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Virginia
Retirement
System

GASB STATEMENT NO. 74 REPORT

FOR THE

VIRGINIA RETIREMENT SYSTEM

PREPARED AS OF JUNE 30, 2020





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

April 9, 2021

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. 74. The information is presented for the period ending June 30, 2020.

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of June 30, 2019. 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 74.

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
April 9, 2021
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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
President

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
Senior Actuary



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Section I – Introduction

REPORT OF THE ANNUAL GASB STATEMENT NO. 75 REQUIRED INFORMATION FOR THE VIRGINIA RETIREMENT SYSTEM PREPARED AS OF June 30, 2020

The Governmental Accounting Standards Board issued Statement No. 74 (GASB 74), “*Financial Reporting for Postemployment Benefit Plans other than Pension Plans*,” in June 2015. The effective date for reporting under GASB 74 for the Virginia Retirement System was fiscal year ending June 30, 2020. This report, prepared as of June 30, 2020 (the Measurement Date), presents information to assist the Virginia Retirement System in meeting the requirements of GASB 74. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the System performed as of June 30, 2019 (the Valuation Date). The results of that valuation are detailed in a separate report dated July 30, 2020.

- Group Life Insurance Program (GLI)
- Health Insurance Credit Program (HIC)
 - State Employees (HIC – State Employees)
 - Teachers (HIC – Teachers)
 - Participating Political Subdivisions in Aggregate (HIC – Political Subdivisions)
 - Special Coverage Groups (HIC – Special Coverage Groups)
 - Constitutional Officers (HIC – Constitutional Officers)
 - Social Service Employees (HIC – Social Service Employees)
 - Registrars (HIC – Registrars)
- Virginia Sickness and Disability Program (VSDP)
- Virginia Local Disability Program (VLDP)
 - Teachers (VLDP – Teachers)
 - Political Subdivisions (VLDP – Political Subdivisions)
- Line of Duty Act (LODA)

In addition, this report includes information in aggregate on the actuarial valuations of the Political Subdivisions participating in VRS as of June 30, 2019 and June 30, 2020. We have prepared, and provided separately, actuarial valuation reports as of June 30, 2019 for each of the Political Subdivisions. Please refer to the individual reports for the valuation results, summary of actuarial assumptions and methods, and plan provisions for each of the Political Subdivision plans. For new Political Subdivisions where an actuarial valuation report was not prepared as of June 30, 2019, we have set the TOL equal to the actual liability at the measurement date.



Section I – Introduction (continued)

GASB 74 replaces GASB 43 and represents a significant departure from the requirements of the prior statement. GASB 43 was issued as a “funding friendly” statement that required postemployment benefit plans other than pension plans (OPEB) to report items consistent with the results of the plan’s actuarial valuations, as long as those valuations met certain parameters. GASB 74 basically separates accounting from funding by creating disclosure and reporting requirements that may or may not be consistent with the basis used for funding the Plan.

A major change in GASB 74 is the requirement to determine the Total OPEB Liability (TOL) utilizing the Entry Age Normal actuarial cost method. The Net OPEB Liability (NOL) is then set equal to the TOL minus the Plan’s Fiduciary Net Position (FNP) (basically the market value of assets). The benefit provisions recognized in the calculation of the TOL are summarized in Schedule B. As mentioned above, for the Political Subdivision plans please refer to the individual reports for a summary of their benefit provisions.

Among the assumptions needed for the liability calculation is the discount rate, or Single Equivalent Interest Rate (SEIR), as described by GASB 74. To determine the SEIR, the FNP must be projected, using GASB 74 guidelines, into the future for as long as there are anticipated benefits payable under the plan’s provisions applicable to the members and beneficiaries of the System on the Measurement Date. If the FNP is not projected to be depleted at any point in the future, the long-term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR.

If, however, the FNP is projected to be depleted at a future measurement date, the SEIR is determined as the single rate that will generate a present value of benefit payments equal to the sum of the present value determined by discounting all projected benefit payments through the date of depletion by the long-term expected rate of return, and the present value determined by discounting those benefits after the date of depletion by a 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate. The rate used, if necessary, for this purpose is the Bond Buyers General Obligation 20-year Municipal Bond Index Rate published for the last week in June.

Our calculations indicate that the FNP is not projected to be depleted, so the Municipal Bond Index Rate is not used in the determination of the SEIR for either the June 30, 2019 or the June 30, 2020 TOL. The SEIR is 6.75% at June 30, 2020 and 6.75% at June 30, 2019, the long-term assumed rate of return on investments in effect at the respective Measurement Dates. For Line of Duty Act, the SEIR is 2.21% at June 30, 2020 and 3.50% at June 30, 2019. Please see Paragraph 35.b.(2) for more explanation of the development of the SEIR.



Section I – Introduction (continued)

The FNP projections are based upon Virginia Retirement System’s financial status on the Measurement Date, the indicated set of methods and assumptions, and the requirements of GASB 74. As such, the FNP projections are not reflective of the cash flows and asset accumulations that would occur on an ongoing plan basis, reflecting the impact of future members. Therefore, the results of this test do not necessarily indicate whether or not the fund will actually run out of money, the financial condition of the System, or the System’s ability to make benefit payments in future years.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 74 for note disclosure and Required Supplementary Information (RSI).



Section II –Financial Statements Notes

The material presented herein will follow the order presented in GASB 74. Paragraph numbers are provided for ease of reference.

Paragraphs 34.a. (1)-(3): This information will be supplied by the Virginia Retirement System.

Paragraph 34.a. (4): The data required regarding the membership of the Virginia Retirement System were furnished by the Virginia Retirement System’s office. The following tables summarize the membership of the System as of June 30, 2019, the date of the valuation used to determine the June 30, 2020 Total OPEB Liability.

Membership

GROUP LIFE INSURANCE PROGRAM

Number as of July 1, 2019	
Active Members	367,627
LTD	2,692
Total Active Members	370,319
Inactive Members	
Vested	0
Non-Vested	0
Total Inactive Members	0
Retirees	
Service	175,325
Disabled	14,004
Total Retirees	189,329
Totals	559,648



Section II –Financial Statements Notes (continued)

Membership (continued)

HEALTH INSURANCE CREDIT PROGRAM

	Number as of July 1, 2019					
	Health Insurance Credit - State Employees	Health Insurance Credit - Teachers	Health Insurance Credit - Participating Local Subdivisions*	Health Insurance Credit - Constitutional Officers	Health Insurance Credit - Social Service Employees	Health Insurance Credit - Registrars
Active Members	106,948	149,396	37,233	13,302	6,048	232
LTD	<u>2,655</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Active Members	109,603	149,396	37,233	13,302	6,048	232
Inactive Members						
Vested	1,956	3,038	570	44	21	0
Non-Vested	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total Inactive Members	1,956	3,038	570	44	21	0
Retirees						
Service	45,502	65,355	9,422	3,531	1,961	68
Disabled	<u>2,921</u>	<u>3,446</u>	<u>1,655</u>	<u>338</u>	<u>177</u>	<u>1</u>
Total Retirees	48,423	68,801	11,077	3,869	2,138	69
Totals	159,982	221,235	48,880	17,215	8,207	301

*HIC - Participating Local Subdivisions includes June 30, 2020 counts for 97 HB 1513 employers



Section II –Financial Statements Notes (continued)

Membership (continued)

DISABILITY & LINE OF DUTY

	Number as of July 1, 2019			
	Virginia Sickness and Disability	Virginia Local Disability - Teachers	Virginia Local Disability - Political Subdivisions	Line of Duty Act
Active Members	79,105	11,047	9,447	19,243
Inactive Members				
Disabled and Beneficiaries	2,540	7	28	1,173
Ported	2,650	39	4	N/A
Total Inactive Members	<u>5,190</u>	<u>46</u>	<u>32</u>	<u>1,173</u>
Totals	84,295	11,093	9,479	20,416

Paragraphs 34.a. (5)-(6) and Paragraphs 34.b.-e.: This information will be supplied by the Virginia Retirement System.



Section II –Financial Statements Notes (continued)

Paragraph 35.a. (1)-(4): The information is provided in the following table. As stated earlier, the NOL is equal to the TOL minus the FNP. That result as of June 30, 2020 is presented in the following table.

Net OPEB Liability
GROUP LIFE INSURANCE PROGRAM

Fiscal Year Ending June 30, 2020	
Total OPEB Liability	\$ 3,523,938,338
Fiduciary Net Position	<u>1,855,102,041</u>
Net OPEB Liability	\$ 1,668,836,297
Ratio of Fiduciary Net Position to Total OPEB Liability	52.64%



Section II –Financial Statements Notes (continued)

Net OPEB Liability (continued)

HEALTH INSURANCE CREDIT PROGRAM

Fiscal Year Ending June 30, 2020						
	Health Insurance Credit - State Employees	Health Insurance Credit - Teachers	Health Insurance Credit - Participating Local Subdivisions	Health Insurance Credit - Constitutional Officers	Health Insurance Credit - Social Service Employees	Health Insurance Credit - Registrars
Total OPEB Liability	\$ 1,043,382,985	\$ 1,448,674,571	\$ 77,490,244	\$ 32,408,230	\$ 14,818,146	\$ 595,018
Fiduciary Net Position	<u>125,376,898</u>	<u>144,158,060</u>	<u>24,468,464</u>	<u>5,113,638</u>	<u>1,934,289</u>	<u>126,337</u>
Net OPEB Liability	\$ 918,006,087	\$ 1,304,516,511	\$ 53,021,780	\$ 27,294,592	\$ 12,883,857	\$ 468,681
Ratio of Fiduciary Net Position to Total OPEB Liability	12.02%	9.95%	31.58%	15.78%	13.05%	21.23%



Section II –Financial Statements Notes (continued)

Net OPEB Liability (continued)

DISABILITY & LINE OF DUTY

Fiscal Year Ending June 30, 2020				
	Virginia Sickness and Disability	Virginia Local Disability - Teachers	Virginia Local Disability - Political Subdivisions	Line of Duty Act
Total OPEB Liability	\$ 269,531,238	\$ 3,688,220	\$ 4,316,776	\$ 423,148,755
Fiduciary Net Position	490,219,523	2,885,936	3,318,528	4,333,324
Net OPEB Liability	\$ (220,688,285)	\$ 802,284	\$ 998,248	\$ 418,815,431
Ratio of Fiduciary Net Position to Total OPEB Liability	181.88%	78.25%	76.88%	1.02%



Section II –Financial Statements Notes (continued)

Paragraph 35.b.: This paragraph requires information to be disclosed regarding the actuarial assumptions and other inputs used to measure the TOL. The complete set of actuarial assumptions and other inputs utilized in developing the TOL are outlined in Schedule C. The total OPEB liability was determined based on an actuarial valuation as of June 30, 2019, using the following actuarial assumptions applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2020.

Inflation	2.50 percent
Salary increases, including inflation	State Employees – 3.50 percent– 5.35 percent Teachers – 3.50 percent– 5.95 percent State Police – 3.50 percent– 4.75 percent Judicial – 4.50 percent Virginia Law Officers – 3.50 percent – 4.75 percent Political Subdivisions – General Employees – 3.50 percent– 5.35 percent Public Safety – 3.50 percent– 4.75 percent
Investment rate of return	6.75 percent, net of investment expenses Line of Duty Act: 4.75 percent
Municipal Bond Index Rate	
Prior Measurement Date	3.50 percent
Measurement Date	2.21 percent
Year FNP is projected to be depleted	N/A Line of Duty Act: 2020
Single Equivalent Interest Rate, net of plan investment expense, including price inflation	
Prior Measurement Date	6.75 percent Line of Duty Act – 3.50 percent
Measurement Date	6.75 percent Line of Duty Act – 2.21 percent
Healthcare Cost Trend Rate (Applies only to Line of Duty Act)	
Medical Trend Assumption (Under Age 65)	7.00 percent – 4.75 percent
Medical Trend Assumption (Over Age 64)	5.375 percent – 4.75 percent



Section II –Financial Statements Notes (continued)

Year of Ultimate Trend Rate (Under Age 65) Fiscal Year Ended 2028
Year of Ultimate Trend Rate (Ages 65 and Older) Fiscal Year Ended 2023
(Applies only to Line of Duty Act)

The rates of mortality are according to the following mortality tables. The mortality tables are adjusted forward and/or back depending on the plan and the group covered. Refer to Schedule C for the specific adjustments for each plan, other than Political Subdivision plans. For the adjustments applicable to the Political Subdivision plans refer to each plan’s individual valuation report.

Mortality Table	
For the period before retirement	RP-2014 Employee Rates projected with Scale BB to 2020
For the period after service retirement	RP-2014 Healthy Annuitant Rates projected with Scale BB to 2020
For the period after disability retirement	RP-2014 Disabled Mortality Rates projected with Scale BB to 2020

The actuarial assumptions used to determine the TOL as of June 30, 2019 were based on the results of an actuarial experience study for the period from July 1, 2012 through June 30, 2016 as well as the investment rate of return of 6.75% adopted by the Board of Trustees at its October 10, 2019 meeting.

Paragraph 35.b.(1)

Sensitivity analysis: The disclosure of the sensitivity of the Net OPEB Liability to changes in the healthcare cost trend rate. The TOL is based on a medical benefit that is a flat dollar amount, therefore, it is unaffected by a healthcare cost trend rate. An increase or decrease in the trend rate would have no effect on the TOL.



Section II –Financial Statements Notes (continued)

For Line of Duty Act, the following presents the NOL of the System, calculated using the trend rate of 7.00 percent– 4.75 percent for pre-Medicare and 5.375 percent – 4.75 percent for Medicare eligible, as well as the System’s NOL calculated using a health care trend rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate.

	1% Decrease in Healthcare Trend Rate	Current Healthcare Trend Rate	1% Increase in Healthcare Trend Rate
Net OPEB Liability	\$346,164,647	\$418,815,431	\$513,841,707

Paragraph 35.b.(2)

- (a) Discount rate (SEIR):** The discount rate used to measure the TOL at June 30, 2019 was 6.75 percent, except for Line of Duty Act and six HIC Political Subdivisions plans – Patrick County (55170), Accomack/Northampton Plan (55456), Carroll County School Board (55517), Russell County School Board (55583), Washington County School Board (55595), and Jackson River Technical Ctr (55814) – with a discount rate of 2.21%, equal to the municipal bond rate.
- (b) Projected cash flows:** The projection of cash flows used to determine the discount rate assumed that System member contributions will be made per the VRS Statutes and the Employer contributions will be made in accordance with the VRS funding policy at rates equal to the difference between actuarially determined contribution rates adopted by the VRS Board and the member rate. For the state plans, through the fiscal year ending June 30, 2018 the rates contributed by the employer will be subject to the portion of the Board rates as adopted by the Virginia legislature. From July 1, 2018 on, we assume 100% of the actuarially determined contribution rates will be payable for all the VRS plans.
- (c) Long-term rate of return:** Since ASOP 27 allows the actuary to rely on outside experts, it is appropriate to consider the market outlook and expectations provided by the investment staff of the Virginia Retirement System. The following analysis relies on the 10-year forward returns outlook provided by VRS as of June 2020.



Section II –Financial Statements Notes (continued)

Time Span In Years	Mean Return	Standard Deviation	Returns by Percentile				
			5 th	25 th	50 th	75 th	95 th
1	7.15%	8.91%	-6.82%	1.00%	6.81%	12.96%	22.43%
5	6.85%	3.97%	0.49%	4.17%	6.81%	9.52%	13.53%
10	6.82%	2.80%	2.30%	4.94%	6.81%	8.72%	11.52%
20	6.80%	1.98%	3.60%	5.48%	6.81%	8.16%	10.12%
30	6.79%	1.62%	4.18%	5.72%	6.81%	7.91%	9.51%
50	6.79%	1.25%	4.77%	5.97%	6.81%	7.66%	8.89%

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

Asset Class	Policy Allocation
Public Equity	34.00%
Fixed Income	15.00%
Credit Strategies	14.00%
Real Assets	14.00%
Private Equity	14.00%
MAPS*	6.00%
PIP**	3.00%

* Multi-asset Public Strategies
** Private Investment Partnership

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. Therefore for the 10-year time span, 5% of the rates of return will be below 2.30% 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 5.97% and a 25% chance they will be above 7.66%. There is a 50% chance the returns will be 6.81% or above and a 50% chance the return will be below 6.81%.



Section II –Financial Statements Notes (continued)

(d) Municipal bond rate: A municipal bond rate was not used in determining the discount rate, except for Line of Duty Act and six HIC Political Subdivisions plans – Patrick County (55170), Accomack/Northampton Plan (55456), Carroll County School Board (55517), Russell County School Board (55583), Washington County School Board (55595), and Jackson River Technical Ctr (55814). To measure the TOL for these plans, the Single Equivalent Interest Rate (SEIR) we have used is the applicable municipal bond index rate of 2.21%, based on the Bond Buyer General Obligation 20-year Municipal Bond Index Rate (formerly published monthly by the Board of Governors of the Federal Reserve System) published for the last week in June 2020.

(e) Periods of projected benefit payments: Projected future benefit payments for all current plan members until benefit payments ran out.

For Line of Duty Act, the projected future benefit payments for all current plan members were not projected because the plan is a pay-as-you-go plan.

(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 as of June 2020 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Public Equity	34.00%	4.65%
Fixed Income	15.00%	0.46%
Credit Strategies	14.00%	5.39%
Real Assets	14.00%	5.01%
Private Equity	14.00%	8.34%
MAPS	6.00%	3.04%
PIP	3.00%	6.49%
Total	100.00%	

* Multi-asset Public Strategies
** Private Investment Partnership

For Line of Duty Act, the assumed asset allocations were not used because the plan is a pay-as-you-go plan.



Section II –Financial Statements Notes (continued)

(g) **Sensitivity analysis:** This paragraph requires disclosure of the sensitivity of the net OPEB liability (NOL) to changes in the discount rate. The following presents the NOL of the System, calculated using the discount rate of 6.75 percent, as well as the System’s NOL calculated using a discount rate that is 1-percentage-point lower (5.75 percent) or 1-percentage-point higher (7.75 percent) than the current rate. The sensitivity analysis for the Line of Duty Act and the six HIC Political Subdivision plans is included at the municipal bond index rate of 2.21% and at 1.21% and 3.21%.

Sensitivity Analysis

Net OPEB Liability	1% Decrease	Current Discount Rate	1% Increase
Group Life Insurance	\$ 2,193,813,423	\$ 1,668,836,297	\$ 1,242,505,668
Health Insurance Credit - State Employees	1,017,244,936	918,006,087	832,611,809
Health Insurance Credit - Teachers	1,460,270,230	1,304,516,511	1,172,137,139
Health Insurance Credit - Participating Local Subdivisions	61,093,077	53,021,780	46,059,907
Health Insurance Credit - Constitutional Officers	30,754,882	27,294,592	24,353,518
Health Insurance Credit - Social Service Employees	14,321,784	12,883,857	11,649,694
Health Insurance Credit - Registrars	522,470	468,681	422,326
Virginia Sickness and Disability	(201,354,027)	(220,688,285)	(238,043,571)
Virginia Local Disability - Teachers	1,249,130	802,284	416,633
Virginia Local Disability - Political Subdivisions	1,338,882	998,248	701,522



Section II –Financial Statements Notes (continued)

LINE OF DUTY ACT

	1% Decrease (1.21%)	Current Discount Rate (2.21%)	1% Increase (3.21%)
Net OPEB Liability	\$497,128,235	\$418,815,431	\$359,784,925

Paragraph 35.c.: The TPL is calculated as of June 30, 2019 and was rolled forward using standard actuarial techniques to the Measurement Date of June 30, 2020.



