted rates to better match experience
	4. Disability Rates	Increased rates
	5. Salary Increases	No change
	6. Line of Duty Disability	Increase rate from 60% to 70%
Locals Non10 Largest (Non- Hazardous Duty)	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020
	2. Retirement Rates	Lowered rates at older ages and changed final retirement age from 70 to 75
	3. Withdrawal Rates	Adjusted rates to better fit experience at each year age and service through 9 years of service
	4. Disability Rates	Lowered rates
	5. Salary Increases	No change
	6. Line of Duty Disability	Increase rate from 14% to 15%
Locals Non10 Largest (Hazardous Duty)	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020 and reduced margin for future improvement in accordance with experience
	2. Retirement Rates	Increased age 50 rates, and lowered rates at older ages
	3. Withdrawal Rates	Adjusted rates to better fit experience at each year age and service through 9 years of service
	4. Disability Rates	Adjusted rates to better match experience
	5. Salary Increases	No change
	6. Line of Duty Disability	Decrease rate from 60% to 45%



***Method and assumptions used in calculations of actuarially determined contributions.*** The system is funded with fixed contribution rates for the state and with varying contributions for employees based on their job and personal elections. The Actuarially Determined Contributions in the *Schedule of Employer Contributions* are calculated as of the beginning of the fiscal year in which contributions are reported.

The following actuarial methods and assumptions (from the July 1, 2016 actuarial valuation) were used to determine the Actuarially Determined Contributions reported for Fiscal Year End 2017 in that schedule:

Valuation Date	June 30, 2016
Actuarial Cost Method	Entry Age Normal
Amortization Method	
Accrued Liability	Level Percentage of Pay, Open
Payroll Growth Rate	3.00%
Remaining Amortization Period	
Accrued Liability	30 Years
Asset Valuation Method	Market Value of Assets
Actuarial Assumptions:	
Investment Rate of Return*	4.75%
*Includes Inflation at	2.50%
Medical Trend Assumption (Under Age 65)	7.75% - 5.00%
Medical Trend Assumption (Ages 65 and Older)	5.75% - 5.00%
Year of Ultimate Trend Rate	Fiscal Year Ended 2023

The assumed investment rate of return reflects the fact that the Plan is to be funded on a current disbursement basis.



## SECTION V – OPEB EXPENSE

As noted earlier, the OPEB Expense (OE) consists of a number of different items. GASB 75 refers to the first as Service Cost which is the Normal Cost using the Entry Age Normal (EAN) actuarial funding method. To this is added interest on the TOL at the rate of return in effect as of the prior measurement date.

The next three items refer to any changes that occurred in the TOL (i.e., actuarial accrued liability (AAL) under EAN) due to:

1. Benefit changes,
2. Actual versus expected experience or
3. Changes in actuarial assumptions.

Benefit changes, which are reflected immediately in OE, can be positive, if there is a benefit improvement for existing plan members, or negative if there is a benefit reduction. For the year ended June 30, 2017 there were no benefit changes to be recognized.

The next item to be recognized is the portion of current year changes in TOL due to actual versus expected experience for the year. The portion to recognize in the current year is determined by spreading the total change over the average expected remaining service life of the entire plan membership. The remaining service life of active members is the average number of years the active members are expected to remain active. For the year ended June 30, 2017, this number is 9.10 for the Line of Duty Act. The figure to use for the amortization is the weighted average of these two amounts, or 5.00 for the Line of duty Act. The calculations are shown in the following tables.

### LINE OF DUTY ACT

Category	Number	Average Years of Working Lifetime
	(1)	(2)
a. Active FTE Members	19,005	9.60
b. Inactive Members	1,040	0.00
c. Total	20,045	
Weighted Average Years of Working Lifetime [(a1 * a2) + (b1 * b2)]/c1		9.10



The last items under changes in TOL are changes in actuarial assumptions. The portion to recognize in the current year is determined by spreading the total change over the average expected remaining service life of the entire plan membership, similar to the way experience gains and losses are recognized.

Member contributions for the year and projected earnings on the FNP at the discount rate serve to reduce the expense. One-fifth of current-period difference between actual and projected earnings on the FNP is recognized in the OPEB expense. The following table shows the investment earnings (gain) loss by plan (\$ thousands).

**LINE OF DUTY ACT**  
**(\$ in Thousands)**

		Investment Earnings (Gain) Loss as of June 30, 2017
<b>a. Expected asset return rate</b>		4.75%
<b>b. Beginning of year market value of assets</b>	\$	2,708
<b>c. End of year market value of assets</b>	\$	3,461
<b>d. Expected return on market value of assets, (a) * (b)</b>		129
<b>External cash flow</b>		
Contributions - employer	\$	11,024
Contributions - member		0
Benefit payments		(10,255)
Administrative expense		(1,283)
Other		<u>584</u>
<b>e. Total external cash flow</b>	\$	70
<b>f. Expected return on external cash flow, (a) * 0.5 * (e)</b>		2
<b>g. Projected earnings for plan year, (d) + (f)</b>	\$	131
<b>h. Net investment income, (c) - (b) - (e)</b>	\$	683
<b>i. Investment earnings (gain) loss, (g) - (h)</b>	\$	(552)





The current year portions of previously determined experience, assumption, and earnings amounts, recognized as deferred inflows and outflows, are included. Deferred outflows are added to the OE and deferred inflows are subtracted from the OE. Finally, administrative expenses and other miscellaneous items are included.

The calculation of the collective OPEB Expense for the year ended June 30, 2017 is shown in the following table.

### Collective OPEB Expense

#### LINE OF DUTY ACT (\$ in Thousands)

OPEB Expense For Year Ending June 30, 2018	
Service Cost at end of year	\$ 17,648
Interest on the Total OPEB Liability	8,305
Current-period benefit changes	0
Expensed portion of current-period difference between expected and actual experience in the Total OPEB Liability	0
Expensed portion of current-period changes of assumptions or other inputs	(3,352)
Employee contributions	0
Projected earnings on plan investments	(131)
Expensed portion of current-period differences between projected and actual earnings on plan investments	(110)
Administrative expense	1,283
Other	(584)
Recognition of beginning Deferred Outflows of Resources as OPEB Expense	0
Recognition of beginning Deferred Inflows of Resources as OPEB Expense	<u>0</u>
OPEB Expense	\$ 23,059

**SCHEDULE A - PROPORTIONATE SHARE OF CONTRIBUTIONS  
LINE OF DUTY ACT PLAN**



Virginia Retirement System  
Line of Duty Act  
Schedule of Employer Allocations  
6/30/2017

Line of Duty Act Cost Sharing Plan

Employer Code	Employer	2016		2017	
		Pay-as-you-go Rate (518.84 per FTE)	Employer Allocation Percentage	Pay-as-you-go Rate (567.37 per FTE)	Employer Allocation Percentage
21156	State Police Troopers - SPORS	\$ 1,024,709	10.50255%	\$ 1,094,457	10.14770%
30123	Department of Military Affairs - Ft. Pickett Fire & Rescue	11,414	0.11699%	13,050	0.12100%
30123	Department of Military Affairs -Army National Guard	651,561	6.65782%	688,637	6.38637%
30123	Department of Military Affairs -Air National Guard	101,377	1.03696%	108,030	0.99953%
30127	Virginia Department of Emergency Management	4,670	0.04786%	5,674	0.05261%
30154	Virginia Department of Motor Vehicles	37,356	0.38288%	43,687	0.40508%
30172	Virginia State Lottery	3,113	0.03190%	3,404	0.03156%
30199	Conservation & Recreation	52,922	0.54241%	63,545	0.58920%
30407	Virginia Port Authority	14,528	0.14890%	18,723	0.17360%
30411	Department of Forestry	77,826	0.79766%	87,942	0.81541%
50001	Arlington County	418,315	4.28876%	442,123	4.09938%
50005	Appalachia, Town of	2,594	0.02659%	2,269	0.02104%
55113	Buchanan County	43,064	0.44137%	43,545	0.40376%
55136	Gloucester County	80,031	0.82026%	86,807	0.80488%
55139	Greene County	33,206	0.34033%	35,886	0.33274%
55152	Lee County	45,269	0.46397%	50,354	0.46688%
55167	Nottoway County	14,268	0.14624%	16,454	0.15256%
55183	Russell County	47,993	0.49189%	54,041	0.50108%
55197	Wise County	42,675	0.43738%	53,049	0.49187%
55201	City of Bristol	89,370	0.91598%	98,013	0.90878%
55213	City of Petersburg	130,229	1.33475%	142,835	1.32437%
55214	City of Portsmouth	351,125	3.59878%	389,925	3.61539%
55215	City of Radford	29,963	0.30710%	36,028	0.33405%
55220	City of Suffolk	270,316	2.77054%	298,011	2.76316%
55221	City of Williamsburg	38,913	0.39883%	42,978	0.39849%
55222	City of Winchester	92,224	0.94523%	106,949	0.99164%
55224	City of Falls Church	26,980	0.27652%	31,347	0.29065%
55226	Front Royal, Town of	20,235	0.20739%	20,993	0.19464%
55232	City of Franklin	33,465	0.34299%	35,177	0.32616%
55233	City of Chesapeake	583,954	5.98644%	657,156	6.09451%
55234	City of Virginia Beach	968,155	9.92558%	1,022,399	9.48107%
55235	City of Norton	15,695	0.16086%	17,021	0.15782%
55236	City of Manassas Park	30,093	0.30843%	33,475	0.31038%
55238	Pound, Town of	2,075	0.02127%	4,255	0.03945%
55245	Scottsville, Town of	1,557	0.01595%	1,702	0.01578%
55249	Lacrosse, Town of	2,075	0.02127%	1,135	0.01052%
55255	Brodnax, Town of	1,038	0.01063%	567	0.00526%
55259	Richlands, Town of	27,499	0.28184%	28,369	0.26303%
55300	Abington, Town of	12,971	0.13294%	14,752	0.13678%
55301	Dumfries, Town of	4,151	0.04254%	5,674	0.05261%
55304	South Boston, Town of	18,678	0.19144%	20,993	0.19464%
55306	Remington, Town of	1,038	0.01063%	1,135	0.01052%
55310	Smithfield, Town of	10,896	0.11167%	11,347	0.10521%
55314	Jonesville, Town of	1,557	0.01595%	1,702	0.01578%
55315	Wytheville, Town of	20,235	0.20739%	24,255	0.22489%
55317	Vienna, Town of	21,143	0.21670%	22,553	0.20911%
55321	Woodstock, Town of	8,301	0.08508%	9,078	0.08417%
55327	Christiansburg, Town of	49,290	0.50518%	54,042	0.50108%

**SCHEDULE A - PROPORTIONATE SHARE OF CONTRIBUTIONS  
LINE OF DUTY ACT PLAN**



Virginia Retirement System  
Line of Duty Act  
Schedule of Employer Allocations  
6/30/2017

Line of Duty Act Cost Sharing Plan

Employer Code	Employer	2016	2016	2017	2017
		Pay-as-you-go Rate (518.84 per FTE)	Employer Allocation Percentage	Pay-as-you-go Rate (567.37 per FTE)	Employer Allocation Percentage
55330	Chatham, Town of	1,557	0.01595%	1,702	0.01578%
55332	City of Manassas	87,684	0.89870%	97,304	0.90221%
55338	Quantico, Town of	1,946	0.01994%	1,986	0.01841%
55354	Big Stone Gap, Town of	7,783	0.07977%	7,943	0.07365%
55355	Luray, Town of	9,858	0.10104%	10,780	0.09995%
55369	Tazewell, Town of	6,745	0.06913%	20,993	0.19464%
55372	Weber City, Town of	2,594	0.02659%	2,837	0.02630%
55374	Hurt Town of	1,557	0.01595%	1,702	0.01578%
55375	Waverly, Town of	3,632	0.03723%	3,546	0.03288%
55378	Courtland, Town of	1,038	0.01063%	1,135	0.01052%
55380	Independence, Town of	2,594	0.02659%	3,972	0.03682%
55382	Grundy, Town of	4,151	0.04254%	4,539	0.04208%
55389	Pembroke, Town of	2,075	0.02127%	2,269	0.02104%
55397	Orange, Town of	7,653	0.07844%	9,078	0.08417%
55417	Norfolk Airport Authority	31,130	0.31907%	34,042	0.31564%
55487	Capital Region Airport Commission	23,348	0.23930%	22,127	0.20517%
55869	RSW Regional Jail	59,148	0.60622%	0	0.00000%
55899	Shenandoah Valley Regional Airport Commission	8,820	0.09040%	9,645	0.08943%
55922	Piedmont Regional Jail	47,733	0.48923%	61,843	0.57341%
70156	Department Of State Police	7,264	0.07445%	7,943	0.07365%
70203	Woodrow Wilson Rehabilitation Center	3,632	0.03722%	3,972	0.03682%
70204	College Of William and Mary	8,301	0.08509%	9,078	0.08417%
70207	University Of Virginia - Academic	24,904	0.25525%	28,936	0.26830%
70208	Virginia Polytechnic Institute & State University- Academic	23,348	0.23930%	27,234	0.25251%
70211	Virginia Military Institute	4,151	0.04254%	5,674	0.05261%
70212	Virginia State University	8,301	0.08509%	9,645	0.08943%
70213	Norfolk State University	10,377	0.10635%	11,915	0.11048%
70214	Longwood University	6,745	0.06913%	7,943	0.07365%
70215	University Of Mary Washington	7,264	0.07445%	7,943	0.07365%
70216	James Madison University	16,084	0.16485%	17,021	0.15782%
70217	Radford University	10,896	0.11167%	12,482	0.11574%
70221	Old Dominion University	20,235	0.20739%	25,532	0.23673%
70236	Virginia Commonwealth University - Academic	48,252	0.49455%	44,822	0.41559%
70241	Richard Bland College	3,632	0.03722%	3,972	0.03682%
70242	Christopher Newport University	10,377	0.10635%	11,347	0.10522%
70246	University of Virginia College At Wise	3,632	0.03722%	5,106	0.04735%
70247	George Mason University	24,904	0.25525%	23,830	0.22095%
70280	Northern Virginia Community College	25,423	0.26057%	27,234	0.25251%
70282	Piedmont Virginia Community College	1,557	0.01595%	1,702	0.01578%
70283	J. Sargeant Reynolds Community College	7,264	0.07445%	7,943	0.07365%
70286	Virginia Western Community College	4,670	0.04786%	5,106	0.04735%
70291	Blur Ridge Community College	519	0.00532%	567	0.00526%
70292	Central Virginia Community College	2,075	0.02127%	2,837	0.02630%
70293	Thomas Nelson Community College	3,632	0.03722%	6,808	0.06313%
70294	Southwest Virginia Community College	2,075	0.02127%	2,269	0.02104%
70296	Virginia Highlands Community College	519	0.00532%	567	0.00526%
70297	Germanna Community College	1,557	0.01595%	1,702	0.01578%
70298	Lord Fairfax Community College	1,038	0.01064%	2,269	0.02104%

**SCHEDULE A - PROPORTIONATE SHARE OF CONTRIBUTIONS  
LINE OF DUTY ACT PLAN**



Virginia Retirement System  
Line of Duty Act  
Schedule of Employer Allocations  
6/30/2017

Line of Duty Act Cost Sharing Plan

Employer Code	Employer	2016	2016	2017	2017
		Pay-as-you-go Rate (518.84 per FTE)	Employer Allocation Percentage	Pay-as-you-go Rate (567.37 per FTE)	Employer Allocation Percentage
70299	Mountain Empire Community College	519	0.00532%	567	0.00526%
70402	Marine Resources Commission	37,356	0.38288%	40,283	0.37351%
70403	Department of Game & Inland Fisheries	78,345	0.80298%	78,297	0.72597%
70716	Correctional Center For Women	86,646	0.88806%	100,992	0.93640%
70718	Bland Correctional Center	91,316	0.93592%	103,261	0.95745%
70733	Sussex I Correctional Center	148,907	1.52619%	163,970	1.52034%
70734	Sussex II Correctional Center	136,455	1.39856%	157,161	1.45721%
70735	Wallen Ridge Correctional Center	175,368	1.79739%	181,558	1.68342%
70737	St. Brides Correctional Center	97,023	0.99442%	107,800	0.99953%
70741	Red Onion State Prison	176,924	1.81335%	199,147	1.84650%
70743	Fluvanna Women's' Correctional Center	120,890	1.23903%	152,055	1.40986%
70745	Nottoway Correctional Center	150,464	1.54214%	174,183	1.61503%
70747	Marion Correctional Treatment Center	78,345	0.80298%	92,481	0.85749%
70749	Buckingham Correctional Center	148,388	1.52087%	170,211	1.57821%
70752	Deep Meadow Correctional Center	214,800	2.20154%	278,579	2.58300%
70753	Deerfield Correctional Center	164,472	1.68572%	176,452	1.63608%
70754	Augusta Correctional Center	122,446	1.25499%	145,247	1.34674%
70756	Adult Regional Office	6,226	0.06381%	5,674	0.05261%
70757	Department of Corrections	55,516	0.56900%	61,843	0.57341%
70761	Eastern Reg Corr Field Unit	49,290	0.50518%	59,574	0.55237%
70767	Adult Community Service	74,194	0.76043%	82,269	0.76280%
70768	Keen Mountain Correctional Center	115,182	1.18054%	133,899	1.24152%
70769	Greensville Correctional Center	325,832	3.33954%	381,273	3.53518%
70770	Dillwyn Correctional Center	127,635	1.30816%	144,679	1.34148%
70771	Indian Creek Correctional Center	86,646	0.88806%	100,992	0.93640%
70772	Haynesville Correctional Center	132,304	1.35602%	150,920	1.39934%
70773	Coffeewood Correctional Center	86,127	0.88274%	106,098	0.98375%
70774	Lunenburg Correctional Center	100,136	1.02632%	114,041	1.05740%
70775	Pocahontas State Correctional Center	93,391	0.95719%	114,609	1.06266%
70776	Green Rock Correctional Center	97,542	0.99973%	112,907	1.04688%
70785	Grayson County Correctional Center	107,919	1.10609%	134,467	1.24678%
70961	Division of Capitol Police	36,838	0.37756%	37,446	0.34721%
70999	Alcoholic Beverage Control Board	61,223	0.62749%	55,602	0.51555%
Total for VRS Line of Duty Act		\$ 9,758,444	100.00000%	\$ 10,784,926	100.00000%

