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Cavanaugh Macdonald

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December 19, 2014

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

Dear Trustees:

Governmental Accounting Standards Board Statements No. 43 and No. 45 (GASB 43 and 45) require actuarial valuations of retiree health care and other postemployment benefit (OPEB) plans. Cavanaugh Macdonald Consulting, LLC (CMC) is submitting the results of the annual actuarial valuation of the Virginia Retirement System (VRS) Health Insurance Credit Program (Plan) prepared as of June 30, 2014. While not verifying the data at source, the actuary performed tests for consistency and reasonability.

The valuation indicates the Annual Required Contribution (ARC) under GASB 43 and 45 is 1.17% of active covered payroll for State Employees [including State, State Police (SPORS), Judicial Employees (JRS), Virginia Law Officers (VaLORS), Optional Retirement Plan (ORP), and University of Virginia (UVA) members] of active covered payroll and 1.20% of active Teachers payroll. Contribution rates for VRS employers are established every two years. The actuarially calculated employer contribution rates based on the June 30, 2014 results presented in this report are for informational purposes only.

The promised health care benefits of VRS are included in the actuarially calculated contribution rates which are developed using the entry age normal actuarial cost method with projected benefits. The valuation takes into account the differentiation between Plan 1 vested members, Plan 1 non-vested members as of January 1, 2013 resulting from HB 1130 and SB 498, and Plan 2 members. The June 30, 2014 valuation is the first valuation to reflect the Hybrid Retirement Plan for eligible new hires on or after January 1, 2014 and for members that elected to opt into the Hybrid Plan. Five-year smoothed market value of assets is used for actuarial valuation purposes. GASB 43 and 45 require the discount rate used to value a plan be based on the likely return of the assets used to pay benefits. As of June 30, 2014, both plans have assets in trust solely to provide benefits to eligible recipients. Therefore, the discount rate has been set at 7.00%. In accordance with the new funding policy adopted by the Board of Trustees, the unfunded liability is being amortized by regular annual contributions as a level percentage of payroll within a closed 30 year period for the unfunded liability as of July 1, 2013, and gains and losses in subsequent years are amortized within a closed 20 year period, on the assumption that payroll will increase by 3% annually and the amortization period will decrease by one each year until reaching 0 years. In the event that the funding policy produces an effective amortization period of greater than 30 years, a 30 year amortization period is used in accordance with GASB Statements 43 and 45. The assumptions recommended by the actuary and adopted by the Board are in the aggregate reasonably related to the experience under the Fund and to reasonable expectations of anticipated experience under the Plan and meet the parameters for the disclosures under GASB Statements 43 and 45.

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The Board of Trustees
December 19, 2014
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Our organization has only a contractual relationship with the Virginia Retirement System to provide actuarial consulting services and we do not provide other services to nor have a financial interest in the Virginia Retirement System. There are no known interests or relationships that our firm has with the Virginia Retirement System that may impair or appear to impair the objectivity of our work.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the Plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of VRS.

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; 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.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Jose I. Fernandez', with a stylized flourish at the end.

Jose I. Fernandez, ASA, FCA, EA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink, appearing to read 'Eric H. Gary', with a stylized flourish at the end.

Eric H. Gary, FSA, FCA, MAAA
Chief Health Actuary

JIF/EHG:aap



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Section I – Summary of Principal Results

1. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results for State Employees [State, SPORS, JRS, VaLORS, Optional Retirement Plan (ORP), and University of Virginia (UVA)] and Teachers are summarized in the following tables.

STATE EMPLOYEES (\$ IN THOUSANDS)

Valuation Date	June 30, 2014	June 30, 2013
Number Active	106,815	106,780
Number Retired, Disabled, or Eligible Deferred Vested	<u>43,943</u>	<u>42,813</u>
Total	150,758	149,593
Annual Covered Payroll	\$ 5,930,862	\$ 5,724,611
Assets:		
Market Value	\$ 65,201	\$ 59,879
Actuarial Value	\$ 60,645	\$ 54,773
Unfunded Actuarial Liability	\$ 901,497	\$ 889,809
Effective Amortization Period (Years)	29.0	30.0
Annual Required Contribution (ARC) in Dollars:		
Normal Cost	\$ 18,029	\$ 18,381
Accrued Liability	<u>50,417</u>	<u>48,836</u>
Total	\$ 68,446	\$ 67,217
Annual Required Contribution as a Percent of Active Payroll*:		
Normal Cost	0.30%	0.32%
Accrued Liability	<u>0.87</u>	<u>0.85</u>
Total	1.17%	1.17%
Discount Rate	7.00%	7.00%

*Includes timing adjustment factor of 1.0192



Section I – Summary of Principal Results (continued)

**TEACHERS
(\$ IN THOUSANDS)**

Valuation Date	June 30, 2014	June 30, 2013
Number Active	146,977	147,257
Number Retired, Disabled, or Eligible Deferred Vested	<u>59,821</u>	<u>57,304</u>
Total	206,798	204,561
Annual Covered Payroll	\$ 7,362,793	\$ 7,188,884
Assets:		
Market Value	\$ 82,108	\$ 68,956
Actuarial Value	\$ 79,177	\$ 67,012
Unfunded Actuarial Liability	\$ 1,218,544	\$ 1,190,780
Effective Amortization Period (Years)	29.0	30.0
Annual Required Contribution (ARC) in Dollars:		
Normal Cost	\$ 18,631	\$ 19,204
Accrued Liability	<u>68,320</u>	<u>65,354</u>
Total	\$ 86,951	\$ 84,558
Annual Required Contribution as a Percent of Active Payroll:		
Normal Cost	0.25%	0.27%
Accrued Liability	<u>0.95</u>	<u>0.91</u>
Total	1.20%	1.18%
Discount Rate	7.00%	7.00%

2. The previous valuation as of June 30, 2013 indicates that the Annual Required Contribution (ARC) under GASB 43 and 45 for the State Employees is 1.17% of active covered payroll for the fiscal years 2015 and 2016 and for Teachers is 1.18% of active covered payroll payable for the fiscal years 2015 and 2016. The contribution rates based on the June 30, 2014 valuation are presented for informational purposes only. Comments on the valuation results as of June 30, 2014 are given in Section IV and further discussion of the contribution levels is provided in Section V.



Section I – Summary of Principal Results (continued)

3. The main provisions of the VRS Health Insurance Credit Program, as summarized in Schedule E, were taken into account in the current valuation.
4. Changes to the actuarial assumptions and methods from the last actuarial valuation:
 - A timing adjustment factor of 1.0192 was applied to the beginning of year contribution rates to account for assumed middle of the year payments.
 - Timing for present value of future salary (PVFS) calculations was changed from middle of the year to beginning of the year.
 - The amortization method was updated with this valuation to consist of a closed 30 year period for the unfunded liability as of July 1, 2013, and subsequent gains and losses are amortized within a closed 20 year period, on the assumption that payroll will increase by 3% annually and the amortization period will decrease by one each year until reaching 0 years. In the event that the funding policy produces an effective amortization period of greater than 30 years, a 30 year amortization period is used in accordance with GASB 43 and 45.
5. Schedule B shows the development of the actuarial value of assets. Schedule C and Schedule D of this report outline the full set of actuarial assumptions and methods used in the current valuation.



Section II – Membership Data

- Data regarding the membership of VRS for use as a basis of the valuation were furnished by VRS. The following table shows the number of active members and their annual covered payroll, as of June 30, 2014, on the basis of which the valuation was prepared.

TABLE 1
THE NUMBER AND ANNUAL COVERED PAYROLL OF
ACTIVE MEMBERS AS OF JUNE 30, 2014
(\$ IN THOUSANDS)

Group	Number	Covered Payroll
State Employees*	106,815	\$ 5,930,862
Teachers	<u>146,977</u>	<u>7,362,793</u>
Total	253,792	\$ 13,293,655

*State Employees include State, JRS, SPORS, VaLORS, ORP, and UVA employees.

The two tables of Schedule F, which can be found near the end of this report, show the distribution by age and service of the number of active members for each group included in the valuation.

- The following table shows a six-year history of active member valuation data.