Section III – Required Supplementary Information

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

Paragraphs 36(a)-(c): The required tables of schedules are provided in Schedule A.

Paragraph 36(d): The money-weighted rates of return will be supplied by the System.

Paragraph 38: The following information should be noted regarding the RSI, particularly for the *Schedule of Employer Contributions*:

Changes of benefit and funding terms. There have been no significant changes to the System benefit provisions since the prior actuarial valuation. The mandatory retirement age for most judges was increased from age 70 to age 73. 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. Some of the Political Subdivision plans have made changes to the benefits provided to members in hazardous duty positions. In aggregate the impact of these changes on the Political Subdivision plans is not significant. For HIC – Political Subdivisions, the valuation reflects the provisions of HB 1513 which requires school divisions to provide an uncapped Health Insurance Credit of \$1.50 per month of service for all non-teacher employees beginning July 1, 2021. While benefit payments do not begin until July 1, 2021 for school divisions that did not previously elect the HIC benefit, the bill requires that those employers begin funding for the benefits effective July 1, 2020.

Changes of assumptions. There have been no changes in assumptions since the prior measurement date. The VRS Board of Trustees adopted a 6.75% investment rate of return for the June 30, 2019 measurement date. Additionally, the SEIR for the Line of Duty Act has been updated from 3.50% to 2.21% to reflect the change in the municipal bond rate. Assumptions adopted based on the experience study for the period June 30, 2012 to June 30, 2016 were reflected for the June 30, 2017 measurement date.



Section III – Required Supplementary Information (continued)

Method and assumptions used in calculations of actuarially determined contributions. The actuarially determined contribution rates are determined every two years. The last determination of the actuarial contribution rates was as of June 30, 2019 payable for the fiscal years 2021 and 2022. For the non-Political Subdivision plans the amortization period of the unfunded liability less the deferred contribution begins at 30 years on June 30, 2013 and will decrease by one each year until reaching 0 years. Each subsequent year, a new base will be added to the unfunded liability and will be amortized over a closed 20 year period. For the Political Subdivision plans the amortization period of the unfunded begins at 30 years on June 30, 2013 and will decrease by one each year until reaching 0 years. Each subsequent year, a new base will be added to the unfunded liability and will be amortized over a closed 20 year period.

The Virginia Retirement 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 were used to determine contribution rates as of the June 30, 2019 actuarial valuations of the VRS OPEB plans:

Actuarial Cost Method	Entry age normal
Amortization Method	Level percentage of payroll, closed
Remaining Amortization Period	15 years – 24 years Virginia Local Disability: 15 – 20 years Line of Duty Act: N/A
Asset Valuation Method	5-year moving average
Inflation	2.50 percent
Payroll growth	3.00 percent
Salary Increases, including inflation	State Employees – 3.50 percent– 5.35 percent Teachers – 3.50 percent– 5.95 percent State Police – 3.50 percent– 4.75 percent Judicial – 4.50 percent Virginia Law Officers – 3.50 percent – 4.75 percent



Section III – Required Supplementary Information (continued)

	Political Subdivisions – General Employees – 3.50 percent– 5.35 percent Public Safety – 3.50 percent– 4.75 percent
Investment rate of return	6.75 percent, net of investment expenses
	Line of Duty Act*: 4.75%
Healthcare Cost Trend Rate (Applies only to Line of Duty Act)	N/A
Medical Trend Assumption (Under Age 65)	7.00 percent – 4.75 percent
Medical Trend Assumption (Over Age 64)	5.375 percent – 4.75 percent
Year of Ultimate Trend Rate (Under Age 65)	Fiscal Year Ended 2028
Year of Ultimate Trend Rate (Over Age 64)	Fiscal Year Ended 2023
(Applies only to Line of Duty Act)	

*The assumed investment rate of return for the Line of Duty Act plan reflects the fact that the Plan is to be funded on a current disbursement basis.

Please see the information presented in this Paragraph 38 for detailed information on the benefit changes and assumption changes that may have impacted the Actuarially Determined Contributions shown in the *Schedule of Employer Contributions*.



Schedule A – Required Supplementary Information Tables

Exhibit A
GASB 74 Paragraph 36.a.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
GROUP LIFE INSURANCE PROGRAM

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability										
Service Cost	\$98,367,260	\$86,911,673	\$84,355,000	\$81,479,000						
Interest	221,684,071	210,949,798	198,960,000	201,770,000						
Benefit changes	0	0	0	0						
Difference between expected and actual experience	25,708,476	56,736,661	88,052,000	(39,461,000)						
Changes of assumptions	0	122,011,161	0	(91,738,000)						
Benefit payments	(212,059,860)	(199,878,902)	(200,285,000)	(184,092,000)						
Refunds of contributions	0	0	0	0						
Net change in Total OPEB Liability	\$133,699,947	\$276,730,391	\$171,082,000	(\$32,042,000)						
Total OPEB Liability - beginning	\$3,390,238,391	\$3,113,508,000	\$2,942,426,000	\$2,974,468,000						
Total OPEB Liability - ending (a)	\$3,523,938,338	\$3,390,238,391	\$3,113,508,000	\$2,942,426,000						
Plan Fiduciary Net Position										
Contributions – employer	\$107,251,088	\$102,174,554	\$98,530,000	\$94,082,000						
Contributions – non-employer	0	0	0	0						
Contributions – member	162,924,980	155,153,372	150,402,000	146,002,000						
Net investment income	36,276,266	113,439,846	110,917,000	158,430,000						
Benefit payments	(212,059,860)	(199,878,902)	(200,285,000)	(184,092,000)						
Administrative expense	(823,943)	(708,971)	(664,000)	(31,000)						
Refunds of contributions	0	0	0	0						
Other	(1,438,734)	(1,980,655)	(1,713,000)	(1,731,000)						
Net change in Plan Fiduciary Net Position	\$92,129,797	\$168,199,244	\$157,187,000	\$212,660,000						
Plan Fiduciary Net Position – beginning	\$1,762,972,244	\$1,594,773,000	\$1,437,586,000	\$1,224,926,000						
Plan Fiduciary Net Position - ending (b)	1,855,102,041	1,762,972,244	1,594,773,000	1,437,586,000						
Net OPEB Liability - ending (a) - (b)	\$1,668,836,297	\$1,627,266,147	\$1,518,735,000	\$1,504,840,000						



Schedule A – Required Supplementary Information Tables (continued)

Exhibit A (continued)
GASB 74 Paragraph 36.a.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – STATE EMPLOYEES

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability										
Service Cost	\$20,142,919	\$19,446,255	\$19,645,000	\$19,231,000						
Interest	67,288,991	68,022,890	66,883,000	66,641,000						
Benefit changes	0	0	0	0						
Difference between expected and actual experience	(5,702,621)	(13,401,382)	745,000	0						
Changes of assumptions	0	22,699,292	0	(12,229,000)						
Benefit payments	(70,440,493)	(72,856,866)	(69,117,000)	(71,256,000)						
Refunds of contributions	0	0	0	0						
Net change in Total OPEB Liability	\$11,288,796	\$23,910,189	\$18,156,000	\$2,387,000						
Total OPEB Liability - beginning	\$1,032,094,189	\$1,008,184,000	\$990,028,000	\$987,641,000						
Total OPEB Liability - ending (a)	\$1,043,382,985	\$1,032,094,189	\$1,008,184,000	\$990,028,000						
Plan Fiduciary Net Position										
Contributions – employer	\$84,849,070	\$79,925,855	\$79,416,000	\$75,058,000						
Contributions – non-employer	0	0	0	0						
Contributions – member	0	0	0	0						
Net investment income	2,185,099	6,189,888	5,706,000	7,706,000						
Benefit payments	(70,440,493)	(72,856,866)	(69,117,000)	(71,256,000)						
Administrative expense	(230,442)	(136,356)	(149,000)	(131,000)						
Refunds of contributions	0	0	0	0						
Other	(9,274)	(7,583)	536,000	(546,000)						
Net change in Plan Fiduciary Net Position	\$16,353,960	\$13,114,938	\$16,392,000	\$10,831,000						
Plan Fiduciary Net Position – beginning	\$109,022,938	\$95,908,000	\$79,516,000	\$68,685,000						
Plan Fiduciary Net Position - ending (b)	125,376,898	109,022,938	95,908,000	79,516,000						
Net OPEB Liability - ending (a) - (b)	\$918,006,087	\$923,071,251	\$912,276,000	\$910,512,000						



Schedule A – Required Supplementary Information Tables (continued)

Exhibit A (continued)
GASB 74 Paragraph 36.a.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – TEACHERS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability										
Service Cost	\$21,737,748	\$20,979,295	\$20,887,000	\$20,351,000						
Interest	93,964,690	93,525,939	92,399,000	91,661,000						
Benefit changes	0	0	0	0						
Difference between expected and actual experience	(13,054,307)	(2,398,442)	(7,255,000)	0						
Changes of assumptions	0	35,149,048	0	(15,003,000)						
Benefit payments	(92,086,073)	(90,456,327)	(89,420,000)	(83,510,000)						
Refunds of contributions	0	0	0	0						
Net change in Total OPEB Liability	\$10,562,058	\$56,799,513	\$16,611,000	\$13,499,000						
Total OPEB Liability - beginning	\$1,438,112,513	\$1,381,313,000	\$1,364,702,000	\$1,351,203,000						
Total OPEB Liability - ending (a)	\$1,448,674,571	\$1,438,112,513	\$1,381,313,000	\$1,364,702,000						
Plan Fiduciary Net Position										
Contributions – employer	\$105,208,641	\$100,643,100	\$99,469,000	\$87,613,000						
Contributions – non-employer	0	0	0	0						
Contributions – member	0	0	0	0						
Net investment income	2,291,519	7,349,828	6,097,000	8,818,000						
Benefit payments	(92,086,073)	(90,456,327)	(89,420,000)	(83,510,000)						
Administrative expense	(257,419)	(150,760)	(152,000)	(120,000)						
Refunds of contributions	0	0	0	0						
Other	(13,874)	(9,575)	(446,000)	436,000						
Net change in Plan Fiduciary Net Position	\$15,142,794	\$17,376,266	\$15,548,000	\$13,237,000						
Plan Fiduciary Net Position – beginning	\$129,015,266	\$111,639,000	\$96,091,000	\$82,854,000						
Plan Fiduciary Net Position - ending (b)	144,158,060	129,015,266	111,639,000	96,091,000						
Net OPEB Liability - ending (a) - (b)	\$1,304,516,511	\$1,309,097,247	\$1,269,674,000	\$1,268,611,000						



Schedule A – Required Supplementary Information Tables (continued)

Exhibit A (continued)
GASB 74 Paragraph 36.a.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – POLITICAL LOCAL SUBDIVISIONS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability										
Service Cost	\$1,063,468	\$996,883	\$960,000	\$972,000						
Interest	2,797,046	2,721,403	2,644,000	2,618,000						
Benefit changes	32,237,972	0	0	0						
Difference between expected and actual experience	623,546	964,339	339,000	0						
Changes of assumptions	219,475	1,066,624	0	(1,015,000)						
Benefit payments	(2,996,040)	(2,564,472)	(2,707,000)	(1,676,000)						
Refunds of contributions	0	0	0	0						
Net change in Total OPEB Liability	\$33,945,467	\$3,184,777	\$1,236,000	\$899,000						
Total OPEB Liability - beginning	\$43,544,777	\$40,360,000	\$39,124,000	\$38,225,000						
Total OPEB Liability - ending (a)	\$77,490,244	\$43,544,777	\$40,360,000	\$39,124,000						
Plan Fiduciary Net Position			0	0						
Contributions – employer	\$2,553,186	\$2,406,132	\$2,291,000	\$2,164,000						
Contributions – non-employer	0	0	0	0						
Contributions – member	0	0	0	0						
Net investment income	490,047	1,489,699	1,570,000	2,273,000						
Benefit payments	(2,996,040)	(2,564,472)	(2,707,000)	(1,676,000)						
Administrative expense	(46,684)	(32,491)	(37,000)	(37,000)						
Refunds of contributions	0	0	0	0						
Other	(214)	(699)	(103,000)	111,000						
Net change in Plan Fiduciary Net Position	\$295	\$1,298,169	\$1,014,000	\$2,835,000						
Plan Fiduciary Net Position – beginning	\$24,468,169	\$23,170,000	\$22,156,000	\$19,321,000						
Plan Fiduciary Net Position - ending (b)	24,468,464	24,468,169	23,170,000	22,156,000						
Net OPEB Liability - ending (a) - (b)	\$53,021,780	\$19,076,608	\$17,190,000	\$16,968,000						



Schedule A – Required Supplementary Information Tables (continued)

Exhibit A (continued)
GASB 74 Paragraph 36.a.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – CONSTITUTIONAL OFFICERS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability										
Service Cost	\$746,110	\$687,450	\$677,000	\$671,000						
Interest	2,050,204	2,010,182	1,913,000	1,890,000						
Benefit changes	0	0	0	0						
Difference between expected and actual experience	223,354	97,193	569,000	0						
Changes of assumptions	0	758,619	0	(578,000)						
Benefit payments	(1,969,652)	(1,824,230)	(1,723,000)	(1,568,000)						
Refunds of contributions	0	0	0	0						
Net change in Total OPEB Liability	\$1,050,016	\$1,729,214	\$1,436,000	\$415,000						
Total OPEB Liability - beginning	\$31,358,214	\$29,629,000	\$28,193,000	\$27,778,000						
Total OPEB Liability - ending (a)	\$32,408,230	\$31,358,214	\$29,629,000	\$28,193,000						
Plan Fiduciary Net Position										
Contributions – employer	\$2,525,952	\$2,793,518	\$2,378,000	\$2,320,000						
Contributions – non-employer	0	0	0	0						
Contributions – member	0	0	0	0						
Net investment income	87,685	238,689	183,000	215,000						
Benefit payments	(1,969,652)	(1,824,230)	(1,723,000)	(1,568,000)						
Administrative expense	(9,247)	(5,297)	(4,000)	(4,000)						
Refunds of contributions	0	0	0	0						
Other	(373)	(1,407)	17,000	(15,000)						
Net change in Plan Fiduciary Net Position	\$634,365	\$1,201,273	\$851,000	\$948,000						
Plan Fiduciary Net Position – beginning	\$4,479,273	\$3,278,000	\$2,427,000	\$1,479,000						
Plan Fiduciary Net Position - ending (b)	5,113,638	4,479,273	3,278,000	2,427,000						
Net OPEB Liability - ending (a) - (b)	\$27,294,592	\$26,878,941	\$26,351,000	\$25,766,000						



Schedule A – Required Supplementary Information Tables (continued)

Exhibit A (continued)
GASB 74 Paragraph 36.a.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – SOCIAL SERVICE EMPLOYEES

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability										
Service Cost	\$291,706	\$260,509	\$257,000	\$263,000						
Interest	958,685	960,136	933,000	928,000						
Benefit changes	0	0	0	0						
Difference between expected and actual experience	(106,162)	(26,017)	186,000	0						
Changes of assumptions	0	326,486	0	(162,000)						
Benefit payments	(1,057,648)	(1,011,549)	(970,000)	(928,000)						
Refunds of contributions	0	0	0	0						
Net change in Total OPEB Liability	\$86,581	\$509,565	\$406,000	\$101,000						
Total OPEB Liability - beginning	\$14,731,565	\$14,222,000	\$13,816,000	\$13,715,000						
Total OPEB Liability - ending (a)	\$14,818,146	\$14,731,565	\$14,222,000	\$13,816,000						
Plan Fiduciary Net Position										
Contributions – employer	\$689,238	\$1,847,086	\$1,120,000	\$1,069,000						
Contributions – non-employer	0	0	0	0						
Contributions – member	0	0	0	0						
Net investment income	33,168	121,112	72,000	98,000						
Benefit payments	(1,057,648)	(1,011,549)	(970,000)	(928,000)						
Administrative expense	(3,498)	(2,687)	(1,000)	(2,000)						
Refunds of contributions	0	0	0	0						
Other	(140)	207	7,000	(7,000)						
Net change in Plan Fiduciary Net Position	(\$338,880)	\$954,169	\$228,000	\$230,000						
Plan Fiduciary Net Position – beginning	\$2,273,169	\$1,319,000	\$1,091,000	\$861,000						
Plan Fiduciary Net Position - ending (b)	1,934,289	2,273,169	1,319,000	1,091,000						
Net OPEB Liability - ending (a) - (b)	\$12,883,857	\$12,458,396	\$12,903,000	\$12,725,000						



Schedule A – Required Supplementary Information Tables (continued)

Exhibit A (continued)
GASB 74 Paragraph 36.a.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – REGISTRARS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability										
Service Cost	\$16,383	\$15,879	\$12,000	\$12,000						
Interest	39,605	38,579	36,000	35,000						
Benefit changes	0	0	0	0						
Difference between expected and actual experience	(44,053)	(21,616)	1,000	0						
Changes of assumptions	0	12,295	0	(10,000)						
Benefit payments	(7,308)	(11,746)	(12,000)	(27,000)						
Refunds of contributions	0	0	0	0						
Net change in Total OPEB Liability	\$4,627	\$33,391	\$37,000	\$10,000						
Total OPEB Liability - beginning	\$590,391	\$557,000	\$520,000	\$510,000						
Total OPEB Liability - ending (a)	\$595,018	\$590,391	\$557,000	\$520,000						
Plan Fiduciary Net Position										
Contributions – employer	\$44,084	\$36,652	\$32,000	\$47,000						
Contributions – non-employer	0	0	0	0						
Contributions – member	0	0	0	0						
Net investment income	2,166	4,669	4,000	3,000						
Benefit payments	(7,308)	(11,746)	(12,000)	(27,000)						
Administrative expense	(228)	(104)	0	0						
Refunds of contributions	0	0	0	0						
Other	(9)	161	0	0						
Net change in Plan Fiduciary Net Position	\$38,705	\$29,632	\$24,000	\$23,000						
Plan Fiduciary Net Position – beginning	\$87,632	\$58,000	\$34,000	\$11,000						
Plan Fiduciary Net Position - ending (b)	126,337	87,632	58,000	34,000						
Net OPEB Liability - ending (a) - (b)	\$468,681	\$502,759	\$499,000	\$486,000						



Schedule A – Required Supplementary Information Tables (continued)

Exhibit A (continued)
GASB 74 Paragraph 36.a.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
VIRGINIA SICKNESS AND DISABILITY PROGRAM