**SCHEDULE B - SCHEDULE OF DEFERRED INFLOWS AND OUTFLOWS AND OPEB EXPENSE**  
**LINE OF DUTY ACT PLAN**  
(\$ thousands)



		Deferred Outflows of Resources					Deferred Inflows of Resources					OPEB Expense		
Employer Code	Employer	Difference Between Expected and Actual Experience	Net Difference Between Projected and Actual Earnings on OPEB Plan Investments	Change of Assumptions	Changes in Proportionate Share	Total Deferred Outflows of Resources	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Earnings on OPEB Plan Investments	Change of Assumptions	Changes in Proportionate Share	Total Deferred Inflows of Resources	Proportionate Share of Plan OPEB Expense	Deferred Amounts from Changes in Proportionate Share	Total Employer OPEB Expense
30123	Department of Military Affairs - Ft. Pickett Fire & Rescue	0	0	0	10	10	0	1	32	0	33	28	1	29
30123	Department of Military Affairs -Army National Guard	0	0	0	0	0	0	28	1,734	673	2,435	1,473	(83)	1,390
30123	Department of Military Affairs -Air National Guard	0	0	0	0	0	0	4	272	93	369	230	(11)	219
30127	Virginia Department of Emergency Management	0	0	0	12	12	0	0	15	0	15	12	1	13
30154	Virginia Department of Motor Vehicles	0	0	0	55	55	0	2	110	0	112	93	7	100
30172	Virginia State Lottery	0	0	0	0	0	0	0	9	0	9	7	(1)	6
30199	Conservation & Recreation	0	0	0	116	116	0	3	160	0	163	136	14	150
30407	Virginia Port Authority	0	0	0	61	61	0	1	47	0	48	40	8	48
30411	Department of Forestry	0	0	0	44	44	0	4	221	0	225	188	5	193
50001	Arlington County	0	0	0	0	0	0	18	1,113	469	1,600	945	(58)	887
50005	Appalachia, Town of	0	0	0	0	0	0	0	6	13	19	5	(2)	3
55113	Buchanan County	0	0	0	0	0	0	2	109	93	204	93	(12)	81
55136	Gloucester County	0	0	0	0	0	0	4	218	38	260	186	(5)	181
55139	Greene County	0	0	0	0	0	0	1	91	19	111	77	(2)	75
55152	Lee County	0	0	0	7	7	0	2	127	0	129	108	1	109
55167	Nottoway County	0	0	0	16	16	0	1	41	0	42	35	2	37
55183	Russell County	0	0	0	23	23	0	2	136	0	138	116	3	119
55197	Wise County	0	0	0	135	135	0	2	134	0	136	113	17	130
55201	City of Bristol	0	0	0	0	0	0	4	247	18	269	210	(2)	208
55213	City of Petersburg	0	0	0	0	0	0	6	359	26	391	305	(3)	302
55214	City of Portsmouth	0	0	0	41	41	0	16	981	0	997	834	5	839
55215	City of Radford	0	0	0	67	67	0	1	91	0	92	77	8	85
55220	City of Suffolk	0	0	0	0	0	0	12	750	19	781	637	(2)	635
55221	City of Williamsburg	0	0	0	0	0	0	2	108	0	110	92	(1)	91
55222	City of Winchester	0	0	0	115	115	0	4	270	0	274	229	14	243
55224	City of Falls Church	0	0	0	35	35	0	1	79	0	80	67	4	71
55226	Front Royal, Town of	0	0	0	0	0	0	1	53	31	85	45	(4)	41
55232	City of Franklin	0	0	0	0	0	0	1	89	42	132	75	(5)	70
55233	City of Chesapeake	0	0	0	268	268	0	27	1,654	0	1,681	1,405	33	1,438
55234	City of Virginia Beach	0	0	0	0	0	0	42	2,574	1,101	3,717	2,186	(136)	2,050
55235	City of Norton	0	0	0	0	0	0	1	43	7	51	36	(1)	35
55236	City of Manassas Park	0	0	0	4	4	0	1	85	0	86	72	1	73
55238	Pound, Town of	0	0	0	45	45	0	0	11	0	11	9	6	15
55245	Scottsville, Town of	0	0	0	0	0	0	0	4	0	4	4	0	4
55249	Lacrosse, Town of	0	0	0	0	0	0	0	3	27	30	2	(3)	(1)
55255	Brodnax, Town of	0	0	0	0	0	0	0	1	13	14	1	(2)	(1)
55259	Richlands, Town of	0	0	0	0	0	0	1	72	46	119	61	(6)	55
55300	Abington, Town of	0	0	0	10	10	0	1	37	0	38	32	1	33
55301	Dumfries, Town of	0	0	0	25	25	0	0	15	0	15	12	3	15
55304	South Boston, Town of	0	0	0	8	8	0	1	53	0	54	45	1	46
55306	Remington, Town of	0	0	0	0	0	0	0	3	0	3	2	0	2
55310	Smithfield, Town of	0	0	0	0	0	0	0	29	16	45	24	(2)	22
55314	Jonesville, Town of	0	0	0	0	0	0	0	4	0	4	4	0	4
55315	Wytheville, Town of	0	0	0	44	44	0	1	61	0	62	52	5	57
55317	Vienna, Town of	0	0	0	0	0	0	1	57	19	77	48	(2)	46
55321	Woodstock, Town of	0	0	0	0	0	0	0	23	0	23	19	(3)	16
55327	Christiansburg, Town of	0	0	0	0	0	0	2	136	10	148	116	(1)	115
55330	Chatham, Town of	0	0	0	0	0	0	0	4	0	4	4	0	4
55332	City of Manassas	0	0	0	9	9	0	4	245	0	249	208	1	209
55338	Quantico, Town of	0	0	0	0	0	0	0	5	0	5	4	(4)	0
55354	Big Stone Gap, Town of	0	0	0	0	0	0	0	20	15	35	17	(2)	15

**SCHEDULE B - SCHEDULE OF DEFERRED INFLOWS AND OUTFLOWS AND OPEB EXPENSE**  
**LINE OF DUTY ACT PLAN**  
(\$ thousands)



		Deferred Outflows of Resources					Deferred Inflows of Resources					OPEB Expense		
Employer Code	Employer	Difference Between Expected and Actual OPEB Plan	Net Difference Between Projected and Actual Earnings on OPEB Plan Investments	Change of Assumptions	Changes in Proportionate Share	Total Deferred Outflows of Resources	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Earnings on OPEB Plan Investments	Change of Assumptions	Changes in Proportionate Share	Total Deferred Inflows of Resources	Proportionate Share of Plan OPEB Expense	Deferred Amounts from Changes in Proportionate Share	Total Employer OPEB Expense
55355	Luray, Town of	0	0	0	0	0	0	0	28	0	28	23	(3)	20
55369	Tazewell, Town of	0	0	0	311	311	0	1	53	0	54	45	38	83
55372	Weber City, Town of	0	0	0	0	0	0	0	7	0	7	6	(1)	5
55374	Hurt Town of	0	0	0	0	0	0	0	4	0	4	4	0	4
55375	Waverly, Town of	0	0	0	0	0	0	0	9	11	20	8	(1)	7
55378	Courtland, Town of	0	0	0	0	0	0	0	3	0	3	2	0	2
55380	Independence, Town of	0	0	0	25	25	0	0	10	0	10	8	3	11
55382	Grundy, Town of	0	0	0	0	0	0	0	12	0	12	10	(1)	9
55389	Pembroke, Town of	0	0	0	0	0	0	0	6	0	6	5	(1)	4
55397	Orange, Town of	0	0	0	14	14	0	0	23	0	23	19	2	21
55417	Norfolk Airport Authority	0	0	0	0	0	0	1	86	9	96	73	(1)	72
55487	Capital Region Airport Commission	0	0	0	0	0	0	1	56	85	142	47	(10)	37
55869	RSW Regional Jail	0	0	0	0	0	0	0	0	1,502	1,502	0	(185)	(185)
55899	Shenandoah Valley Regional Airport Commission	0	0	0	0	0	0	0	25	0	25	21	(3)	18
55922	Piedmont Regional Jail	0	0	0	208	208	0	3	155	0	158	132	26	158
70156	Department Of State Police	0	0	0	0	0	0	0	20	0	20	17	(2)	15
70203	Woodrow Wilson Rehabilitation Center	0	0	0	0	0	0	0	10	0	10	8	(1)	7
70204	College Of William and Mary	0	0	0	0	0	0	0	23	0	23	19	(3)	16
70207	University Of Virginia - Academic	0	0	0	32	32	0	1	73	0	74	62	4	66
70208	Virginia Polytechnic Institute & State University- Academic	0	0	0	33	33	0	1	69	0	70	58	4	62
70211	Virginia Military Institute	0	0	0	25	25	0	0	15	0	15	12	3	15
70212	Virginia State University	0	0	0	11	11	0	0	25	0	25	21	1	22
70213	Norfolk State University	0	0	0	10	10	0	0	30	0	30	25	1	26
70214	Longwood University	0	0	0	12	12	0	0	20	0	20	17	1	18
70215	University Of Mary Washington	0	0	0	0	0	0	0	20	0	20	17	(2)	15
70216	James Madison University	0	0	0	0	0	0	1	43	18	62	36	(2)	34
70217	Radford University	0	0	0	10	10	0	1	31	0	32	27	1	28
70221	Old Dominion University	0	0	0	73	73	0	1	64	0	65	55	9	64
70236	Virginia Commonwealth University - Academic	0	0	0	0	0	0	2	113	196	311	96	(24)	72
70241	Richard Bland College	0	0	0	0	0	0	0	10	0	10	8	(1)	7
70242	Christopher Newport University	0	0	0	0	0	0	0	29	0	29	24	(3)	21
70246	University of Virginia College At Wise	0	0	0	25	25	0	0	13	0	13	11	3	14
70247	George Mason University	0	0	0	0	0	0	1	60	85	146	51	(10)	41
70280	Northern Virginia Community College	0	0	0	0	0	0	1	69	20	90	58	(2)	56
70282	Piedmont Virginia Community College	0	0	0	0	0	0	0	4	0	4	4	0	4
70283	J. Sargeant Reynolds Community College	0	0	0	0	0	0	0	20	0	20	17	(2)	15
70286	Virginia Western Community College	0	0	0	0	0	0	0	13	0	13	11	(1)	10
70291	Blur Ridge Community College	0	0	0	0	0	0	0	1	0	1	1	0	1
70292	Central Virginia Community College	0	0	0	12	12	0	0	7	0	7	6	2	8
70293	Thomas Nelson Community College	0	0	0	64	64	0	0	17	0	17	15	8	23
70294	Southwest Virginia Community College	0	0	0	0	0	0	0	6	0	6	5	(1)	4
70296	Virginia Highlands Community College	0	0	0	0	0	0	0	1	0	1	1	0	1
70297	Germanna Community College	0	0	0	0	0	0	0	4	0	4	4	0	4
70298	Lord Fairfax Community College	0	0	0	26	26	0	0	6	0	6	5	3	8
70299	Mountain Empire Community College	0	0	0	0	0	0	0	1	0	1	1	0	1
70402	Marine Resources Commission	0	0	0	0	0	0	2	101	23	126	86	(3)	83
70403	Department of Game & Inland Fisheries	0	0	0	0	0	0	3	197	190	390	167	(24)	143
70716	Correctional Center For Women	0	0	0	120	120	0	4	254	0	258	216	15	231
70718	Bland Correctional Center	0	0	0	53	53	0	4	260	0	264	221	7	228
70733	Sussex I Correctional Center	0	0	0	0	0	0	7	412	14	433	351	(2)	349
70734	Sussex II Correctional Center	0	0	0	145	145	0	6	396	0	402	336	18	354
70735	Wallen Ridge Correctional Center	0	0	0	0	0	0	7	457	282	746	388	(35)	353

**SCHEDULE B - SCHEDULE OF DEFERRED INFLOWS AND OUTFLOWS AND OPEB EXPENSE**  
**LINE OF DUTY ACT PLAN**  
(\$ thousands)



		Deferred Outflows of Resources					Deferred Inflows of Resources					OPEB Expense		Total Employer OPEB Expense
Employer Code	Employer	Difference Between Expected and Actual Experience	Net Difference Between Projected and Actual OPEB Plan Investments	Change of Assumptions	Changes in Proportionate Share	Total Deferred Outflows of Resources	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on OPEB Plan	Change of Assumptions	Changes in Proportionate Share	Total Deferred Inflows of Resources	Proportionate Share of Plan OPEB Expense	Deferred Amounts from Changes in Proportionate Share	Total Employer OPEB Expense
70737	St. Brides Correctional Center	0	0	0	12	12	0	4	272	0	276	230	2	232
70741	Red Onion State Prison	0	0	0	82	82	0	8	501	0	509	426	10	436
70743	Fluvanna Women's' Correctional Center	0	0	0	423	423	0	6	383	0	389	325	52	377
70745	Nottoway Correctional Center	0	0	0	181	181	0	7	439	0	446	372	22	394
70747	Marion Correctional Treatment Center	0	0	0	135	135	0	4	233	0	237	198	17	215
70749	Buckingham Correctional Center	0	0	0	142	142	0	7	428	0	435	364	18	382
70752	Deep Meadow Correctional Center	0	0	0	945	945	0	11	702	0	713	596	117	713
70753	Deerfield Correctional Center	0	0	0	0	0	0	7	444	123	574	377	(15)	362
70754	Augusta Correctional Center	0	0	0	227	227	0	6	366	0	372	311	28	339
70756	Adult Regional Office	0	0	0	0	0	0	0	15	28	43	12	(3)	9
70757	Department of Corrections	0	0	0	11	11	0	3	155	0	158	132	1	133
70761	Eastern Reg Corr Field Unit	0	0	0	117	117	0	2	150	0	152	127	14	141
70767	Adult Community Service	0	0	0	6	6	0	3	207	0	210	176	1	177
70768	Keen Mountain Correctional Center	0	0	0	151	151	0	5	338	0	343	286	19	305
70769	Greensville Correctional Center	0	0	0	485	485	0	16	959	0	975	815	60	875
70770	Dillwyn Correctional Center	0	0	0	83	83	0	6	364	0	370	309	10	319
70771	Indian Creek Correctional Center	0	0	0	120	120	0	4	254	0	258	216	15	231
70772	Haynesville Correctional Center	0	0	0	108	108	0	6	380	0	386	323	13	336
70773	Coffeewood Correctional Center	0	0	0	250	250	0	4	267	0	271	227	31	258
70774	Lunenburg Correctional Center	0	0	0	77	77	0	5	287	0	292	244	10	254
70775	Pocahontas State Correctional Center	0	0	0	262	262	0	5	288	0	293	245	32	277
70776	Green Rock Correctional Center	0	0	0	117	117	0	5	284	0	289	241	14	255
70785	Grayson County Correctional Center	0	0	0	349	349	0	6	338	0	344	287	43	330
70961	Division of Capitol Police	0	0	0	0	0	0	2	94	75	171	80	(9)	71
70999	Alcoholic Beverage Control Board	0	0	0	0	0	0	2	140	278	420	119	(34)	85
	Total for VRS Line of Duty Act	0	0	0	6,642	6,642	0	442	27,148	6,642	34,232	23,059	0	23,059

**SCHEDULE C - AMORTIZATION OF DEFERRED INFLOWS AND OUTFLOWS  
LINE OF DUTY ACT PLAN**

(\$ thousands)