TABLE 2
SCHEDULE OF TOTAL ACTIVE MEMBER VALUATION DATA

Valuation Date	Number	Annual Covered Payroll (\$ in Thousands)	Annual Average Pay	% Change in Average Pay
<u>STATE EMPLOYEES</u>				
6/30/2014	106,815	\$5,930,862	\$55,525	3.57%
6/30/2013	106,780	5,724,611	53,611	1.22
6/30/2012	106,517	5,641,862	52,967	(0.91)
6/30/2011	105,186	5,622,425	53,452	5.21
6/30/2010	105,106	5,340,134	50,807	0.45
6/30/2009	107,791	5,452,111	50,580	0.79
<u>TEACHERS</u>				
6/30/2014	146,977	\$7,362,793	\$50,095	2.61%
6/30/2013	147,257	7,188,884	48,819	2.60
6/30/2012	147,216	7,004,577	47,580	0.46
6/30/2011	146,152	6,922,130	47,363	(1.24)
6/30/2010	148,462	7,119,889	47,958	(0.37)
6/30/2009	148,762	7,160,842	48,136	3.29



Section II – Membership Data (continued)

3. The following table shows a six-year history of members retired for service or receiving disability benefits.

TABLE 3

SCHEDULE OF RETIRANTS AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS*

Valuation Date	Number Added to Rolls	Health Insurance Credit (\$1,000s)	Number Removed from Rolls	Health Insurance Credit (\$1,000s)	Number on Rolls at the End of the Year	Health Insurance Credit (\$1,000s)	Increase in Health Insurance Credit	Average Health Insurance Credit	Increase in Average Health Insurance Credit
STATE EMPLOYEES**									
6/30/2014	2,652	\$4,044	1,548	\$2,212	42,189	\$62,655	3.01%	\$1,485	0.34%
6/30/2013	2,542	3,765	1,503	2,112	41,085	60,823	2.79	1,480	0.14
6/30/2012	2,539	3,784	1,453	2,065	40,046	59,170	2.99	1,478	0.20
6/30/2011	2,684	4,009	1,986	2,841	38,960	57,451	2.08	1,475	0.27
6/30/2010	3,521	5,685	1,279	1,784	38,262	56,283	7.45	1,471	1.17
6/30/2009	3,201	6,180	1,368	1,865	36,020	52,382	8.98	1,454	3.41
TEACHERS									
6/30/2014	3,729	\$5,075	1,291	\$1,752	58,121	\$80,257	4.32%	\$1,381	(0.07)%
6/30/2013	3,557	5,016	1,389	1,918	55,683	76,934	4.20	1,382	0.14
6/30/2012	3,240	4,426	1,214	1,649	53,515	73,836	3.91	1,380	0.00
6/30/2011	4,073	5,776	1,163	1,568	51,489	71,059	6.29	1,380	0.29
6/30/2010	3,216	4,545	1,101	1,483	48,579	66,851	4.80	1,376	0.22
6/30/2009	5,375	7,094	1,002	1,350	46,464	63,789	9.90	1,373	(0.44)

*This schedule does not include life insurance benefits payable upon the death of an active member.

**State Employees includes State, SPORS, JRS, VaLORS, ORP and UVA.



Section III – Assets

1. Schedule B shows the additions and deductions of the Plan for the year preceding the valuation date and a reconciliation of the fund balances at market value. As of June 30, 2014, the market value of assets used to determine the actuarial value of assets for State Employees (State, JRS, SPORS, VaLORS, ORP, and UVA) and Teachers is shown below:

TABLE 4
COMPARISON OF MARKET VALUE OF ASSETS AT
JUNE 30, 2014 AND JUNE 30, 2013
(\$ IN THOUSANDS)

Group	JUNE 30, 2014	JUNE 30, 2013
State Employees	\$ 65,201	\$ 59,879
Teachers	<u>82,108</u>	<u>68,956</u>
Total	\$ 147,309	\$ 128,835

2. Schedule B shows the development of the five-year market related actuarial value of assets as of June 30, 2014. The following table shows the actuarial value of assets allocated among State Employees (State, JRS, SPORS, VaLORS, ORP, and UVA) and Teachers.

TABLE 5
COMPARISON OF ACTUARIAL VALUE OF ASSETS AT
JUNE 30, 2014 AND JUNE 30, 2013
(\$ IN THOUSANDS)

Group	JUNE 30, 2014	JUNE 30, 2013
State Employees	\$ 60,645	\$ 54,773
Teachers	<u>79,177</u>	<u>67,012</u>
Total	\$ 139,822	\$ 121,785



Section IV – Comments on Valuation

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

1. For State Employees, the June 30, 2014 valuation shows total prospective benefit liabilities of \$1,087,434,660, of which \$577,290,970 is for the prospective retiree health care benefits payable on account of present retired members, members receiving disability benefits, and eligible deferred vested members, and \$510,143,690 is for the prospective retiree health care benefits payable on account of present active members. Against these benefit liabilities, the Plan has, for State Employees, a total present actuarial value of assets of \$60,645,405 as of June 30, 2014. The difference of \$1,026,789,255 between the total liabilities and the total present actuarial value of assets represents the present value of contributions to be made in the future on account of benefits. Schedule A of this report outlines the results of the actuarial valuation.
2. The contributions for State Employees on account of retiree health care benefits consist of normal contributions and accrued liability contributions. The normal contribution is equal to the actuarial present value of benefits accruing during the current year. The normal contribution for State Employees is determined to be 0.30% of total active covered payroll.
3. Prospective normal contributions have a present value of \$125,292,724. When this amount is subtracted from \$1,026,789,255, which is the present value of the total future contributions to be made by the employers, there remains \$901,496,531 as the amount of future accrued liability contributions.
4. For State Employees, it is recommended that the accrued liability contribution rate payable by employers on account of retiree health care benefits be set at 0.87% of total active covered payroll. This rate is sufficient to liquidate the unfunded accrued liability of \$901,496,531 over 29.0 years for the balance of the unfunded accrued liability, based on a 7.00% investment rate of return and the assumption payroll will increase by 3.00% annually. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method, which are described in Schedule C and Schedule D.
5. The total annual required contribution (ARC) is 1.17% of total active covered payroll.



Section IV – Comments on Valuation (continued)

6. For State Employees, the Plan experienced a liability gain since the prior valuation of \$3.8 million; primarily due to demographic changes. The assets grew more than expected for a gain of \$5.0 million, for an overall gain on the unfunded liability of \$8.8 million



Section IV – Comments on Valuation (continued)

TEACHERS

1. For Teachers, the June 30, 2014 valuation shows total prospective benefit liabilities of \$1,450,152,026, of which \$761,300,566 is for the prospective retiree health care benefits payable on account of present retired members, members receiving disability benefits, and eligible deferred vested members, and \$688,851,460 is for the prospective retiree health care benefits payable on account of present active members. Against these benefit liabilities, the Plan has, for Teachers, a total present actuarial value of assets of \$79,176,784 as of June 30, 2014. The difference of \$1,370,975,242 between the total liabilities and the total present actuarial value of assets represents the present value of contributions to be made in the future on account of benefits. Schedule A of this report outlines the results of the actuarial valuation.
2. The contributions for Teachers on account of retiree health care benefits consist of normal contributions and accrued liability contributions. The normal contribution is equal to the actuarial present value of benefits accruing during the current year. The normal contribution for Teachers is determined to be 0.25% of total active covered payroll.
3. Prospective normal contributions have a present value of \$152,431,839. When this amount is subtracted from \$1,370,975,242, which is the present value of the total future contributions to be made by the employers, there remains \$1,218,543,403 as the amount of future accrued liability contributions.
4. For Teachers, it is recommended that the accrued liability contribution rate payable by employers on account of retiree health care benefits be set at 0.95% of salary. This rate is sufficient to liquidate the unfunded accrued liability of \$1,218,543,403 over 28.8 years for the balance of the unfunded accrued liability, based on a 7.00% investment rate of return and the assumption payroll will increase by 3.00% annually. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method, which are described in Schedule C and Schedule D.
5. The total annual required contribution (ARC) is 1.20% of total active covered payroll.



Section IV – Comments on Valuation (continued)

6. For Teachers, the Plan experienced a liability loss since the prior valuation of \$10.4 million; primarily due to demographic changes. The assets grew more than expected for a gain of \$3.1 million; for an overall loss on the unfunded liability of \$7.3 million.



Section V – Contribution Rates

1. The actuarially determined employer contribution rates based on the June 30, 2014 actuarial valuation for State Employees (State, JRS, SPORS, VaLORS, ORP, and UVA) and Teachers are shown in the following table:

TABLE 6

**ANNUAL REQUIRED CONTRIBUTION (ARC) EXPRESSED
AS A PERCENTAGE OF ACTIVE MEMBER COVERED PAYROLL**

Group	June 30, 2014
State Employees	1.17%
Teachers	1.20%
State Employees and Teachers Combined	1.19%

2. The table below shows the normal contribution rate, the unfunded actuarial accrued liability (UAAL), amortization period and the actuarially required contribution rate with the new amortization period for State Employees (State, JRS, SPORS, VaLORS, ORP, and UVA) and Teachers.