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability										
Service Cost	\$32,988,226	\$29,232,681	\$27,527,000	\$27,884,000						
Interest	18,774,704	15,788,140	15,503,000	15,810,000						
Benefit changes	0	0	0	0						
Difference between expected and actual experience	(46,473,031)	29,488,518	(11,237,000)	0						
Changes of assumptions	0	4,180,133	0	(17,511,000)						
Benefit payments	(27,804,857)	(24,376,276)	(31,073,000)	(30,056,000)						
Refunds of contributions	0	0	0	0						
Net change in Total OPEB Liability	(\$22,514,958)	\$54,313,196	\$720,000	(\$3,873,000)						
Total OPEB Liability - beginning	\$292,046,196	\$237,733,000	\$237,013,000	\$240,886,000						
Total OPEB Liability - ending (a)	\$269,531,238	\$292,046,196	\$237,733,000	\$237,013,000						
Plan Fiduciary Net Position										
Contributions – employer	\$26,994,128	\$25,263,285	\$27,260,000	\$24,130,000						
Contributions – non-employer	0	0	0	0						
Contributions – member	0	0	0	0						
Net investment income	9,445,164	30,494,803	32,073,000	48,206,000						
Benefit payments	(27,804,857)	(24,376,276)	(31,073,000)	(30,056,000)						
Administrative expense	(7,242,918)	(7,218,349)	(7,598,000)	(7,718,000)						
Refunds of contributions	0	0	0	0						
Other	586,538	1,117,005	(35,000)	(54,000)						
Net change in Plan Fiduciary Net Position	\$1,978,055	\$25,280,468	\$20,627,000	\$34,508,000						
Plan Fiduciary Net Position – beginning	\$488,241,468	\$462,961,000	\$442,334,000	\$407,826,000						
Plan Fiduciary Net Position - ending (b)	490,219,523	488,241,468	462,961,000	442,334,000						
Net OPEB Liability - ending (a) - (b)	(\$220,688,285)	(\$196,195,272)	(\$225,228,000)	(\$205,321,000)						



Schedule A – Required Supplementary Information Tables (continued)

Exhibit A (continued)
GASB 74 Paragraph 36.a.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
VIRGINIA LOCAL DISABILITY PROGRAM – TEACHERS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability										
Service Cost	\$1,109,166	\$871,314	\$668,000	\$389,000						
Interest	144,114	92,241	57,000	29,000						
Benefit changes	0	0	0	0						
Difference between expected and actual experience	406,500	(18,739)	(66,000)	0						
Changes of assumptions	0	62,309	0	53,000						
Benefit payments	(213,154)	(166,531)	(131,000)	(36,000)						
Refunds of contributions	0	0	0	0						
Net change in Total OPEB Liability	\$1,446,626	\$840,594	\$528,000	\$435,000						
Total OPEB Liability - beginning	\$2,241,594	\$1,401,000	\$873,000	\$438,000						
Total OPEB Liability - ending (a)	\$3,688,220	\$2,241,594	\$1,401,000	\$873,000						
Plan Fiduciary Net Position										
Contributions – employer	\$2,426,541	\$1,966,467	\$1,160,000	\$589,000						
Contributions – non-employer	0	0	0	0						
Contributions – member	0	0	0	0						
Net investment income	44,337	82,562	29,000	0						
Benefit payments	(213,154)	(166,531)	(131,000)	(36,000)						
Administrative expense	(1,032,044)	(869,242)	(870,000)	(568,000)						
Refunds of contributions	0	0	0	0						
Other	0	0	180,000	294,000						
Net change in Plan Fiduciary Net Position	\$1,225,680	\$1,013,256	\$368,000	\$279,000						
Plan Fiduciary Net Position – beginning	\$1,660,256	\$647,000	\$279,000	\$0						
Plan Fiduciary Net Position - ending (b)	2,885,936	1,660,256	647,000	279,000						
Net OPEB Liability - ending (a) - (b)	\$802,284	\$581,338	\$754,000	\$594,000						



Schedule A – Required Supplementary Information Tables (continued)

Exhibit A (continued)
GASB 74 Paragraph 36.a.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
VIRGINIA LOCAL DISABILITY PROGRAM – POLITICAL SUBDIVISIONS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability										
Service Cost	\$1,553,602	\$1,191,102	\$876,000	\$664,000						
Interest	261,270	104,564	58,000	25,000						
Benefit changes	0	0	0	0						
Difference between expected and actual experience	(1,250,879)	1,223,461	(95,000)	0						
Changes of assumptions	0	69,905	0	(110,000)						
Benefit payments	(235,780)	(188,469)	(165,000)	(44,000)						
Refunds of contributions	0	0	0	0						
Net change in Total OPEB Liability	\$328,213	\$2,400,563	\$674,000	\$535,000						
Total OPEB Liability - beginning	\$3,988,563	\$1,588,000	\$914,000	\$379,000						
Total OPEB Liability - ending (a)	\$4,316,776	\$3,988,563	\$1,588,000	\$914,000						
Plan Fiduciary Net Position										
Contributions – employer	\$2,684,118	\$2,225,533	\$1,463,000	\$740,000						
Contributions – non-employer	0	0	0	0						
Contributions – member	0	0	0	0						
Net investment income	49,041	93,438	36,000	0						
Benefit payments	(235,780)	(188,469)	(165,000)	(44,000)						
Administrative expense	(1,141,595)	(983,758)	(1,096,000)	(715,000)						
Refunds of contributions	0	0	0	0						
Other	0	0	227,000	370,000						
Net change in Plan Fiduciary Net Position	\$1,355,784	\$1,146,744	\$465,000	\$351,000						
Plan Fiduciary Net Position – beginning	\$1,962,744	\$816,000	\$351,000	\$0						
Plan Fiduciary Net Position - ending (b)	3,318,528	1,962,744	816,000	351,000						
Net OPEB Liability - ending (a) - (b)	\$998,248	\$2,025,819	\$772,000	\$563,000						



Schedule A – Required Supplementary Information Tables (continued)

Exhibit A (continued)
GASB 74 Paragraph 36.a.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
LINE OF DUTY ACT

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability										
Service Cost	\$16,019,904	\$13,291,201	\$15,197,000	\$17,648,000						
Interest	12,443,573	12,018,858	9,258,000	8,305,000						
Benefit changes	0	0	0	0						
Difference between expected and actual experience	(64,121,505)	14,833,681	51,048,000	0						
Changes of assumptions	109,371,833	18,941,530	(13,962,000)	(30,500,000)						
Benefit payments	(12,191,440)	(12,853,880)	(12,398,000)	(10,255,000)						
Refunds of contributions	0	0	0	0						
Net change in Total OPEB Liability	\$61,522,365	\$46,231,390	\$49,143,000	(\$14,802,000)						
Total OPEB Liability - beginning	\$361,626,390	\$315,395,000	\$266,252,000	\$281,054,000						
Total OPEB Liability - ending (a)	\$423,148,755	\$361,626,390	\$315,395,000	\$266,252,000						
Plan Fiduciary Net Position										
Contributions – employer	\$13,567,000	\$13,377,514	\$10,035,000	\$11,024,000						
Contributions – non-employer	0	0	0	0						
Contributions – member	0	0	0	0						
Net investment income	346,011	278,559	678,000	683,000						
Benefit payments	(12,191,440)	(12,853,880)	(12,398,000)	(10,255,000)						
Administrative expense	(809,880)	(508,490)	(742,000)	(1,283,000)						
Refunds of contributions	0	0	0	0						
Other	581,388	657,542	855,000	584,000						
Net change in Plan Fiduciary Net Position	\$1,493,079	\$951,245	(\$1,572,000)	\$753,000						
Plan Fiduciary Net Position – beginning	\$2,840,245	\$1,889,000	\$3,461,000	\$2,708,000						
Plan Fiduciary Net Position - ending (b)	4,333,324	2,840,245	1,889,000	3,461,000						
Net OPEB Liability - ending (a) - (b)	\$418,815,431	\$358,786,145	\$313,506,000	\$262,791,000						



Schedule A – Required Supplementary Information Tables (continued)

Exhibit B
GASB 74 Paragraph 36.b.
SCHEDULE OF THE NET OPEB LIABILITY
GROUP LIFE INSURANCE PROGRAM

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability	\$3,523,938,338	\$3,390,238,391	\$3,113,508,000	\$2,942,426,000						
Plan Fiduciary Net Position	<u>1,855,102,041</u>	<u>1,762,972,244</u>	<u>1,594,773,000</u>	<u>1,437,586,000</u>						
Net OPEB Liability	\$1,668,836,297	\$1,627,266,147	\$1,518,735,000	\$1,504,840,000						
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	52.64%	52.00%	51.22%	48.86%						
Covered payroll	\$20,612,888,135	\$19,633,771,393	\$19,044,361,000	\$18,473,085,000						
Net OPEB Liability as a percentage of covered payroll	8.10%	8.29%	7.97%	8.15%						

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Schedule A – Required Supplementary Information Tables (continued)

Exhibit B (continued)
GASB 74 Paragraph 36.b.
SCHEDULE OF THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – STATE EMPLOYEES

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability	\$1,043,382,985	\$1,032,094,189	\$1,008,184,000	\$990,028,000						
Plan Fiduciary Net Position	<u>125,376,898</u>	<u>109,022,938</u>	<u>95,908,000</u>	<u>79,516,000</u>						
Net OPEB Liability	\$918,006,087	\$923,071,251	\$912,276,000	\$910,512,000						
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	12.02%	10.56%	9.51%	8.03%						
Covered payroll	\$7,237,090,243	\$6,844,806,570	\$6,762,917,000	\$6,489,070,000						
Net OPEB Liability as a percentage of covered payroll	12.68%	13.49%	13.49%	14.03%						

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Schedule A – Required Supplementary Information Tables (continued)

Exhibit B (continued)
GASB 74 Paragraph 36.b.
SCHEDULE OF THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – TEACHERS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability	\$1,448,674,571	\$1,438,112,513	\$1,381,313,000	\$1,364,702,000						
Plan Fiduciary Net Position	<u>144,158,060</u>	<u>129,015,266</u>	<u>111,639,000</u>	<u>96,091,000</u>						
Net OPEB Liability	\$1,304,516,511	\$1,309,097,247	\$1,269,674,000	\$1,268,611,000						
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	9.95%	8.97%	8.08%	7.04%						
Covered payroll	\$8,766,759,092	\$8,387,683,944	\$8,087,389,000	\$7,892,011,000						
Net OPEB Liability as a percentage of covered payroll	14.88%	15.61%	15.70%	16.07%						

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Schedule A – Required Supplementary Information Tables (continued)

Exhibit B (continued)
GASB 74 Paragraph 36.b.
SCHEDULE OF THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – PARTICIPATING LOCAL SUBDIVISIONS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability	\$77,490,244	\$43,544,777	\$40,360,000	\$39,124,000						
Plan Fiduciary Net Position	<u>24,468,464</u>	<u>24,468,169</u>	<u>23,170,000</u>	<u>22,156,000</u>						
Net OPEB Liability	\$53,021,780	\$19,076,608	\$17,190,000	\$16,968,000						
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	31.58%	56.19%	57.41%	56.63%						
Covered payroll	\$1,477,727,802	\$1,081,702,107	\$1,022,007,000	\$966,611,000						
Net OPEB Liability as a percentage of covered payroll	3.59%	1.76%	1.68%	1.76%						

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Schedule A – Required Supplementary Information Tables (continued)

Exhibit B (continued)
GASB 74 Paragraph 36.b.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – CONSTITUTIONAL OFFICERS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability	\$32,408,230	\$31,358,214	\$29,629,000	\$28,193,000						
Plan Fiduciary Net Position	<u>5,113,638</u>	<u>4,479,273</u>	<u>3,278,000</u>	<u>2,427,000</u>						
Net OPEB Liability	\$27,294,592	\$26,878,941	\$26,351,000	\$25,766,000						
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	15.78%	14.28%	11.06%	8.61%						
Covered payroll	\$719,390,262	\$682,376,495	\$655,995,000	\$633,397,000						
Net OPEB Liability as a percentage of covered payroll	3.79%	3.94%	4.02%	4.07%						

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Schedule A – Required Supplementary Information Tables (continued)

Exhibit B (continued)
GASB 74 Paragraph 36.b.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – SOCIAL SERVICE EMPLOYEES

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability	\$14,818,146	\$14,731,565	\$14,222,000	\$13,816,000						
Plan Fiduciary Net Position	<u>1,934,289</u>	<u>2,273,169</u>	<u>1,319,000</u>	<u>1,091,000</u>						
Net OPEB Liability	\$12,883,857	\$12,458,396	\$12,903,000	\$12,725,000						
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	13.05%	15.43%	9.27%	7.90%						
Covered payroll	\$298,257,011	\$279,502,951	\$263,298,000	\$251,084,000						
Net OPEB Liability as a percentage of covered payroll	4.32%	4.46%	4.90%	5.07%						

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Schedule A – Required Supplementary Information Tables (continued)

Exhibit B (continued)
GASB 74 Paragraph 36.b.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
HEALTH INSURANCE CREDIT PROGRAM – REGISTRARS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability	\$595,018	\$590,391	\$557,000	\$520,000						
Plan Fiduciary Net Position	<u>126,337</u>	<u>87,632</u>	<u>58,000</u>	<u>34,000</u>						
Net OPEB Liability	\$468,681	\$502,759	\$499,000	\$486,000						
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	21.23%	14.84%	10.41%	6.54%						
Covered payroll	\$12,745,182	\$11,769,971	\$11,512,000	\$11,047,000						
Net OPEB Liability as a percentage of covered payroll	3.68%	4.27%	4.33%	4.40%						

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Schedule A – Required Supplementary Information Tables (continued)

Exhibit B (continued)
GASB 74 Paragraph 36.b.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
VIRGINIA SICKNESS AND DISABILITY PROGRAM

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability	\$269,531,238	\$292,046,196	\$237,733,000	\$237,013,000						
Plan Fiduciary Net Position	<u>490,219,523</u>	<u>488,241,468</u>	<u>462,961,000</u>	<u>442,334,000</u>						
Net OPEB Liability	(\$220,688,285)	(\$196,195,272)	(\$225,228,000)	(\$205,321,000)						
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	181.88%	167.18%	194.74%	186.63%						
Covered payroll	\$4,365,296,334	\$4,077,627,119	\$3,972,637,000	\$3,799,590,000						
Net OPEB Liability as a percentage of covered payroll	-5.06%	-4.81%	-5.67%	-5.40%						

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Schedule A – Required Supplementary Information Tables (continued)

Exhibit B (continued)
GASB 74 Paragraph 36.b.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
VIRGINIA LOCAL DISABILITY PROGRAM – TEACHERS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability	\$3,688,220	\$2,241,594	\$1,401,000	\$873,000						
Plan Fiduciary Net Position	<u>2,885,936</u>	<u>1,660,256</u>	<u>647,000</u>	<u>279,000</u>						
Net OPEB Liability	\$802,284	\$581,338	\$754,000	\$594,000						
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	78.25%	74.07%	46.18%	31.96%						
Covered payroll	\$591,499,397	\$479,534,728	\$372,869,000	\$282,200,000						
Net OPEB Liability as a percentage of covered payroll	0.14%	0.12%	0.20%	0.21%						

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Schedule A – Required Supplementary Information Tables (continued)

Exhibit B (continued)
GASB 74 Paragraph 36.b.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
VIRGINIA LOCAL DISABILITY PROGRAM – POLITICAL SUBDIVISIONS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability	\$4,316,776	\$3,988,563	\$1,588,000	\$914,000						
Plan Fiduciary Net Position	<u>3,318,528</u>	<u>1,962,744</u>	<u>816,000</u>	<u>351,000</u>						
Net OPEB Liability	\$998,248	\$2,025,819	\$772,000	\$563,000						
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	76.88%	49.21%	51.39%	38.40%						
Covered payroll	\$372,635,444	\$309,020,387	\$242,807,000	\$183,629,000						
Net OPEB Liability as a percentage of covered payroll	0.27%	0.66%	0.32%	0.31%						

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Schedule A – Required Supplementary Information Tables (continued)

Exhibit B (continued)
GASB 74 Paragraph 36.b.
SCHEDULE OF CHANGES IN THE NET OPEB LIABILITY
LINE OF DUTY ACT

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB Liability	\$423,148,755	\$361,626,390	\$315,395,000	\$266,252,000						
Plan Fiduciary Net Position	<u>4,333,324</u>	<u>2,840,245</u>	<u>1,889,000</u>	<u>3,461,000</u>						
Net OPEB Liability	\$418,815,431	\$358,786,145	\$313,506,000	\$262,791,000						
Ratio of Plan Fiduciary Net Position to Total OPEB Liability	1.02%	0.79%	0.60%	1.30%						
Covered payroll	n/a	n/a	n/a	n/a						
Net OPEB Liability as a percentage of covered payroll	n/a	n/a	n/a	n/a						

Note: Schedule is intended to show 10-year trend. Additional years will be reported as they become available.