Deferred Amounts to be Recognized in Fiscal Years Following the Reporting Date

Employer Code	Employer	Year 1	Year 2	Year 3	Year 4	Year 5	Thereafter
21156	State Police Troopers - SPORS	(459)	(464)	(464)	(467)	(457)	(1,407)
30123	Department of Military Affairs - Ft. Pickett Fire & Rescue	(3)	(3)	(3)	(3)	(3)	(8)
30123	Department of Military Affairs -Army National Guard	(304)	(304)	(304)	(304)	(297)	(922)
30123	Department of Military Affairs -Air National Guard	(46)	(46)	(46)	(46)	(45)	(140)
30127	Virginia Department of Emergency Management	(1)	(1)	(1)	0	0	0
30154	Virginia Department of Motor Vehicles	(7)	(7)	(7)	(7)	(7)	(22)
30172	Virginia State Lottery	(1)	(1)	(1)	(1)	(1)	(4)
30199	Conservation & Recreation	(6)	(6)	(6)	(6)	(6)	(17)
30407	Virginia Port Authority	2	2	2	2	2	3
30411	Department of Forestry	(23)	(23)	(23)	(23)	(22)	(67)
50001	Arlington County	(200)	(200)	(200)	(200)	(195)	(605)
50005	Appalachia, Town of	(3)	(3)	(3)	(3)	(3)	(4)
55113	Buchanan County	(26)	(26)	(26)	(26)	(26)	(74)
55136	Gloucester County	(33)	(33)	(33)	(33)	(32)	(96)
55139	Greene County	(14)	(14)	(14)	(14)	(13)	(42)
55152	Lee County	(15)	(15)	(15)	(15)	(15)	(47)
55167	Nottoway County	(3)	(3)	(3)	(3)	(3)	(11)
55183	Russell County	(14)	(14)	(14)	(14)	(14)	(45)
55197	Wise County	(1)	0	0	0	0	0
55201	City of Bristol	(33)	(33)	(33)	(33)	(32)	(105)
55213	City of Petersburg	(49)	(49)	(49)	(49)	(47)	(148)
55214	City of Portsmouth	(120)	(120)	(120)	(120)	(116)	(360)
55215	City of Radford	(4)	(4)	(4)	(4)	(3)	(6)
55220	City of Suffolk	(98)	(98)	(98)	(98)	(95)	(294)
55221	City of Williamsburg	(14)	(14)	(14)	(14)	(13)	(41)
55222	City of Winchester	(20)	(20)	(20)	(20)	(19)	(60)
55224	City of Falls Church	(6)	(6)	(6)	(6)	(6)	(15)
55226	Front Royal, Town of	(11)	(11)	(11)	(11)	(11)	(30)
55232	City of Franklin	(16)	(16)	(16)	(16)	(16)	(52)
55233	City of Chesapeake	(178)	(178)	(178)	(178)	(171)	(530)
55234	City of Virginia Beach	(464)	(464)	(464)	(464)	(454)	(1,407)
55235	City of Norton	(6)	(6)	(6)	(6)	(6)	(21)
55236	City of Manassas Park	(10)	(10)	(10)	(10)	(10)	(32)
55238	Pound, Town of	5	5	5	5	5	9
55245	Scottsville, Town of	(1)	(1)	(1)	(1)	0	0
55249	Lacrosse, Town of	(3)	(3)	(3)	(3)	(3)	(15)
55255	Brodnax, Town of	(2)	(2)	(2)	(2)	(2)	(4)
55259	Richlands, Town of	(15)	(15)	(15)	(15)	(15)	(44)
55300	Abington, Town of	(4)	(4)	(4)	(4)	(4)	(8)
55301	Dumfries, Town of	1	1	1	1	1	5
55304	South Boston, Town of	(6)	(6)	(6)	(6)	(6)	(16)
55306	Remington, Town of	(3)	0	0	0	0	0
55310	Smithfield, Town of	(6)	(6)	(6)	(6)	(6)	(15)
55314	Jonesville, Town of	(1)	(1)	(1)	(1)	0	0
55315	Wytheville, Town of	(3)	(3)	(3)	(3)	(3)	(3)
55317	Vienna, Town of	(9)	(9)	(9)	(9)	(9)	(32)
55321	Woodstock, Town of	(3)	(3)	(3)	(3)	(3)	(8)
55327	Christiansburg, Town of	(18)	(18)	(18)	(18)	(18)	(58)
55330	Chatham, Town of	(1)	(1)	(1)	(1)	0	0
55332	City of Manassas	(30)	(30)	(30)	(30)	(29)	(91)
55338	Quantico, Town of	(1)	(1)	(1)	(1)	(1)	0
55354	Big Stone Gap, Town of	(5)	(5)	(5)	(5)	(4)	(11)
55355	Luray, Town of	(3)	(3)	(3)	(3)	(3)	(13)
55369	Tazewell, Town of	31	31	31	31	31	102
55372	Weber City, Town of	(1)	(1)	(1)	(1)	(1)	(2)
55374	Hurt Town of	(1)	(1)	(1)	(1)	0	0
55375	Waverly, Town of	(2)	(2)	(2)	(2)	(2)	(10)
55378	Courtland, Town of	(3)	0	0	0	0	0
55380	Independence, Town of	2	2	2	2	2	5



**SCHEDULE C - AMORTIZATION OF DEFERRED INFLOWS AND OUTFLOWS  
LINE OF DUTY ACT PLAN**

(\$ thousands)



Deferred Amounts to be Recognized in Fiscal Years Following the Reporting Date

Employer Code	Employer	Year 1	Year 2	Year 3	Year 4	Year 5	Thereafter
55382	Grundy, Town of	(1)	(1)	(1)	(1)	(1)	(7)
55389	Pembroke, Town of	(1)	(1)	(1)	(1)	(1)	(1)
55397	Orange, Town of	(1)	(1)	(1)	(1)	(1)	(4)
55417	Norfolk Airport Authority	(12)	(12)	(12)	(12)	(12)	(36)
55487	Capital Region Airport Commission	(17)	(17)	(17)	(17)	(17)	(57)
55869	RSW Regional Jail	(185)	(185)	(185)	(185)	(185)	(577)
55899	Shenandoah Valley Regional Airport Commission	(3)	(3)	(3)	(3)	(3)	(10)
55922	Piedmont Regional Jail	6	6	6	6	7	19
70156	Department Of State Police	(3)	(3)	(3)	(3)	(2)	(6)
70203	Woodrow Wilson Rehabilitation Center	(1)	(1)	(1)	(1)	(1)	(5)
70204	College Of William and Mary	(3)	(3)	(3)	(3)	(3)	(8)
70207	University Of Virginia - Academic	(5)	(5)	(5)	(5)	(5)	(17)
70208	Virginia Polytechnic Institute & State University- Academic	(5)	(5)	(5)	(5)	(4)	(13)
70211	Virginia Military Institute	1	1	1	1	1	5
70212	Virginia State University	(2)	(2)	(2)	(2)	(2)	(4)
70213	Norfolk State University	(3)	(3)	(3)	(3)	(3)	(5)
70214	Longwood University	(2)	(2)	(2)	(2)	0	0
70215	University Of Mary Washington	(3)	(3)	(3)	(3)	(2)	(6)
70216	James Madison University	(7)	(7)	(7)	(7)	(7)	(27)
70217	Radford University	(3)	(3)	(3)	(3)	(3)	(7)
70221	Old Dominion University	1	1	1	1	1	3
70236	Virginia Commonwealth University - Academic	(38)	(38)	(38)	(38)	(38)	(121)
70241	Richard Bland College	(1)	(1)	(1)	(1)	(1)	(5)
70242	Christopher Newport University	(4)	(4)	(4)	(4)	(4)	(9)
70246	University of Virginia College At Wise	1	1	1	1	1	7
70247	George Mason University	(18)	(18)	(18)	(18)	(17)	(57)
70280	Northern Virginia Community College	(11)	(11)	(11)	(11)	(10)	(36)
70282	Piedmont Virginia Community College	(1)	(1)	(1)	(1)	0	0
70283	J. Sargeant Reynolds Community College	(3)	(3)	(3)	(3)	(2)	(6)
70286	Virginia Western Community College	(2)	(2)	(2)	(2)	(2)	(3)
70291	Blur Ridge Community College	(1)	0	0	0	0	0
70292	Central Virginia Community College	1	1	1	1	1	0
70293	Thomas Nelson Community College	6	6	6	6	6	17
70294	Southwest Virginia Community College	(1)	(1)	(1)	(1)	(1)	(1)
70296	Virginia Highlands Community College	(1)	0	0	0	0	0
70297	Germanna Community College	(1)	(1)	(1)	(1)	0	0
70298	Lord Fairfax Community College	2	2	2	2	2	10
70299	Mountain Empire Community College	(1)	0	0	0	0	0
70402	Marine Resources Commission	(16)	(16)	(16)	(16)	(16)	(46)
70403	Department of Game & Inland Fisheries	(49)	(49)	(49)	(49)	(48)	(146)
70716	Correctional Center For Women	(17)	(17)	(17)	(17)	(16)	(54)
70718	Bland Correctional Center	(26)	(26)	(26)	(26)	(25)	(82)
70733	Sussex I Correctional Center	(55)	(55)	(55)	(55)	(53)	(160)
70734	Sussex II Correctional Center	(32)	(32)	(32)	(32)	(31)	(98)
70735	Wallen Ridge Correctional Center	(93)	(93)	(93)	(93)	(91)	(283)
70737	St. Brides Correctional Center	(33)	(33)	(33)	(33)	(32)	(100)
70741	Red Onion State Prison	(54)	(54)	(54)	(54)	(52)	(159)
70743	Fluvanna Women's' Correctional Center	3	3	3	3	5	17
70745	Nottoway Correctional Center	(34)	(34)	(34)	(34)	(32)	(97)
70747	Marion Correctional Treatment Center	(13)	(13)	(13)	(13)	(12)	(38)
70749	Buckingham Correctional Center	(37)	(37)	(37)	(37)	(35)	(110)
70752	Deep Meadow Correctional Center	28	28	28	28	30	90
70753	Deerfield Correctional Center	(72)	(72)	(72)	(72)	(70)	(216)
70754	Augusta Correctional Center	(19)	(19)	(19)	(19)	(17)	(52)
70756	Adult Regional Office	(5)	(5)	(5)	(5)	(5)	(18)
70757	Department of Corrections	(19)	(19)	(19)	(19)	(18)	(53)
70761	Eastern Reg Corr Field Unit	(5)	(5)	(5)	(5)	(5)	(10)
70767	Adult Community Service	(25)	(25)	(25)	(25)	(25)	(79)
70768	Keen Mountain Correctional Center	(24)	(24)	(24)	(24)	(23)	(73)

**SCHEDULE C - AMORTIZATION OF DEFERRED INFLOWS AND OUTFLOWS**  
**LINE OF DUTY ACT PLAN**  
(\$ thousands)



		Deferred Amounts to be Recognized in Fiscal Years Following the Reporting Date					
Employer Code	Employer	Year 1	Year 2	Year 3	Year 4	Year 5	Thereafter
70769	Greensville Correctional Center	(62)	(62)	(62)	(62)	(58)	(184)
70770	Dillwyn Correctional Center	(36)	(36)	(36)	(36)	(35)	(108)
70771	Indian Creek Correctional Center	(17)	(17)	(17)	(17)	(16)	(54)
70772	Haynesville Correctional Center	(35)	(35)	(35)	(35)	(34)	(104)
70773	Coffeewood Correctional Center	(3)	(3)	(3)	(3)	(2)	(7)
70774	Lunenburg Correctional Center	(27)	(27)	(27)	(27)	(25)	(82)
70775	Pocahontas State Correctional Center	(5)	(5)	(5)	(5)	(4)	(7)
70776	Green Rock Correctional Center	(22)	(22)	(22)	(22)	(21)	(63)
70785	Grayson County Correctional Center	5	0	0	0	0	0
70961	Division of Capitol Police	(21)	(21)	(21)	(21)	(21)	(66)
70999	Alcoholic Beverage Control Board	(52)	(52)	(52)	(52)	(51)	(161)
	Total for VRS Line of Duty Act	(3,462)	(3,462)	(3,462)	(3,464)	(3,352)	(10,388)

**SCHEDULE D - NET OPEB LIABILITY**  
**LINE OF DUTY ACT PLAN**  
(\$ thousands)



Employer Code	Employer	6/30/2016	6/30/2017	Net OPEB Liability 1% Decrease	Net OPEB Liability 1% Increase	Net OPEB Liability 1% Decrease	Net OPEB Liability 1% Increase
		Net OPEB Liability	Net OPEB Liability	Discount Rate (2.56%)	Discount Rate (4.56%)	Health Trend Rate	Health Trend Rate
21156	State Police Troopers - SPORS	29,237	26,677	30,241	23,685	22,627	31,683
30123	Department of Military Affairs - Ft. Pickett Fire & Rescue	326	318	361	283	270	378
30123	Department of Military Affairs -Army National Guard	18,532	16,783	19,031	14,903	14,240	19,934
30123	Department of Military Affairs -Air National Guard	2,886	2,626	2,978	2,332	2,228	3,119
30127	Virginia Department of Emergency Management	133	138	157	123	117	164
30154	Virginia Department of Motor Vehicles	1,066	1,065	1,207	945	903	1,264
30172	Virginia State Lottery	89	83	94	74	70	99
30199	Conservation & Recreation	1,510	1,549	1,756	1,375	1,314	1,839
30407	Virginia Port Authority	414	456	517	405	387	542
30411	Department of Forestry	2,220	2,143	2,430	1,903	1,818	2,545
50001	Arlington County	11,938	10,773	12,215	9,566	9,141	12,795
50005	Appalachia, Town of	74	55	62	49	47	65
55113	Buchanan County	1,229	1,061	1,203	942	900	1,260
55136	Gloucester County	2,283	2,115	2,398	1,878	1,795	2,512
55139	Greene County	947	874	991	776	741	1,038
55152	Lee County	1,291	1,227	1,391	1,090	1,041	1,457
55167	Nottoway County	407	401	455	356	340	476
55183	Russell County	1,369	1,317	1,493	1,170	1,118	1,564
55197	Wise County	1,217	1,293	1,466	1,148	1,097	1,535
55201	City of Bristol	2,550	2,389	2,708	2,121	2,027	2,837
55213	City of Petersburg	3,715	3,480	3,946	3,090	2,953	4,134
55214	City of Portsmouth	10,017	9,501	10,773	8,437	8,062	11,285
55215	City of Radford	855	877	995	779	744	1,042
55220	City of Suffolk	7,712	7,261	8,233	6,448	6,161	8,624
55221	City of Williamsburg	1,110	1,047	1,187	930	888	1,244
55222	City of Winchester	2,631	2,606	2,955	2,314	2,211	3,096
55224	City of Falls Church	770	764	866	678	648	907
55226	Front Royal, Town of	577	511	580	454	434	607
55232	City of Franklin	955	857	972	761	728	1,018
55233	City of Chesapeake	16,663	16,016	18,161	14,222	13,590	19,023
55234	City of Virginia Beach	27,627	24,916	28,252	22,125	21,141	29,594
55235	City of Norton	448	415	471	369	352	493
55236	City of Manassas Park	859	815	925	724	692	969
55238	Pound, Town of	59	104	118	92	88	124
55245	Scottsville, Town of	44	41	47	36	35	49
55249	Lacrosse, Town of	59	28	32	25	24	33
55255	Brodnax, Town of	30	14	16	12	12	17
55259	Richlands, Town of	784	691	784	614	587	821
55300	Abington, Town of	370	359	407	319	305	427
55301	Dumfries, Town of	118	138	157	123	117	164
55304	South Boston, Town of	533	511	580	454	434	607
55306	Remington, Town of	30	28	32	25	24	33
55310	Smithfield, Town of	311	276	313	245	234	328
55314	Jonesville, Town of	44	41	47	36	35	49
55315	Wytheville, Town of	577	591	670	525	501	702
55317	Vienna, Town of	603	550	623	488	467	653
55321	Woodstock, Town of	237	221	251	196	188	263
55327	Christiansburg, Town of	1,406	1,317	1,493	1,170	1,118	1,564
55330	Chatham, Town of	44	41	47	36	35	49
55332	City of Manassas	2,501	2,371	2,689	2,106	2,012	2,816
55338	Quantico, Town of	56	48	54	43	41	57
55354	Big Stone Gap, Town of	222	193	219	171	164	229
55355	Luray, Town of	281	263	298	234	223	312

**SCHEDULE D - NET OPEB LIABILITY**  
**LINE OF DUTY ACT PLAN**  
(\$ thousands)



Employer Code	Employer	6/30/2016	6/30/2017	Net OPEB Liability 1% Decrease Discount Rate	Net OPEB Liability 1% Increase Discount Rate	Net OPEB Liability 1% Decrease Health Trend Rate	Net OPEB Liability 1% Increase Health Trend Rate
		Net OPEB Liability	Net OPEB Liability	(2.56%)	(4.56%)		
55369	Tazewell, Town of	192	511	580	454	434	607
55372	Weber City, Town of	74	69	78	61	59	82
55374	Hurt Town of	44	41	47	36	35	49
55375	Waverly, Town of	104	87	98	77	73	103
55378	Courtland, Town of	30	28	32	25	24	33
55380	Independence, Town of	74	97	110	86	82	115
55382	Grundy, Town of	118	111	126	99	94	132
55389	Pembroke, Town of	59	55	62	49	47	65
55397	Orange, Town of	218	221	251	196	188	263
55417	Norfolk Airport Authority	888	829	940	736	704	985
55487	Capital Region Airport Commission	666	539	611	479	458	641
55869	RSW Regional Jail	1,687	0	0	0	0	0
55899	Shenandoah Valley Regional Airport Commission	252	235	267	209	200	279
55922	Piedmont Regional Jail	1,362	1,507	1,709	1,338	1,278	1,790
70156	Department Of State Police	207	193	219	171	164	229
70203	Woodrow Wilson Rehabilitation Center	104	97	110	86	82	115
70204	College Of William and Mary	237	221	251	196	188	263
70207	University Of Virginia - Academic	710	705	800	626	599	838
70208	Virginia Polytechnic Institute & State University- Academic	666	663	752	589	563	788
70211	Virginia Military Institute	118	138	157	123	117	164
70212	Virginia State University	237	235	267	209	200	279
70213	Norfolk State University	296	290	329	258	246	345
70214	Longwood University	192	193	219	171	164	229
70215	University Of Mary Washington	207	193	219	171	164	229
70216	James Madison University	459	415	471	369	352	493
70217	Radford University	311	304	345	270	258	361
70221	Old Dominion University	577	622	706	553	528	739
70236	Virginia Commonwealth University - Academic	1,377	1,093	1,239	970	927	1,298
70241	Richard Bland College	104	97	110	86	82	115
70242	Christopher Newport University	296	276	313	245	234	328
70246	University of Virginia College At Wise	104	124	141	110	105	147
70247	George Mason University	710	580	658	515	492	689
70280	Northern Virginia Community College	725	663	752	589	563	788
70282	Piedmont Virginia Community College	44	41	47	36	35	49
70283	J. Sargeant Reynolds Community College	207	193	219	171	164	229
70286	Virginia Western Community College	133	124	141	110	105	147
70291	Blur Ridge Community College	15	14	16	12	12	17
70292	Central Virginia Community College	59	69	78	61	59	82
70293	Thomas Nelson Community College	104	166	188	148	141	197
70294	Southwest Virginia Community College	59	55	62	49	47	65
70296	Virginia Highlands Community College	15	14	16	12	12	17
70297	Germanna Community College	44	41	47	36	35	49
70298	Lord Fairfax Community College	30	55	62	49	47	65
70299	Mountain Empire Community College	15	14	16	12	12	17
70402	Marine Resources Commission	1,066	981	1,113	872	833	1,166
70403	Department of Game & Inland Fisheries	2,235	1,908	2,163	1,694	1,619	2,266
70716	Correctional Center For Women	2,472	2,461	2,791	2,186	2,088	2,923
70718	Bland Correctional Center	2,605	2,516	2,853	2,234	2,135	2,989
70733	Sussex I Correctional Center	4,248	3,995	4,530	3,547	3,390	4,745
70734	Sussex II Correctional Center	3,893	3,830	4,343	3,401	3,250	4,549
70735	Wallen Ridge Correctional Center	5,003	4,424	5,017	3,929	3,754	5,255
70737	St. Brides Correctional Center	2,768	2,626	2,978	2,332	2,228	3,119
70741	Red Onion State Prison	5,047	4,852	5,502	4,309	4,117	5,763