TABLE 7

**EMPLOYER CONTRIBUTION RATE EXPRESSED
AS A PERCENTAGE OF ACTIVE MEMBER COVERED PAYROLL**

	June 30, 2014	
	State Employees	Teachers
Normal Cost	0.30%	0.25%
Percent to Amortize Unfunded Actuarial Accrued Liability (UAAL)	<u>0.87%</u>	<u>0.95%</u>
Actuarial Required Contribution Rate to Pay Normal Cost and Amortize UAAL	1.17%	1.20%



Section VI – Accounting Information

1. GASB 43 and 45 set forth certain items of required supplementary information to be disclosed in the financial statements of VRS and the employer. One such item is a distribution of the number of members by type of membership, as follows:

**NUMBER OF ALL MEMBERS
AS OF JUNE 30, 2014**

Group	Count		
	State Employees	Teachers	Total
Active Members	106,815	146,977	253,792
Retired or Disabled Members	42,189	58,121	100,310
Eligible Deferred Vested Members	<u>1,754</u>	<u>1,700</u>	<u>3,454</u>
Total	150,758	206,798	357,556

2. Another such item is the Schedule of Funding Progress for State Employees (State, JRS, SPORS, VaLORS, ORP, and UVA) and Teachers, shown in the following table:

**SCHEDULE OF FUNDING PROGRESS
(\$ IN THOUSANDS)**

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
STATE EMPLOYEES						
6/30/2014	\$ 60,645	\$ 962,142	\$ 901,497	6.30%	\$5,930,862	15.20%
6/30/2013	54,773	944,582	889,809	5.80	5,724,611	15.54
6/30/2012	55,510	917,168	861,658	6.05	5,641,862	15.27
6/30/2011	110,791	896,560	785,769	12.36	5,622,425	13.98
6/30/2010	159,163	895,041	735,878	17.78	5,340,134	13.78
6/30/2009	169,287	842,111	672,824	20.10	5,452,111	12.34
TEACHERS						
6/30/2014	\$ 79,177	\$1,297,721	\$1,218,544	6.10%	\$7,362,793	16.55%
6/30/2013	67,012	1,257,792	1,190,780	5.33	7,188,884	16.56
6/30/2012	58,286	1,269,070	1,210,784	4.59	7,004,577	17.29
6/30/2011	85,933	1,230,205	1,144,272	6.99	6,922,130	16.53
6/30/2010	108,187	1,202,438	1,094,251	9.00	7,119,889	15.37
6/30/2009	115,880	1,108,170	992,290	10.46	7,160,842	13.86



Section VI – Accounting Information (continued)

3. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2014. Additional information as of the latest actuarial valuation follows:

Valuation date	6/30/2014
Actuarial cost method	Entry Age Normal
Amortization method	Level Percentage of Pay, Closed
Payroll Growth Rate	3.00%
Effective amortization period	
State Employees	29.0 Years
Teachers	28.8 Years
Asset valuation method	5-year Smoothed Market
Actuarial assumptions:	
Investment Rate of Return*	7.00%
*Includes inflation at	2.50%

The assumed investment rate of return reflects the fact a Trust has been established to set aside assets that are legally held exclusively for retiree health care benefits.



Section VII – Derivation of Experience Gains and Losses

**CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITIES (UAAL)
DURING FISCAL YEAR 2014
(\$ IN MILLIONS)**

Fiscal Year 2014	State Employees*		Teachers
1. Beginning of Year:			
(a) Actuarial Accrued Liability (AAL)	\$	944.6	\$ 1,257.8
(b) Normal Cost	\$	18.4	\$ 19.2
(c) Benefit Payments	\$	62.3	\$ 76.4
2. End of Year:			
(a) Expected AAL $[(1a) + (1b)] \times 1.07 - [(1c) \times (1 + [0.07 \times 0.50])]$	\$	965.9	\$ 1,287.3
(b) Actual AAL	\$	962.1	\$ 1,297.7
3. Total AAL Gain (or Loss) (2a) – (2b)	\$	3.8	\$ (10.4)
4. Actuarial Value of Assets (AVA) Beginning of Year	\$	54.8	\$ 67.0
5. Net external cash flow during the year	\$	(2.9)	\$ 4.3
6. End of Year:			
(a) Expected AVA $[(4) \times 1.07] + [(5) \times (1 + [0.07 \times 0.50])]$	\$	55.6	\$ 76.1
(b) Actual AVA	\$	60.6	\$ 79.2
7. AVA Gain (or Loss) (6b) – (6a)	\$	5.0	\$ 3.1
8. Expected UAAL at End of Year (2a) – (6a)	\$	910.3	\$ 1,211.2
9. Actual UAAL at End of Year (2b) – (6b)	\$	901.5	\$ 1,218.5
10. UAAL Gain (or Loss) (8) – (9)	\$	8.8	\$ (7.3)

*State Employees include State, JRS, SPORS, VaLORS, ORP, and UVA employees.



Schedule A – Results of the Valuation

STATE EMPLOYEES
 (State, SPORS, JRS, VaLORS, ORP, and UVA)
 (\$ IN THOUSANDS)

Valuation Date	June 30, 2014	June 30, 2013
1. COVERED PAYROLL	\$ 5,930,862	\$ 5,724,611
2. ACTUARIAL ACCRUED LIABILITY		
Present value of prospective benefits payable in respect of:		
(a) Present active members	\$ 510,144	\$ 511,141
(b) Present retired, disabled, and deferred members	<u>577,291</u>	<u>562,448</u>
(c) Total present value of prospective benefits	\$ 1,087,435	\$ 1,073,589
(d) Present value of future normal contributions	<u>125,293</u>	<u>129,007</u>
(e) Total actuarial accrued liability (2c) – (2d)	\$ 962,142	\$ 944,582
3. PRESENT ASSETS FOR VALUATION PURPOSES	\$ 60,645	\$ 54,773
4. UNFUNDED ACTUARIAL ACCRUED LIABILITY (2e) – (3)	\$ 901,497	\$ 889,809
5. EFFECTIVE AMORTIZATION PERIOD	29.0	30.0
6. NORMAL CONTRIBUTION	\$ 18,029	\$ 18,381
7. ACCRUED LIABILITY CONTRIBUTION	<u>50,417</u>	<u>48,836</u>
8. TOTAL CONTRIBUTION BASED ON COVERED PAYROLL (6) + (7)	\$ 68,446	\$ 67,217
9. NORMAL CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (6) ÷ (1)*	0.30%	0.32%
10. ACCRUED LIABILITY CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (7) ÷ (1)*	<u>0.87%</u>	<u>0.85%</u>
11. TOTAL CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (9) + (10)*	1.17%	1.17%
12. DISCOUNT RATE	7.00%	7.00%

*Includes timing adjustment factor of 1.0192



Schedule A – Results of the Valuation (continued)

TEACHERS
(\$ IN THOUSANDS)

Valuation Date	June 30, 2014	June 30, 2013
1. COVERED PAYROLL	\$ 7,362,793	\$ 7,188,884
2. ACTUARIAL ACCRUED LIABILITY		
Present value of prospective benefits payable in respect of:		
(a) Present active members	\$ 688,851	\$ 687,476
(b) Present retired, disabled, and deferred members	<u>761,301</u>	<u>728,612</u>
(c) Total present value of prospective benefits	\$ 1,450,152	\$ 1,416,088
(d) Present value of future normal contributions	<u>152,431</u>	<u>158,296</u>
(e) Total actuarial accrued liability (2c) – (2d)	\$ 1,297,721	\$ 1,257,792
3. PRESENT ASSETS FOR VALUATION PURPOSES	\$ 79,177	\$ 67,012
4. UNFUNDED ACTUARIAL ACCRUED LIABILITY (2e) – (3)	\$ 1,218,544	\$ 1,190,780
5. EFFECTIVE AMORTIZATION PERIOD	28.8	30.0
6. NORMAL CONTRIBUTION	\$ 18,631	\$ 19,204
7. ACCRUED LIABILITY CONTRIBUTION	<u>68,320</u>	<u>65,354</u>
8. TOTAL CONTRIBUTION BASED ON ACTIVE PAYROLL (6) + (7)	\$ 86,951	\$ 84,558
9. NORMAL CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (6) ÷ (1)	0.25%	0.27%
10. ACCRUED LIABILITY CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (7) ÷ (1)	<u>0.95%</u>	<u>0.91%</u>
11. TOTAL CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (9) + (10)	1.20%	1.18%
12. DISCOUNT RATE	7.00%	7.00%



Schedule A – Solvency Test

**SOLVENCY TEST
(\$ IN THOUSANDS)**

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1) Active Member Contributions	(2) Retirees, Survivors, and Inactive Members	(3) Active Members (Employer Financed Portion)	Total		(1)	(2)	(3)
STATE EMPLOYEES								
6/30/2014	n/a	\$577,291	\$384,851	\$962,142	\$ 60,645	n/a	10.51%	0.00%
6/30/2013	n/a	562,448	382,134	944,582	54,773	n/a	9.74	0.00
6/30/2012	n/a	542,874	374,294	917,168	55,510	n/a	10.23	0.00
6/30/2011	n/a	530,461	366,099	896,560	110,791	n/a	20.89	0.00
6/30/2010	n/a	521,153	373,888	895,041	159,163	n/a	30.54	0.00
6/30/2009	n/a	466,457	375,654	842,111	169,287	n/a	36.29	0.00
TEACHERS								
6/30/2014	n/a	\$761,301	\$536,420	\$1,297,721	\$ 79,177	n/a	10.40%	0.00%
6/30/2013	n/a	728,612	529,180	1,257,792	67,012	n/a	9.20	0.00
6/30/2012	n/a	732,146	536,924	1,269,070	58,286	n/a	7.96	0.00
6/30/2011	n/a	707,436	522,769	1,230,205	85,933	n/a	12.15	0.00
6/30/2010	n/a	666,263	536,175	1,202,438	108,187	n/a	16.24	0.00
6/30/2009	n/a	614,050	494,120	1,108,170	115,880	n/a	18.87	0.00

*State Employees includes State, SPORS, JRS, VaLORS, ORP, and UVA.