Schedule A – Required Supplementary Information Tables (continued)

Exhibit C
GASB 74 Paragraph 36.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS
GROUP LIFE INSURANCE PROGRAM

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	\$107,187,018	\$102,095,611	\$99,031,000	\$241,997,000	\$237,558,000	\$231,283,000	\$228,086,000	\$221,622,000	\$181,527,000	\$177,378,000
Actual employer contributions	<u>107,187,018</u>	<u>102,095,611</u>	<u>99,031,000</u>	<u>241,997,000</u>	<u>214,162,000</u>	<u>208,505,000</u>	<u>205,623,000</u>	<u>199,796,000</u>	<u>47,293,000</u>	<u>44,744,000</u>
Annual contribution deficiency (excess)	\$0	\$0	\$0	\$0	\$23,396,000	\$22,778,000	\$22,463,000	\$21,826,000	\$134,234,000	\$132,634,000
Covered payroll	\$20,612,888,135	\$19,633,771,393	\$19,044,361,000	\$18,473,085,000	\$17,996,821,000	\$17,521,463,000	\$17,279,273,000	\$16,884,223,000	\$16,446,009,000	\$15,980,013,000
Actual contributions as a percentage of covered payroll	0.52%	0.52%	0.52%	1.31%	1.19%	1.19%	1.19%	1.18%	0.29%	0.28%



Schedule A – Required Supplementary Information Tables (continued)

Exhibit C (continued)
GASB 74 Paragraph 36.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS
HEALTH INSURANCE CREDIT PROGRAM – STATE EMPLOYEES

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	\$84,673,956	\$80,084,237	\$79,802,000	\$76,571,000	\$73,961,000	\$71,522,000	\$63,385,000	\$59,617,000	\$60,222,000	\$57,193,000
Actual employer contributions	<u>84,673,956</u>	<u>80,084,237</u>	<u>79,802,000</u>	<u>76,571,000</u>	<u>66,375,000</u>	<u>64,186,000</u>	<u>60,366,000</u>	<u>56,778,000</u>	<u>7,686,000</u>	<u>5,396,000</u>
Annual contribution deficiency (excess)	\$0	\$0	\$0	\$0	\$7,586,000	\$7,336,000	\$3,019,000	\$2,839,000	\$2,536,000	\$51,797,000
Covered payroll	\$7,237,090,243	\$6,844,806,570	\$6,762,917,000	\$6,489,070,000	\$6,321,454,000	\$6,112,950,000	\$6,036,628,000	\$5,677,848,000	\$5,681,295,000	\$5,395,597,000
Actual contributions as a percentage of covered payroll	1.17%	1.17%	1.18%	1.18%	1.05%	1.05%	1.00%	1.00%	0.14%	0.10%



Schedule A – Required Supplementary Information Tables (continued)

Exhibit C (continued)
GASB 74 Paragraph 36.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS
HEALTH INSURANCE CREDIT PROGRAM – TEACHERS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	\$105,201,109	\$100,652,207	\$99,475,000	\$97,072,000	\$89,976,000	\$87,739,000	\$85,571,000	\$83,763,000	\$75,999,000	\$74,522,000
Actual employer contributions	<u>105,201,109</u>	<u>100,652,207</u>	<u>99,475,000</u>	<u>87,601,000</u>	<u>80,826,000</u>	<u>78,817,000</u>	<u>81,183,000</u>	<u>79,468,000</u>	<u>42,222,000</u>	<u>41,401,000</u>
Annual contribution deficiency (excess)	\$0	\$0	\$0	\$9,471,000	\$9,150,000	\$8,922,000	\$4,388,000	\$4,295,000	\$33,777,000	\$33,121,000
Covered payroll	\$8,766,759,092	\$8,387,683,944	\$8,087,389,000	\$7,892,011,000	\$7,625,071,000	\$7,435,548,000	\$7,313,792,000	\$7,159,267,000	\$7,036,940,000	\$6,900,183,000
Actual contributions as a percentage of covered payroll	1.20%	1.20%	1.23%	1.11%	1.06%	1.06%	1.11%	1.11%	0.60%	0.60%



Schedule A – Required Supplementary Information Tables (continued)

Exhibit C (continued)
GASB 74 Paragraph 36.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS
HEALTH INSURANCE CREDIT PROGRAM – PARTICIPATING LOCAL SUBDIVISIONS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	\$2,494,310	\$2,353,489	\$2,208,000	\$2,088,000	\$1,923,000	\$1,859,000	\$1,875,000	\$2,035,000	\$1,974,000	\$1,940,000
Actual employer contributions	<u>2,494,310</u>	<u>2,353,489</u>	<u>2,208,000</u>	<u>2,088,000</u>	<u>1,923,000</u>	<u>1,859,000</u>	<u>1,875,000</u>	<u>2,035,000</u>	<u>1,974,000</u>	<u>1,940,000</u>
Annual contribution deficiency (excess)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Covered payroll	\$1,477,727,802	\$1,081,702,107	\$1,022,007,000	\$966,611,000	\$921,923,000	\$886,366,000	\$859,540,000	\$1,019,421,000	\$980,836,000	\$965,450,000
Actual contributions as a percentage of covered payroll	0.17%	0.22%	0.22%	0.22%	0.21%	0.21%	0.22%	0.20%	0.20%	0.20%



Schedule A – Required Supplementary Information Tables (continued)

Exhibit C (continued)
GASB 74 Paragraph 36.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS
HEALTH INSURANCE CREDIT PROGRAM – CONSTITUTIONAL OFFICERS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	\$2,733,683	\$2,593,031	\$2,362,000	\$2,280,000	n/a	n/a	n/a	n/a	n/a	n/a
Actual employer contributions	<u>2,733,683</u>	<u>2,593,031</u>	<u>2,362,000</u>	<u>2,280,000</u>	n/a	n/a	n/a	n/a	n/a	n/a
Annual contribution deficiency (excess)	\$0	\$0	\$0	\$0	n/a	n/a	n/a	n/a	n/a	n/a
Covered payroll	\$719,390,262	\$682,376,495	\$655,995,000	\$633,397,000	n/a	n/a	n/a	n/a	n/a	n/a
Actual contributions as a percentage of covered payroll	0.38%	0.38%	0.36%	0.36%	n/a	n/a	n/a	n/a	n/a	n/a



Schedule A – Required Supplementary Information Tables (continued)

Exhibit C (continued)
GASB 74 Paragraph 36.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS
HEALTH INSURANCE CREDIT PROGRAM – SOCIAL SERVICE EMPLOYEES

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	\$1,282,505	\$1,201,863	\$1,106,000	\$1,055,000	n/a	n/a	n/a	n/a	n/a	n/a
Actual employer contributions	<u>1,282,505</u>	<u>1,201,863</u>	<u>1,106,000</u>	<u>1,055,000</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
Annual contribution deficiency (excess)	\$0	\$0	\$0	\$0	n/a	n/a	n/a	n/a	n/a	n/a
Covered payroll	\$298,257,011	\$279,502,951	\$263,298,000	\$251,084,000	n/a	n/a	n/a	n/a	n/a	n/a
Actual contributions as a percentage of covered payroll	0.43%	0.43%	0.42%	0.42%	n/a	n/a	n/a	n/a	n/a	n/a



Schedule A – Required Supplementary Information Tables (continued)

Exhibit C (continued)
GASB 74 Paragraph 36.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS
HEALTH INSURANCE CREDIT PROGRAM – REGISTRARS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	\$49,706	\$45,903	\$47,000	\$45,000	n/a	n/a	n/a	n/a	n/a	n/a
Actual employer contributions	<u>49,706</u>	<u>45,903</u>	<u>47,000</u>	<u>45,000</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
Annual contribution deficiency (excess)	\$0	\$0	\$0	\$0	n/a	n/a	n/a	n/a	n/a	n/a
Covered payroll	\$12,745,182	\$11,769,971	\$11,512,000	\$11,047,000	n/a	n/a	n/a	n/a	n/a	n/a
Actual contributions as a percentage of covered payroll	0.39%	0.39%	0.41%	0.41%	n/a	n/a	n/a	n/a	n/a	n/a



Schedule A – Required Supplementary Information Tables (continued)

Exhibit C (continued)
GASB 74 Paragraph 36.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS
VIRGINIA SICKNESS AND DISABILITY PROGRAM

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	\$27,064,837	\$25,281,288	\$26,219,000	\$25,077,000	\$27,187,000	\$26,244,000	\$20,610,000	\$21,032,000	\$30,285,000	\$28,646,000
Actual employer contributions	<u>27,064,837</u>	<u>25,281,288</u>	<u>26,219,000</u>	<u>25,077,000</u>	<u>24,580,000</u>	<u>23,728,000</u>	<u>16,701,000</u>	<u>17,043,000</u>	<u>1,096,000</u>	<u>0</u>
Annual contribution deficiency (excess)	\$0	\$0	\$0	\$0	\$2,607,000	\$2,516,000	\$3,909,000	\$3,989,000	\$29,189,000	\$28,646,000
Covered payroll	\$4,365,296,334	\$4,077,627,119	\$3,972,637,000	\$3,799,590,000	\$3,724,248,000	\$3,595,080,000	\$3,553,444,000	\$3,626,208,000	\$4,037,955,000	\$3,819,462,000
Actual contributions as a percentage of covered payroll	0.62%	0.62%	0.66%	0.66%	0.66%	0.66%	0.47%	0.47%	0.03%	0.00%



Schedule A – Required Supplementary Information Tables (continued)

Exhibit C (continued)
GASB 74 Paragraph 36.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS
VIRGINIA LOCAL DISABILITY PROGRAM - TEACHERS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	\$2,425,148	\$1,966,092	\$1,156,000	\$875,000	\$536,000	\$276,000	\$10,000	n/a	n/a	n/a
Actual employer contributions	<u>2,425,148</u>	<u>1,966,092</u>	<u>1,156,000</u>	<u>875,000</u>	<u>536,000</u>	<u>276,000</u>	<u>10,000</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
Annual contribution deficiency (excess)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	n/a	n/a	n/a
Covered payroll	\$591,499,397	\$479,534,728	\$372,869,000	\$282,200,000	\$184,729,000	\$95,328,000	\$3,549,000	n/a	n/a	n/a
Actual contributions as a percentage of covered payroll	0.41%	0.41%	0.31%	0.31%	0.29%	0.29%	0.28%	n/a	n/a	n/a



Schedule A – Required Supplementary Information Tables (continued)

Exhibit C (continued)
GASB 74 Paragraph 36.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS
VIRGINIA LOCAL DISABILITY PROGRAM – POLITICAL SUBDIVISIONS

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	\$2,682,975	\$2,224,947	\$1,457,000	\$1,102,000	\$741,000	\$377,000	\$41,000	n/a	n/a	n/a
Actual employer contributions	<u>2,682,975</u>	<u>2,224,947</u>	<u>1,457,000</u>	<u>1,102,000</u>	<u>741,000</u>	<u>377,000</u>	<u>41,000</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
Annual contribution deficiency (excess)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	n/a	n/a	n/a
Covered payroll	\$372,635,444	\$309,020,387	\$242,807,000	\$183,629,000	\$123,509,000	\$62,801,000	\$6,818,000	n/a	n/a	n/a
Actual contributions as a percentage of covered payroll	0.72%	0.72%	0.60%	0.60%	0.60%	0.60%	0.60%	n/a	n/a	n/a



Schedule A – Required Supplementary Information Tables (continued)

Exhibit C (continued)
GASB 74 Paragraph 36.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS
LINE OF DUTY ACT

Year Ending June 30	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	\$24,480,605	\$24,175,991	\$23,214,000	\$23,503,000	\$23,328,000	\$23,847,000	\$22,103,000	\$21,895,000	\$25,033,000	n/a
Actual employer contributions	<u>13,590,041</u>	<u>13,421,220</u>	<u>10,652,000</u>	<u>10,785,000</u>	<u>9,756,000</u>	<u>9,974,000</u>	<u>10,381,000</u>	<u>9,341,000</u>	<u>8,323,000</u>	n/a
Annual contribution deficiency (excess)	<u>\$10,890,564</u>	<u>\$10,754,771</u>	<u>\$12,562,000</u>	<u>\$12,718,000</u>	<u>\$13,572,000</u>	<u>\$13,873,000</u>	<u>\$11,722,000</u>	<u>\$12,554,000</u>	<u>\$16,710,000</u>	n/a
Covered payroll	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Actual contributions as a percentage of covered payroll	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a



Schedule B – Summary of Main Benefit Provisions

SUMMARY OF MAIN BENEFIT AND CONTRIBUTION PROVISIONS

This schedule summarizes the major retirement benefit provisions of VRS included in the valuations. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Benefit Provisions which apply to all VRS Plans

Plan Year:	Twelve-month period ending June 30th.
Administration:	All plans are administered by the Board of Trustees of the Virginia Retirement System.
Plan 1:	Members hired prior to July 1, 2010 and who were vested as of January 1, 2013.
Plan 2:	Members hired on or after July 1, 2010, or members hired prior to July 1, 2010 and who were not vested as of January 1, 2013. Members hired after January 1, 2014 in the State Police and Virginia Law Officers Plans are in Plan 2.
Hybrid:	Members hired on or after January 1, 2014 or by member election. There is no Hybrid Plan in the State Police and Virginia Law Officers Plans.
Eligibility:	All full-time, salaried, permanent employees of the Commonwealth of Virginia or of any participating Virginia city, county, town, or political subdivision or of any local Virginia school boards are eligible to become members of VRS. This summary covers the provisions relating to state employees.



Schedule B – Summary of Main Benefit Provisions (continued)

GROUP LIFE INSURANCE PROGRAM

The Group Life Insurance Program is administered by the Board of Trustees for the Virginia Retirement System (VRS). Contributions received are held in trust. Premiums for active employees are paid to Minnesota Life which in turn pays the life insurance proceeds to the beneficiaries. Payments for postemployment benefits are made by Minnesota Life and reimbursed by the Trust. The Board sets administrative policy and determines the allocation of the assets held for investment.

The following persons are eligible to participate in the Group Life Insurance Program: Teachers, State Employees, State Police (SPORS), Judicial Employees (JRS), Virginia Law Officers (VaLORS) and those VRS members receiving long-term disability benefits from the Virginia Sickness and Disability Program (VSDP), the Virginia Local Disability Program (VLDP), or, if the employer opted-out of VLDP during the election period, a comparable plan. In addition, local political subdivisions may elect coverage. Substantially all local units covered by VRS have elected coverage in the Group Life Insurance Program, as have other political subdivisions not providing VRS pension benefits. Also, certain members of the Optional Retirement Plan (ORP) have life insurance coverage. Although certain members who were employed at the time of initial coverage under the Group Life Insurance Program may decline coverage, substantially all full-time, permanent employees participate.

Each active member is entitled to a death benefit from this plan equal to two times the member's annual rate of compensation, rounded up to the next higher multiple of \$1,000. This benefit is provided for by the purchase of a group term life insurance contract from an insurance company. Active members may also be covered by Accidental Death and Dismemberment insurance, and they may elect additional amounts of insurance. These benefits are excluded from this valuation.

Each service retiree will be entitled to a death benefit from this plan equal to the amount in effect immediately before his/her termination or retirement, reduced by 25% on January 1 of the first full year following the date the employee is separated from service and each year thereafter. In no event will the death benefit be less than 25% of the amount in effect at the date of termination or retirement or \$8,000 for members who retire with at least 30 years of creditable service (the \$8,000 is increased by the same percentage as any annual post-retirement supplement for retirees, as calculated for employees hired on or after July 1, 2010).

Each disabled member, including those receiving benefits from VSDP or VLDP, will be entitled to a death benefit from this plan, similar to the service retiree benefit, except the 25% per year reduction does not begin until the member reaches Normal Retirement Age, or the retirement date, if later. Members participating in VLDP (or a comparable plan) and State, VaLORS, and SPORS members participating in VSDP and hired on or after July 1, 2009 need at least one year of service before the member is eligible for a non-service related life insurance benefit from the Plan. The postemployment death benefit is paid for by an addition to the contribution required to provide the



Schedule B – Summary of Main Benefit Provisions (continued)

active member benefit. While the active member portion of the contribution is used to purchase group term life insurance from an insurance company, the postemployment portion of the contribution is held in a trust until required to pay benefits. The postemployment contribution is actuarially determined by this valuation.

HEALTH INSURANCE CREDIT PROGRAM

If an eligible employee has worked for more than one employer in VRS, for the purpose of this valuation, their most current (or last) employer providing HIC benefits assumes full liability for that employee.

STATE EMPLOYEES (State, SPORS, JRS, VaLORS, ORP, and UVA)

The Commonwealth shall provide a credit toward the cost of health insurance coverage for any former state employee who retired under the Virginia Retirement System (State), State Police Officers' Retirement System (SPORS), Judicial Retirement System (JRS), or Virginia Law Officers' Retirement System (VaLORS) and who rendered at least 15 years of total creditable service under the Retirement System or rendered service as a temporary employee of the General Assembly in 1972 and became a member of the retirement system from 1972 to 1985 immediately following such temporary service. The amount of each monthly health insurance credit shall be \$4 per year of creditable service, which shall be credited monthly to any retired employee participating in the Health Insurance Credit Program. However, such credit shall not exceed a beneficiary's qualified medical expenses.

An employee who retired under an Optional Retirement Plan (ORP) or the University of Virginia (UVA) may qualify for the health insurance credit if the retiree has at least 15 years of coverage under the ORP, UVA, or a combination of VRS service credit and ORP or UVA coverage equal to at least 15 years.

Disabled State retirees and Virginia Sickness and Disability Program (VSDP) beneficiaries shall receive a maximum monthly credit, which is the greater of (i) \$120, (ii) \$4 per year for each year of creditable service at the time of disability retirement, or (iii) \$4 per year for each year of creditable service at the time of eligibility for postemployment disability benefits. State, VaLORS, and SPORS employees participating in VSDP who receive long-term disability benefits from VSDP shall receive a monthly credit of \$120, or \$4 per year of creditable service at the time of disability, whichever is greater. Those employees participating in VSDP and hired on or after July 1, 2009 are required to earn one year of service to be eligible for the non-service related Health Insurance Credit disability benefit.



Schedule B – Summary of Main Benefit Provisions (continued)

TEACHERS

A member who retired under the Virginia Retirement System and who rendered at least 15 years of total creditable service under VRS shall receive a health insurance credit to his monthly retirement allowance, which shall be applied to reduce the retired member's health insurance premium cost. The amount of each monthly health insurance credit shall be \$4 for each full year of the retired member's creditable service. However, such credit shall not exceed a beneficiary's qualified medical expenses.

Disabled Teacher retirees and Virginia Local Disability Program (VLDP) beneficiaries (or, if the employer opted-out of VLDP during the election period, a comparable plan) shall receive a monthly health insurance credit of \$4 multiplied by the lesser of (i) twice the amount of his creditable service or (ii) the amount of creditable service he would have completed at age 60 if he had remained in service to that age. Eligibility for the credit shall be determined in a manner prescribed by the Virginia Retirement System. Those employees participating in VLDP (or, if the employer opted-out of VLDP during the election period, a comparable plan) and hired on or after July 1, 2009 are required to earn one year of service to be eligible for the non-service related Health Insurance Credit disability benefit.

POLITICAL SUBDIVISIONS

Political subdivisions participating in the Virginia Retirement System (VRS) may elect to provide a credit toward the cost of health insurance coverage for any former employee who retired under VRS with at least 15 years of total creditable service. The amount of each monthly health insurance credit shall be \$1.50 per year of creditable service, which amount shall be paid monthly to any retired employee participating in the Health Insurance Credit Program. A maximum monthly benefit of \$45 applies to non-school division retirees. However, such credit shall not exceed the health insurance premium for retiree.

Disabled retirees are eligible to receive a maximum monthly credit of \$45.

In addition to the above mentioned health insurance credit, this locality has chosen to provide an additional health insurance credit of \$1 per month for each full year of the retired member's creditable service, not to exceed a maximum monthly credit of \$30. This additional benefit is available for retired constitutional officers, employees of constitutional officers, general registrars, employees of general registrars, and local social service employees.



Schedule B – Summary of Main Benefit Provisions (continued)

SPECIAL COVERGE GROUPS

A local officer, as defined in the Code of Virginia §51.1-124.3, retired under the Virginia Retirement System (VRS) who rendered at least 15 years of total creditable service under VRS shall receive a monthly health insurance credit of \$1.50 per year of creditable service, not to exceed a maximum monthly credit of \$45. However, such credit shall not exceed the health insurance premium for the retiree.

Disabled retirees are eligible to receive a maximum monthly credit of \$45.

VIRGINIA SICKNESS AND DISABILITY PROGRAM

The following employees are eligible for VSDP benefits: full-time and part-time salaried state employees who are active members of the Virginia Retirement System (State), active members of the State Police Officers' Retirement System (SPORS), and active members of the Virginia Law Officers' Retirement System (VaLORS). Newly hired or appointed faculty of state universities of higher education in teaching, research or administrative positions who elect VRS as their retirement plan, may elect coverage under VSDP or any disability plan offered by the institution. If the institution does not offer an alternative disability plan, the faculty member is automatically covered under VSDP. Any eligible employee hired on or after July 1, 2009, shall not be eligible to receive VSDP long-term disability (LTD) benefits for non-work related disabilities prior to the completion of one continuous year of employment.

LTD benefits provide income replacement for members who become disabled and are unable to work for an extended period of time. LTD benefits begin at the expiration of the maximum period of short-term disability. While on long-term disability, members continue to accrue service as a VRS-covered member. LTD recipients are not considered employees of the Commonwealth of Virginia while they are on long-term disability.