**SCHEDULE D - NET OPEB LIABILITY**  
**LINE OF DUTY ACT PLAN**  
(\$ thousands)



Employer Code	Employer	6/30/2016	6/30/2017	Net OPEB Liability 1% Decrease	Net OPEB Liability 1% Increase	Net OPEB Liability 1% Decrease	Net OPEB Liability 1% Increase
		Net OPEB Liability	Net OPEB Liability	Discount Rate (2.56%)	Discount Rate (4.56%)	Health Trend Rate	Health Trend Rate
70743	Fluvanna Women's' Correctional Center	3,449	3,705	4,201	3,290	3,144	4,400
70745	Nottoway Correctional Center	4,292	4,244	4,812	3,769	3,601	5,041
70747	Marion Correctional Treatment Center	2,235	2,253	2,555	2,001	1,912	2,676
70749	Buckingham Correctional Center	4,233	4,147	4,702	3,682	3,519	4,926
70752	Deep Meadow Correctional Center	6,128	6,788	7,697	6,028	5,760	8,063
70753	Deerfield Correctional Center	4,692	4,299	4,875	3,818	3,648	5,106
70754	Augusta Correctional Center	3,493	3,539	4,013	3,142	3,003	4,203
70756	Adult Regional Office	178	138	157	123	117	164
70757	Department of Corrections	1,584	1,507	1,709	1,338	1,278	1,790
70761	Eastern Reg Corr Field Unit	1,406	1,452	1,646	1,289	1,232	1,724
70767	Adult Community Service	2,117	2,005	2,273	1,780	1,701	2,381
70768	Keen Mountain Correctional Center	3,286	3,263	3,700	2,897	2,768	3,875
70769	Greensville Correctional Center	9,295	9,290	10,535	8,250	7,883	11,035
70770	Dillwyn Correctional Center	3,641	3,526	3,998	3,131	2,992	4,188
70771	Indian Creek Correctional Center	2,472	2,461	2,791	2,186	2,088	2,923
70772	Haynesville Correctional Center	3,774	3,678	4,170	3,266	3,121	4,368
70773	Coffeewood Correctional Center	2,457	2,585	2,931	2,296	2,194	3,071
70774	Lunenburg Correctional Center	2,857	2,778	3,151	2,467	2,357	3,300
70775	Pocahontas State Correctional Center	2,664	2,792	3,166	2,480	2,369	3,317
70776	Green Rock Correctional Center	2,783	2,751	3,120	2,443	2,335	3,268
70785	Grayson County Correctional Center	3,079	3,277	3,715	2,910	2,780	3,892
70961	Division of Capitol Police	1,051	912	1,035	810	774	1,084
70999	Alcoholic Beverage Control Board	1,747	1,355	1,536	1,203	1,149	1,609
Total for VRS Line of Duty Act		278,346	262,791	297,986	233,356	222,981	312,133



Schedule E – Summary of Main Plan Provisions

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**SCHEDULE E**

**SUMMARY OF MAIN BENEFIT AND CONTRIBUTION PROVISIONS**

***Participating Employers***

Any employer that is a state agency (i.e., employs a State Employee) participates in the Plan. Participating political subdivision employer groups with participants in the LODA Program were required to make an irrevocable election to participate in the Plan on or before July 1, 2012. Political subdivision employer groups who elected to opt-out of the Plan and self-fund LODA Program benefits assume responsibility for all benefit payments made after the election. This includes amounts paid to current beneficiaries for whom the political subdivision employer group is the employer of record.

***Eligibility***

Hazardous duty state and local government employees of the following groups, including volunteers, are eligible for the LODA Program benefits.

- Law-enforcement officers of the Commonwealth or any of its political subdivisions
- Correctional officers
- Jail officers
- Regional jail or jail farm superintendents
- Sheriff, deputy sheriff, city sergeant, or deputy city sergeant of the City of Richmond
- Police chaplains
- Members of fire companies or departments or rescue squads recognized by any county, city, or town of the Commonwealth as an integral part of an official safety program
- Virginia National Guard or the Virginia State Defense Force members, including fire companies or departments providing their fire protection services
- Special agents of the Virginia Alcoholic Beverage Control Board
- Full-time sworn members of the enforcement division of the Department of Motor Vehicles
- Conservation officers of the Department of Conservation and Recreation.
- Commissioned forest wardens
- Members or employees of the Virginia Marine Resources Commission granted the power of arrest
- Department of Emergency Management hazardous materials officers
- Other employees of the Department of Emergency Management if performing duties related to a major disaster or emergency
- Employees of any county, city, or town performing official emergency management or emergency services duties in cooperation with the Department of Emergency Management
- Non-firefighter regional hazardous materials emergency response team members

Some of those covered by the Plan may not be able to be identified in a census (e.g., volunteers) or, if they can be specifically identified, may not have a level of exposure that is on par with other participants (e.g., those serving in a major disaster or emergency versus a full-time firefighter). Experience, if and when available, would be the best method to determine the appropriate "load" to the seriatim liability. The results presented assume no additional margin for unidentifiable employees.



## Schedule E – Summary of Main Plan Provisions (continued)

The results provided do not account for the potential, long-term incurred but not reported claims resulting from a lack of employer or beneficiary education about the Plan’s benefits. The potential cost and liability for these claims may be considerable. A margin for these costs may need to be considered as experience develops. Additionally, the LODA Program administrator may want to consider this potential risk in regards to its authority to waive the five-year statute of limitation on claims.

The results presented were determined based upon the demographic assumptions (e.g., mortality, disability, retirement, termination) of state employee and law enforcement/fire personnel covered by VRS, and, as such, may not reflect the experience of all participants. If credible experience materializes, the Plan may want to consider developing rates based upon segmented risk pools or other divisions.

### ***Death Benefit***

A \$100,000 death benefit payment for death occurring as a direct or proximate result of the performance of duty, or a \$25,000 death benefit payment for death by presumptive clause or within five years of retirement. In determining the average death benefit payment, the LODA Program’s experience was used to develop an average benefit payment assumption, reflecting the benefit’s varying amount based upon the cause of death, and applied to a percentage of active mortality. Presumptive death benefit payments require additional investigation to determine employee status at the time of death.

### ***Health Care Coverage Period***

For disabilities and deaths occurring prior to July 1, 2017 that result in health care coverage under the Plan, disabled employees, their spouses, and surviving spouses receive lifetime health care benefits. For disabilities and deaths occurring after June 30, 2017 that result in health care coverage under the Plan, disabled employees (except those eligible for Medicare due to disability under Social Security Disability Insurance or a Railroad Retirement Board Disability Annuity), their spouses, and surviving spouses receive health care benefits until becoming eligible for Medicare due to age (age 65). Disabled employees eligible for Medicare due to disability under Social Security Disability Insurance or a Railroad Retirement Board Disability Annuity receive lifetime health care benefits.

### ***Health Care Benefit (Effective until July 1, 2017)***

The health care benefit is defined as, “the same plan of benefits which the deceased or disabled person was entitled to on the last day of his active duty or comparable benefits established as a result of a replacement plan.” The level of coverage offered by various employer groups may be wide-ranging due to the types of coverage provided (e.g., HMO, PPO, dental, vision, individual policies, Medicare Part B premium reimbursement), level of coverage provided (e.g., benefit maximums, Medicare coverage type), and cost-sharing provisions (e.g., premiums, deductibles, copays, out-of-pocket maximums, Medicare coordination of benefits methodology). As a result, the true cost of coverage will vary by health care plan. This may result in a selective advantage for those employer groups providing health care coverage that is richer than the average used to determine the Plan’s costs.



## Schedule E – Summary of Main Plan Provisions (continued)

In determining initial per capita costs for the Plan, the use of a uniform health care cost assumption based upon the Plan’s recent experience was used. As noted above, the use of a uniform health care cost structure may result in selection by employer groups with costs differing greatly from the standard. This selection process may result in higher than expected plan costs. Those payments identified as “self-pay” need to be investigated to determine if the coverage is from a former employer, is from a community rated policy, or is from an individually underwritten policy to determine if these costs need to be age adjusted. The results presented assume 20% of under age 65 health care costs and 40% of health care costs for beneficiaries ages 65 and older are age-adjusted beyond the assumed cost change upon reaching age 65.

### ***Health Care Benefit (Effective July 1, 2017)***

The health care benefit for the LODA Program is to be provided through the LODA Health Benefits Plans, administered by the Department of Human Resource Management and modeled upon the state employee health benefits program plans (COVA Care). As the cost of the LODA Health Benefits Plans is to be pooled across all beneficiaries of the LODA Program, the cost to the Plan may be higher or lower than the actual health care costs incurred by the Plan’s health care beneficiaries.

Per capita costs were based upon the adjusted experience of those State Employees currently receiving health care benefits from the Plan using high-level assumptions and estimates that are likely to change as details regarding the LODA Health Benefit Plans emerge. This includes the demographic adjustments made for the Plan’s covered population, the mix of health care plan and coverage elections made by State Employees, and the level of benefits to be provided. As such, future experience may differ significantly from the cost estimates presented in this report, and the valuation’s results should be viewed as having a likely range of variability.

Beyond the first projection year, all assumed health care costs not related to covered dependent children were age-adjusted to reflect the full, age-specific cost of providing benefits.

### ***Cost Offsets***

To the extent the Plan’s benefits are paid or reimbursed by other programs such as the VRS Health Insurance Credit Program (HIC), or applicable retirement plans, benefit offsets should be considered in developing the Plan’s rate structure. The results provided include estimated HIC receipts and assume the estimated reimbursements from the HIC program are used to decrease costs for all Plan participants.

### ***Affordable Care Act***

The impact of the Affordable Care Act (ACA) was addressed in this valuation. While the impact of certain provisions such as the excise tax on high-value health insurance plans beginning in 2020 (if applicable), should be recognized in the determination of liabilities, overall future plan costs and the resulting liabilities are driven by amounts employers and retirees can afford (i.e., trend). Given the uncertainty regarding the ACA’s implementation, continued monitoring of the ACA’s impact on the Plan’s liability will be required.





*Schedule F – Statement of Actuarial Assumptions and Methods*

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**SCHEDULE F**

**STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS**

- Investment Return Rate:** 3.56% per annum, compounded annually.
- Inflation Assumption:** 2.50% per year.
- Actuarial Cost Method:** Entry age normal cost method, allocated as a level percent of payroll, from first funding age to last age before terminal retirement age. Actuarial gains and losses, as they occur, are reflected in the unfunded actuarial accrued liability. See Schedule D for a detailed explanation.
- Funding Period:** Pay as you go.
- Payroll Growth Rate:** 3.00% per annum.
- Asset Valuation Method:** Market Value of Assets
- Service Related Disabilities:** Disabilities are assumed to be service related and result in coverage under the Plan based on the following:

<b>Group</b>	<b>Qualifying Disability %</b>
State	10%
SPORS	70%
VaLORS	10%
Non Top 10 LEOS	65%
Top 10 LEOS	70%

**Service Related Deaths:** 25% of active employee deaths. Of the service related deaths, 42% are assumed to be paid as a direct or proximate result of the performance of duty, with the remainder paid under the presumptive clause.

**Retirement Eligibility:** VRS State Employees (including those of the Virginia Port Authority) hired prior to January 1, 2008 are assumed to be eligible to retire at age 55 with 5 years of creditable service or age 50 with 10 years of creditable service. VRS State Employees hired on or after January 1, 2008 are assumed to be eligible to retire at age 60 with 5 years of creditable service or upon the sum of their age and their service being 90 (Rule of 90). All other employees are assumed to be eligible for retirement at age 50 with 5 years of creditable service.



*Schedule F – Statement of Actuarial Assumptions and Methods*

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**Spouse Health Care Coverage:** Actual data provided is used for current beneficiaries. 67% of service-related deaths and 80% of service-related disabilities assumed to result in spouse coverage, with wives assumed to be three years younger than husbands.

**Administrative Expenses:** Assumed to be \$400,000 for fiscal year 2018 with 3% increases in the future.

**VRS Health Insurance Credit:** Health care costs of the Plan are assumed to be reduced by an amount equal to the disabled health insurance credit paid by the VRS Health Insurance Credit Program for eligible disabled employees. An annual credit of \$1,440 or \$48 per year of service, whichever is greater, is assumed for those employees who are members of the VRS State, VaLORS, or SPORS plans and an annual credit of \$540 is assumed for those employees who are members of a VRS political subdivision participating in the VRS Health Insurance Credit Program.

**Health Care Cost Trend Rate:** The initial per capita health care costs are expected to increase each year with inflation (trend). The following chart details the trend assumption.

<b>Fiscal Year Ended</b>	<b>Under Age 65</b>	<b>Ages 65 and Older</b>
2017	7.75%	5.75%
2018	7.00%	5.50%
2019	6.50%	5.25%
2020	6.00%	5.00%
2021	5.50%	5.00%
2022	5.25%	5.00%
2023 and Beyond	5.00%	5.00%



Schedule F – Statement of Actuarial Assumptions and Methods

**Eligibility for Medicare Due to Age:** For Plan beneficiaries who become eligible for health care benefits as the result of a death or disability occurring after June 30, 2017, 80% of disabled employees who become disabled 29 or more months prior to their sixty-fifth birthday are assumed to be eligible for Medicare due to age (age 65). 100% of all other Plan beneficiaries who become eligible for health care benefits as the result of a death or disability occurring after June 30, 2017 are assumed to be eligible for Medicare due to age.

**Assumptions and Methods Applicable to All Line of Duty Act Fund Employer Groups**

**Initial Per Capita Health Care Costs:** Paid claims and cost data were provided by the DOA. CMC accepted this information without audit and has relied upon the sources for the accuracy of the data.

Assumed adult per capita costs are based on past experience and trended forward to the valuation period. Experience for Medicare eligible participants was limited, particularly for Political Subdivision Employees, and future experience may differ materially. As some beneficiaries elect to cover dependents, the assumed adult costs include the additional costs for the coverage of dependent children.

<b>Initial Monthly Per Capita Adult Health Care Costs</b>		
<b>Valuation Date</b>	<b>Under Age 65</b>	<b>Ages 65 and Older</b>
June 30, 2017	\$1,065.7*	\$505.00

\*Of this amount, \$227.54 represents the assumed additional cost for the coverage of dependent children and is not aged.



*Schedule F – Statement of Actuarial Assumptions and Methods*

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**Age Related Morbidity:**

All health care costs assumed not to be related to covered dependent children are age-adjusted. The following chart details the expected health care claims, age-adjusted to age 65, and the associated assumed increases to the net incurred claims:

<b>Beneficiary Attained Age</b>	<b>Annual Increase</b>
<30	0.0%
30 – 34	1.0%
35 – 39	1.5%
40 – 44	2.0%
45 - 49	2.6%
50 – 54	3.3%
55 – 59	3.6%
60 – 64	4.2%
65 – 69	3.0%
70 – 74	2.5%
75 – 79	2.0%
80 – 84	1.0%
85 – 89	0.5%
90 and Older	0.0%



Schedule F – Statement of Actuarial Assumptions and Methods

**STATE EMPLOYEES**

**Plan Specific Assumptions and Methods**

**MORTALITY RATES:**

Pre-Retirement:

RP-2014 Employee Rates to age 80, Healthy Annuitant Rates at ages 81 and older Projected BB to 2020; M SB 1yr, 85% of rates; F SB 1yr

Post-Retirement:

RP-2014 Employee Rates to age 49, Healthy Annuitant Rates at ages 50 and older Projected BB to 2020; M SF 1yr; F SB 1yr, 1.5% compounding increase from ages 70 to 85

Post-Disablement:

RP-2014 Disabled Mortality Rates Projected BB to 2020; M 115% of rates; F 130% of rates

State Employees Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00031	0.00044	0.00803	0.00016	0.00016	0.00285
25	0.00043	0.00045	0.00957	0.00017	0.00017	0.00304
30	0.00037	0.00046	0.00894	0.00020	0.00020	0.00383
35	0.00042	0.00053	0.01035	0.00027	0.00027	0.00503
40	0.00050	0.00066	0.01242	0.00036	0.00036	0.00696
45	0.00073	0.00107	0.01925	0.00058	0.00058	0.01155
50	0.00127	0.00431	0.02304	0.00098	0.00098	0.01520
55	0.00211	0.00599	0.02639	0.00151	0.00333	0.01827
60	0.00345	0.00789	0.02933	0.00214	0.00454	0.02081
65	0.00587	0.01102	0.03389	0.00315	0.00684	0.02522
70	0.00970	0.01677	0.04238	0.00527	0.01104	0.03410
75		0.02704	0.05702		0.01930	0.04963
80		0.04548	0.08047		0.03437	0.07380
85		0.07920	0.11900		0.06378	0.10933
90		0.14247	0.18618		0.11280	0.16137

25% of pre-retirement deaths are assumed to be service related. Mortality improvement is anticipated under the post-retirement mortality assumption as projected with Scale BB.