Schedule B – Plan Assets

GASB 43 and 45 define plan assets as resources, usually in the form of stocks, bonds, and other classes of investments, that have been segregated and restricted in a trust, or equivalent arrangement, in which (a) employer contributions to the plan are irrevocable, (b) assets are dedicated to providing benefits to retirees and their beneficiaries, and (c) assets are legally protected from creditors of the employers or plan administrator, for the payment of benefits in accordance with the terms of the plan.

For valuation purposes, an actuarial value of assets is used. This is a smoothed market value, phasing-in investment returns above or below the 7.00% assumption over five years. This smoothed value is subject to a corridor that restricts the actuarial value of assets from being more than 120% or less than 80% of the market value of assets. The actuarial value of assets used for the valuation of State Employees (State, SPORS, JRS, VaLORS, ORP, and UVA) is \$60,645,405 and the actuarial value of assets used for the valuation of Teachers is \$79,176,784. The corresponding market value of assets for State Employees (State, SPORS, JRS, VaLORS, ORP, and UVA) is \$65,200,797 and the market value of assets for Teachers is \$82,108,228.



Schedule B – Plan Assets (continued)

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

RECONCILIATION OF ASSETS
(\$ IN THOUSANDS)

Valuation Date	June 30, 2014	June 30, 2013
1. Market value of assets at beginning of year	\$ 59,879	\$ 54,288
Revenue for the year		
Contributions	\$ 59,438	\$ 60,848
Net investment income	<u>8,445</u>	<u>5,668</u>
2. Total revenue	\$ 67,883	\$ 66,516
Expenditures for the year		
Benefit payments	\$ 62,349	\$ 60,748
Administrative expenses	<u>212</u>	<u>177</u>
3. Total expenditures	\$ 62,561	\$ 60,925
4. Change in net assets (2) - (3)	\$ 5,322	\$ 5,591
5. Market value of assets at end of year (1) + (4)	\$ 65,201	\$ 59,879



Schedule B – Plan Assets (continued)

TEACHERS

**RECONCILIATION OF ASSETS
(\$ IN THOUSANDS)**

Valuation Date	June 30, 2014	June 30, 2013
1. Market value of assets at beginning of year	\$ 68,956	\$ 56,871
Revenue for the year		
Contributions	\$ 80,719	\$ 80,489
Net investment income	<u>9,073</u>	<u>4,761</u>
2. Total revenue	\$ 89,792	\$ 82,250
Expenditures for the year		
Benefit payments	\$ 76,389	\$ 72,997
Administrative expenses	<u>251</u>	<u>168</u>
3. Total expenditures	\$ 76,640	\$ 73,165
4. Change in net assets (2) - (3)	\$ 13,152	\$ 12,085
5. Market value of assets at end of year (1) + (4)	\$ 82,108	\$ 68,956



Schedule B – Plan Assets (continued)

**DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS
PREPARED AS OF JUNE 30, 2014
(\$ IN THOUSANDS)**

Group	State Employees*	Teachers
1. Excess (Shortfall) of invested income for current and previous three years		
a. Current year	\$ 4,143	\$ 3,843
b. First Prior Year	1,687	351
c. Second Prior Year	(6,988)	(5,734)
d. Third Prior Year	<u>15,118</u>	<u>9,699</u>
e. Total for four years	\$ 13,960	\$ 8,159
2. Deferral of excess (shortfall) of investment income		
i. Current year at 80%: (1a) x 0.80	\$ 3,315	\$ 3,074
ii. First Prior Year at 60%: (1b) x 0.60	1,012	211
iii. Second Prior Year at 40%: (1c) x 0.40	(2,795)	(2,294)
iv. Third Prior Year at 20%: (1d) x 0.20	<u>3,024</u>	<u>1,940</u>
v. Total for four years	\$ 4,556	\$ 2,931
3. Market value of assets at end of year	\$ 65,201	\$ 82,108
4. Preliminary actuarial value of assets at end of year: (3) – (2e)	\$ 60,645	\$ 79,177
5. Actuarial value of assets corridor		
a. 80% of market value at end of year: (3) x 0.80	\$ 52,161	\$ 65,686
b. 120% of market value at end of year: (3) x 1.20	78,241	98,530
6. Actuarial value of assets at end of year	\$ 60,645	\$ 79,177

*Includes State, SPORS, JRS, VaLORS, ORP, and UVA.



Schedule B – Plan Assets (continued)

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

CALCULATION OF EXCESS (SHORTFALL) INVESTMENT INCOME
(\$ IN THOUSANDS)

Valuation Date	June 30, 2014	June 30, 2013
1. Market value of assets at beginning of year	\$ 59,879	\$ 54,288
2. Net external cash flow during the year	\$ (2,911)	\$ 100
3. Market value of assets at end of year	\$ 65,201	\$ 59,879
4. Actual investment income during the year based on market value: (3) – (2) – (1)	\$ 8,233	\$ 5,491
5. Assumed earning rate	7.00%	7.00%
6. Expected earnings for the year		
a. Market value of assets at beginning of year	\$ 4,192	\$ 3,800
b. Net external cash flow	<u>(102)</u>	<u>4</u>
c. Total: (6a) + (6b)	\$ 4,090	\$ 3,804
7. Excess investment income for the year: (4) – (6)	\$ 4,143	\$ 1,687



Schedule B – Plan Assets (continued)

TEACHERS

**CALCULATION OF EXCESS (SHORTFALL) INVESTMENT INCOME
(\$ IN THOUSANDS)**

VALUATION DATE	June 30, 2014	June 30, 2013
1. Market value of assets at beginning of year	\$ 68,956	\$ 56,871
2. Net external cash flow during the year	\$ 4,330	\$ 7,491
3. Market value of assets at end of year	\$ 82,108	\$ 68,956
4. Actual investment income during the year based on market value: (3) – (2) – (1)	\$ 8,822	\$ 4,594
5. Assumed earning rate	7.00%	7.00%
6. Expected earnings for the year		
a. Market value of assets at beginning of year	\$ 4,827	\$ 3,981
b. Net external cash flow	<u>152</u>	<u>262</u>
c. Total: (6a) + (6b)	\$ 4,979	\$ 4,243
7. Excess investment income for the year: (4) – (6)	\$ 3,843	\$ 351



Schedule C – Outline of Actuarial Assumptions and Methods

Assumptions and Methods Applicable to all Health Insurance Credit Program Employer Groups

Investment Return Rate: 7.00% per annum, compounded annually (net of administrative expenses).

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. In the event this funding policy produces an effective amortization period of greater than 30 years, a 30 year amortization period for the aggregate UAAL is used in accordance with GASB 43 and 45.

Payroll Growth Rate: 3.00% per annum.

Asset Valuation Method: 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 program.

Eligible future service retirees from deferred vested status are assumed to utilize the benefit program 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%



Schedule C – Outline of Actuarial Assumptions and Methods

Assumptions and Methods Applicable to all Health Insurance Credit Program Employer Groups

Participation Rates (continued):

Eligible future disabled benefit recipients from active status are assumed to utilize the benefit program as follows:

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

Percentage Not Utilizing the Maximum Benefit:

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

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

Percentage of Maximum Benefit Received:

Eligible future benefit recipients assumed to utilize the benefit program, 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 program, 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 – Outline of Actuarial Assumptions and Methods

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%

Deferred Vested Deferral Period:

deferred vested members are assumed to begin receiving benefits at the following ages:

Eligible

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 Retirees:

Results include an estimate of retiree liability for 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.

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 but before January 1, 2014, 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 SPORS, VaLORS, and Political Subdivisions with LEOs/Fire Pension Benefit Coverage are in Plan 2.

Hybrid Retirement Plan:

State, Teachers, JRS, and Political Subdivisions with General Employee Pension Benefit Coverage members hired (for JRS, appointed or elected to an original term) on or after January 1, 2014 or members in Plan 1 or Plan 2 who elected to opt into the plan during the election window held January 1, 2014 through April 30, 2014. Members of SPORS, VaLORS, and Political Subdivisions with LEOs/Fire Pension Benefit Coverage are not eligible to participate in the Hybrid Plan.