Upon attaining the normal retirement age while on LTD, a member is required to retire. However, if the member becomes disabled within five years of the normal retirement age, they will be eligible, for up to five years, to receive VSDP LTD benefits, provided the member remains medically eligible. Once such member receives VSDP LTD benefits for five years, the member must retire.

Members are eligible to receive LTD benefits while working. Long-term disability-working status is in effect if members are able to work at least 20 hours a week, but are restricted from performing the full duties of their job or working a regular schedule. A member must have returned to work with modified duties while on short-term disability to be eligible for long-term disability-working status. The benefit will be adjusted by income or wages a member earns. During the first six months of long-term disability-working, the benefit amount will be adjusted by 60 percent of income or wages earned from employment. After the first six months of long-term disability-working, the benefit amount will be adjusted by 70 percent of income or wages earned from employment.



Schedule B – Summary of Main Benefit Provisions (continued)

LTD benefits provide members with an income replacement of 60 percent of a member's pre-disability income, or 80 percent for a catastrophic condition. For valuation purposes, a 2.50% Cost of Living Adjustment (COLA) is assumed for participating Plan 1 members of State, SPORS and VaLORS. For participating Plan 2 and Hybrid Plan members of State, SPORS, and VaLORS, a 2.25% COLA is assumed for the purpose of this valuation. LTD recipients are also eligible for benefits under the Health Insurance Credit Program (HIC) and are eligible for benefits under the Group Life Insurance Program (GLI). The liability associated with HIC and GLI for LTD recipients is not included as a VSDP liability, and is valued under the actuarial valuation of the HIC and GLI plans.

The LTD benefit is adjusted by any payments received as a result of the same disability from wages and salary from employment. Wages and salary include income reported on W-2 forms and income from self-employment. During the first six months on long-term disability, the amount of the adjustment depends on the income replacement level under VSDP.

LTD benefits end if the member: is able to perform the full duties of their job without restrictions, leaves covered employment and takes a refund of their member contributions and interest in their member contribution account, applies for service retirement or reaches normal retirement age, or the member does not cooperate or comply with the requirements of VSDP.

The purpose of the long-term care (LTC) benefit under VSDP is to provide members financial assistance towards long-term care services needed as a result of a catastrophic illness, injury or aging. Specifically, the LTC benefit under VSDP provides a \$96 per day indemnity benefit to reimburse qualified nursing home and assisted living costs. Additional LTC benefits are provided for qualified home health care services (50% of the nursing home daily benefit amount), and informal care (25% of the nursing home daily benefit amount). LTC benefits are paid after a 90-day elimination period following a member's certification to be unable to perform two of six activities of daily living or having a severe cognitive impairment. LTC benefits are tax qualified under the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

The LTC benefit has a lifetime maximum benefit of \$70,080 based upon a two-year maximum coverage period with a \$96 daily benefit amount (DBA) paid for nursing home care. At VRS' discretion, the DBA may be increased for inflation every five years in the amount of 5%, compounded annually since the previous increase. Since the LTC benefit's inception, VRS has elected to increase the DBA once (December of 2007). As such, the valuation does not include a provision for increases to the DBA. If the LTC benefit policy is to provide increases at regular intervals, the resulting liability will be materially greater than the results presented (i.e., inflation increases are not assumed to be pre-funded).

While actively employed or receiving LTD benefits, a member receives coverage in the amount currently in place for the actively employed group. Upon termination of employment, a member has the option to port the amount of coverage current for the actively employed group by paying a premium based upon the member's age at entry into VSDP.



Schedule B – Summary of Main Benefit Provisions (continued)

VIRGINIA LOCAL DISABILITY PROGRAM

The VLDP provides disability benefits for those Hybrid Plan members of Teachers and Political Subdivisions (excluding members with enhanced hazardous duty coverage) that elect to participate in VLDP.

Long-term disability (LTD) benefits provide income replacement for members who become disabled and are unable to work for an extended period of time. LTD benefits begin at the expiration of the maximum period of short-term disability. While on long-term disability, members continue to accrue service as a VRS-covered member. LTD recipients are not considered employees of their associated employer group while they are on long-term disability.

In addition an income replacement benefit, disabled members participating in the Hybrid Plan may be eligible to receive a one percent employer contribution to their defined contribution account. To be eligible for the one percent mandatory employer contribution, a Hybrid Plan member must be permanently and totally disabled as defined in §22(e)(3) of the Internal Revenue Code (Social Security Definition of Disability).

Upon attaining the normal retirement age while on LTD, a member is required to retire. However, if the member becomes approved for supplemental disability benefits on or after age 60 they will be eligible to receive VLDP LTD benefits, provided the member remains medically eligible, based on the chart below:

Ages Approved for Supplemental Disability Benefits	Supplemental Disability Benefit Eligibility Period*
60 – 64	5 Years
65 – 68	To Age 70
69 and Older	1 Year

*Eligibility period includes short-term disability and long-term disability

Members are eligible to receive LTD benefits while working. Long-term disability-working status is in effect if members are able to work at least 20 hours a week, but are restricted from performing the full duties of their job or working a regular schedule. A member must have returned to work with modified duties while on short-term disability to be eligible for long-term disability-working status. The benefit will be adjusted by income or wages a member earns. During the first six months of long-term disability-working, the benefit amount will be adjusted by 60 percent of income or wages earned from employment. After the first six months of long-term disability-working, the benefit amount will be adjusted by 70 percent of income or wages earned from employment.



Schedule B – Summary of Main Benefit Provisions (continued)

LTD benefits provide members with an income replacement of 60 percent of a member's pre-disability income, or 80 percent for a catastrophic condition. LTD recipients are also eligible for benefits under the Health Insurance Credit Program (HIC) and are eligible for benefits under the Group Life Insurance Program (GLI). The liability associated with HIC and GLI for LTD recipients is not included as a VLDP liability, and is valued under the actuarial valuation of the HIC and GLI plans.

The LTD benefit is adjusted by any payments received as a result of the same disability from wages and salary from employment. Wages and salary include income reported on W-2 forms and income from self-employment. During the first six months on long-term disability, the amount of the adjustment depends on the income replacement level under VLDP.

LTD benefits end if the member: is able to perform the full duties of their job without restrictions, leaves covered employment and takes a refund of their member contributions and interest in their member contribution account, applies for service retirement or reaches normal retirement age, or the member does not cooperate or comply with the requirements of VLDP.

The purpose of the long-term care (LTC) benefit under VLDP is to provide members financial assistance towards long-term care services needed as a result of a catastrophic illness, injury or aging. Specifically, the LTC benefit under VLDP provides a \$96 per day indemnity benefit to reimburse qualified nursing home and assisted living costs. Additional LTC benefits are provided for qualified home health care services (50% of the nursing home daily benefit amount), and informal care (25% of the nursing home daily benefit amount). LTC benefits are paid after a 90-day elimination period following a member's certification to be unable to perform two of six activities of daily living or having a severe cognitive impairment. LTC benefits are tax qualified under the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

The LTC benefit has a lifetime maximum benefit of \$70,080 based upon a two-year maximum coverage period with a \$96 daily benefit amount (DBA) paid for nursing home care. At VRS' discretion, the DBA may be increased for inflation every five years in the amount of 5%, compounded annually since the previous increase. Since the LTC benefit's inception, VRS has elected to increase the DBA once (December of 2007). As such, the valuation does not include a provision for increases to the DBA. If the LTC benefit policy is to provide increases at regular intervals, the resulting liability will be materially greater than the results presented (i.e., inflation increases are not assumed to be pre-funded).

While actively employed or receiving LTD benefits, a member receives coverage in the amount currently in place for the actively employed group. Upon termination of employment, a member has the option to port the amount of coverage current for the actively employed group by paying a premium based upon the member's age at entry into VLDP.



Schedule B – Summary of Main Benefit Provisions (continued)

LINE OF DUTY ACT

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



Schedule B – Summary of Main Benefit Provisions (continued)

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.

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.

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.



Schedule B – Summary of Main Benefit Provisions (continued)

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 B – Summary of Main Benefit Provisions (continued)

Changes associated with HB 1345 (2016) and HB 2243 (2017)

Health care benefits were assumed to be uniform amongst Plan beneficiaries to reflect the changes brought about by the passage of HB 1345 (2016) and HB 2243 (2017). The legislation revised the Line of Duty Act by transferring overall administration of eligibility determinations to VRS and administration of health insurance benefits to the Department of Human Resource Management (DHRM) and creates state-wide health insurance plans for all LODA beneficiaries, with separate plans based on Medicare eligibility. The legislation became effective July 1, 2017 and is included in this valuation. Here, the assumed health care costs were based upon the premium amounts provided by the DHRM actuaries which used experience of those State Employees currently receiving health care benefits from the Plan

Changes associated with HB 1345 (2016) and HB 2243 (2017) that were not considered in the June 30, 2017 valuation include the following. These changes were not considered because they are difficult to quantify with limited experience. These changes will continue to be monitored and will be revisited if and when sufficient experience develops.

- The discontinuance of spouse health care coverage if a covered spouse divorces a disabled employee or a covered surviving spouse remarries.
- The potential for VRS' periodic review of the disability status of a disabled employee.
- For those Plan beneficiaries who become eligible for health care benefits as the result of a disability occurring after June 30, 2017, the suspension of health care benefits in years when VRS verifies current income exceeds salary at the time of the disability, indexed for inflation.

Changes associated with HB 1345 (2016) and HB 2243 (2017) that are included in the plan provisions and assumed to be included in the premium rates as of June 30, 2017 include:

- The extension of health care benefits for dependent children to age 26.
- The expansion of the definition of presumption of death or disability to include infectious diseases.



Schedule B – Summary of Main Benefit Provisions (continued)

STATE EMPLOYEES Plan Specific Benefit Provisions

Normal Retirement Eligibility:

- Plan 1: A member may retire with unreduced pension benefits upon Normal Retirement on or after age 65 with credit for five years of service.
- Plan 2 and Hybrid: A member may retire with unreduced pension benefits upon Normal Retirement once they attain their normal Social Security retirement age and have at least five years of service.

Early Retirement Eligibility:

- Plan 1: A member may retire early with unreduced pension benefits after reaching age 50 with at least 30 years of service credit. A member may retire early with reduced pension benefits after reaching age 50 with at least ten years of service credit, or age 55 with credit for at least five years of service.
- Plan 2 and Hybrid: A member may retire early with unreduced pension benefits upon the sum of their age and their service being 90 (Rule of 90). A member may retire early with reduced pension benefits after reaching age 60 with at least five years of service credit.

Disability Retirement Eligibility

– Non-VSDP:

A Plan 1 member hired prior to January 1, 1999 and who has declined VSDP coverage is eligible for disability retirement benefits from the first day of employment.

Disability Retirement Eligibility

– VSDP:

A Plan 1 member hired prior to January 1, 1999 and who has elected VSDP coverage or any member hired on or after January 1, 1999. Applicable members hired prior to July 1, 2009 are eligible from the first day of employment for work related and non-work related VSDP disability benefits. Applicable members hired on or after July 1, 2009 are eligible from the first day of employment for work-related VSDP disability benefits, but must have a minimum of one year of service to be eligible for non-work related VSDP disability benefits.



Schedule B – Summary of Main Benefit Provisions (continued)

TEACHERS
Plan Specific Benefit Provisions

Normal Retirement Eligibility:

- Plan 1: A member may retire with unreduced pension benefits upon Normal Retirement on or after age 65 with credit for five years of service.
- Plan 2 and Hybrid: A member may retire with unreduced pension benefits upon Normal Retirement once they attain their normal Social Security retirement age and have at least five years of service.

Early Retirement Eligibility:

- Plan 1: A member may retire early with unreduced pension benefits after reaching age 50 with at least 30 years of service credit. A member may retire early with reduced pension benefits after reaching age 50 with at least ten years of service credit, or age 55 with credit for at least five years of service.
- Plan 2 and Hybrid: A member may retire early with unreduced pension benefits upon the sum of their age and their service being 90 (Rule of 90). A member may retire early with reduced pension benefits after reaching age 60 with at least five years of service credit.

Disability Retirement Eligibility

- **Non-VLDP (Plan 1 and Plan 2):** A member is eligible from the first day of employment.

Disability Retirement Eligibility

- **VLDP (Hybrid Plan):** Hybrid Plan members are eligible from the first day of employment for work-related VLDP disability benefits (or, if the employer opted-out of VLDP during the election period, a comparable plan), but must have a minimum of one year of service to be eligible for non-work related VLDP disability benefits.



Schedule B – Summary of Main Benefit Provisions (continued)

STATE POLICE
Plan Specific Benefit Provisions

Normal Retirement Eligibility: A member may retire with an unreduced pension benefit upon Normal Retirement on or after age 60 with credit for five years of service.

Early Retirement Eligibility: A member may retire early with unreduced pension benefits after reaching age 50 with at least 25 years of service credit. A member may retire early with reduced pension benefits after reaching age 50 with at least five years of service credit.

Disability Retirement Eligibility
– Non-VSDP: A member hired prior to 1/1/1999 and who has declined VSDP coverage is eligible for disability benefits from the first day of employment.

Disability Retirement Eligibility
– VSDP: A Plan 1 member hired prior to January 1, 1999 and who has elected VSDP coverage or any member hired on or after January 1, 1999. Applicable members hired prior to July 1, 2009 are eligible from the first day of employment for work related and non-work related VSDP disability benefits. Applicable members hired on or after July 1, 2009 are eligible from the first day of employment for work-related VSDP disability benefits, but must have a minimum of one year of service to be eligible for non-work related VSDP disability benefits.



Schedule B – Summary of Main Benefit Provisions (continued)

JUDICIAL
Plan Specific Benefit Provisions

Service:

Plan 1: Employees receive credit of one year of service multiplied by a weighting factor of 3.5 (2.5 for judges entering JRS on or after January 1, 1995). Any non-judicial VRS service credit is not weighted.

Plan 2 and Hybrid: Employees receive credit of one year of service multiplied by a weighting factor of:

- 1.5 for judges entering JRS before age 45,
- 2.0 for judges entering JRS between ages 45 and 54, or
- 2.5 for judges entering JRS at age 55 or older.

Any non-judicial VRS service credit is not weighted.

Normal Retirement Eligibility: A member may retire with unreduced pension benefits upon Normal Retirement on or after age 65 with credit for five years of service, or age 60 with at least 30 years of service credit. Effective June 1, 2017, the mandatory retirement age for judges is age 73.

Early Retirement Eligibility: A member may retire early with unreduced pension benefits at age 60 with at least 30 years of service or a member may retire early with reduced pension benefits after reaching age 55 with at least five years of service credit.

Disability Retirement Eligibility: A member is eligible for disability retirement benefits from the first day of employment



Schedule B – Summary of Main Benefit Provisions (continued)

**VIRGINIA LAW OFFICERS
Plan Specific Benefit Provisions**

Normal Retirement Eligibility: A member may retire upon Normal Retirement on or after age 60 with credit for five years of service.

Early Retirement Eligibility: A member may retire early with unreduced pension benefits after reaching age 50 with at least 25 years of service credit. A member may retire early with reduced pension benefits after reaching age 50 with at least five years of service credit.

Disability Retirement Eligibility:
– **Non-VSDP:** A member hired prior to 1/1/1999 and who has declined VSDP coverage is eligible for disability retirement benefits from the first day of employment.

Disability Retirement Eligibility:
– **VSDP:** A Plan 1 member hired prior to January 1, 1999 and who has elected VSDP coverage or any member hired on or after January 1, 1999. Applicable members hired prior to July 1, 2009 are eligible from the first day of employment for work related and non-work related VSDP disability benefits. Applicable members hired on or after July 1, 2009 are eligible from the first day of employment for work-related VSDP disability benefits, but must have a minimum of one year of service to be eligible for non-work related VSDP disability benefits.



Schedule B – Summary of Main Benefit Provisions (continued)

**POLITICAL SUBDIVISIONS
Locals¹ - General
Plan Specific Benefit Provisions**

Normal Retirement Eligibility:

- Plan 1: A member may retire with unreduced pension benefits upon Normal Retirement on or after age 65 with credit for five years of service.
- Plan 2 and Hybrid: A member may retire with unreduced pension benefits upon Normal Retirement once they attain their normal Social Security retirement age and have at least five years of service.

Early Retirement Eligibility:

- Plan 1: A member may retire early with unreduced pension benefits after reaching age 50 with at least 30 years of service credit. A member may retire early with reduced pension benefits after reaching age 50 with at least ten years of service credit, or age 55 with credit for at least five years of service.
- Plan 2 and Hybrid: A member may retire early with unreduced pension benefits upon the sum of their age and their service being 90 (Rule of 90). A member may retire early with reduced pension benefits after reaching age 60 with at least five years of service credit.

**Disability Retirement Eligibility
– (Plan 1 and Plan 2):**

A member is eligible from the first day of employment.

**Disability Retirement Eligibility
– VLDP (Hybrid Plan):**

Hybrid Plan members are eligible from the first day of employment for work-related VLDP disability benefits (or, if the employer opted-out of VLDP during the election period, a comparable plan), but must have a minimum of one year of service to be eligible for non-work related VLDP disability benefits.

¹ Locals includes both the Top 10 Locals group and the Non-Top 10 Locals group.



Schedule B – Summary of Main Benefit Provisions (continued)

POLITICAL SUBDIVISIONS
Locals – LEO/Fire
Plan Specific Benefit Provisions

- Normal Retirement Eligibility:** A member may retire with an unreduced pension benefit upon Normal Retirement on or after age 60 with credit for five years of service.
- Early Retirement Eligibility:** A member may retire early with a reduced pension benefit after reaching age 50 with at least five years of service credit.
- Disability Retirement Eligibility:** A member is eligible for disability retirement benefits from the first day of employment.



Schedule B – Summary of Main Benefit Provisions (continued)

VIRGINIA LINE OF DUTY ACT
Plan Specific Benefit Provisions

Disability 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 C – Statement of Actuarial Assumptions

STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions and methods used in the valuations were based on the results of an actuarial experience study for the period from July 1, 2012 through June 30, 2016 as well as the investment rate of return of 6.75% adopted by the Board of Trustees at its October 10, 2019 meeting. These assumptions comply with Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations* and ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*.

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Assumptions and Methods which apply to all OPEB Plans

Investment Return Rate: 6.75% per annum, compounded annually, net of investment expenses.

LODA is 4.75% 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: The amortization period of the legacy UAAL began at 30 years on June 30, 2013 and this amortization period is to decrease by one year on each subsequent valuation date until the legacy UAAL is fully amortized (amortization period of 0 years). With each subsequent valuation, a new amortization base will be used to amortize that portion of the UAAL not covered by the current balances of the previously established amortization bases. Here, each valuation's newly allocated share of the UAAL will be amortized over a closed 20-year period.

The amortization payment includes an adjustment of 1.018041 to account for the passage of time from the valuation date to the date the contribution is made.

LODA is pay as you go.



Schedule C – Statement of Actuarial Assumptions (continued)

Payroll Growth Rate: 3.00% per annum.

Administrative Expenses: The employer contribution rates include a rate for anticipated non-investment expenses based on actual prior year experience.

LODA is assumed to be \$310,000 for fiscal year 2020 with 3% increases in the future. Administrative expenses paid from the fund assume an offset of administrative fees collected from opt-out employers to process claims.