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

**RETIREMENT RATES:** The following rates of retirement are assumed for members eligible to retire from Plan 1.

State Employees Retirement Rates, Plan 1 Male							
Age	Years of service						
	0-4	5	6-9	10	11-29	30	>=31
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.033	0.033	0.125	0.125
51	0.000	0.000	0.000	0.033	0.030	0.080	0.090
52	0.000	0.000	0.000	0.033	0.030	0.080	0.090
53	0.000	0.000	0.000	0.033	0.030	0.050	0.090
54	0.000	0.000	0.000	0.033	0.030	0.050	0.090
55	0.000	0.045	0.045	0.045	0.035	0.050	0.090
56	0.000	0.045	0.040	0.040	0.040	0.050	0.090
57	0.000	0.045	0.040	0.040	0.040	0.075	0.090
58	0.000	0.045	0.040	0.040	0.040	0.100	0.090
59	0.000	0.045	0.040	0.040	0.040	0.100	0.090
60	0.000	0.045	0.050	0.050	0.050	0.115	0.090
61	0.000	0.150	0.075	0.075	0.075	0.165	0.150
62	0.000	0.150	0.100	0.100	0.100	0.200	0.200
63	0.000	0.150	0.100	0.100	0.100	0.200	0.175
64	0.000	0.150	0.135	0.135	0.135	0.200	0.175
65	0.000	0.250	0.250	0.250	0.250	0.250	0.250
66	0.000	0.275	0.250	0.250	0.250	0.250	0.250
67	0.000	0.275	0.220	0.220	0.220	0.220	0.220
68	0.000	0.200	0.220	0.220	0.220	0.220	0.220
69	0.000	0.200	0.220	0.220	0.220	0.220	0.220
70	0.000	0.200	0.220	0.220	0.220	0.220	0.220
71	0.000	0.200	0.220	0.220	0.220	0.220	0.220
72	0.000	0.200	0.220	0.220	0.220	0.220	0.220
73	0.000	0.200	0.220	0.220	0.220	0.220	0.220
74	0.000	0.200	0.220	0.220	0.220	0.220	0.220
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

State Employees Retirement Rates, Plan 1 Female							
Age	Years of service						
	0-4	5	6-9	10	11-29	30	>=31
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.030	0.030	0.075	0.075
51	0.000	0.000	0.000	0.035	0.030	0.075	0.060
52	0.000	0.000	0.000	0.035	0.030	0.075	0.060
53	0.000	0.000	0.000	0.035	0.035	0.100	0.090
54	0.000	0.000	0.000	0.050	0.035	0.100	0.090
55	0.000	0.050	0.050	0.050	0.040	0.100	0.090
56	0.000	0.050	0.050	0.050	0.050	0.100	0.090
57	0.000	0.050	0.050	0.050	0.050	0.100	0.090
58	0.000	0.050	0.050	0.050	0.050	0.100	0.090
59	0.000	0.050	0.050	0.050	0.050	0.100	0.090
60	0.000	0.050	0.050	0.050	0.050	0.120	0.125
61	0.000	0.075	0.080	0.080	0.080	0.165	0.175
62	0.000	0.100	0.120	0.120	0.120	0.225	0.250
63	0.000	0.175	0.120	0.120	0.120	0.225	0.175
64	0.000	0.175	0.150	0.150	0.150	0.225	0.175
65	0.000	0.275	0.275	0.275	0.275	0.275	0.300
66	0.000	0.300	0.300	0.300	0.300	0.300	0.300
67	0.000	0.300	0.250	0.250	0.250	0.250	0.250
68	0.000	0.250	0.250	0.250	0.250	0.250	0.250
69	0.000	0.250	0.250	0.250	0.250	0.250	0.250
70	0.000	0.250	0.250	0.250	0.250	0.250	0.250
71	0.000	0.250	0.250	0.250	0.250	0.250	0.250
72	0.000	0.250	0.250	0.250	0.250	0.250	0.250
73	0.000	0.250	0.250	0.250	0.250	0.250	0.250
74	0.000	0.250	0.250	0.250	0.250	0.250	0.250
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

**RETIREMENT RATES:** The following rates of retirement are assumed for members eligible to retire from Plan 2 and the Hybrid Plan.

State Employees Retirement Rates, Plan 2 and Hybrid Male																		
Age	Years of service																	
	0-4	5	6-25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	>=40
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.125
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.090
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.090	0.090
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.090	0.090	0.090
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.090	0.090	0.090	0.090
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050	0.090	0.090	0.090	0.090	0.090
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.075	0.075	0.090	0.090	0.090	0.090	0.090	0.090
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090	0.090	0.090	0.090	0.090	0.090	0.090
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
60	0.000	0.045	0.045	0.045	0.045	0.045	0.045	0.115	0.115	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
61	0.000	0.150	0.075	0.075	0.075	0.075	0.165	0.165	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
62	0.000	0.150	0.100	0.100	0.100	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
63	0.000	0.150	0.100	0.100	0.200	0.200	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175
64	0.000	0.150	0.135	0.200	0.200	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175
65	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
66	0.000	0.275	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
67	0.000	0.275	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
68	0.000	0.200	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
69	0.000	0.200	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
70	0.000	0.200	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
71	0.000	0.200	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
72	0.000	0.200	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
73	0.000	0.200	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
74	0.000	0.200	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000





Schedule F – Statement of Actuarial Assumptions and Methods (continued)

State Employees Retirement Rates, Plan 2 and Hybrid Female																		
Age	Years of service																	
	0-4	5	6-25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	>=40
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.075
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.075	0.075
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.075	0.075	0.060
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090	0.090
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090	0.090	0.090
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090	0.090	0.090	0.090
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090	0.090	0.090	0.090	0.090
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090	0.090	0.090	0.090	0.090	0.090
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090	0.090	0.090	0.090	0.090	0.090	0.090
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
60	0.000	0.050	0.050	0.050	0.050	0.050	0.050	0.120	0.120	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
61	0.000	0.075	0.080	0.080	0.080	0.080	0.165	0.165	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175
62	0.000	0.100	0.120	0.120	0.120	0.225	0.225	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
63	0.000	0.175	0.120	0.120	0.225	0.225	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175
64	0.000	0.175	0.150	0.225	0.225	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175
65	0.000	0.275	0.275	0.275	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
66	0.000	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
67	0.000	0.300	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
68	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
69	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
70	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
71	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
72	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
73	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
74	0.000	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**DISABILITY RATES:** As shown below for selected ages. 25% of disability cases are assumed to be service related.

State Employees Disability Rates		
Age	Male	Female
20	0.00039	0.00033
25	0.00072	0.00100
30	0.00091	0.00211
35	0.00129	0.00281
40	0.00212	0.00354
45	0.00343	0.00474
50	0.00497	0.00629
55	0.00629	0.00742
60	0.00690	0.00735
65	0.00657	0.00653
70	0.00572	0.00841



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**TERMINATION RATES:** The following are sample withdrawal rates based on age and years of service (for causes other than death, disability, or retirement).

State Employees Termination Rates, Male											
Age	Years of service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.25852	0.25852	0.25694	0.23691	0.19663	0.15321	0.11602	0.09132	0.08331	0.08331	0.08331
25	0.22297	0.22297	0.22056	0.20171	0.16921	0.13670	0.10954	0.09132	0.08251	0.07732	0.07214
30	0.17601	0.17601	0.17095	0.15425	0.13244	0.11401	0.10011	0.08993	0.08095	0.06790	0.05485
35	0.15120	0.14553	0.13631	0.12195	0.10694	0.09577	0.08902	0.08387	0.07574	0.05878	0.04183
40	0.14480	0.12618	0.11198	0.09890	0.08767	0.08029	0.07681	0.07442	0.06799	0.04938	0.03077
45	0.14223	0.11470	0.09617	0.08321	0.07345	0.06888	0.06600	0.06412	0.05934	0.04282	0.02630
50	0.13789	0.10668	0.08617	0.07370	0.06544	0.06362	0.05994	0.05630	0.05128	0.03879	0.02630
55	0.13242	0.10032	0.08050	0.07094	0.06491	0.06348	0.05950	0.05391	0.04470	0.03550	0.02630
60	0.13038	0.09617	0.07857	0.07094	0.06491	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.13038	0.09477	0.07859	0.07094	0.06491	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.13038	0.09477	0.07859	0.07094	0.06491	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

State Employees Termination Rates, Female											
Age	Years of service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.31434	0.31434	0.30334	0.27392	0.23350	0.18606	0.14708	0.12545	0.12362	0.12362	0.12362
25	0.26747	0.26747	0.25594	0.23170	0.20061	0.16601	0.13663	0.11705	0.11136	0.11136	0.11136
30	0.21874	0.20726	0.19398	0.17630	0.15700	0.13853	0.12163	0.10538	0.09500	0.09045	0.09045
35	0.19257	0.17078	0.15532	0.14101	0.12758	0.11658	0.10633	0.09380	0.08241	0.07177	0.06019
40	0.17770	0.14790	0.12987	0.11685	0.10577	0.09775	0.09030	0.08135	0.07188	0.05904	0.03747
45	0.17029	0.13335	0.11247	0.09984	0.08920	0.08275	0.07531	0.06872	0.06277	0.05214	0.03025
50	0.16721	0.12286	0.09934	0.08763	0.07822	0.07316	0.06479	0.05936	0.05545	0.05088	0.03025
55	0.16695	0.11694	0.09149	0.08236	0.07660	0.07039	0.06175	0.05711	0.05138	0.05088	0.03025
60	0.16695	0.11656	0.09060	0.08236	0.07660	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.16695	0.11656	0.09060	0.08236	0.07660	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.16695	0.11656	0.09060	0.08236	0.07660	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**SALARY INCREASE RATES:** The following total salary increase rates are used. The total salary increase rate consists of an inflation rate of 2.50%, a productivity component of 1.00%, and a variable merit component that is dependent on years of service.

Pay Increase Assumption	
Years of Service	Total Increase (Next Year)
1	5.35%
2	5.35
3	4.75
4	4.45
5	4.45
6	4.45
7	4.35
8	4.25
9	4.00
10	4.00
11-19	3.65
20 or more	3.50

**DISABILITY ELECTION:** All active members hired on or after January 1, 1999 will enter the Virginia Sickness and Disability Program (VSDP) and will not be eligible to receive non-VSDP disability benefits. For members hired before January 1, 1999 we measure the liabilities based upon the member’s actual election contained in the valuation data.

**EMPLOYER CONTRIBUTION TO DEFINED CONTRIBUTION HYBRID PLAN:** The valuation assumes an average employer defined contribution rate for members in the Hybrid Plan. This is reported by VRS each valuation.



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**STATE POLICE**

**Plan Specific Assumptions and Methods**

**MORTALITY RATES:**

Pre-Retirement:

RP-2014 Employee Rates to age 80, Healthy Annuitant Rates at ages 81 and older  
Projected BB to 2020; M 90% of Rates; F SF 1yr

Post-Retirement:

RP-2014 Employee Rates to age 49, Healthy Annuitant Rates at ages 50 and older  
Projected BB to 2020; M SF 1yr, 1% increase compounded from ages 70 to 90; F  
SF 3yr.

Post-Disablement:

RP-2014 Disabled Mortality Rates Projected BB to 2020; M SF 2yr; Unisex using  
100% Male.

SPORS Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00036	0.00044	0.00839	0.00016	0.00016	0.00839
25	0.00043	0.00045	0.00772	0.00018	0.00019	0.00772
30	0.00040	0.00046	0.00820	0.00023	0.00025	0.00820
35	0.00046	0.00053	0.00948	0.00030	0.00033	0.00948
40	0.00056	0.00066	0.01247	0.00043	0.00052	0.01247
45	0.00086	0.00107	0.01810	0.00072	0.00089	0.01810
50	0.00149	0.00431	0.02124	0.00118	0.00317	0.02124
55	0.00246	0.00599	0.02397	0.00174	0.00423	0.02397
60	0.00405	0.00789	0.02682	0.00247	0.00625	0.02682
65	0.00693	0.01102	0.03182	0.00383	0.00989	0.03182
70	0.01139	0.01694	0.04125	0.00653	0.01601	0.04125
75		0.02871	0.05658		0.02631	0.05658
80		0.05074	0.08141		0.04493	0.08141
85		0.09286	0.12299		0.07928	0.12299
90		0.17558	0.19143		0.14077	0.19143

85% of pre-retirement deaths are assumed to be service related. Mortality improvement is anticipated under the post-retirement mortality assumption as projected with Scale BB.



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**RETIREMENT RATES:** The following rates of retirement are assumed for members eligible to retire.

SPORS Retirement Rates			
Age	Years of service		
	0-4	5-24	>=25
<=49	0.000	0.000	0.000
50	0.000	0.100	0.100
51	0.000	0.030	0.100
52	0.000	0.030	0.100
53	0.000	0.030	0.100
54	0.000	0.030	0.100
55	0.000	0.060	0.100
56	0.000	0.060	0.100
57	0.000	0.060	0.100
58	0.000	0.100	0.100
59	0.000	0.100	0.100
60	0.000	0.100	0.100
61	0.000	0.100	0.100
62	0.000	0.200	0.200
63	0.000	0.200	0.200
64	0.000	0.200	0.200
>=65	0.000	1.000	1.000



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**DISABILITY RATES:** As shown below for selected ages. 85% of disability cases are assumed to be service related.

SPORS Disability Rates	
Age	Unisex
<=44	0.00194
45	0.00233
50	0.00481
55	0.00770
60	0.00897
65	0.01108
70	0.01368

**TERMINATION RATES:** The following are sample withdrawal rates based on age and years of service (for causes other than death, disability, or retirement).

SPORS Termination Rates	
Service	Unisex
0	0.09750
1	0.04750
2	0.04750
3	0.04750
4	0.04750
5	0.04750
6	0.04750
7	0.03000
8	0.03000
9	0.03000
>=10	0.01750



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**SALARY INCREASE RATES:** The following salary increase rates are used. Inflation rate of 2.50% plus productivity component of 1.00% plus step-rate/promotional component as shown:

Pay Increase Assumption	
Years of Service	Total Increase (Next Year)
1	4.75%
2	4.75
3	4.75
4	4.75
5	4.65
6	4.40
7	4.40
8	4.40
9	4.40
10 - 19	4.00
20 or more	3.50

It is assumed members covered under VSDP receive a 3.50% annual increase in pay while disabled and this adjusted pay is used to determine deferred benefits payable from the System.

**DISABILITY ELECTION:** All active members hired on or after January 1, 1999 will enter the Virginia Sickness and Disability Program (VSDP) and will not be eligible to receive non-VSDP disability benefits. For members hired before January 1, 1999 we measure the liabilities based upon the member's actual election contained in the valuation data.





Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**VIRGINIA LAW OFFICERS**

**Plan Specific Assumptions and Methods**

**MORTALITY RATES:**

Pre-Retirement:

RP-2014 Employee Rates to age 80, Healthy Annuitant Rates at ages 81 and older  
Projected BB to 2020; M 90% of Rates; F SF 1yr

Post-Retirement:

RP-2014 Employee Rates to age 49, Healthy Annuitant Rates at ages 50 and older  
Projected BB to 2020; M SF 1yr, 1% increase compounded from ages 70 to 90; F  
SF 3yr.

Post-Disablement:

RP-2014 Disabled Mortality Rates Projected BB to 2020; M SF 2yr; Unisex using  
100% Male.

VaLORS Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00036	0.00044	0.00839	0.00016	0.00016	0.00839
25	0.00043	0.00045	0.00772	0.00018	0.00019	0.00772
30	0.00040	0.00046	0.00820	0.00023	0.00025	0.00820
35	0.00046	0.00053	0.00948	0.00030	0.00033	0.00948
40	0.00056	0.00066	0.01247	0.00043	0.00052	0.01247
45	0.00086	0.00107	0.01810	0.00072	0.00089	0.01810
50	0.00149	0.00431	0.02124	0.00118	0.00317	0.02124
55	0.00246	0.00599	0.02397	0.00174	0.00423	0.02397
60	0.00405	0.00789	0.02682	0.00247	0.00625	0.02682
65	0.00693	0.01102	0.03182	0.00383	0.00989	0.03182
70	0.01139	0.01694	0.04125	0.00653	0.01601	0.04125
75		0.02871	0.05658		0.02631	0.05658
80		0.05074	0.08141		0.04493	0.08141
85		0.09286	0.12299		0.07928	0.12299
90		0.17558	0.19143		0.14077	0.19143

35% of pre-retirement deaths are assumed to be service related. Mortality improvement is anticipated under the post-retirement mortality assumption as projected with Scale BB.



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**RETIREMENT RATES:** The following rates of retirement are assumed for members eligible to retire.