Schedule C – Outline of Actuarial Assumptions and Methods

STATE*

NORMAL RETIREMENT ELIGIBILITY:

Plan 1 Members: 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 Plan Members: 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 Members: A member may retire early with unreduced pension benefits after reaching age 50 with at least 30 years 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 Plan Members: 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 – NON-VSDP:

A Plan 1 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 – 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.

*The actuarial assumptions for State are also used for the applicable members of the Optional Retirement Plan (ORP) and University of Virginia (UVA) members.



Schedule C – Outline of Actuarial Assumptions and Methods

STATE

MORTALITY RATES:

Pre-Retirement:

RP-2000 Employee Mortality Table Projected with Scale AA to 2020 with Males set forward 2 years and Females set back 3 years.

Post-Retirement:

RP-2000 Combined Mortality Table Projected with Scale AA to 2020 with Females set back 1 year.

Post-Disablement:

RP-2000 Disabled Life Mortality Table with Males set back 3 years and no provision for future mortality improvement.

Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00026	0.00024	0.00000	0.00014	0.00014	0.00000
25	0.00035	0.00031	0.02257	0.00014	0.00015	0.00745
30	0.00051	0.00040	0.02257	0.00018	0.00020	0.00745
35	0.00082	0.00070	0.02257	0.00030	0.00036	0.00745
40	0.00099	0.00092	0.02257	0.00043	0.00048	0.00745
45	0.00128	0.00116	0.02257	0.00063	0.00076	0.00745
50	0.00163	0.00149	0.02512	0.00092	0.00108	0.01154
55	0.00258	0.00247	0.03156	0.00148	0.00198	0.01654
60	0.00437	0.00489	0.03803	0.00272	0.00402	0.02184
65	0.00662	0.00961	0.04498	0.00421	0.00780	0.02803
70	0.00000	0.01641	0.05445	0.00000	0.01344	0.03764
75		0.02854	0.06941		0.02212	0.05223
80		0.05265	0.09215		0.03607	0.07231
85		0.09624	0.12188		0.06041	0.10020
90		0.16928	0.15524		0.11221	0.14005

Mortality improvement is anticipated under the post-retirement assumption as projected with Scale AA.



Schedule C – Outline of Actuarial Assumptions and Methods

STATE

RETIREMENT RATES:

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

State Retirement Rates, Plan 1				
Age	Males		Females	
	Years of Service			
	0-29	>=30	0-29	>=30
<=49	0.000	0.000	0.000	0.000
50	0.030	0.100	0.032	0.100
51	0.030	0.100	0.031	0.100
52	0.030	0.100	0.030	0.100
53	0.030	0.100	0.030	0.100
54	0.030	0.100	0.035	0.100
55	0.050	0.100	0.050	0.100
56	0.050	0.100	0.050	0.100
57	0.045	0.100	0.045	0.100
58	0.040	0.100	0.055	0.100
59	0.050	0.100	0.055	0.100
60	0.050	0.100	0.055	0.150
61	0.100	0.150	0.100	0.200
62	0.150	0.250	0.150	0.300
63	0.150	0.200	0.150	0.200
64	0.150	0.200	0.150	0.200
65	0.300	0.300	0.300	0.400
66	0.300	0.250	0.300	0.300
67	0.300	0.250	0.300	0.250
68	0.300	0.200	0.300	0.250
69	0.300	0.200	0.300	0.200
>=70	1.000	1.000	1.000	1.000



Schedule C – Outline of Actuarial Assumptions and Methods

STATE

RETIREMENT RATES:

Plan 2 and Hybrid Plan Members: The following rates of retirement are assumed for members eligible to retire.

State Rates of Retirement, Plan 2 and Hybrid Plan				
Age	Males		Females	
	Age & Service Meets Rule of 90			
	No	Yes	No	Yes
<=49	0.000	0.000	0.000	0.000
50	0.000	0.350	0.000	0.350
51	0.000	0.100	0.000	0.100
52	0.000	0.100	0.000	0.100
53	0.000	0.100	0.000	0.100
54	0.000	0.100	0.000	0.100
55	0.000	0.100	0.000	0.100
56	0.000	0.100	0.000	0.100
57	0.000	0.100	0.000	0.100
58	0.000	0.100	0.000	0.100
59	0.000	0.100	0.000	0.100
60	0.050	0.100	0.055	0.150
61	0.100	0.150	0.100	0.200
62	0.150	0.250	0.150	0.300
63	0.150	0.200	0.150	0.200
64	0.150	0.200	0.150	0.200
65	0.300	0.300	0.300	0.400
66	0.300	0.250	0.300	0.300
67	0.300	0.250	0.300	0.250
68	0.300	0.200	0.300	0.250
69	0.300	0.200	0.300	0.200
>=70	1.000	1.000	1.000	1.000



Schedule C – Outline of Actuarial Assumptions and Methods

STATE

DISABILITY RATES: As shown below for selected ages. 14% of disabilities are assumed to be service related.

State Disability Rates		
Age	Male	Female
20	0.00090	0.00010
25	0.00090	0.00100
30	0.00180	0.00150
35	0.00180	0.00250
40	0.00180	0.00290
45	0.00360	0.00340
50	0.00450	0.00550
55	0.00540	0.00810
60	0.00720	0.01000
65	0.00630	0.00900
70	0.00000	0.00000



Schedule C – Outline of Actuarial Assumptions and Methods

STATE

TERMINATION RATES:

The following withdrawal rates are used based on age and service. (For causes other than death, disability, or retirement)

State Rates of Termination, Plan 1								
Age	Male				Female			
	Years of Service							
	0-2	3-4	5-9	>=10	0-2	3-4	5-9	>=10
20	0.245	0.175	0.175	0.000	0.283	0.198	0.198	0.000
25	0.221	0.130	0.130	0.000	0.256	0.157	0.157	0.000
30	0.199	0.110	0.110	0.050	0.212	0.130	0.130	0.060
35	0.167	0.093	0.093	0.045	0.178	0.110	0.110	0.050
40	0.145	0.075	0.075	0.034	0.155	0.090	0.090	0.036
45	0.129	0.070	0.070	0.023	0.139	0.074	0.074	0.025
50	0.115	0.061	0.061	0.000	0.130	0.063	0.063	0.000
55	0.102	0.060	0.060	0.000	0.125	0.060	0.000	0.000
60	0.106	0.070	0.000	0.000	0.123	0.070	0.000	0.000
65	0.113	0.110	0.000	0.000	0.140	0.120	0.000	0.000
70	0.131	0.140	0.000	0.000	0.249	0.140	0.000	0.000

State Rates of Termination Plan 2 and Hybrid Plan								
Age	Male				Female			
	Years of Service							
	0-2	3-4	5-9	>=10	0-2	3-4	5-9	>=10
20	0.245	0.175	0.175	0.000	0.283	0.198	0.198	0.000
25	0.221	0.130	0.130	0.000	0.256	0.157	0.157	0.000
30	0.199	0.110	0.110	0.050	0.212	0.130	0.130	0.060
35	0.167	0.093	0.093	0.045	0.178	0.110	0.110	0.050
40	0.145	0.075	0.075	0.034	0.155	0.090	0.090	0.036
45	0.129	0.070	0.070	0.023	0.139	0.074	0.074	0.025
50	0.115	0.061	0.061	0.020	0.130	0.063	0.063	0.020
55	0.102	0.060	0.060	0.004	0.125	0.060	0.060	0.004
60	0.106	0.070	0.000	0.000	0.123	0.070	0.000	0.000
65	0.113	0.110	0.000	0.000	0.140	0.120	0.000	0.000
70	0.131	0.140	0.000	0.000	0.249	0.140	0.000	0.000



Schedule C – Outline of Actuarial Assumptions and Methods

STATE

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 - 2	5.35%
3	4.75
4 - 6	4.45
7	4.35
8	4.25
9 - 10	4.00
11 - 19	3.65
20 or more	3.50



Schedule C – Outline of Actuarial Assumptions and Methods

TEACHERS*

NORMAL RETIREMENT ELIGIBILITY:

Plan 1 Members: 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 Plan Members: 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 Members: A member may retire early with unreduced pension benefits after reaching age 50 with at least 30 years 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 Plan Members: 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 – NON-HYBRID:

Plan 1 and Plan 2 members are eligible for disability retirement benefits from the first day of employment.

DISABILITY – HYBRID:

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.

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



Schedule C – Outline of Actuarial Assumptions and Methods

TEACHERS

MORTALITY RATES:

Pre-Retirement:

RP-2000 Employee Mortality Table Projected with Scale AA to 2020 with Males set back 3 years and Females set back 5 years.

Post-Retirement:

RP-2000 Combined Mortality Table Projected with Scale AA to 2020 with Males set back 2 years and Females set back 3 years.