Schedule C – Statement of Actuarial Assumptions (continued)

Assumptions and Methods Applicable to the Group Life Insurance Program

Asset Valuation Method: For the purposes of GASB 74/75, the value of assets is equal to the market value of assets.

To calculate the actuarially determined contributions, the method of valuing assets is intended to recognize a “smoothed” market value of assets. Under this method, the difference between actual return on market value from investment experience and the expected return on market value is recognized over a five-year period. The resulting actuarial value of asset value cannot be less than 80% or more than 120% of the market value of assets.

Minimum Benefit: Beginning with the fiscal year ending June 30, 2016, in no event will the death benefit be less than \$8,000 for members who retire with at least 30 years of creditable service. Between June 30, 2016 and the current valuation date, this minimum is indexed at the same rate as the post-retirement supplement for retirees hired on or after July 1, 2010. Beginning on the valuation date, this minimum is assumed to increase annually, effective July 1, by 2.25% (the same assumed annual increase percentage for any annual post-retirement supplement for retirees, as calculated for employees hired on or after July 1, 2010).

“Life Insurance Only” Retirees: Results include an estimate of retiree liability for those groups not providing retiree census data. A liability equaling 10% of the active employee liability times the average retiree to active liability ratio is assumed.



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Health Insurance Credit Program
State Employees and Teachers**

Asset Valuation Method: For the purposes of GASB 74/75, the value of assets is equal to the market value of assets.

To calculate the actuarially determined contributions, the method of valuing assets is intended to recognize a “smoothed” market value of assets. Under this method, the difference between actual return on market value from investment experience and the expected return on market value is recognized over a five-year period. The resulting actuarial value of asset value cannot be less than 80% or more than 120% of the market value of assets.

Participation Rates: 95% of eligible future service retirees from active status are assumed to utilize the benefit plan.

Eligible future service retirees from deferred vested status are assumed to utilize the benefit plan as follows:

Duration Since Retirement	Participation Rate
First Year	55.0%
Second Year	65.0%
Third Year	70.0%
Fourth Year	75.0%
Fifth Year	80.0%
Sixth Year	85.0%
Seventh Year	90.0%
Eighth Year and Beyond	95.0%

Participation Rates (continued): Eligible future disabled benefit recipients from active status are assumed to utilize the benefit plan as follows:

System	Participation
State/JRS	95%
Teachers	90%
SPORS/VaLORS	75%



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Health Insurance Credit Program
State Employees and Teachers (continued)**

**Percentage Not Utilizing the
Maximum Benefit:**

The percentage of eligible future benefit recipients assumed to utilize the benefit plan, but not receive the maximum benefit for which they are eligible is as follows:

System	Percentage
State/JRS	10%
Teachers	20%
SPORS/VaLORS	20%

**Percentage of Maximum Benefit
Received:**

Eligible future benefit recipients assumed to utilize the benefit plan, but not receive the maximum benefit for which they are eligible are assumed to initially receive 70% of the maximum benefit for which they are eligible.

**Annual Increase in Benefit
for Those Not Receiving the
Maximum Benefit:**

Benefit recipients assumed to utilize the benefit plan, but not receiving the maximum benefit for which they are eligible are assumed to have their benefit increase at the following rates:

Duration Since Retirement	Annual Increase in HIC benefit
1 Year	6.50%
2 – 3 Years	4.25%
4 or More Years	3.00%

**Percentage of Future Eligible
Deferred Vested Members
Electing to Withdraw from VRS:**

The percentage of future eligible deferred vested members assumed to withdraw from VRS is as follows:

System	Percentage
State/JRS	50%
Teachers	35%
SPORS/VaLORS	70%



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Health Insurance Credit Program
State Employees and Teachers (continued)**

Deferred Vested Deferral Period: Eligible deferred vested members are assumed to begin receiving benefits at the following ages:

System	Age of Initial Benefit Receipt
State/JRS/Teachers	
Plan 1 Members	60
Plan 2 and Hybrid Plan Members	
Born prior to 1938	60
Born after 1937 and before 1960	61
Born after 1959	62
SPORS/VaLORS	
Members with less than 25 years of service	55
Members with 25 or more years of service	50

ORP and UVA Deferred Vested Participants:

Results include an estimate of deferred vested liability for those groups providing limited deferred vested census data. The estimate is derived from a ratio of retired to vested liabilities for the other HIC Plans.



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Health Insurance Credit Program
Political Subdivisions and Special Coverage Groups**

Asset Valuation Method: Market value of assets.

Participation Rates: 85% of eligible future service retirees from active status are assumed to utilize the benefit plan. 45.00% of eligible future disability retirees will utilize the benefit.

Eligible future service retirees from deferred vested status are assumed to utilize the benefit plan as follows:

Duration Since Retirement	Participation Rate
First Year	55.0%
Second Year	65.0%
Third Year	70.0%
Fourth Year	75.0%
Fifth Year	80.0%
Sixth Year	85.0%
Seventh Year	90.0%
Eighth Year and Beyond	95.0%

Percentage Not Utilizing the Maximum Benefit: 10% of eligible future benefit recipients are assumed to utilize the benefit plan, but not receive the maximum benefit for which they are eligible.

Percentage of Maximum Benefit Received: Eligible future benefit recipients assumed to utilize the benefit plan, but not receive the maximum benefit for which they are eligible are assumed to initially receive 70% of the maximum benefit for which they are eligible.

Annual Increase in Benefit for Those Not Receiving the Maximum Benefit: Benefit recipients assumed to utilize the benefit plan, but not receiving the maximum benefit for which they are eligible are assumed to have their benefit increase at the following rates:

Duration Since Retirement	Annual Increase in HIC benefit
1 Year	6.50%
2 – 3 Years	4.25%
4 or More Years	3.00%



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Health Insurance Credit Program
Political Subdivisions and Special Coverage Groups (continued)**

Percentage of Future Eligible Deferred Vested Members Electing to Withdraw from VRS: 45% of future eligible deferred vested members are assumed to withdraw from VRS.

Deferred Vested Deferral Period: Eligible deferred vested members with LEOs/Fire Pension Benefit Coverage are assumed to receive benefits at age 55 (if the member has less than 25 years of service at retirement) and at age 50 (if the member has 25 or more years of service at retirement). Eligible deferred vested members with General Employee Pension Benefit Coverage are assumed to receive benefits as follows:

Political Subdivisions and Special Coverage Groups	Age of Initial Benefit Receipt
Plan 1 Members	60
Plan 2 and Hybrid Plan Members	
Born prior to 1938	60
Born after 1937 and before 1960	61
Born after 1959	62

Employer Groups: The political subdivisions have been divided into two groups. The top 10 group consists of: City of Virginia Beach, Henrico County, Prince William County, Chesterfield County, City of Chesapeake, City of Alexandria, City of Hampton, Loudoun County, City of Lynchburg, and the City of Portsmouth. The Non-Top 10 is all other political subdivisions not included in the Top 10 group.

Plan Surcharge: The additional contribution rate applied to plans with low funding levels to bring the plan to a more sustainable funding position as determined by the Plan Actuary.

Additional Funding Charge: An additional funding charge will be included in the contribution rate, if needed, to allow the use of the 6.75% investment return assumption to be used as the single equivalent interest rate assumption for GASB 74/75 purposes.



Schedule C – Statement of Actuarial Assumptions (continued)

Assumptions and Methods Applicable to the Virginia Sickness and Disability Program Long-Term Disability Benefits and Long-Term Care Benefits

Asset Valuation Method: For the purposes of GASB 74/75, the value of assets is equal to the market value of assets.

The method of valuing assets is intended to recognize a “smoothed” market value of assets. Under this method, the difference between actual return on market value from investment experience and the expected return on market value is recognized over a five-year period. The resulting actuarial value of asset value cannot be less than 80% or more than 120% of the market value of assets.

Health Insurance Credit and Group Life Insurance Benefits Health Insurance Credit and Group Life Insurance benefits provided by VSDP are valued under the respective plans.

Disability: A Plan 1 Member hired prior to January 1, 1999 and who has elected VSDP coverage or any member hired on or after January 1, 1999. Applicable members hired prior to July 1, 2009 are eligible from the first day of employment for work related and non-work related VSDP disability benefits. Applicable members hired on or after July 1, 2009 are eligible from the first day of employment for work-related VSDP disability benefits, but must have a minimum of one year of service to be eligible for non-work related VSDP disability benefits.



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Sickness and Disability Program
Long-Term Disability Benefits**

Cost-Of-Living Increase:

Plan 1 Members: 2.50% per year, compounded annually.

Plan 2 and Hybrid Members: 2.25% per year, compounded annually.

Liability Assumed for Disabled Members in Waiting Period:

The liability associated for those disabled and not yet eligible to receive benefits was based upon the development method in which plan experience was applied to those claims reported in the second half of the most recent fiscal year.

Income Replacement for Future Disabled Members:

61% of a member’s pre-disability income.

Percentage of Members with Social Security Offsets:

70.5% of members are assumed to meet the Social Security definition of Disability, and are thus eligible for an additional 1% of Income Replacement.

Offsets for Disabled Members:

It is assumed that the offset amounts reported by the administrator will continue to apply to each member’s benefit until the benefit expires. For members with less than eight years of disability and no current benefit offsets, benefit amounts are adjusted to reflect future offsets as follows:

Year of Long-Term Disability	Percentage Receiving Offsets in the Next Year if Currently Not in Receipt	Average Percentage of Full Benefit Paid if in Receipt of Offsets
1	35%	25%
2	30%	26%
3	24%	27%
4	14%	27%
5	14%	27%
6	9%	27%
7	6%	27%
8 and Longer	0%	30%



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Sickness and Disability Program
Long-Term Disability Benefits (continued)**

Offsets for Active Members: The following benefit adjustments are assumed for the expected future monthly benefits to be paid to future disabled members. The benefit adjustments are consistent with recent experience.

Year of Long-Term Disability	Benefit Adjustment Factor
1	0.723
2	0.575
3	0.465
4	0.403
5	0.367
6-9	0.342
10-13	0.404
14	0.411
15 and Longer	0.450

Rates of Termination of Benefits Due to Death or Recovery: 2012 Group Long Term Disability Valuation Table (2012 GLDT) as proposed by the Society of Actuaries’ Group Disability Experience Committee for use by the National Association of Insurance Commissioners. Used as a basis those rates applicable to plans with a six-month elimination period, “Own Occupation” definition of disability in the first twenty-four months and “Any Occupation” definition of disability for the twenty-fifth month onward, initial maximum guaranteed benefit of \$1,900, “No Diagnosis” cause of disability, 15% margin for recovery, 28% margin for deaths, and adjusted for prior five years of VRS experience with the following adjustment factors:

Month of Disability	Male	Female
4 - 24	0.904	0.908
25 - 60	0.891	0.943
61 - 120	1.052	1.025
121 and over	1.021	0.999



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Sickness and Disability Program
Long-Term Care Benefits**

Disabled Life Reserve: The liability associated for those participants assumed to be in a current benefit period was based upon the development method in which prior experience was applied to the current claim duration and prior payments made for each individual.

Incurred But Not Reported Reserve: The liability associated for those participants with claims that have been incurred but not reported (IBNR), as of the valuation date, to the administrator was based upon the development method in which prior experience for claim incidence and expected benefits payments was applied to the covered population.

Morbidity: CMC reviewed the rates developed by the prior actuary against rates developed using the Society of Actuaries (SOA) Long Term Care basic experience rate tables and made no modifications. While separate rates for assisted living facility claims are not used, our review indicates the nursing facility rates are reasonable based upon the benefit structure and a comparison to the combined experience produced by the SOA’s tables. As experience develops the rates will need to be reviewed and adjusted accordingly.

Unadjusted Claim Incidence Rates				
Attained Age	Nursing Facility		Home Health	
	Male	Female	Male	Female
25	0.00001	0.00001	0.00008	0.00008
30	0.00003	0.00002	0.00010	0.00010
35	0.00008	0.00005	0.00012	0.00013
40	0.00013	0.00009	0.00018	0.00015
45	0.00021	0.00014	0.00028	0.00017
50	0.00031	0.00020	0.00039	0.00029
55	0.00047	0.00029	0.00053	0.00047
60	0.00060	0.00065	0.00085	0.00092
65	0.00100	0.00107	0.00150	0.00162
70	0.00210	0.00191	0.00249	0.00295
75	0.00480	0.00507	0.00482	0.00541
80	0.01023	0.01327	0.00895	0.00917
85	0.02155	0.03171	0.01541	0.01511
90	0.04111	0.06180	0.02249	0.02042
95	0.05844	0.08370	0.02522	0.02190
100	0.07276	0.09756	0.02598	0.02198
105	0.09059	0.11372	0.02677	0.02206
110+	0.11279	0.13255	0.02758	0.02213



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Sickness and Disability Program
Long-Term Care Benefits (continued)**

Morbidity (continued):

For actively employed members, the unadjusted claim incidence rates are adjusted by the following selection factors based upon length of VSDP membership and age of entry into VSDP.

Claim Incidence Selection Factors			
Actively Employed Members			
Years of VSDP Membership	VSDP Entry Age		
	<50	50 - 64	65+
1	0.133	0.138	0.164
2	0.217	0.222	0.256
3	0.284	0.289	0.342
4	0.334	0.341	0.438
5	0.367	0.375	0.520
6	0.439	0.447	0.547
7	0.473	0.482	0.573
8	0.500	0.511	0.593
9	0.527	0.538	0.612
10	0.561	0.573	0.634
11	0.599	0.612	0.673
12	0.643	0.658	0.719
13	0.702	0.718	0.755
14	0.769	0.787	0.797
15	0.836	0.836	0.840
16	0.851	0.851	0.855
17	0.869	0.869	0.872
18	0.890	0.890	0.893
19	0.915	0.915	0.918
20+	0.945	0.945	0.947



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Sickness and Disability Program
Long-Term Care Benefits (continued)**

Morbidity (continued):

For ported members, the unadjusted claim incidence rates are adjusted based upon the likelihood of porting and the number of years since porting.

Claim Incidence Selection Factors		
Ported Members		
Porting Rate	Initial Year Of Porting	Ultimate Rate*
0%	2.35	1.19
5%	2.29	1.18
10%	2.22	1.18
15%	2.16	1.17
20%	2.09	1.16
25%	2.03	1.16
30%	1.96	1.15
35%	1.90	1.14
40%	1.83	1.13
45%	1.77	1.13
50%	1.70	1.12
55%	1.64	1.11
60%	1.57	1.11
65%	1.51	1.10
70%	1.44	1.09
75%	1.38	1.09
80%	1.31	1.08
85%	1.25	1.07
90%	1.18	1.06
95%	1.12	1.06
100%	1.05	1.05

* The selection factors are assumed to decrease linearly over a 10 year period.



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Sickness and Disability Program
Long-Term Care Benefits (continued)**

Morbidity (continued):

The duration of a claim is based upon the attained age at incidence, gender, and type of claim.

Attained Age	Length of Stay (Months)			
	Nursing Facility		Home Health	
	Male	Female	Male	Female
25	11.15	13.96	19.14	12.54
30	11.60	14.42	18.81	12.47
35	12.04	14.98	18.67	12.45
40	12.29	14.87	16.77	13.48
45	12.50	14.77	14.99	14.56
50	12.90	14.16	15.36	13.78
55	13.30	13.52	15.77	13.02
60	12.99	14.12	15.15	12.40
65	13.36	14.30	12.84	12.80
70	14.00	14.32	11.80	13.53
75	13.99	15.09	11.50	13.50
80	13.76	15.61	10.90	13.18
85	13.62	15.90	10.05	12.86
90	13.09	16.19	8.78	12.70
95	12.30	16.51	8.23	12.66
100	11.32	16.10	8.70	13.34
105	9.84	14.77	9.56	14.60
110+	8.31	13.32	9.33	14.89

Daily Benefit Amount:

\$96 per day indemnity benefit paid for service in a nursing home. The daily benefit for home health care coverage is 50% of the nursing home benefit.

Daily Benefit Amount Increases:

The valuation does not include a provision for increases (i.e., 5% compound increase every five years). If the benefit policy is to provide increases at regular intervals, the resulting liability will be materially greater than the results presented (i.e., inflation increases are not assumed to be pre-funded).

Benefit Maximums:

A lifetime maximum benefit of \$70,080 (reflects a two year maximum coverage period based upon a \$96 per day indemnity benefit).



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Sickness and Disability Program
Long-Term Care Benefits (continued)**

Porting Rates:

Porting rate assumptions are based upon experience over the first five years of the program, with substantial increases over the life of the program. CMC reviewed the rates developed by the prior actuary and made no modifications. As the porting rates have a significant impact on results, experience, as it develops, will need to be reviewed and the rates adjusted accordingly. Porting rates by age of entry into VSDP and length of VSDP membership are provided in the following table.

VSDP Entry Age	Years of VSDP Membership										
	0	5	10	15	20	25	30	35	40	45	50+
25	0.1000	0.1010	0.1144	0.1313	0.1739	0.2555	0.3693	0.5263	0.6812	0.8874	1.0000
30	0.1000	0.1019	0.1234	0.1534	0.2185	0.3194	0.4537	0.5822	0.7574	0.9609	1.0000
35	0.1000	0.1021	0.1303	0.1778	0.2683	0.3935	0.5001	0.6454	0.8406	1.0000	1.0000
40	0.1000	0.1063	0.1608	0.2383	0.3423	0.4320	0.5526	0.7169	0.9230	1.0000	1.0000
45	0.1001	0.1177	0.2001	0.2931	0.3754	0.4755	0.6119	0.7978	0.9983	1.0000	1.0000
50	0.1027	0.1304	0.2244	0.3262	0.4116	0.5247	0.6790	0.8833	1.0000	1.0000	1.0000
55	0.1072	0.1410	0.2422	0.3585	0.4524	0.5804	0.7549	0.9624	1.0000	1.0000	1.0000
60	0.1162	0.1596	0.2667	0.3924	0.4986	0.6434	0.8407	1.0000	1.0000	1.0000	1.0000
65	0.1329	0.1887	0.2999	0.4307	0.5508	0.7146	0.9257	1.0000	1.0000	1.0000	1.0000
70	0.1485	0.2129	0.3308	0.4741	0.6099	0.7952	0.9985	1.0000	1.0000	1.0000	1.0000
75	0.1700	0.2444	0.3693	0.5231	0.6768	0.8863	1.0000	1.0000	1.0000	1.0000	1.0000
80	0.1875	0.2682	0.4043	0.5786	0.7524	0.9645	1.0000	1.0000	1.0000	1.0000	1.0000
85	0.1941	0.2770	0.4310	0.6413	0.8379	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
90	0.2012	0.2863	0.4601	0.7123	0.9347	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
95	0.2088	0.2960	0.4917	0.7925	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	0.2171	0.3063	0.5261	0.8833	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
105	0.2259	0.3171	0.5635	0.9860	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
110	0.2354	0.3284	0.6042	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
115	0.2457	0.3404	0.6485	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
120	0.2567	0.3529	0.6966	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Sickness and Disability Program
Long-Term Care Benefits (continued)**

Porting Premiums:

While actively employed or receiving LTD benefits, a member receives coverage in the amount currently in place for the entire actively employed group. Upon termination of employment, a member has the option to port the amount of coverage current for the group by paying a premium. CMC reviewed the rates developed by the prior actuary for adequacy and made no modifications. As experience develops the rates may need to be reviewed and adjusted accordingly.