VaLORS Retirement Rates, Male					
Age	Years of service				
	0-4	5	6-24	25	>=26
<=49	0.000	0.000	0.000	0.000	0.000
50	0.000	0.110	0.110	0.350	0.350
51	0.000	0.100	0.080	0.300	0.250
52	0.000	0.100	0.080	0.300	0.250
53	0.000	0.100	0.080	0.300	0.250
54	0.000	0.100	0.080	0.240	0.250
55	0.000	0.100	0.080	0.180	0.250
56	0.000	0.100	0.090	0.180	0.200
57	0.000	0.100	0.100	0.180	0.200
58	0.000	0.100	0.100	0.180	0.200
59	0.000	0.100	0.120	0.180	0.200
60	0.000	0.180	0.180	0.180	0.200
61	0.000	0.180	0.200	0.200	0.200
62	0.000	0.180	0.400	0.400	0.400
63	0.000	0.400	0.250	0.250	0.250
64	0.000	0.150	0.250	0.250	0.250
>=65	0.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

VaLORS Retirement Rates, Female					
Age	Years of service				
	0-4	5	6-24	25	>=26
<=49	0.000	0.000	0.000	0.000	0.000
50	0.000	0.100	0.100	0.375	0.375
51	0.000	0.100	0.080	0.250	0.200
52	0.000	0.100	0.080	0.250	0.200
53	0.000	0.100	0.080	0.250	0.225
54	0.000	0.100	0.080	0.250	0.250
55	0.000	0.100	0.080	0.250	0.275
56	0.000	0.100	0.080	0.250	0.300
57	0.000	0.100	0.080	0.250	0.225
58	0.000	0.100	0.080	0.400	0.225
59	0.000	0.100	0.130	0.300	0.225
60	0.000	0.200	0.200	0.200	0.225
61	0.000	0.200	0.225	0.225	0.225
62	0.000	0.200	0.300	0.300	0.300
63	0.000	0.200	0.250	0.250	0.250
64	0.000	0.200	0.250	0.250	0.250
>=65	0.000	1.000	1.000	1.000	1.000



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**DISABILITY RATES:** As shown below for selected ages. 35% of disability cases are assumed to be service related.

VaLORS Disability Rates		
Age	Male	Female
20	0.00143	0.00543
25	0.00322	0.00581
30	0.00584	0.00659
35	0.00720	0.00769
40	0.00793	0.01001
45	0.00913	0.01381
50	0.01165	0.01821
55	0.01501	0.02277
60	0.01782	0.02901
65	0.01916	0.03865
70	0.01920	0.05499



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

**TERMINATION RATES:** The following are sample withdrawal rates based on age and years of service (for causes other than death, disability, or retirement).

VaLORS Termination Rates, Male											
Age	Years of service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.31876	0.28460	0.25466	0.22550	0.19680	0.16134	0.13524	0.12367	0.12367	0.12367	0.12367
25	0.30264	0.26915	0.23838	0.20793	0.17797	0.14758	0.12544	0.11510	0.11510	0.11510	0.11510
30	0.28066	0.24612	0.21425	0.18325	0.15307	0.12980	0.11286	0.10375	0.10098	0.10098	0.10098
35	0.25749	0.21974	0.18823	0.16020	0.13400	0.11603	0.10242	0.09350	0.08615	0.07590	0.06050
40	0.23639	0.19311	0.16185	0.13861	0.11962	0.10471	0.09313	0.08358	0.07325	0.05907	0.04275
45	0.22182	0.17034	0.13792	0.12032	0.11173	0.09580	0.08484	0.07391	0.06240	0.05163	0.04275
50	0.21689	0.15441	0.11855	0.10683	0.10683	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
55	0.21689	0.14708	0.10525	0.09930	0.09930	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
60	0.21689	0.14673	0.09871	0.09787	0.09787	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.21689	0.14673	0.09796	0.09787	0.09787	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.21689	0.14673	0.09796	0.09787	0.09787	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

VaLORS Termination Rates, Female											
Age	Years of service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.34816	0.33235	0.29905	0.25161	0.20346	0.15381	0.13567	0.10072	0.09919	0.09919	0.09919
25	0.33633	0.30645	0.27155	0.23161	0.19212	0.15381	0.13567	0.10072	0.09919	0.09919	0.09919
30	0.32698	0.27494	0.23556	0.20432	0.17667	0.15381	0.13567	0.10072	0.09919	0.09066	0.09066
35	0.32025	0.25204	0.20727	0.17948	0.15980	0.14868	0.13534	0.10072	0.09909	0.08073	0.06058
40	0.31390	0.23286	0.18182	0.15417	0.14036	0.13413	0.12530	0.10072	0.09311	0.07057	0.03901
45	0.30589	0.21487	0.15693	0.12720	0.11803	0.10976	0.10134	0.09113	0.07804	0.06036	0.03687
50	0.29483	0.19601	0.13051	0.09760	0.09281	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
55	0.28000	0.17544	0.10155	0.06516	0.06490	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
60	0.26118	0.15309	0.06978	0.02989	0.03440	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.23879	0.12934	0.03574	0.00004	0.00182	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.20897	0.10078	0.00000	0.00004	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**SALARY INCREASE RATES:** The following salary increase rates are used. Inflation rate of 2.50% plus productivity component of 1.00% plus step-rate/promotional component as shown:

Pay Increase Assumption	
Years of Service	Total Increase (Next Year)
1	4.75%
2	4.75
3	4.75
4	4.75
5	4.65
6	4.40
7	4.40
8	4.40
9	4.40
10 - 19	4.00
20 or more	3.50

It is assumed members covered under VSDP receive a 3.50% annual increase in pay while disabled and this adjusted pay is used to determine deferred benefits payable from the System.

**DISABILITY ELECTION:** All active members hired on or after January 1, 1999 will enter the Virginia Sickness and Disability Program (VSDP) and will not be eligible to receive non-VSDP disability benefits. For members hired before January 1, 1999 we measure the liabilities based upon the member's actual election contained in the valuation data.



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**LOCALS – TOP 10, NON-LEO**

**Plan Specific Assumptions and Methods**

**MORTALITY RATES:**

Pre-Retirement:

RP-2014 Employee Rates to age 80, Healthy Annuitant Rates at ages 81 and older projected with scale BB to 2020; males 95% of rates; females 105% of rates

Post-Retirement:

RP-2014 Employee Rates to age 49, Healthy Annuitant Rates at ages 50 and older projected with scale BB to 2020; males set forward 3 years; females 1.0% increase compounded from ages 70 to 90

Post-Disablement:

RP-2014 Disabled Mortality Rates projected with scale BB to 2020; males set forward 2 years, 110% of rates; females 125% of rates

Top 10 non-LEO Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00038	0.00050	0.00923	0.00017	0.00016	0.00274
25	0.00045	0.00044	0.00850	0.00018	0.00017	0.00293
30	0.00042	0.00048	0.00902	0.00023	0.00021	0.00369
35	0.00049	0.00056	0.01042	0.00030	0.00028	0.00484
40	0.00059	0.00078	0.01372	0.00041	0.00039	0.00670
45	0.00091	0.00133	0.01991	0.00068	0.00065	0.01111
50	0.00157	0.00495	0.02336	0.00114	0.00272	0.01462
55	0.00260	0.00667	0.02637	0.00171	0.00352	0.01756
60	0.00427	0.00894	0.02950	0.00241	0.00489	0.02001
65	0.00731	0.01285	0.03501	0.00361	0.00749	0.02425
70	0.01202	0.02021	0.04538	0.00616	0.01209	0.03279
75		0.03312	0.06223		0.02067	0.04772
80		0.05662	0.08955		0.03616	0.07096
85		0.10039	0.13529		0.06599	0.10513
90		0.17537	0.21057		0.12354	0.15517

20% of pre-retirement deaths are assumed to be service related. Mortality improvement is anticipated under the post-retirement mortality assumption as projected with Scale BB.



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**RETIREMENT RATES:** The following rates of retirement are assumed for members eligible to retire from Plan 1.

Top 10 non-LEO Retirement Rates, Plan 1 Male with 50/30 eligibility							
Age	Years of service						
	0-4	5	6-9	10	11-29	30	>=31
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.028	0.028	0.100	0.100
51	0.000	0.000	0.000	0.070	0.035	0.100	0.060
52	0.000	0.000	0.000	0.070	0.035	0.100	0.090
53	0.000	0.000	0.000	0.070	0.035	0.100	0.090
54	0.000	0.000	0.000	0.070	0.035	0.100	0.100
55	0.000	0.060	0.060	0.060	0.050	0.100	0.100
56	0.000	0.070	0.050	0.050	0.050	0.100	0.125
57	0.000	0.070	0.045	0.045	0.045	0.100	0.125
58	0.000	0.100	0.045	0.045	0.045	0.100	0.090
59	0.000	0.100	0.045	0.045	0.045	0.100	0.140
60	0.000	0.100	0.060	0.060	0.060	0.100	0.140
61	0.000	0.100	0.100	0.100	0.100	0.100	0.140
62	0.000	0.100	0.140	0.140	0.140	0.250	0.300
63	0.000	0.100	0.115	0.115	0.115	0.250	0.170
64	0.000	0.100	0.150	0.150	0.150	0.250	0.250
65	0.000	0.250	0.250	0.250	0.250	0.250	0.370
66	0.000	0.300	0.250	0.250	0.250	0.250	0.250
67	0.000	0.150	0.250	0.250	0.250	0.250	0.250
68	0.000	0.150	0.250	0.250	0.250	0.250	0.250
69	0.000	0.275	0.250	0.250	0.250	0.250	0.250
70	0.000	0.275	0.250	0.250	0.250	0.250	0.250
71	0.000	0.275	0.250	0.250	0.250	0.250	0.250
72	0.000	0.275	0.250	0.250	0.250	0.250	0.250
73	0.000	0.275	0.250	0.250	0.250	0.250	0.250
74	0.000	0.275	0.250	0.250	0.250	0.250	0.250
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000





*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

Top 10 non-LEO Retirement Rates, Plan 1 Female with 50/30 eligibility							
Age	Years of service						
	0-4	5	6-9	10	11-29	30	>=31
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.035	0.035	0.160	0.160
51	0.000	0.000	0.000	0.035	0.050	0.110	0.085
52	0.000	0.000	0.000	0.035	0.050	0.120	0.085
53	0.000	0.000	0.000	0.035	0.050	0.175	0.085
54	0.000	0.000	0.000	0.045	0.050	0.075	0.085
55	0.000	0.045	0.045	0.045	0.050	0.220	0.160
56	0.000	0.105	0.050	0.050	0.050	0.130	0.160
57	0.000	0.105	0.050	0.050	0.050	0.090	0.160
58	0.000	0.105	0.050	0.050	0.050	0.165	0.160
59	0.000	0.105	0.060	0.060	0.060	0.200	0.160
60	0.000	0.105	0.075	0.075	0.075	0.140	0.160
61	0.000	0.105	0.100	0.100	0.100	0.140	0.160
62	0.000	0.105	0.140	0.140	0.140	0.345	0.275
63	0.000	0.105	0.135	0.135	0.135	0.240	0.275
64	0.000	0.105	0.170	0.170	0.170	0.100	0.180
65	0.000	0.250	0.250	0.250	0.250	0.250	0.275
66	0.000	0.200	0.275	0.275	0.275	0.275	0.275
67	0.000	0.150	0.275	0.275	0.275	0.275	0.275
68	0.000	0.150	0.275	0.275	0.275	0.275	0.275
69	0.000	0.150	0.275	0.275	0.275	0.275	0.275
70	0.000	0.150	0.275	0.275	0.275	0.275	0.275
71	0.000	0.150	0.275	0.275	0.275	0.275	0.275
72	0.000	0.150	0.275	0.275	0.275	0.275	0.275
73	0.000	0.150	0.275	0.275	0.275	0.275	0.275
74	0.000	0.150	0.275	0.275	0.275	0.275	0.275
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

Top 10 non-LEO Retirement Rates, Plan 1 Male with 55/30 eligibility							
Age	Years of service						
	0-4	5	6-9	10	11-29	30	>=31
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.028	0.028	0.028	0.028
51	0.000	0.000	0.000	0.070	0.035	0.035	0.035
52	0.000	0.000	0.000	0.070	0.035	0.035	0.035
53	0.000	0.000	0.000	0.070	0.035	0.035	0.035
54	0.000	0.000	0.000	0.070	0.035	0.035	0.035
55	0.000	0.060	0.060	0.060	0.050	0.100	0.100
56	0.000	0.070	0.050	0.050	0.050	0.100	0.125
57	0.000	0.070	0.045	0.045	0.045	0.100	0.125
58	0.000	0.100	0.045	0.045	0.045	0.100	0.090
59	0.000	0.100	0.045	0.045	0.045	0.100	0.140
60	0.000	0.100	0.060	0.060	0.060	0.100	0.140
61	0.000	0.100	0.100	0.100	0.100	0.100	0.140
62	0.000	0.100	0.140	0.140	0.140	0.250	0.300
63	0.000	0.100	0.115	0.115	0.115	0.250	0.170
64	0.000	0.100	0.150	0.150	0.150	0.250	0.250
65	0.000	0.250	0.250	0.250	0.250	0.250	0.370
66	0.000	0.300	0.250	0.250	0.250	0.250	0.250
67	0.000	0.150	0.250	0.250	0.250	0.250	0.250
68	0.000	0.150	0.250	0.250	0.250	0.250	0.250
69	0.000	0.275	0.250	0.250	0.250	0.250	0.250
70	0.000	0.275	0.250	0.250	0.250	0.250	0.250
71	0.000	0.275	0.250	0.250	0.250	0.250	0.250
72	0.000	0.275	0.250	0.250	0.250	0.250	0.250
73	0.000	0.275	0.250	0.250	0.250	0.250	0.250
74	0.000	0.275	0.250	0.250	0.250	0.250	0.250
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

Top 10 non-LEO Retirement Rates, Plan 1 Female with 55/30 eligibility							
Age	Years of service						
	0-4	5	6-9	10	11-29	30	>=31
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.035	0.035	0.035	0.035
51	0.000	0.000	0.000	0.035	0.050	0.050	0.050
52	0.000	0.000	0.000	0.035	0.050	0.050	0.050
53	0.000	0.000	0.000	0.035	0.050	0.050	0.050
54	0.000	0.000	0.000	0.045	0.050	0.050	0.050
55	0.000	0.045	0.045	0.045	0.050	0.220	0.220
56	0.000	0.105	0.050	0.050	0.050	0.130	0.160
57	0.000	0.105	0.050	0.050	0.050	0.090	0.160
58	0.000	0.105	0.050	0.050	0.050	0.165	0.160
59	0.000	0.105	0.060	0.060	0.060	0.200	0.160
60	0.000	0.105	0.075	0.075	0.075	0.140	0.160
61	0.000	0.105	0.100	0.100	0.100	0.140	0.160
62	0.000	0.105	0.140	0.140	0.140	0.345	0.275
63	0.000	0.105	0.135	0.135	0.135	0.240	0.275
64	0.000	0.105	0.170	0.170	0.170	0.100	0.180
65	0.000	0.250	0.250	0.250	0.250	0.250	0.275
66	0.000	0.200	0.275	0.275	0.275	0.275	0.275
67	0.000	0.150	0.275	0.275	0.275	0.275	0.275
68	0.000	0.150	0.275	0.275	0.275	0.275	0.275
69	0.000	0.150	0.275	0.275	0.275	0.275	0.275
70	0.000	0.150	0.275	0.275	0.275	0.275	0.275
71	0.000	0.150	0.275	0.275	0.275	0.275	0.275
72	0.000	0.150	0.275	0.275	0.275	0.275	0.275
73	0.000	0.150	0.275	0.275	0.275	0.275	0.275
74	0.000	0.150	0.275	0.275	0.275	0.275	0.275
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

**RETIREMENT RATES:** The following rates of retirement are assumed for members eligible to retire from Plan 2 and the Hybrid Plan.

Top 10 non-LEO Retirement Rates, Plan 2/Hybrid Male																		
Age	Years of service																	
	0-4	5	6-25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	>=40
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090	0.090
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.100
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.100	0.100
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.125	0.125	0.125	0.125	0.125
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.125	0.125	0.125	0.125	0.125	0.125
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.090	0.090	0.090	0.090	0.090	0.090	0.090
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140
60	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140
61	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140
62	0.000	0.100	0.140	0.140	0.140	0.250	0.250	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
63	0.000	0.100	0.115	0.115	0.250	0.250	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
64	0.000	0.100	0.150	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
65	0.000	0.250	0.250	0.250	0.370	0.370	0.370	0.370	0.370	0.370	0.370	0.370	0.370	0.370	0.370	0.370	0.370	0.370
66	0.000	0.300	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
67	0.000	0.150	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
68	0.000	0.150	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
69	0.000	0.275	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
70	0.000	0.275	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
71	0.000	0.275	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
72	0.000	0.275	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
73	0.000	0.275	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
74	0.000	0.275	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

Top 10 non-LEO Retirement Rates, Plan 2/Hybrid Female																		
Age	Years of service																	
	0-4	5	6-25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	>=40
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.160
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.110
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	0.120	0.085
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.175	0.175	0.085	0.085
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.075	0.075	0.085	0.085	0.085
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.220	0.220	0.160	0.160	0.160	0.160
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.130	0.130	0.160	0.160	0.160	0.160	0.160
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090	0.160	0.160	0.160	0.160	0.160	0.160
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.165	0.165	0.160	0.160	0.160	0.160	0.160	0.160	0.160
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.200	0.200	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160
60	0.000	0.105	0.105	0.105	0.105	0.105	0.105	0.140	0.140	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160
61	0.000	0.105	0.100	0.100	0.100	0.100	0.140	0.140	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160
62	0.000	0.105	0.140	0.140	0.140	0.345	0.345	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
63	0.000	0.105	0.135	0.135	0.240	0.240	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
64	0.000	0.105	0.170	0.100	0.100	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
65	0.000	0.250	0.250	0.250	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
66	0.000	0.200	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
67	0.000	0.150	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
68	0.000	0.150	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
69	0.000	0.150	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
70	0.000	0.150	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
71	0.000	0.150	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
72	0.000	0.150	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
73	0.000	0.150	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
74	0.000	0.150	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275	0.275
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**DISABILITY RATES:** As shown below for selected ages. 20% of disability cases are assumed to be service related.