Post-Disablement:

RP-2000 Disabled Life Mortality Table Projected to 2020 with Males set back 1 year and no provision for future mortality improvement.

Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00021	0.00022	0.00000	0.00012	0.00014	0.00000
25	0.00026	0.00028	0.01737	0.00014	0.00014	0.00562
30	0.00035	0.00036	0.02042	0.00016	0.00018	0.00609
35	0.00051	0.00057	0.02042	0.00022	0.00030	0.00597
40	0.00082	0.00086	0.01961	0.00038	0.00043	0.00551
45	0.00099	0.00104	0.01773	0.00052	0.00063	0.00540
50	0.00128	0.00135	0.01965	0.00081	0.00092	0.00819
55	0.00163	0.00195	0.02280	0.00119	0.00152	0.01409
60	0.00258	0.00382	0.02946	0.00215	0.00315	0.01976
65	0.00437	0.00755	0.03644	0.00356	0.00602	0.02535
70	0.00000	0.01348	0.04497	0.00000	0.01100	0.03405
75		0.02246	0.05729		0.01832	0.04448
80		0.04094	0.08287		0.02964	0.06283
85		0.07640	0.11724		0.04892	0.08884
90		0.13623	0.15309		0.08892	0.13188

Mortality improvement is anticipated under the post-retirement assumption as projected with Scale AA.



Schedule C – Outline of Actuarial Assumptions and Methods

TEACHERS

RETIREMENT RATES:

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

Teachers Rates of Retirement, Plan 1				
Age	Male		Female	
	Years of Service			
	0-29	>=30	0-29	>=30
<=49	0.000	0.000	0.000	0.000
50	0.020	0.175	0.020	0.150
51	0.020	0.175	0.024	0.150
52	0.020	0.175	0.027	0.150
53	0.023	0.175	0.024	0.150
54	0.040	0.175	0.037	0.150
55	0.057	0.225	0.061	0.225
56	0.046	0.225	0.054	0.225
57	0.045	0.225	0.057	0.225
58	0.066	0.225	0.062	0.225
59	0.070	0.225	0.075	0.225
60	0.075	0.225	0.085	0.225
61	0.110	0.300	0.120	0.300
62	0.170	0.350	0.170	0.350
63	0.140	0.350	0.160	0.350
64	0.180	0.300	0.165	0.350
65	0.300	0.400	0.300	0.350
66	0.300	0.400	0.300	0.350
67	0.300	0.400	0.300	0.350
68	0.300	0.400	0.300	0.350
69	0.300	0.400	0.300	0.350
>=70	1.000	1.000	1.000	1.000



Schedule C – Outline of Actuarial Assumptions and Methods

TEACHERS

RETIREMENT RATES:

Plan 2 and Hybrid Plan Members: The following rates of retirement are assumed for members eligible to retire.

Teachers Rates of Retirement, Plan 2 and Hybrid Plan				
Age	Male		Female	
	Age & Service Meets Rule of 90			
	No	Yes	No	Yes
<=49	0.000	0.000	0.000	0.000
50	0.000	0.400	0.000	0.350
51	0.000	0.175	0.000	0.150
52	0.000	0.175	0.000	0.150
53	0.000	0.175	0.000	0.150
54	0.000	0.175	0.000	0.150
55	0.000	0.225	0.000	0.225
56	0.000	0.225	0.000	0.225
57	0.000	0.225	0.000	0.225
58	0.000	0.225	0.000	0.225
59	0.000	0.225	0.000	0.225
60	0.075	0.225	0.085	0.225
61	0.110	0.300	0.120	0.300
62	0.170	0.350	0.170	0.350
63	0.140	0.350	0.160	0.350
64	0.180	0.300	0.165	0.350
65	0.300	0.400	0.300	0.350
66	0.300	0.400	0.300	0.350
67	0.300	0.400	0.300	0.350
68	0.300	0.400	0.300	0.350
69	0.300	0.400	0.300	0.350
>=70	1.000	1.000	1.000	1.000



Schedule C – Outline of Actuarial Assumptions and Methods

TEACHERS

DISABILITY RATES: As shown below for selected ages.

Teachers Disability Rates		
Age	Male	Female
20	0.00000	0.00000
25	0.00008	0.00004
30	0.00010	0.00010
35	0.00018	0.00030
40	0.00021	0.00036
45	0.00099	0.00042
50	0.00133	0.00090
55	0.00195	0.00204
60	0.00308	0.00240
65	0.00276	0.00330
70	0.00000	0.00000



Schedule C – Outline of Actuarial Assumptions and Methods

TEACHERS

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

Teachers Rates of Termination, Plan 1								
Age	Male				Female			
	Years of Service							
	0-2	3-5	5-9	>=10	0-2	3-4	5-9	>=10
20	0.182	0.143	0.143	0.008	0.159	0.160	0.160	0.000
25	0.154	0.118	0.118	0.008	0.146	0.120	0.120	0.150
30	0.149	0.090	0.090	0.037	0.164	0.110	0.110	0.047
35	0.141	0.073	0.073	0.031	0.149	0.090	0.090	0.039
40	0.141	0.070	0.070	0.025	0.127	0.075	0.075	0.028
45	0.147	0.075	0.075	0.019	0.117	0.064	0.064	0.021
50	0.138	0.070	0.070	0.000	0.118	0.058	0.058	0.000
55	0.143	0.070	0.000	0.000	0.124	0.058	0.000	0.000
60	0.166	0.080	0.000	0.000	0.129	0.077	0.000	0.000
65	0.170	0.083	0.000	0.000	0.130	0.080	0.000	0.000
70	0.170	0.083	0.000	0.000	0.130	0.080	0.000	0.000

Teachers Rates of Termination, Plan 2 and Hybrid Plan								
Age	Male				Female			
	Years of Service							
	0-2	3-4	5-9	>=10	0-2	3-4	5-9	>=10
20	0.182	0.143	0.143	0.008	0.159	0.160	0.160	0.000
25	0.154	0.118	0.118	0.008	0.146	0.120	0.120	0.150
30	0.149	0.090	0.090	0.037	0.164	0.110	0.110	0.047
35	0.141	0.073	0.073	0.031	0.149	0.090	0.090	0.039
40	0.141	0.070	0.070	0.025	0.127	0.075	0.075	0.028
45	0.147	0.075	0.075	0.019	0.117	0.064	0.064	0.021
50	0.138	0.070	0.070	0.016	0.118	0.058	0.058	0.018
55	0.143	0.070	0.070	0.003	0.124	0.058	0.058	0.003
60	0.166	0.080	0.000	0.000	0.129	0.077	0.000	0.000
65	0.170	0.083	0.000	0.000	0.130	0.080	0.000	0.000
70	0.170	0.083	0.000	0.000	0.130	0.080	0.000	0.000



Schedule C – Outline of Actuarial Assumptions and Methods

TEACHERS

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	5.95%
2	5.85
3	5.85
4 - 6	5.45
7 - 9	5.35
10 - 12	4.85
13 - 14	4.75
15 - 16	4.65
17	4.55
18 - 19	4.45
20 or more	3.50



Schedule C – Outline of Actuarial Assumptions and Methods

SPORS

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 – 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 – 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 C – Outline of Actuarial Assumptions and Methods

SPORS

MORTALITY RATES:

Pre-Retirement:

RP-2000 Employee Mortality Table Projected with Scale AA to 2020 with Males set forward 5 years and Females set back 3 years.

Post-Retirement:

RP-2000 Combined Mortality Table Projected with Scale AA to 2020 with Females set back 1 year.

Post-Disablement:

RP-2000 Disabled Life Mortality Table with Males set back 3 years and no provision for future mortality improvement.

Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00031	0.00024	0.00000	0.00014	0.00014	0.00000
25	0.00040	0.00031	0.02257	0.00014	0.00015	0.00745
30	0.00070	0.00040	0.02257	0.00018	0.00020	0.00745
35	0.00092	0.00070	0.02257	0.00030	0.00036	0.00745
40	0.00116	0.00092	0.02257	0.00043	0.00048	0.00745
45	0.00149	0.00116	0.02257	0.00063	0.00076	0.00745
50	0.00206	0.00149	0.02512	0.00092	0.00108	0.01154
55	0.00353	0.00247	0.03156	0.00148	0.00198	0.01654
60	0.00571	0.00489	0.03803	0.00272	0.00402	0.02184
65	0.00000	0.00961	0.04498	0.00000	0.00780	0.02803
70	0.00000	0.01641	0.05445	0.00000	0.01344	0.03764
75		0.02854	0.06941		0.02212	0.05223
80		0.05265	0.09215		0.03607	0.07231
85		0.09624	0.12188		0.06041	0.10020
90		0.16928	0.15524		0.11221	0.14005

Mortality improvement is anticipated under the post-retirement assumption as projected with Scale AA.