Monthly Porting Premium Rates Per \$1 of Daily Benefit Amount							
VSDP Entry Age	Rate	VSDP Entry Age	Rate	VSDP Entry Age	Rate	VSDP Entry Age	Rate
20	0.018	38	0.070	56	0.233	74	1.212
21	0.019	39	0.075	57	0.255	75	1.331
22	0.020	40	0.078	58	0.278	76	1.466
23	0.022	41	0.084	59	0.305	77	1.619
24	0.023	42	0.089	60	0.335	78	1.786
25	0.025	43	0.095	61	0.368	79	1.968
26	0.028	44	0.100	62	0.406	80	2.153
27	0.030	45	0.106	63	0.448	81	2.329
28	0.033	46	0.112	64	0.497	82	2.503
29	0.035	47	0.121	65	0.539	83	2.676
30	0.038	48	0.128	66	0.596	84	2.835
31	0.041	49	0.136	67	0.662	85	2.971
32	0.046	50	0.144	68	0.717	86	3.134
33	0.050	51	0.155	69	0.777	87	3.277
34	0.053	52	0.166	70	0.845	88	3.405
35	0.057	53	0.180	71	0.922	89	3.522
36	0.061	54	0.196	72	1.007	90	3.610
37	0.065	55	0.213	73	1.105		



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Local Disability Program
Long-Term Disability Benefits and Long-Term Care Benefits**

Asset Valuation Method: For the purposes of GASB 74/75, the value of assets is equal to the market value of assets.

The method of valuing assets is intended to recognize a “smoothed” market value of assets. Under this method, the difference between actual return on market value from investment experience and the expected return on market value is recognized over a five-year period. The resulting actuarial value of asset value cannot be less than 80% or more than 120% of the market value of assets.

Health Insurance Credit and Group Life Insurance Benefits: Health Insurance Credit (if applicable) and Group Life Insurance benefits provided under VLDP are valued under the respective plans.

Disability: Applicable members covered under the Hybrid Plan are eligible from the first day of employment for work-related VLDP disability benefits, but must have a minimum of one year of service to be eligible for non-work related VLDP disability benefits.



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Local Disability Program
Long-Term Disability Benefits**

Cost-Of-Living Increase: 0.00% per year, compounded annually.

Liability Assumed for Disabled Members in Waiting Period: The liability associated for those disabled and not yet eligible to receive benefits was based upon the expected number of long-term disabilities incurred during the period of January 1, 2016 and June 30, 2016.

Income Replacement for Future Disabled Members: 61% of a member’s pre-disability income.

Percentage of Members with Social Security Offsets: 70.5% of members are assumed to meet the Social Security definition of Disability, and are thus eligible for an additional 1% of Income Replacement.

Offsets for Disabled Members: It is assumed that the offset amounts reported by the administrator will continue to apply to each member’s benefit until the benefit expires. For members with less than six years of disability and no current benefit offsets, benefit amounts are adjusted to reflect future offsets as follows:

Year of Long-Term Disability	Percentage Receiving Offsets in the Next Year if Currently Not in Receipt	Average Percentage of Full Benefit Paid if in Receipt of Offsets
1	35%	25%
2	30%	26%
3	24%	27%
4	14%	27%
5	14%	27%
6	9%	27%
7	6%	27%
8 and Longer	0%	30%



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Local Disability Program
Long-Term Disability Benefits (continued)**

Offsets for Active Members: The following benefit adjustments are assumed for the expected future monthly benefits to be paid to future disabled members. The benefit adjustments are consistent with recent experience.

Year of Long-Term Disability	Benefit Adjustment Factor
1	0.723
2	0.575
3	0.465
4	0.403
5	0.367
6-9	0.342
10-13	0.404
14	0.411
15 and Longer	0.450

Rates of Termination of Benefits Due to Death or Recovery: 2012 Group Long Term Disability Valuation Table (2012 GLDT) as proposed by the Society of Actuaries’ Group Disability Experience Committee for use by the National Association of Insurance Commissioners. Used as a basis those rates applicable to plans with a six-month elimination period, “Own Occupation” definition of disability, initial maximum guaranteed benefit of \$1,900, “No Diagnosis” cause of disability, 15% margin for recovery, 28% margin for deaths, and adjusted for prior five years of VRS experience with the following adjustment factors:

Adjustment Factor

Month of Disability	Male	Female
4 - 24	0.904	0.907
25 - 60	0.891	0.943
61 - 120	1.052	1.025
121 and over	1.021	0.999



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Local Disability Program
Long-Term Care Benefits**

Disabled Life Reserve: The liability associated for those participants assumed to be in a current benefit period was based upon the development method in which prior experience was applied to the current claim duration and prior payments made for each individual.

Incurred But Not Reported Reserve: The liability associated for those participants with claims that have been incurred but not reported (IBNR) as of the valuation date to the administrator was based upon the development method in which prior experience for claim incidence and expected benefits payments was applied to the covered population.

Morbidity: CMC reviewed the rates developed by the prior actuary against rates developed using the Society of Actuaries (SOA) Long Term Care basic experience rate tables and made no modifications. While separate rates for assisted living facility claims are not used, our review indicates the nursing facility rates are reasonable based upon the benefit structure and a comparison to the combined experience produced by the SOA’s tables. As experience develops the rates will need to be reviewed and adjusted accordingly.

Unadjusted Claim Incidence Rates				
Attained Age	Nursing Facility		Home Health	
	Male	Female	Male	Female
25	0.00001	0.00001	0.00008	0.00008
30	0.00003	0.00002	0.00010	0.00010
35	0.00008	0.00005	0.00012	0.00013
40	0.00013	0.00009	0.00018	0.00015
45	0.00021	0.00014	0.00028	0.00017
50	0.00031	0.00020	0.00039	0.00029
55	0.00047	0.00029	0.00053	0.00047
60	0.00060	0.00065	0.00085	0.00092
65	0.00100	0.00107	0.00150	0.00162
70	0.00210	0.00191	0.00249	0.00295
75	0.00480	0.00507	0.00482	0.00541
80	0.01023	0.01327	0.00895	0.00917
85	0.02155	0.03171	0.01541	0.01511
90	0.04111	0.06180	0.02249	0.02042
95	0.05844	0.08370	0.02522	0.02190
100	0.07276	0.09756	0.02598	0.02198
105	0.09059	0.11372	0.02677	0.02206
110+	0.11279	0.13255	0.02758	0.02213



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Local Disability Program
Long-Term Care Benefits (continued)**

Morbidity (continued):

For actively employed members, the unadjusted claim incidence rates are adjusted by the following selection factors based upon length of VLDP membership and age of entry into VLDP.

Claim Incidence Selection Factors			
Actively Employed Members			
Years of VLDP Membership	VLDP Entry Age		
	<50	50 - 64	65+
1	0.133	0.138	0.164
2	0.217	0.222	0.256
3	0.284	0.289	0.342
4	0.334	0.341	0.438
5	0.367	0.375	0.520
6	0.439	0.447	0.547
7	0.473	0.482	0.573
8	0.500	0.511	0.593
9	0.527	0.538	0.612
10	0.561	0.573	0.634
11	0.599	0.612	0.673
12	0.643	0.658	0.719
13	0.702	0.718	0.755
14	0.769	0.787	0.797
15	0.836	0.836	0.840
16	0.851	0.851	0.855
17	0.869	0.869	0.872
18	0.890	0.890	0.893
19	0.915	0.915	0.918
20+	0.945	0.945	0.947



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Local Disability Program
Long-Term Care Benefits (continued)**

Morbidity (continued):

For ported members, the unadjusted claim incidence rates are adjusted based upon the likelihood of porting and the number of years since porting.

Claim Incidence Selection Factors		
Ported Members		
Porting Rate	Initial Year Of Porting	Ultimate Rate*
0%	2.35	1.19
5%	2.29	1.18
10%	2.22	1.18
15%	2.16	1.17
20%	2.09	1.16
25%	2.03	1.16
30%	1.96	1.15
35%	1.90	1.14
40%	1.83	1.13
45%	1.77	1.13
50%	1.70	1.12
55%	1.64	1.11
60%	1.57	1.11
65%	1.51	1.10
70%	1.44	1.09
75%	1.38	1.09
80%	1.31	1.08
85%	1.25	1.07
90%	1.18	1.06
95%	1.12	1.06
100%	1.05	1.05

* The selection factors are assumed to decrease linearly over a 10 year period.



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Local Disability Program
Long-Term Care Benefits (continued)**

Morbidity (continued): The duration of a claim is based upon the attained age at incidence, gender, and type of claim.

Attained Age	Length of Stay (Months)			
	Nursing Facility		Home Health	
	Male	Female	Male	Female
25	11.15	13.96	19.14	12.54
30	11.60	14.42	18.81	12.47
35	12.04	14.98	18.67	12.45
40	12.29	14.87	16.77	13.48
45	12.50	14.77	14.99	14.56
50	12.90	14.16	15.36	13.78
55	13.30	13.52	15.77	13.02
60	12.99	14.12	15.15	12.40
65	13.36	14.30	12.84	12.80
70	14.00	14.32	11.80	13.53
75	13.99	15.09	11.50	13.50
80	13.76	15.61	10.90	13.18
85	13.62	15.90	10.05	12.86
90	13.09	16.19	8.78	12.70
95	12.30	16.51	8.23	12.66
100	11.32	16.10	8.70	13.34
105	9.84	14.77	9.56	14.60
110+	8.31	13.32	9.33	14.89

Daily Benefit Amount: \$96 per day indemnity benefit paid for service in a nursing home. The daily benefit for home health care coverage is 50% of the nursing home benefit.

Daily Benefit Amount Increases: The valuation does not include a provision for increases (i.e., 5% compound increase every five years). If the benefit policy is to provide increases at regular intervals, the resulting liability will be materially greater than the results presented (i.e., inflation increases are not assumed to be pre-funded).

Benefit Maximums: A lifetime maximum benefit of \$70,080 (reflects a two year maximum coverage period based upon a \$96 per day indemnity benefit).



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Local Disability Program
Long-Term Care Benefits (continued)**

Porting Rates:

Porting rate assumptions are based upon experience over the first five years of the program, with substantial increases over the life of the program. CMC reviewed the rates developed by the prior actuary and made no modifications. As the porting rates have a significant impact on results, experience, as it develops, will need to be reviewed and the rates adjusted accordingly. Porting rates by age of entry into VLDP and length of VLDP membership are provided in the following table.

VLDP Entry Age	Years of VLDP Membership										
	0	5	10	15	20	25	30	35	40	45	50+
25	0.1000	0.1010	0.1144	0.1313	0.1739	0.2555	0.3693	0.5263	0.6812	0.8874	1.0000
30	0.1000	0.1019	0.1234	0.1534	0.2185	0.3194	0.4537	0.5822	0.7574	0.9609	1.0000
35	0.1000	0.1021	0.1303	0.1778	0.2683	0.3935	0.5001	0.6454	0.8406	1.0000	1.0000
40	0.1000	0.1063	0.1608	0.2383	0.3423	0.4320	0.5526	0.7169	0.9230	1.0000	1.0000
45	0.1001	0.1177	0.2001	0.2931	0.3754	0.4755	0.6119	0.7978	0.9983	1.0000	1.0000
50	0.1027	0.1304	0.2244	0.3262	0.4116	0.5247	0.6790	0.8833	1.0000	1.0000	1.0000
55	0.1072	0.1410	0.2422	0.3585	0.4524	0.5804	0.7549	0.9624	1.0000	1.0000	1.0000
60	0.1162	0.1596	0.2667	0.3924	0.4986	0.6434	0.8407	1.0000	1.0000	1.0000	1.0000
65	0.1329	0.1887	0.2999	0.4307	0.5508	0.7146	0.9257	1.0000	1.0000	1.0000	1.0000
70	0.1485	0.2129	0.3308	0.4741	0.6099	0.7952	0.9985	1.0000	1.0000	1.0000	1.0000
75	0.1700	0.2444	0.3693	0.5231	0.6768	0.8863	1.0000	1.0000	1.0000	1.0000	1.0000
80	0.1875	0.2682	0.4043	0.5786	0.7524	0.9645	1.0000	1.0000	1.0000	1.0000	1.0000
85	0.1941	0.2770	0.4310	0.6413	0.8379	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
90	0.2012	0.2863	0.4601	0.7123	0.9347	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
95	0.2088	0.2960	0.4917	0.7925	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	0.2171	0.3063	0.5261	0.8833	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
105	0.2259	0.3171	0.5635	0.9860	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
110	0.2354	0.3284	0.6042	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
115	0.2457	0.3404	0.6485	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
120	0.2567	0.3529	0.6966	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000



Schedule C – Statement of Actuarial Assumptions (continued)

**Assumptions and Methods Applicable to the Virginia Local Disability Program
Long-Term Care Benefits (continued)**

Porting Premiums:

While actively employed or receiving LTD benefits, a member receives coverage in the amount currently in place for the entire actively employed group. Upon termination of employment, a member has the option to port the amount of coverage current for the group by paying a premium. CMC reviewed the rates developed by the prior actuary for adequacy and made no modifications. As experience develops the rates may need to be reviewed and adjusted accordingly.

Monthly Porting Premium Rates Per \$1 of Daily Benefit Amount

VLDP Entry Age	Rate	VLDP Entry Age	Rate	VLDP Entry Age	Rate	VLDP Entry Age	Rate
20	0.018	38	0.070	56	0.233	74	1.212
21	0.019	39	0.075	57	0.255	75	1.331
22	0.020	40	0.078	58	0.278	76	1.466
23	0.022	41	0.084	59	0.305	77	1.619
24	0.023	42	0.089	60	0.335	78	1.786
25	0.025	43	0.095	61	0.368	79	1.968
26	0.028	44	0.100	62	0.406	80	2.153
27	0.030	45	0.106	63	0.448	81	2.329
28	0.033	46	0.112	64	0.497	82	2.503
29	0.035	47	0.121	65	0.539	83	2.676
30	0.038	48	0.128	66	0.596	84	2.835
31	0.041	49	0.136	67	0.662	85	2.971
32	0.046	50	0.144	68	0.717	86	3.134
33	0.050	51	0.155	69	0.777	87	3.277
34	0.053	52	0.166	70	0.845	88	3.405
35	0.057	53	0.180	71	0.922	89	3.522
36	0.061	54	0.196	72	1.007	90	3.610
37	0.065	55	0.213	73	1.105		



Schedule C – Statement of Actuarial Assumptions (continued)

Assumptions and Methods Applicable to the Virginia Line of Duty Act

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:

Group	Qualifying Disability %
State	10%
SPORS	70%
VaLORS	10%
Non Top 10 LEOS	65%
Top 10 LEOS	70%

Service Related Deaths: Active employee death are assumed to be service related and result in coverage under the Plan based on the following:

Group	Qualifying Death %
State	20%
SPORS	50%
VaLORS	20%
Non Top 10 LEOS	20%
Top 10 LEOS	35%

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.

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.

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.



Schedule C – Statement of Actuarial Assumptions (continued)

Assumptions and Methods Applicable to the Virginia Line of Duty Act (continued)

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.

Fiscal Year Ended	Under Age 65	Ages 65 and Older
2019	7.00%	5.375%
2020	6.75%	5.250%
2021	6.50%	5.125%
2022	6.25%	5.000%
2023	6.00%	4.750%
2024	5.75%	4.750%
2025	5.50%	4.750%
2026	5.25%	4.750%
2027	5.00%	4.750%
2028 and Beyond	4.75%	4.750%

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.

Initial Per Capita Health Care Costs:

Paid claims and cost data were provided by the DHRM. 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 actual premiums and tier elections trended forward to the valuation period. As some beneficiaries elect to cover dependents, the assumed adult costs include the additional costs for the coverage of dependent children.



Schedule C – Statement of Actuarial Assumptions (continued)

Initial Monthly Per Capita Adult Health Care Costs		
Valuation Date	Under Age 65*	Ages 65 and Older
June 30, 2018	\$1,065.70	\$505.00
June 30, 2018	\$1,186.01	\$506.50
June 30, 2019	\$1,137.63	\$406.60

*Includes the assumed additional cost for the coverage of dependent children.

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:

Beneficiary Attained Age	Annual Increase
<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 C – Statement of Actuarial Assumptions (continued)

STATE EMPLOYEES¹

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 setback 1 year, 85% of rates; females setback 1 year

Post-Retirement:

R P-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; 1.5% increase compounded from ages 70 to 85, females setback 1 year

Post-Disablement:

RP-2014 Disabled Mortality Rates projected with Scale BB to 2020; males 115% of rates; females 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.

¹ The actuarial assumptions for State are also applied to the applicable members of the Optional Retirement Plan (ORP)



Schedule C – Statement of Actuarial Assumptions (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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0325	0.0325	0.1250	0.1250
51	0.0000	0.0000	0.0000	0.0325	0.0300	0.0800	0.0900
52	0.0000	0.0000	0.0000	0.0325	0.0300	0.0800	0.0900
53	0.0000	0.0000	0.0000	0.0325	0.0300	0.0500	0.0900
54	0.0000	0.0000	0.0000	0.0325	0.0300	0.0500	0.0900
55	0.0000	0.0450	0.0450	0.0450	0.0350	0.0500	0.0900
56	0.0000	0.0450	0.0400	0.0400	0.0400	0.0500	0.0900
57	0.0000	0.0450	0.0400	0.0400	0.0400	0.0750	0.0900
58	0.0000	0.0450	0.0400	0.0400	0.0400	0.1000	0.0900
59	0.0000	0.0450	0.0400	0.0400	0.0400	0.1000	0.0900
60	0.0000	0.0450	0.0500	0.0500	0.0500	0.1150	0.0900
61	0.0000	0.1500	0.0750	0.0750	0.0750	0.1650	0.1500
62	0.0000	0.1500	0.1000	0.1000	0.1000	0.2000	0.2000
63	0.0000	0.1500	0.1000	0.1000	0.1000	0.2000	0.1750
64	0.0000	0.1500	0.1350	0.1350	0.1350	0.2000	0.1750
65	0.0000	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500
66	0.0000	0.2750	0.2500	0.2500	0.2500	0.2500	0.2500
67	0.0000	0.2750	0.2200	0.2200	0.2200	0.2200	0.2200
68	0.0000	0.2000	0.2200	0.2200	0.2200	0.2200	0.2200
69	0.0000	0.2000	0.2200	0.2200	0.2200	0.2200	0.2200
70	0.0000	0.2000	0.2200	0.2200	0.2200	0.2200	0.2200
71	0.0000	0.2000	0.2200	0.2200	0.2200	0.2200	0.2200
72	0.0000	0.2000	0.2200	0.2200	0.2200	0.2200	0.2200
73	0.0000	0.2000	0.2200	0.2200	0.2200	0.2200	0.2200
74	0.0000	0.2000	0.2200	0.2200	0.2200	0.2200	0.2200
>=75	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000



Schedule C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (continued)

TEACHERS¹

Plan Specific Assumptions and Methods

MORTALITY RATES:

Pre-Retirement:

RP-2014 White Collar Employee Rates to age 80, White Collar Healthy Annuitant Rates at ages 81 and older projected with Scale BB to 2020

Post-Retirement:

RP-2014 White Collar Employee Rates to age 49, White Collar Healthy Annuitant Rates at ages 50 and older projected with Scale BB to 2020; males 1% increase compounded from ages 70 to 90; females setback 3 years with 1.5% increase compounded from ages 65 to 75, and 2.0% increase compounded from ages 75 to 90

Post-Disablement:

RP-2014 Disabled Mortality Rates projected with Scale BB to 2020; 115% of rates for males and females

Teachers Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00028	0.00028	0.00803	0.00014	0.00015	0.00252
25	0.00033	0.00033	0.00957	0.00014	0.00014	0.00269
30	0.00031	0.00031	0.00894	0.00018	0.00016	0.00339
35	0.00036	0.00036	0.01035	0.00024	0.00020	0.00445
40	0.00043	0.00043	0.01242	0.00033	0.00026	0.00616
45	0.00067	0.00067	0.01925	0.00054	0.00040	0.01022
50	0.00116	0.00272	0.02304	0.00091	0.00068	0.01345
55	0.00192	0.00384	0.02639	0.00137	0.00225	0.01616
60	0.00315	0.00501	0.02933	0.00194	0.00297	0.01841
65	0.00540	0.00705	0.03389	0.00290	0.00460	0.02231
70	0.00939	0.01144	0.04238	0.00505	0.00804	0.03017
75		0.02063	0.05702		0.01419	0.04390
80		0.03801	0.08047		0.02649	0.06529
85		0.07325	0.11900		0.05139	0.09672
90		0.14553	0.18618		0.10307	0.14275

5% 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.