Top 10 non-LEO Disability Rates		
Age	Male	Female
20	0.00005	0.00001
25	0.00005	0.00005
30	0.00007	0.00023
35	0.00050	0.00062
40	0.00139	0.00134
45	0.00252	0.00229
50	0.00384	0.00330
55	0.00591	0.00442
60	0.00808	0.00530
65	0.00942	0.00546
70	0.01022	0.00546



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**TERMINATION RATES:** The following are sample withdrawal rates based on age and years of service (for causes other than death, disability, or retirement).

Top 10 non-LEO Termination Rates, Male											
Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.25392	0.22206	0.20116	0.18762	0.17764	0.15808	0.12342	0.09285	0.08232	0.06883	0.06883
25	0.23300	0.20505	0.18626	0.17319	0.16251	0.14426	0.11711	0.09285	0.08232	0.06883	0.06883
30	0.20800	0.18397	0.16688	0.15379	0.14187	0.12620	0.10926	0.09285	0.08232	0.06883	0.06883
35	0.19131	0.16822	0.15078	0.13689	0.12397	0.11188	0.10157	0.09215	0.08232	0.06883	0.05224
40	0.17894	0.15565	0.13702	0.12181	0.10776	0.09960	0.09363	0.08862	0.08132	0.06779	0.04307
45	0.16933	0.14546	0.12562	0.10920	0.09444	0.08921	0.08524	0.08181	0.07546	0.06301	0.03941
50	0.16162	0.13610	0.11524	0.09886	0.08586	0.08049	0.07627	0.07170	0.06439	0.05476	0.03941
55	0.15609	0.12538	0.10330	0.08976	0.08448	0.07339	0.06690	0.05864	0.04833	0.04320	0.03941
60	0.15353	0.11112	0.08689	0.08055	0.08055	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.15343	0.09244	0.06477	0.06477	0.06477	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.15343	0.06515	0.03176	0.03176	0.03176	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Top 10 non-LEO Termination Rates, Female											
Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.23553	0.21693	0.20665	0.20440	0.20440	0.20440	0.19895	0.17588	0.14347	0.14347	0.14347
25	0.22847	0.20860	0.19802	0.19425	0.19257	0.18886	0.17958	0.15784	0.13041	0.13041	0.13041
30	0.22192	0.19894	0.18647	0.17978	0.17463	0.16606	0.15276	0.13313	0.11268	0.10449	0.10449
35	0.21392	0.18767	0.17208	0.16238	0.15439	0.14424	0.13001	0.11315	0.09792	0.08502	0.07338
40	0.20339	0.17376	0.15476	0.14236	0.13212	0.12260	0.10939	0.09565	0.08451	0.07002	0.04165
45	0.19067	0.15747	0.13540	0.12135	0.11040	0.10262	0.09177	0.08099	0.07250	0.06008	0.03671
50	0.17898	0.14101	0.11606	0.10164	0.09263	0.08548	0.07824	0.07059	0.06260	0.05556	0.03671
55	0.17295	0.12753	0.09920	0.08541	0.08214	0.07159	0.06952	0.06590	0.05564	0.05536	0.03671
60	0.17275	0.11948	0.08699	0.07432	0.07432	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.17275	0.11784	0.08108	0.06923	0.06923	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.17275	0.11784	0.08083	0.06904	0.06904	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**SALARY INCREASE RATES:** The following total salary increase rates are used. The total salary increase rate consists of an inflation rate of 2.50%, a productivity component of 1.00%, and a variable merit component that is dependent on years of service.

Pay Increase Assumption	
Years of Service	Total Increase (Next Year)
1	5.35%
2	5.35
3	4.75
4	4.45
5	4.45
6	4.45
7	4.35
8	4.25
9	4.00
10	4.00
11-19	3.65
20 or more	3.50

**EMPLOYER CONTRIBUTION TO DEFINED CONTRIBUTION HYBRID PLAN:** The valuation assumes an average employer defined contribution rate for members in the Hybrid Plan. This is reported by VRS each valuation.





Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**LOCALS – NON-TOP 10, NON-LEO**

**Plan Specific Assumptions and Methods**

**MORTALITY RATES:**

Pre-Retirement:

RP-2014 Employee Rates to age 80, Healthy Annuitant Rates at ages 81 and older projected with scale BB to 2020; males 95% of rates; females 105% of rates

Post-Retirement:

RP-2014 Employee Rates to age 49, Healthy Annuitant Rates at ages 50 and older projected with scale BB to 2020; males set forward 3 years; females 1.0% increase compounded from ages 70 to 90

Post-Disablement:

RP-2014 Disabled Mortality Rates projected with scale BB to 2020; males set forward 2 years, 110% of rates; females 125% of rates

Non-Top 10 non-LEO Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00038	0.00050	0.00923	0.00017	0.00016	0.00274
25	0.00045	0.00044	0.00850	0.00018	0.00017	0.00293
30	0.00042	0.00048	0.00902	0.00023	0.00021	0.00369
35	0.00049	0.00056	0.01042	0.00030	0.00028	0.00484
40	0.00059	0.00078	0.01372	0.00041	0.00039	0.00670
45	0.00091	0.00133	0.01991	0.00068	0.00065	0.01111
50	0.00157	0.00495	0.02336	0.00114	0.00272	0.01462
55	0.00260	0.00667	0.02637	0.00171	0.00352	0.01756
60	0.00427	0.00894	0.02950	0.00241	0.00489	0.02001
65	0.00731	0.01285	0.03501	0.00361	0.00749	0.02425
70	0.01202	0.02021	0.04538	0.00616	0.01209	0.03279
75		0.03312	0.06223		0.02067	0.04772
80		0.05662	0.08955		0.03616	0.07096
85		0.10039	0.13529		0.06599	0.10513
90		0.17537	0.21057		0.12354	0.15517

15% of pre-retirement deaths are assumed to be service related. Mortality improvement is anticipated under the post-retirement mortality assumption as projected with Scale BB.



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

**RETIREMENT RATES:** The following rates of retirement are assumed for members eligible to retire from Plan 1.

Non-Top 10 non-LEO Retirement Rates, Plan 1 Male with 50/30 eligibility							
Age	Years of service						
	0-4	5	6-9	10	11-29	30	>=31
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50.00	0.000	0.000	0.000	0.050	0.050	0.100	0.100
51.00	0.000	0.000	0.000	0.055	0.040	0.100	0.080
52.00	0.000	0.000	0.000	0.055	0.040	0.100	0.080
53.00	0.000	0.000	0.000	0.055	0.040	0.100	0.080
54.00	0.000	0.000	0.000	0.055	0.040	0.100	0.100
55.00	0.000	0.055	0.055	0.055	0.050	0.140	0.100
56.00	0.000	0.055	0.050	0.050	0.050	0.140	0.100
57.00	0.000	0.090	0.055	0.055	0.055	0.110	0.100
58.00	0.000	0.090	0.055	0.055	0.055	0.110	0.100
59.00	0.000	0.100	0.055	0.055	0.055	0.120	0.100
60.00	0.000	0.100	0.060	0.060	0.060	0.120	0.100
61.00	0.000	0.150	0.100	0.100	0.100	0.250	0.220
62.00	0.000	0.130	0.170	0.170	0.170	0.350	0.300
63.00	0.000	0.130	0.150	0.150	0.150	0.200	0.250
64.00	0.000	0.200	0.150	0.150	0.150	0.270	0.250
65.00	0.000	0.270	0.270	0.270	0.270	0.270	0.300
66.00	0.000	0.270	0.300	0.300	0.300	0.300	0.300
67.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
68.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
69.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
70.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
71.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
72.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
73.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
74.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

Non-Top 10 non-LEO Retirement Rates, Plan 1 Female with 50/30 eligibility							
Age	Years of service						
	0-4	5	6-9	10	11-29	30	>=31
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50.00	0.000	0.000	0.000	0.055	0.055	0.060	0.060
51.00	0.000	0.000	0.000	0.055	0.040	0.060	0.100
52.00	0.000	0.000	0.000	0.055	0.045	0.060	0.100
53.00	0.000	0.000	0.000	0.055	0.045	0.120	0.100
54.00	0.000	0.000	0.000	0.055	0.045	0.120	0.100
55.00	0.000	0.070	0.070	0.070	0.055	0.120	0.100
56.00	0.000	0.060	0.055	0.055	0.055	0.120	0.100
57.00	0.000	0.060	0.055	0.055	0.055	0.100	0.100
58.00	0.000	0.060	0.055	0.055	0.055	0.100	0.100
59.00	0.000	0.060	0.055	0.055	0.055	0.150	0.100
60.00	0.000	0.085	0.075	0.075	0.075	0.150	0.100
61.00	0.000	0.085	0.075	0.075	0.075	0.200	0.175
62.00	0.000	0.190	0.170	0.170	0.170	0.200	0.250
63.00	0.000	0.110	0.150	0.150	0.150	0.200	0.250
64.00	0.000	0.110	0.150	0.150	0.150	0.250	0.150
65.00	0.000	0.280	0.280	0.280	0.280	0.280	0.350
66.00	0.000	0.280	0.300	0.300	0.300	0.300	0.300
67.00	0.000	0.175	0.220	0.220	0.220	0.220	0.220
68.00	0.000	0.175	0.220	0.220	0.220	0.220	0.220
69.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
70.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
71.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
72.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
73.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
74.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

Non-Top 10 non-LEO Retirement Rates, Plan 1 Male with 55/30 eligibility							
Age	Years of service						
	0-4	5	6-9	10	11-29	30	>=31
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50.00	0.000	0.000	0.000	0.050	0.050	0.050	0.050
51.00	0.000	0.000	0.000	0.055	0.040	0.040	0.040
52.00	0.000	0.000	0.000	0.055	0.040	0.040	0.040
53.00	0.000	0.000	0.000	0.055	0.040	0.040	0.040
54.00	0.000	0.000	0.000	0.055	0.040	0.040	0.040
55.00	0.000	0.055	0.055	0.055	0.050	0.140	0.140
56.00	0.000	0.055	0.050	0.050	0.050	0.140	0.100
57.00	0.000	0.090	0.055	0.055	0.055	0.110	0.100
58.00	0.000	0.090	0.055	0.055	0.055	0.110	0.100
59.00	0.000	0.100	0.055	0.055	0.055	0.120	0.100
60.00	0.000	0.100	0.060	0.060	0.060	0.120	0.100
61.00	0.000	0.150	0.100	0.100	0.100	0.250	0.220
62.00	0.000	0.130	0.170	0.170	0.170	0.350	0.300
63.00	0.000	0.130	0.150	0.150	0.150	0.200	0.250
64.00	0.000	0.200	0.150	0.150	0.150	0.270	0.250
65.00	0.000	0.270	0.270	0.270	0.270	0.270	0.300
66.00	0.000	0.270	0.300	0.300	0.300	0.300	0.300
67.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
68.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
69.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
70.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
71.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
72.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
73.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
74.00	0.000	0.270	0.250	0.250	0.250	0.250	0.250
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

Non-Top 10 non-LEO Retirement Rates, Plan 1 Female with 55/30 eligibility							
Age	Years of service						
	0-4	5	6-9	10	11-29	30	>=31
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50.00	0.000	0.000	0.000	0.055	0.055	0.055	0.055
51.00	0.000	0.000	0.000	0.055	0.040	0.040	0.040
52.00	0.000	0.000	0.000	0.055	0.045	0.045	0.045
53.00	0.000	0.000	0.000	0.055	0.045	0.045	0.045
54.00	0.000	0.000	0.000	0.055	0.045	0.045	0.045
55.00	0.000	0.070	0.070	0.070	0.055	0.120	0.120
56.00	0.000	0.060	0.055	0.055	0.055	0.120	0.100
57.00	0.000	0.060	0.055	0.055	0.055	0.100	0.100
58.00	0.000	0.060	0.055	0.055	0.055	0.100	0.100
59.00	0.000	0.060	0.055	0.055	0.055	0.150	0.100
60.00	0.000	0.085	0.075	0.075	0.075	0.150	0.100
61.00	0.000	0.085	0.075	0.075	0.075	0.200	0.175
62.00	0.000	0.190	0.170	0.170	0.170	0.200	0.250
63.00	0.000	0.110	0.150	0.150	0.150	0.200	0.250
64.00	0.000	0.110	0.150	0.150	0.150	0.250	0.150
65.00	0.000	0.280	0.280	0.280	0.280	0.280	0.350
66.00	0.000	0.280	0.300	0.300	0.300	0.300	0.300
67.00	0.000	0.175	0.220	0.220	0.220	0.220	0.220
68.00	0.000	0.175	0.220	0.220	0.220	0.220	0.220
69.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
70.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
71.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
72.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
73.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
74.00	0.000	0.300	0.220	0.220	0.220	0.220	0.220
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000



*Schedule G – Statement of Actuarial Assumptions and Methods (continued)*

**RETIREMENT RATES:** The following rates of retirement are assumed for members eligible to retire from Plan 2 and the Hybrid Plan.

Non-Top 10 non-LEO Retirement Rates, Plan 2/Hybrid Male																		
Age	Years of service																	
	0-4	5	6-25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	>=40
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.080
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.080	0.080
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.100
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.140	0.140	0.100	0.100	0.100	0.100
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.140	0.140	0.100	0.100	0.100	0.100	0.100
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.110	0.100	0.100	0.100	0.100	0.100	0.100
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.110	0.100	0.100	0.100	0.100	0.100	0.100	0.100
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	0.120	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
60	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.120	0.120	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
61	0.000	0.150	0.100	0.100	0.100	0.100	0.250	0.250	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
62	0.000	0.130	0.170	0.170	0.170	0.350	0.350	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
63	0.000	0.130	0.150	0.150	0.200	0.200	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
64	0.000	0.200	0.150	0.270	0.270	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
65	0.000	0.270	0.270	0.270	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
66	0.000	0.270	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
67	0.000	0.270	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
68	0.000	0.270	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
69	0.000	0.270	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
70	0.000	0.270	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
71	0.000	0.270	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
72	0.000	0.270	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
73	0.000	0.270	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
74	0.000	0.270	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000



Schedule G – Statement of Actuarial Assumptions and Methods (continued)

Non-Top 10 non-LEO Retirement Rates, Plan 2/Hybrid Female																		
Age	Years of service																	
	0-4	5	6-25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	>=40
<=49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060	0.060
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060	0.060	0.100
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	0.120	0.100	0.100
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	0.120	0.100	0.100	0.100
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	0.120	0.100	0.100	0.100	0.100
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	0.120	0.100	0.100	0.100	0.100	0.100
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.150	0.150	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
60	0.000	0.085	0.085	0.085	0.085	0.085	0.085	0.150	0.150	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
61	0.000	0.085	0.075	0.075	0.075	0.075	0.200	0.200	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175	0.175
62	0.000	0.190	0.170	0.170	0.170	0.200	0.200	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
63	0.000	0.110	0.150	0.150	0.200	0.200	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
64	0.000	0.110	0.150	0.250	0.250	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
65	0.000	0.280	0.280	0.280	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350
66	0.000	0.280	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
67	0.000	0.175	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
68	0.000	0.175	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
69	0.000	0.300	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
70	0.000	0.300	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
71	0.000	0.300	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
72	0.000	0.300	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
73	0.000	0.300	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
74	0.000	0.300	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

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**DISABILITY RATES:** As shown below for selected ages. 15% of disability cases are assumed to be service related.

Non-Top 10 non-LEO Disability Rates		
Age	Male	Female
20	0.00005	0.00001
25	0.00009	0.00001
30	0.00022	0.00001
35	0.00052	0.00024
40	0.00130	0.00058
45	0.00271	0.00127
50	0.00429	0.00274
55	0.00585	0.00483
60	0.00656	0.00640
65	0.00656	0.00656
70	0.00656	0.00656





Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**TERMINATION RATES:** The following are sample withdrawal rates based on age and years of service (for causes other than death, disability, or retirement).