Schedule C – Outline of Actuarial Assumptions and Methods

SPORS

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

SPORS Rates of Retirement		
Age	Years of Service	
	Less Than 25	25 or More
<=49	0.000	0.000
50	0.100	0.150
51	0.100	0.150
52	0.100	0.150
53	0.100	0.150
54	0.100	0.150
55	0.100	0.150
56	0.100	0.150
57	0.100	0.150
58	0.120	0.200
59	0.120	0.200
60	0.250	0.400
61	0.350	0.400
62	0.500	1.000
63	0.500	1.000
>=64	1.000	1.000



Schedule C – Outline of Actuarial Assumptions and Methods

SPORS

DISABILITY RATES: As shown below for selected ages. 60% of disabilities are assumed to be service related.

SPORS Rates of Disability	
Age	Unisex
<=29	0.00000
30	0.00028
35	0.00134
40	0.00210
45	0.00411
50	0.00675
55	0.01001
>=60	0.00000



Schedule C – Outline of Actuarial Assumptions and Methods

SPORS

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

SPORS Rates of Termination												
Age	Males											
	Years of Service											
	0	1	2	3	4	5	6	7	8	9	>=10	
20	0.075	0.075	0.075	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.030
25	0.075	0.075	0.075	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.030
30	0.075	0.075	0.075	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.030
35	0.075	0.075	0.075	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.024
40	0.075	0.075	0.075	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.018
45	0.100	0.100	0.100	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.014
50	0.100	0.100	0.100	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
55	0.100	0.100	0.100	0.067	0.067	0.000	0.000	0.000	0.000	0.000	0.000	0.000
60	0.100	0.100	0.100	0.075	0.075	0.000	0.000	0.000	0.000	0.000	0.000	0.000
65	0.100	0.100	0.100	0.075	0.075	0.000	0.000	0.000	0.000	0.000	0.000	0.000
70	0.100	0.100	0.100	0.075	0.075	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SPORS Rates of Termination											
Age	Females										
	Years of Service										
	0	1	2	3	4	5	6	7	8	9	>=10
20	0.184	0.125	0.101	0.108	0.116	0.122	0.123	0.096	0.070	0.053	0.036
25	0.183	0.133	0.108	0.105	0.104	0.105	0.102	0.083	0.066	0.054	0.044
30	0.181	0.144	0.119	0.102	0.091	0.084	0.078	0.069	0.062	0.057	0.055
35	0.170	0.144	0.121	0.100	0.085	0.074	0.067	0.063	0.062	0.060	0.061
40	0.152	0.135	0.117	0.098	0.084	0.074	0.067	0.065	0.064	0.062	0.062
45	0.127	0.117	0.108	0.098	0.090	0.082	0.077	0.075	0.068	0.064	0.059
50	0.094	0.091	0.093	0.100	0.101	0.100	0.098	0.092	0.075	0.066	0.052
55	0.052	0.057	0.074	0.102	0.119	0.126	0.129	0.118	0.084	0.067	0.041
60	0.010	0.013	0.049	0.106	0.142	0.162	0.171	0.151	0.096	0.068	0.026
65	0.000	0.000	0.015	0.111	0.171	0.205	0.222	0.191	0.110	0.069	0.006
70	0.000	0.000	0.000	0.119	0.210	0.264	0.291	0.246	0.128	0.071	0.000



Schedule C – Outline of Actuarial Assumptions and Methods

SPORS

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 - 4	4.75%
5	4.65
6 - 9	4.40
10 - 19	4.00
20 or more	3.50



Schedule C – Outline of Actuarial Assumptions and Methods

JRS

WEIGHTED SERVICE CREDIT:

Plan 1 Members: 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 Plan Members: 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 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.

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 – NON-VSDP:

Plan 1 and Plan 2 members are eligible for disability retirement benefits from the first day of employment.

DISABILITY – VSDP:

Hybrid Plan members 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 – Outline of Actuarial Assumptions and Methods

JRS

MORTALITY RATES:

Pre-Retirement:

RP-2000 Employee Mortality Table Projected with Scale AA to 2020 with Males set forward 2 years and Females set back 3 years.

Post-Retirement:

RP-2000 Combined Mortality Table Projected with Scale AA to 2020 with Females set back 1 year.

Post-Disablement:

RP-2000 Disabled Life Mortality Table with Males set back 3 years and no provision for future mortality improvement.

Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00026	0.00024	0.00000	0.00014	0.00014	0.00000
25	0.00035	0.00031	0.02257	0.00014	0.00015	0.00745
30	0.00051	0.00040	0.02257	0.00018	0.00020	0.00745
35	0.00082	0.00070	0.02257	0.00030	0.00036	0.00745
40	0.00099	0.00092	0.02257	0.00043	0.00048	0.00745
45	0.00128	0.00116	0.02257	0.00063	0.00076	0.00745
50	0.00163	0.00149	0.02512	0.00092	0.00108	0.01154
55	0.00258	0.00247	0.03156	0.00148	0.00198	0.01654
60	0.00437	0.00489	0.03803	0.00272	0.00402	0.02184
65	0.00662	0.00961	0.04498	0.00421	0.00780	0.02803
70	0.00703	0.01641	0.05445	0.00562	0.01344	0.03764
75		0.02854	0.06941		0.02212	0.05223
80		0.05265	0.09215		0.03607	0.07231
85		0.09624	0.12188		0.06041	0.10020
90		0.16928	0.15524		0.11221	0.14005

Mortality improvement is anticipated under the post-retirement assumption as projected with Scale AA.



Schedule C – Outline of Actuarial Assumptions and Methods

JRS

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

JRS Rates of Retirement								
Age	Service Multiplier = 1.5				Service Multiplier = 2.0			
	Years of Service				Years of Service			
	<=1	2 - 19	20	>=21	<=1	2 - 14	15	>=16
<=59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.50	0.50	0.00	0.00	0.50	0.50
61	0.00	0.00	0.50	0.15	0.00	0.00	0.50	0.15
62	0.00	0.00	0.50	0.15	0.00	0.00	0.50	0.15
63	0.00	0.00	0.50	0.15	0.00	0.00	0.50	0.15
64	0.00	0.00	0.50	0.15	0.00	0.00	0.50	0.15
65	0.00	0.50	0.50	0.15	0.00	0.50	0.50	0.15
66	0.00	0.15	0.15	0.15	0.00	0.15	0.15	0.15
67	0.00	0.15	0.15	0.15	0.00	0.15	0.15	0.15
68	0.00	0.15	0.15	0.15	0.00	0.15	0.15	0.15
69	0.00	0.15	0.15	0.15	0.00	0.15	0.15	0.15
>=70	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00

JRS Rates of Retirement								
Age	Service Multiplier = 2.5				Service Multiplier = 3.5			
	Years of Service				Years of Service			
	<=1	2 - 11	12	>=13	<1	1 - 8	9	>=10
<=59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.50	0.50	0.00	0.00	0.50	0.50
61	0.00	0.00	0.50	0.15	0.00	0.00	0.50	0.15
62	0.00	0.00	0.50	0.15	0.00	0.00	0.50	0.15
63	0.00	0.00	0.50	0.15	0.00	0.00	0.50	0.15
64	0.00	0.00	0.50	0.15	0.00	0.00	0.50	0.15
65	0.00	0.50	0.50	0.15	0.00	0.50	0.50	0.15
66	0.00	0.15	0.15	0.15	0.00	0.15	0.15	0.15
67	0.00	0.15	0.15	0.15	0.00	0.15	0.15	0.15
68	0.00	0.15	0.15	0.15	0.00	0.15	0.15	0.15
69	0.00	0.15	0.15	0.15	0.00	0.15	0.15	0.15
>=70	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00



Schedule C – Outline of Actuarial Assumptions and Methods

JRS

DISABILITY RATES: As shown below for selected ages.

JRS Rates of Disability		
Age	Male	Female
<=29	0.00000	0.00000
30	0.00007	0.00007
35	0.00037	0.00045
40	0.00142	0.00090
45	0.00292	0.00210
50	0.00480	0.00397
55	0.00712	0.00600
>=60	0.00000	0.00000

TERMINATION RATES: There are no assumed rates of withdrawal prior to service retirement (For causes other than death, disability, or retirement).

SALARY INCREASE RATES: Salary increase rates are 4.50%.



Schedule C – Outline of Actuarial Assumptions and Methods

VaLORS

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 after reaching age 50 with at least five years of service credit.

DISABILITY – 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 – 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 C – Outline of Actuarial Assumptions and Methods

VaLORS

MORTALITY RATES:

Pre-Retirement:

RP-2000 Employee Mortality Table Projected with Scale AA to 2020 with Males set forward 5 years and Females set back 3 years.

Post-Retirement:

RP-2000 Combined Mortality Table Projected with Scale AA to 2020 with Females set back 1 year.