¹ The actuarial assumptions for Teachers are also applied to the applicable members of the Optional Retirement Plan (ORP).



Schedule C – Statement of Actuarial Assumptions (continued)

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

Teachers 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	0.020	0.020	0.175	0.175
51	0.000	0.000	0.000	0.020	0.020	0.175	0.150
52	0.000	0.000	0.000	0.020	0.020	0.175	0.150
53	0.000	0.000	0.000	0.020	0.020	0.175	0.150
54	0.000	0.000	0.000	0.040	0.035	0.175	0.150
55	0.000	0.070	0.070	0.070	0.045	0.225	0.150
56	0.000	0.070	0.045	0.045	0.045	0.225	0.150
57	0.000	0.070	0.045	0.045	0.045	0.225	0.150
58	0.000	0.070	0.060	0.060	0.060	0.225	0.150
59	0.000	0.100	0.060	0.060	0.060	0.225	0.150
60	0.000	0.100	0.070	0.070	0.070	0.225	0.150
61	0.000	0.110	0.085	0.085	0.085	0.300	0.250
62	0.000	0.170	0.150	0.150	0.150	0.350	0.350
63	0.000	0.140	0.150	0.150	0.150	0.350	0.250
64	0.000	0.180	0.150	0.150	0.150	0.350	0.250
65	0.000	0.300	0.300	0.300	0.300	0.300	0.350
66	0.000	0.275	0.350	0.350	0.350	0.350	0.350
67	0.000	0.300	0.350	0.350	0.350	0.350	0.350
68	0.000	0.300	0.300	0.300	0.300	0.300	0.300
69	0.000	0.300	0.300	0.300	0.300	0.300	0.300
70	0.000	0.300	0.300	0.300	0.300	0.300	0.300
71	0.000	0.300	0.300	0.300	0.300	0.300	0.300
72	0.000	0.300	0.300	0.300	0.300	0.300	0.300
73	0.000	0.300	0.300	0.300	0.300	0.300	0.300
74	0.000	0.300	0.300	0.300	0.300	0.300	0.300
≥75	0.000	1.000	1.000	1.000	1.000	1.000	1.000



Schedule C – Statement of Actuarial Assumptions (continued)

Teachers 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	0.024	0.024	0.150	0.150
51	0.000	0.000	0.000	0.035	0.020	0.150	0.100
52	0.000	0.000	0.000	0.035	0.025	0.150	0.100
53	0.000	0.000	0.000	0.035	0.025	0.150	0.100
54	0.000	0.000	0.000	0.040	0.030	0.150	0.100
55	0.000	0.060	0.060	0.060	0.050	0.225	0.160
56	0.000	0.060	0.050	0.050	0.050	0.225	0.160
57	0.000	0.060	0.050	0.050	0.050	0.225	0.160
58	0.000	0.070	0.050	0.050	0.050	0.225	0.160
59	0.000	0.080	0.060	0.060	0.060	0.225	0.200
60	0.000	0.090	0.080	0.080	0.080	0.225	0.200
61	0.000	0.150	0.100	0.100	0.100	0.300	0.250
62	0.000	0.150	0.150	0.150	0.150	0.350	0.300
63	0.000	0.150	0.150	0.150	0.150	0.350	0.300
64	0.000	0.250	0.150	0.150	0.150	0.350	0.300
65	0.000	0.300	0.300	0.300	0.300	0.300	0.350
66	0.000	0.300	0.350	0.350	0.350	0.350	0.350
67	0.000	0.300	0.300	0.300	0.300	0.300	0.300
68	0.000	0.300	0.300	0.300	0.300	0.300	0.300
69	0.000	0.300	0.300	0.300	0.300	0.300	0.300
70	0.000	0.300	0.300	0.300	0.300	0.300	0.300
71	0.000	0.300	0.300	0.300	0.300	0.300	0.300
72	0.000	0.300	0.300	0.300	0.300	0.300	0.300
73	0.000	0.300	0.300	0.300	0.300	0.300	0.300
74	0.000	0.300	0.300	0.300	0.300	0.300	0.300
>=75	0.000	1.000	1.000	1.000	1.000	1.000	1.000



Schedule C – Statement of Actuarial Assumptions (continued)

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

Teachers 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	0.175
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	0.175	0.175
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	0.175	0.175	0.150
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	0.150	0.150
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	0.175	0.175	0.150	0.150	0.150
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	0.225	0.225	0.150	0.150	0.150	0.150
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.225	0.225	0.150	0.150	0.150	0.150	0.150
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.225	0.225	0.150	0.150	0.150	0.150	0.150	0.150
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.225	0.225	0.150	0.150	0.150	0.150	0.150	0.150	0.150
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.225	0.225	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
60	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.225	0.225	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
61	0.000	0.110	0.085	0.085	0.085	0.085	0.300	0.300	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
62	0.000	0.170	0.150	0.150	0.150	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
63	0.000	0.140	0.150	0.150	0.350	0.350	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	0.180	0.150	0.350	0.350	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	0.300	0.300	0.300	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	0.275	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	0.350	0.350
67	0.000	0.300	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	0.350	0.350
68	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
69	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
70	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
71	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
72	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
73	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
74	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
>=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 C – Statement of Actuarial Assumptions (continued)

Teachers 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	0.150
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	0.150	0.150
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	0.150	0.150	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	0.150	0.150	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	0.150	0.150	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	0.225	0.225	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	0.225	0.225	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	0.225	0.225	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	0.225	0.225	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	0.225	0.225	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
60	0.000	0.090	0.090	0.090	0.090	0.090	0.090	0.225	0.225	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
61	0.000	0.150	0.100	0.100	0.100	0.100	0.300	0.300	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
62	0.000	0.150	0.150	0.150	0.150	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	0.150	0.150	0.150	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	0.300
64	0.000	0.250	0.150	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	0.300	0.300
65	0.000	0.300	0.300	0.300	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	0.300	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	0.350	0.350
67	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
68	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
69	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
70	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
71	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
72	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
73	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
74	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
>=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 C – Statement of Actuarial Assumptions (continued)

DISABILITY RATES: As shown below for selected ages. 5% of disability cases are assumed to be service related.

Teachers Disability Rates		
Age	Male	Female
20	0.000005	0.000003
25	0.000005	0.000023
30	0.000064	0.000081
35	0.000135	0.000196
40	0.000325	0.000481
45	0.000725	0.000792
50	0.001444	0.001609
55	0.002443	0.002521
60	0.003395	0.003321
65	0.003773	0.003509
70	0.003773	0.003509



Schedule C – Statement of Actuarial Assumptions (continued)

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

Teachers Termination Rates, Male											
Age	Years of service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.21079	0.14843	0.11901	0.11020	0.09349	0.08050	0.08046	0.07228	0.05097	0.04292	0.04292
25	0.18729	0.14293	0.12175	0.11084	0.09453	0.08071	0.07568	0.06716	0.05060	0.04286	0.04286
30	0.16964	0.13940	0.12584	0.11218	0.09637	0.08159	0.07055	0.06162	0.05134	0.04355	0.04355
35	0.16964	0.13888	0.12459	0.10907	0.09347	0.07931	0.06709	0.05881	0.05210	0.04361	0.03314
40	0.16964	0.13888	0.12078	0.10272	0.08688	0.07483	0.06444	0.05760	0.05255	0.04302	0.02407
45	0.16964	0.13888	0.11573	0.10116	0.07864	0.06940	0.06230	0.05733	0.05243	0.04239	0.02407
50	0.16964	0.13888	0.11233	0.10116	0.07206	0.06391	0.06033	0.05733	0.05234	0.04238	0.02407
55	0.16964	0.13888	0.11217	0.10116	0.07038	0.05844	0.05813	0.05733	0.05234	0.04238	0.02407
60	0.16964	0.13888	0.11217	0.10116	0.07038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.16964	0.13888	0.11217	0.10116	0.07038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.16964	0.13888	0.11217	0.10116	0.07038	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Teachers Termination Rates, Female											
Age	Years of service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.18697	0.11393	0.09392	0.09392	0.08483	0.06269	0.04984	0.04984	0.04938	0.04663	0.04663
25	0.18037	0.12332	0.10860	0.10637	0.09381	0.07728	0.06567	0.06507	0.05448	0.04933	0.04933
30	0.17320	0.13889	0.12685	0.11780	0.10503	0.09536	0.08496	0.07332	0.06172	0.05303	0.04656
35	0.16500	0.14138	0.12602	0.11307	0.10178	0.09519	0.08653	0.07385	0.06386	0.05292	0.03931
40	0.15660	0.13208	0.11313	0.09891	0.08919	0.08395	0.07759	0.06810	0.06086	0.04911	0.02568
45	0.15055	0.12047	0.09933	0.08544	0.07686	0.07181	0.06623	0.05912	0.05390	0.04417	0.02287
50	0.14909	0.11617	0.09449	0.08038	0.07126	0.06481	0.05822	0.05346	0.04858	0.04357	0.02287
55	0.14909	0.11617	0.09449	0.08038	0.07093	0.06249	0.05450	0.05326	0.04771	0.04357	0.02287
60	0.14909	0.11617	0.09449	0.08038	0.07093	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
65	0.14909	0.11617	0.09449	0.08038	0.07093	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
70	0.14909	0.11617	0.09449	0.08038	0.07093	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000



Schedule C – Statement of Actuarial Assumptions (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
1	5.95%
2	5.85
3	5.85
4	5.45
5	5.45
6	5.45
7	5.35
8	5.35
9	5.35
10	4.85
11	4.85
12	4.85
13	4.75
14	4.75
15	4.65
16	4.65
17	4.55
18	4.45
19	4.45
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 C – Statement of Actuarial Assumptions (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 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 with 1.0% 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

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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (continued)

JUDICIAL

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 setback 1 year, 85% of rates; females setback 1 year

Post-Retirement:

R P-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; females setback 1 year with 1.5% compounding increase from ages 70 to 85

Post-Disablement:

RP-2014 Disabled Mortality Rates projected with Scale BB to 2020; males 115% of rates; females 130% of rates

Judicial 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

5% 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 C – Statement of Actuarial Assumptions (continued)

RETIREMENT RATES: The following rates of retirement are assumed for members eligible to retire with an unreduced retirement benefit.

Judicial Retirement Rates	
Age	Unisex
<=59	0.000
60	0.150
61	0.150
62	0.150
63	0.150
64	0.150
65	0.150
66	0.150
67	0.150
68	0.150
69	0.150
70	0.500
71	0.500
72	0.500
>=73	1.000

DISABILITY RATES: There are no assumed rates of disability prior to service retirement for causes other than death or retirement.

TERMINATION RATES: There are no assumed rates of withdrawal prior to service retirement for causes other than death or retirement.

SALARY INCREASE RATES: Salary increase rates are 4.5%.

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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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	0.02012	0.03312	0.06223	0.01052	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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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	0.100	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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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	0.02012	0.03312	0.06223	0.01052	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 C – Statement of Actuarial Assumptions (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	0.000	0.000	0.000	0.050	0.050	0.100	0.100
51	0.000	0.000	0.000	0.055	0.040	0.100	0.080
52	0.000	0.000	0.000	0.055	0.040	0.100	0.080
53	0.000	0.000	0.000	0.055	0.040	0.100	0.080
54	0.000	0.000	0.000	0.055	0.040	0.100	0.100
55	0.000	0.055	0.055	0.055	0.050	0.140	0.100
56	0.000	0.055	0.050	0.050	0.050	0.140	0.100
57	0.000	0.090	0.055	0.055	0.055	0.110	0.100
58	0.000	0.090	0.055	0.055	0.055	0.110	0.100
59	0.000	0.100	0.055	0.055	0.055	0.120	0.100
60	0.000	0.100	0.060	0.060	0.060	0.120	0.100
61	0.000	0.150	0.100	0.100	0.100	0.250	0.220
62	0.000	0.130	0.170	0.170	0.170	0.350	0.300
63	0.000	0.130	0.150	0.150	0.150	0.200	0.250
64	0.000	0.200	0.150	0.150	0.150	0.270	0.250
65	0.000	0.270	0.270	0.270	0.270	0.270	0.300
66	0.000	0.270	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
68	0.000	0.270	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
70	0.000	0.270	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
72	0.000	0.270	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
74	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 C – Statement of Actuarial Assumptions (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	0.000	0.000	0.000	0.055	0.055	0.060	0.060
51	0.000	0.000	0.000	0.055	0.040	0.060	0.100
52	0.000	0.000	0.000	0.055	0.045	0.060	0.100
53	0.000	0.000	0.000	0.055	0.045	0.120	0.100
54	0.000	0.000	0.000	0.055	0.045	0.120	0.100
55	0.000	0.070	0.070	0.070	0.055	0.120	0.100
56	0.000	0.060	0.055	0.055	0.055	0.120	0.100
57	0.000	0.060	0.055	0.055	0.055	0.100	0.100
58	0.000	0.060	0.055	0.055	0.055	0.100	0.100
59	0.000	0.060	0.055	0.055	0.055	0.150	0.100
60	0.000	0.085	0.075	0.075	0.075	0.150	0.100
61	0.000	0.085	0.075	0.075	0.075	0.200	0.175
62	0.000	0.190	0.170	0.170	0.170	0.200	0.250
63	0.000	0.110	0.150	0.150	0.150	0.200	0.250
64	0.000	0.110	0.150	0.150	0.150	0.250	0.150
65	0.000	0.280	0.280	0.280	0.280	0.280	0.350
66	0.000	0.280	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
68	0.000	0.175	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
70	0.000	0.300	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
72	0.000	0.300	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
74	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 C – Statement of Actuarial Assumptions (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	0.000	0.000	0.000	0.050	0.050	0.050	0.050
51	0.000	0.000	0.000	0.055	0.040	0.040	0.040
52	0.000	0.000	0.000	0.055	0.040	0.040	0.040
53	0.000	0.000	0.000	0.055	0.040	0.040	0.040
54	0.000	0.000	0.000	0.055	0.040	0.040	0.040
55	0.000	0.055	0.055	0.055	0.050	0.140	0.140
56	0.000	0.055	0.050	0.050	0.050	0.140	0.100
57	0.000	0.090	0.055	0.055	0.055	0.110	0.100
58	0.000	0.090	0.055	0.055	0.055	0.110	0.100
59	0.000	0.100	0.055	0.055	0.055	0.120	0.100
60	0.000	0.100	0.060	0.060	0.060	0.120	0.100
61	0.000	0.150	0.100	0.100	0.100	0.250	0.220
62	0.000	0.130	0.170	0.170	0.170	0.350	0.300
63	0.000	0.130	0.150	0.150	0.150	0.200	0.250
64	0.000	0.200	0.150	0.150	0.150	0.270	0.250
65	0.000	0.270	0.270	0.270	0.270	0.270	0.300
66	0.000	0.270	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
68	0.000	0.270	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
70	0.000	0.270	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
72	0.000	0.270	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
74	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 C – Statement of Actuarial Assumptions (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	0.000	0.000	0.000	0.055	0.055	0.055	0.055
51	0.000	0.000	0.000	0.055	0.040	0.040	0.040
52	0.000	0.000	0.000	0.055	0.045	0.045	0.045
53	0.000	0.000	0.000	0.055	0.045	0.045	0.045
54	0.000	0.000	0.000	0.055	0.045	0.045	0.045
55	0.000	0.070	0.070	0.070	0.055	0.120	0.120
56	0.000	0.060	0.055	0.055	0.055	0.120	0.100
57	0.000	0.060	0.055	0.055	0.055	0.100	0.100
58	0.000	0.060	0.055	0.055	0.055	0.100	0.100
59	0.000	0.060	0.055	0.055	0.055	0.150	0.100
60	0.000	0.085	0.075	0.075	0.075	0.150	0.100
61	0.000	0.085	0.075	0.075	0.075	0.200	0.175
62	0.000	0.190	0.170	0.170	0.170	0.200	0.250
63	0.000	0.110	0.150	0.150	0.150	0.200	0.250
64	0.000	0.110	0.150	0.150	0.150	0.250	0.150
65	0.000	0.280	0.280	0.280	0.280	0.280	0.350
66	0.000	0.280	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
68	0.000	0.175	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
70	0.000	0.300	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
72	0.000	0.300	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
74	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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (continued)

DISABILITY RATES: As shown below for selected ages. 25% 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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (continued)

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 C – Statement of Actuarial Assumptions (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 C – Statement of Actuarial Assumptions (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 D – Actuarial Cost Method

The valuation is prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable upon death after retirement or disability. The calculations are based on the member's age, years of service, gender, and an assumed future interest earnings rate (currently 6.75%). The calculations consider the probability of a member's death or termination of employment prior to becoming eligible for a benefit and the probability of the member terminating with a service or disability benefit. The present value of the expected benefits payable to active members is added to the present value of the expected future payments to current benefit recipients to obtain the present value of all expected benefits payable to the present group of members.

The employer contributions required to support the benefits of each OPEB Plan are determined following a level funding approach and consist of a normal contribution and an accrued liability contribution.

The normal contribution is determined using the "entry age normal" method (EAN). Under this method, a calculation is made for postemployment benefits to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of his anticipated covered service, would be required to meet the cost of all benefits payable on a member's behalf. Administrative expenses are included in the normal contribution.

The unfunded accrued liability is determined by subtracting the current assets and the present value of prospective employer normal contributions from the present value of expected benefits to be paid from each OPEB Plan. The accrued liability contribution amortizes the balance of the unfunded accrued liability over a period of years from the valuation date.