Non-Top 10 non-LEO Termination Rates, Male											
Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.27688	0.25244	0.22872	0.20056	0.16855	0.14057	0.12603	0.11320	0.10411	0.10411	0.10411
25	0.25057	0.23024	0.20925	0.18373	0.15688	0.13361	0.11957	0.10835	0.09992	0.09992	0.09992
30	0.22157	0.20258	0.18350	0.16156	0.14147	0.12425	0.11142	0.10236	0.09459	0.08978	0.08978
35	0.20650	0.18223	0.16214	0.14313	0.12751	0.11426	0.10347	0.09571	0.08813	0.07795	0.06549
40	0.19553	0.16457	0.14299	0.12680	0.11490	0.10504	0.09615	0.08848	0.08079	0.06770	0.04626
45	0.18397	0.14896	0.12718	0.11399	0.10572	0.09878	0.09085	0.08205	0.07363	0.06227	0.04626
50	0.17144	0.13660	0.12001	0.10648	0.10447	0.09747	0.08930	0.08111	0.06806	0.06227	0.04626
55	0.16068	0.12967	0.12001	0.10500	0.10447	0.09747	0.08930	0.08111	0.06486	0.06227	0.04626
60	0.15449	0.12875	0.12001	0.10500	0.10447	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.15356	0.12875	0.12001	0.10500	0.10447	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.15356	0.12875	0.12001	0.10500	0.10447	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Non-Top 10 non-LEO Termination Rates, Female											
Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.30069	0.27981	0.24957	0.21230	0.17722	0.15634	0.13998	0.12034	0.10656	0.10656	0.10656
25	0.27370	0.25711	0.23395	0.20379	0.17488	0.15451	0.13809	0.12034	0.10656	0.10642	0.10642
30	0.24251	0.22690	0.21116	0.19063	0.17074	0.15276	0.13578	0.12002	0.10656	0.09928	0.09928
35	0.22330	0.20208	0.18736	0.17235	0.15849	0.14347	0.12837	0.11557	0.10447	0.09116	0.07607
40	0.20843	0.18156	0.16471	0.15164	0.14138	0.13004	0.11766	0.10682	0.09812	0.08252	0.05323
45	0.19506	0.16555	0.14581	0.13206	0.12281	0.11551	0.10655	0.09714	0.08999	0.07643	0.05323
50	0.18178	0.15325	0.13203	0.11702	0.10714	0.10278	0.09905	0.09359	0.08483	0.07560	0.05323
55	0.16934	0.14490	0.12446	0.10933	0.10007	0.09284	0.09284	0.09284	0.08445	0.07560	0.05323
60	0.16029	0.14080	0.12292	0.10875	0.10007	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.15628	0.14008	0.12292	0.10875	0.10007	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.15619	0.14008	0.12292	0.10875	0.10007	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**SALARY INCREASE RATES:** The following total salary increase rates are used. The total salary increase rate consists of an inflation rate of 2.50%, a productivity component of 1.00%, and a variable merit component that is dependent on years of service.

Pay Increase Assumption	
Years of Service	Total Increase (Next Year)
1	5.35%
2	5.35
3	4.75
4	4.45
5	4.45
6	4.45
7	4.35
8	4.25
9	4.00
10	4.00
11-19	3.65
20 or more	3.50

**EMPLOYER CONTRIBUTION TO DEFINED CONTRIBUTION HYBRID PLAN:** The valuation assumes an average employer defined contribution rate for members in the Hybrid Plan. This is reported by VRS each valuation.



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**LOCALS – TOP 10, LEO**

**Plan Specific Assumptions and Methods**

**MORTALITY RATES:**

Pre-Retirement:

RP-2014 Employee Rates to age 80, Healthy Annuitant Rates at ages 81 and older projected with scale BB to 2020; males 90% of rates; females set forward 1 year

Post-Retirement:

RP-2014 Employee Rates to age 49, Healthy Annuitant Rates at ages 50 and older projected with scale BB to 2020; males set forward 1 year, 1% increase compounded from ages 70 to 90; females set forward 3 years

Post-Disablement:

RP-2014 Disabled Mortality Rates projected with scale BB to 2020; males set forward 2 years; unisex using 100% male

Top 10 LEO Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00036	0.00044	0.00839	0.00016	0.00016	0.00839
25	0.00043	0.00045	0.00772	0.00018	0.00019	0.00772
30	0.00040	0.00046	0.00820	0.00023	0.00025	0.00820
35	0.00046	0.00053	0.00948	0.00030	0.00033	0.00948
40	0.00056	0.00066	0.01247	0.00043	0.00052	0.01247
45	0.00086	0.00107	0.01810	0.00072	0.00089	0.01810
50	0.00149	0.00431	0.02124	0.00118	0.00317	0.02124
55	0.00246	0.00599	0.02397	0.00174	0.00423	0.02397
60	0.00405	0.00789	0.02682	0.00247	0.00625	0.02682
65	0.00693	0.01102	0.03182	0.00383	0.00989	0.03182
70	0.01139	0.01694	0.04125	0.00653	0.01601	0.04125
75		0.02871	0.05658		0.02631	0.05658
80		0.05074	0.08141		0.04493	0.08141
85		0.09286	0.12299		0.07928	0.12299
90		0.17558	0.19143		0.14077	0.19143

70% of pre-retirement deaths are assumed to be service related. Mortality improvement is anticipated under the post-retirement mortality assumption as projected with Scale BB.



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**RETIREMENT RATES:** The following rates of retirement are assumed for members eligible to retire.

Top 10 LEO Retirement Rates, Male					
Age	Years of service				
	0-4	5	6-24	25	>=26
<=49	0.000	0.000	0.000	0.000	0.000
50	0.000	0.070	0.070	0.260	0.260
51	0.000	0.070	0.060	0.150	0.205
52	0.000	0.070	0.060	0.150	0.205
53	0.000	0.070	0.060	0.150	0.205
54	0.000	0.070	0.060	0.150	0.205
55	0.000	0.070	0.060	0.150	0.205
56	0.000	0.070	0.060	0.210	0.205
57	0.000	0.070	0.060	0.210	0.205
58	0.000	0.070	0.060	0.210	0.205
59	0.000	0.070	0.125	0.320	0.275
60	0.000	0.210	0.210	0.210	0.275
61	0.000	0.375	0.275	0.275	0.275
62	0.000	0.500	0.320	0.320	0.320
63	0.000	0.500	0.320	0.320	0.320
64	0.000	0.500	0.400	0.400	0.400
>=65	0.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

Top 10 LEO Retirement Rates, Female					
Age	Years of service				
	0-4	5	6-24	25	>=26
<=49	0.000	0.000	0.000	0.000	0.000
50	0.000	0.050	0.050	0.320	0.320
51	0.000	0.050	0.088	0.250	0.200
52	0.000	0.050	0.075	0.250	0.200
53	0.000	0.050	0.075	0.250	0.275
54	0.000	0.050	0.075	0.250	0.275
55	0.000	0.050	0.075	0.250	0.210
56	0.000	0.050	0.140	0.250	0.210
57	0.000	0.050	0.140	0.250	0.210
58	0.000	0.050	0.140	0.250	0.210
59	0.000	0.050	0.140	0.250	0.400
60	0.000	0.200	0.200	0.200	0.400
61	0.000	0.200	0.200	0.200	0.200
62	0.000	0.200	0.350	0.350	0.350
63	0.000	0.200	0.300	0.300	0.300
64	0.000	0.200	0.300	0.300	0.300
>=65	0.000	1.000	1.000	1.000	1.000



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**DISABILITY RATES:** As shown below for selected ages. 70% of disability cases are assumed to be service related.

Top 10 LEO Disability Rates		
Age	Male	Female
20	0.00019	0.00012
25	0.00022	0.00248
30	0.00052	0.00558
35	0.00133	0.00705
40	0.00267	0.00794
45	0.00405	0.00906
50	0.00500	0.01090
55	0.00657	0.01376
60	0.01055	0.01788
65	0.01786	0.02327
70	0.03085	0.03105

**TERMINATION RATES:** The following are sample withdrawal rates based on age and years of service (for causes other than death, disability, or retirement).

Top 10 LEO Termination Rates		
Service	Male	Female
0	0.10000	0.15000
1	0.08500	0.09000
2	0.08000	0.09000
3	0.07500	0.09000
4	0.05500	0.09000
5	0.05000	0.09000
6	0.04750	0.09000
7	0.04500	0.06000
8	0.04000	0.03500
9	0.03000	0.02000
>=10	0.01800	0.02000



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**SALARY INCREASE RATES:** The following salary increase rates are used. Inflation rate of 2.50% plus productivity component of 1.00% plus step-rate/promotional component as shown:

Pay Increase Assumption	
Years of Service	Total Increase (Next Year)
1	4.75%
2	4.75
3	4.75
4	4.75
5	4.65
6	4.40
7	4.40
8	4.40
9	4.40
10 - 19	4.00
20 or more	3.50



Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**LOCALS – NON-TOP 10, LEO**

**Plan Specific Assumptions and Methods**

**MORTALITY RATES:**

Pre-Retirement:

RP-2014 Employee Rates to age 80, Healthy Annuitant Rates at ages 81 and older projected with scale BB to 2020; males 90% of rates; females set forward 1 year

Post-Retirement:

RP-2014 Employee Rates to age 49, Healthy Annuitant Rates at ages 50 and older projected with scale BB to 2020; males set forward 1 year, 1% increase compounded from ages 70 to 90; females set forward 3 years

Post-Disablement:

RP-2014 Disabled Mortality Rates projected with scale BB to 2020; males set forward 2 years; unisex using 100% male

Non-Top 10 LEO Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00036	0.00044	0.00839	0.00016	0.00016	0.00839
25	0.00043	0.00045	0.00772	0.00018	0.00019	0.00772
30	0.00040	0.00046	0.00820	0.00023	0.00025	0.00820
35	0.00046	0.00053	0.00948	0.00030	0.00033	0.00948
40	0.00056	0.00066	0.01247	0.00043	0.00052	0.01247
45	0.00086	0.00107	0.01810	0.00072	0.00089	0.01810
50	0.00149	0.00431	0.02124	0.00118	0.00317	0.02124
55	0.00246	0.00599	0.02397	0.00174	0.00423	0.02397
60	0.00405	0.00789	0.02682	0.00247	0.00625	0.02682
65	0.00693	0.01102	0.03182	0.00383	0.00989	0.03182
70	0.01139	0.01694	0.04125	0.00653	0.01601	0.04125
75		0.02871	0.05658		0.02631	0.05658
80		0.05074	0.08141		0.04493	0.08141
85		0.09286	0.12299		0.07928	0.12299
90		0.17558	0.19143		0.14077	0.19143

45% of pre-retirement deaths are assumed to be service related. Mortality improvement is anticipated under the post-retirement mortality assumption as projected with Scale BB.





Schedule F – Statement of Actuarial Assumptions and Methods (continued)

**RETIREMENT RATES:** The following rates of retirement are assumed for members eligible to retire.

Non-Top 10 LEO Retirement Rates, Male					
Age	Years of service				
	0-4	5	6-24	25	>=26
<=49	0.000	0.000	0.000	0.000	0.000
50	0.000	0.090	0.090	0.275	0.275
51	0.000	0.090	0.075	0.275	0.150
52	0.000	0.090	0.075	0.200	0.150
53	0.000	0.090	0.075	0.200	0.150
54	0.000	0.090	0.075	0.200	0.150
55	0.000	0.090	0.075	0.200	0.180
56	0.000	0.090	0.075	0.200	0.165
57	0.000	0.090	0.075	0.200	0.165
58	0.000	0.090	0.080	0.200	0.165
59	0.000	0.090	0.120	0.200	0.240
60	0.000	0.150	0.150	0.150	0.275
61	0.000	0.150	0.275	0.275	0.275
62	0.000	0.150	0.275	0.275	0.275
63	0.000	0.250	0.300	0.300	0.300
64	0.000	0.200	0.300	0.300	0.300
>=65	0.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

Non-Top 10 LEO Retirement Rates, Female					
Age	Years of service				
	0-4	5	6-24	25	>=26
<=49	0.000	0.000	0.000	0.000	0.000
50	0.000	0.093	0.093	0.500	0.500
51	0.000	0.125	0.090	0.200	0.150
52	0.000	0.125	0.090	0.200	0.150
53	0.000	0.125	0.090	0.200	0.150
54	0.000	0.125	0.090	0.200	0.150
55	0.000	0.125	0.090	0.200	0.180
56	0.000	0.125	0.090	0.200	0.165
57	0.000	0.125	0.090	0.200	0.165
58	0.000	0.125	0.090	0.200	0.165
59	0.000	0.125	0.090	0.200	0.240
60	0.000	0.200	0.200	0.200	0.275
61	0.000	0.200	0.275	0.275	0.275
62	0.000	0.200	0.275	0.275	0.275
63	0.000	0.200	0.300	0.300	0.300
64	0.000	0.200	0.300	0.300	0.300
>=65	0.000	1.000	1.000	1.000	1.000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

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**DISABILITY RATES:** As shown below for selected ages. 45% of disability cases are assumed to be service related.

Non-Top 10 LEO Disability Rates		
Age	Male	Female
20	0.00001	0.00005
25	0.00016	0.00067
30	0.00058	0.00157
35	0.00121	0.00189
40	0.00218	0.00201
45	0.00330	0.00244
50	0.00416	0.00413
55	0.00496	0.00831
60	0.00575	0.01605
65	0.00630	0.02747
70	0.00659	0.04509



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

**TERMINATION RATES:** The following are sample withdrawal rates based on age and years of service (for causes other than death, disability, or retirement).

Non-Top 10 LEO Termination Rates, Male											
Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.16820	0.15769	0.15265	0.14807	0.13578	0.11182	0.08845	0.07768	0.06899	0.06899	0.06899
25	0.16006	0.14519	0.13807	0.13247	0.12169	0.10519	0.08845	0.07768	0.06899	0.06899	0.06899
30	0.15408	0.13212	0.12044	0.11255	0.10382	0.09687	0.08803	0.07768	0.06849	0.06237	0.05800
35	0.15310	0.12574	0.10924	0.09896	0.09156	0.08897	0.08437	0.07640	0.06609	0.05433	0.04189
40	0.15357	0.12180	0.10118	0.08908	0.08281	0.08025	0.07719	0.07142	0.06199	0.04868	0.03220
45	0.15275	0.11790	0.09478	0.08223	0.07802	0.07022	0.06634	0.06269	0.05626	0.04561	0.03022
50	0.14879	0.11257	0.08908	0.07811	0.07733	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
55	0.14065	0.10547	0.08414	0.07694	0.07694	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
60	0.12791	0.09675	0.08028	0.07694	0.07694	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.11088	0.08665	0.07763	0.07694	0.07694	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.08616	0.07353	0.07353	0.07353	0.07353	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Non-Top 10 LEO Termination Rates, Female											
Age	Years of Service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.17536	0.15011	0.12899	0.11652	0.11390	0.11329	0.11233	0.09556	0.06591	0.05831	0.05831
25	0.18762	0.15474	0.13049	0.11598	0.11001	0.10648	0.10224	0.08766	0.06591	0.05831	0.05831
30	0.20549	0.16296	0.13433	0.11683	0.10644	0.09874	0.09030	0.07873	0.06591	0.05831	0.05762
35	0.20886	0.16395	0.13402	0.11544	0.10335	0.09327	0.08334	0.07404	0.06591	0.05831	0.05043
40	0.20126	0.15881	0.13026	0.11258	0.10087	0.08968	0.08014	0.07253	0.06591	0.05763	0.04252
45	0.18253	0.14688	0.12276	0.10843	0.09904	0.08818	0.07992	0.07253	0.06587	0.05314	0.03443
50	0.15288	0.12797	0.11154	0.10319	0.09757	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
55	0.11234	0.10212	0.09680	0.09680	0.09599	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
60	0.06089	0.06935	0.06935	0.06935	0.06935	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.01269	0.03040	0.03040	0.03040	0.03040	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.01269	0.01185	0.01185	0.01185	0.01185	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000



*Schedule F – Statement of Actuarial Assumptions and Methods (continued)*

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**SALARY INCREASE RATES:** The following salary increase rates are used. Inflation rate of 2.50% plus productivity component of 1.00% plus step-rate/promotional component as shown:

<b>Pay Increase Assumption</b>	
<b>Years of Service</b>	<b>Total Increase (Next Year)</b>
1	4.75%
2	4.75
3	4.75
4	4.75
5	4.65
6	4.40
7	4.40
8	4.40
9	4.40
10 - 19	4.00
20 or more	3.50



**Schedule F – Statement of Actuarial Assumptions and Methods (continued)**

**Assumption Changes in the 2017 Valuation**

Changes to the actuarial assumptions as a result of the experience study for the four-year period ending June 30, 2016 are summarized below. In addition to these, the spouse age difference was changed from spouses being the same age as participants to males being two years older than females. These changes were reflected in the results for GASB 67 and GASB 68 for the Measurement Date of June 30, 2017.

System	Assumption	Description
State	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020
	2. Retirement Rates	Lowered rates at older ages and changed final retirement age from 70 to 75
	3. Withdrawal Rates	Adjusted rates to better fit experience at each year age and service through 9 years of service
	4. Disability Rates	Adjusted rates to better match experience
	5. Salary Scale	No change
	6. Line of Duty Disability	Increase rate from 14% to 25%
Teachers	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020
	2. Retirement Rates	Lowered rates at older ages and changed final retirement age from 70 to 75
	3. Withdrawal Rates	Adjusted rates to better fit experience at each year age and service through 9 years of service
	4. Disability Rates	Adjusted rates to better match experience
	5. Salary Scale	No change
SPORS	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020 and reduced margin for future improvement in accordance with experience
	2. Retirement Rates	Increased age 50 rates, and lowered rates at older ages
	3. Withdrawal Rates	Adjusted rates to better match experience
	4. Disability Rates	Adjusted rates to better match experience
	5. Salary Increases	No change
	6. Line of Duty Disability	Increase rate from 60% to 85%
VaLORS	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020 and reduced margin for future improvement in accordance with experience
	2. Retirement Rates	Increased age 50 rates, and lowered rates at older ages
	3. Withdrawal Rates	Adjusted rates to better fit experience at each year age and service through 9 years of service
	4. Disability Rates	Adjusted rates to better match experience
	5. Salary Increases	No change
	6. Line of Duty Disability	Decrease rate from 50% to 35%
JRS	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Update to a more current mortality table - RP-2014 projected to 2020
	2. Retirement Rates	Decreased rates at first retirement eligibility
	3. Withdrawal Rates	No change
	4. Disability Rates	Removed disability rates
	5. Salary Increases	No change

In addition to these assumption changes listed above, the method to determine the normal cost rate has changed. Beginning with this valuation, the payroll used to develop the rate will be reduced for those expected to leave during the year. The normal cost rate is also adjusted to reflect that the hybrid payroll as a percent of the total payroll will increase from the rate setting valuation date to when employers make the contribution.