Post-Disablement:

RP-2000 Disabled Life Mortality Table with Males set back 3 years and no provision for mortality improvement.

Mortality Rates						
Age	Male			Female		
	Pre Retirement	Post Retirement	Post Disablement	Pre Retirement	Post Retirement	Post Disablement
20	0.00031	0.00024	0.00000	0.00014	0.00014	0.00000
25	0.00040	0.00031	0.02257	0.00014	0.00015	0.00745
30	0.00070	0.00040	0.02257	0.00018	0.00020	0.00745
35	0.00092	0.00070	0.02257	0.00030	0.00036	0.00745
40	0.00116	0.00092	0.02257	0.00043	0.00048	0.00745
45	0.00149	0.00116	0.02257	0.00063	0.00076	0.00745
50	0.00206	0.00149	0.02512	0.00092	0.00108	0.01154
55	0.00353	0.00247	0.03156	0.00148	0.00198	0.01654
60	0.00571	0.00489	0.03803	0.00272	0.00402	0.02184
65	0.00000	0.00961	0.04498	0.00000	0.00780	0.02803
70	0.00000	0.01641	0.05445	0.00000	0.01344	0.03764
75		0.02854	0.06941		0.02212	0.05223
80		0.05265	0.09215		0.03607	0.07231
85		0.09624	0.12188		0.06041	0.10020
90		0.16928	0.15524		0.11221	0.14005

Mortality improvement is anticipated under the post-retirement assumption as projected with Scale AA.



Schedule C – Outline of Actuarial Assumptions and Methods

VaLORS

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

VaLORS Rates of Retirement		
Age	Years of Service	
	Less Than 25	25 or More
<=49	0.000	0.000
50	0.092	0.250
51	0.090	0.250
52	0.090	0.250
53	0.090	0.250
54	0.100	0.250
55	0.095	0.250
56	0.090	0.250
57	0.120	0.300
58	0.100	0.300
59	0.120	0.400
60	0.200	0.400
61	0.260	0.500
62	0.400	1.000
63	0.200	1.000
64	0.200	1.000
>=65	1.000	1.000



Schedule C – Outline of Actuarial Assumptions and Methods

VaLORS

DISABILITY RATES: As shown below for selected ages. 50% of disabilities are assumed to be service related.

VaLORS Rates of Disability	
Age	Unisex
20	0.00150
25	0.00300
30	0.00600
35	0.00800
40	0.00800
45	0.01000
50	0.01200
55	0.01200
60	0.01000
65	0.00000
70	0.00000



Schedule C – Outline of Actuarial Assumptions and Methods

VaLORS

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

VaLORS Rates of Termination						
Age	Males			Females		
	Years of Service					
	0-2	3-9	>=10	0-2	3-9	>=10
20	0.250	0.150	0.050	0.200	0.150	0.075
25	0.200	0.150	0.050	0.200	0.150	0.075
30	0.200	0.125	0.050	0.200	0.125	0.060
35	0.200	0.125	0.050	0.200	0.125	0.060
40	0.150	0.105	0.040	0.175	0.105	0.050
45	0.150	0.105	0.040	0.175	0.080	0.040
50	0.150	0.080	0.040	0.175	0.080	0.040
55	0.120	0.065	0.040	0.100	0.120	0.040
60	0.125	0.070	0.040	0.100	0.200	0.040
65	0.150	0.070	0.040	0.100	0.100	0.040
70	0.200	0.070	0.040	0.100	0.100	0.040



Schedule C – Outline of Actuarial Assumptions and Methods

VaLORS

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 - 4	4.75%
5	4.65
6 - 9	4.40
10 - 19	4.00
20 or more	3.50



Schedule D – Actuarial Cost Method

1. The valuation is prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable at retirement, disability, or termination from service. The calculations are based on the member's age, years of service, gender, and an assumed future interest earnings rate (currently 7.00%). 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.
2. The employer contributions required to support the benefits of the Health Insurance Credit Program are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.
3. The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made for post-employment 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 the member's behalf.
4. 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 the Health Insurance Credit Program. The accrued liability contribution amortizes the balance of the unfunded accrued liability over a period of years from the valuation date.



Schedule E – Summary of Main Plan Provisions as Interpreted for Valuation Purposes

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. VaLORS, SPORS, State, and JRS 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.

If an eligible employee has worked for more than one employer in the Virginia Retirement System, for the purpose of this valuation, it is assumed their most current (or last) employer assumes full liability for that employee.

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.

If an eligible employee has worked for more than one employer in the Virginia Retirement System, for the purpose of this valuation, it is assumed their most current (or last) employer assumes full liability for that employee.



Schedule F – Schedule of Active Member Data

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

**SCHEDULE OF ACTIVE MEMBER DATA
AS OF JUNE 30, 2014**

Attained Age	Years of Service to Valuation Date									Total
	Less than 1 Year	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 or more	
Under 25	1,179	1,244	14							2,437
25 - 29	1,756	4,826	1,141	23						7,746
30 - 34	1,139	4,511	3,596	810	16					10,072
35 - 39	806	3,454	3,564	2,158	639	12				10,633
40 - 44	712	2,944	3,405	2,554	2,049	542	18			12,224
45 - 49	586	2,356	3,196	2,674	2,204	1,698	919	25		13,658
50 - 54	536	2,082	2,905	2,577	2,347	2,059	2,291	827	71	15,695
55 - 59	417	1,661	2,462	2,204	2,082	1,875	2,201	1,592	1,137	15,631
60 - 64	180	968	1,656	1,718	1,664	1,557	1,696	1,146	1,781	12,366
65 - 69	25	255	606	700	641	645	721	434	878	4,905
70 & Up	13	54	147	169	198	155	201	121	390	1,448
Totals	7,349	24,355	22,692	15,587	11,840	8,543	8,047	4,145	4,257	106,815



Schedule F – Schedule of Active Member Data (continued)

TEACHERS

**SCHEDULE OF ACTIVE MEMBER DATA
AS OF JUNE 30, 2014**

Attained Age	Years of Service to Valuation Date									Total
	Less than 1 Year	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 or more	
Under 25	369	2,008	2							2,379
25 - 29	746	10,737	2,655	6						14,144
30 - 34	419	4,962	9,602	2,356	5					17,344
35 - 39	347	3,128	5,019	6,842	1,343	3				16,682
40 - 44	401	3,296	4,431	4,815	5,124	1,094	8			19,169
45 - 49	366	3,012	4,488	4,139	3,291	3,581	839	8		19,724
50 - 54	249	2,179	4,069	4,466	2,992	2,372	2,977	869	16	20,189
55 - 59	134	1,325	2,808	3,689	3,168	2,365	2,147	2,263	863	18,762
60 - 64	64	601	1,545	2,292	2,338	2,115	1,805	1,071	1,686	13,517
65 - 69	18	194	496	719	689	686	638	312	479	4,231
70 & Up	3	37	113	141	115	101	99	68	159	836
Totals	3,116	31,479	35,228	29,465	19,065	12,317	8,513	4,591	3,203	146,977



Schedule G – Unfunded Actuarial Accrued Liability Amortization Schedule

STATE EMPLOYEES

**UAAL AMORTIZATION SCHEDULE
(\$ IN THOUSANDS)**

Description	Original Balance	Outstanding Balance as of June 30, 2013	July 1, 2013 Amortization Payment	Outstanding Balance as of June 30, 2014	July 1, 2014 Amortization Payment	Amortization Period as of June 30, 2014
June 30, 2013 Legacy UAAL	\$889,809	\$889,809	\$48,836	\$899,841	\$50,301	29 Years
June 30, 2014 Experience (Gain)/Loss	1,656	n/a	n/a	1,656	116	20 Years
Total		\$889,809	\$48,836	\$901,497	\$50,417	

Date	Projected UAAL (\$ in Thousands)
July 1, 2014	\$901,497
July 1, 2015	910,655
July 1, 2016	918,836
July 1, 2043	0



Schedule G – Unfunded Actuarial Accrued Liability Amortization Schedule (continued)

TEACHERS

**UAAL AMORTIZATION SCHEDULE
(\$ IN THOUSANDS)**

Description	Original Balance	Outstanding Balance as of June 30, 2013	July 1, 2013 Amortization Payment	Outstanding Balance as of June 30, 2014	July 1, 2014 Amortization Payment	Amortization Period as of June 30, 2014
June 30, 2013 Legacy UAAL	\$1,190,780	\$1,190,780	\$65,354	\$1,204,206	\$67,315	29 Years
June 30, 2014 Experience (Gain)/Loss	14,338	n/a	n/a	14,338	1,005	20 Years
Total		\$1,190,780	\$65,354	\$1,218,544	\$68,320	

Date	Projected UAAL (\$ in Thousands)
July 1, 2014	\$1,218,544
July 1, 2015	1,230,739
July 1, 2016	1,241,596
July 1, 2043	0