



Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve



Virginia
Retirement
System

**Report on the Actuarial Valuation of the
Health Insurance Credit Program**

Prepared as of June 30, 2013





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

December 19, 2013

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 post employment 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, 2013. 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 1.18% 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, 2013 results presented in this report are for fiscal years 2015 and 2016.

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. 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, 2013, 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 balance of the unfunded accrued liability as of June 30, 2013 is being amortized by regular annual contributions as a level percentage of payroll within a closed 30-year period, on the assumption that payroll will increase by 3.00% annually and the amortization period will decrease by one year until reaching 0 years. 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 Fund and meet the parameters for the disclosures under GASB 43 and 45.

The valuation reflects changes in the actuarial assumptions adopted by the Board of Trustees recommended in the experience study for the four year period ending June 30, 2012. The new assumptions are outlined below and are contained in Schedule C of the report. The following table summarizes the changes in actuarial assumptions.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144

Phone (678) 388-1700 • Fax (678) 388-1730

www.CavMacConsulting.com

Offices in Englewood, CO • Kennesaw, GA • Bellevue, NE • Hilton Head Island, SC



SYSTEM	ASSUMPTION CHANGE
State	Update mortality table Decrease rates of service retirement Decrease rates of withdrawal for less than 10 years of service Decrease rates of male disability retirement Reduce rates of salary increase by 0.25% per year
Teachers	Update mortality table Adjustments to rates of service retirement Decrease rates of withdrawal for three through nine years of service Decrease rates of disability Reduce rates of salary increase by 0.25% per year
SPORS	Update mortality table Increase rate of service retirement at age 54
VaLORS	Update mortality table Adjustments to rates of service retirement Decrease rates of withdrawal for females under 10 years of service Increase rates of disability Decrease service related disability rate from 60% to 50%
JRS	Update mortality table

Additionally, assumptions specific to the valuation of the Plan were made, including adjustments to rates of Plan participation, Plan benefit utilization, and the assumed age of initial Plan benefit receipt for deferred vested members.

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 Board of Trustees
December 19, 2013
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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 large, 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 large, stylized flourish at the end.

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

JIF/EHG:bcn



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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, 2013	June 30, 2012
Number Active	106,780	106,517
Number Retired, Disabled, or Eligible Deferred Vested	<u>42,813</u>	<u>41,625</u>
Total	149,593	148,142
Annual Covered Payroll	\$ 5,724,611	\$ 5,641,862
Assets:		
Market Value	\$ 59,879	\$ 54,288
Actuarial Value	\$ 54,773	\$ 55,510
Unfunded Actuarial Liability	\$ 889,809	\$ 861,658
Amortization Period (Years)	30	29
Annual Required Contribution (ARC) in Dollars:		
Normal Cost	\$ 18,381	\$ 17,410
Accrued Liability	<u>48,836</u>	<u>48,166</u>
Total	\$ 67,217	\$ 65,576
Annual Required Contribution as a Percent of Active Payroll:		
Normal Cost	0.32%	0.31%
Accrued Liability	<u>0.85</u>	<u>0.85</u>
Total	1.17%	1.16%
Discount Rate	7.00%	7.00%



Section I – Summary of Principal Results (continued)

**TEACHERS
(\$ IN THOUSANDS)**

Valuation Date	June 30, 2013	June 30, 2012
Number Active	147,257	147,216
Number Retired, Disabled, or Eligible Deferred Vested	<u>57,304</u>	<u>55,016</u>
Total	204,561	202,232
Annual Covered Payroll	\$ 7,188,884	\$ 7,004,577
Assets:		
Market Value	\$ 68,956	\$ 56,871
Actuarial Value	\$ 67,012	\$ 58,286
Unfunded Actuarial Liability	\$ 1,190,780	\$ 1,210,784
Amortization Period (Years)	30	29
Annual Required Contribution (ARC) in Dollars:		
Normal Cost	\$ 19,204	\$ 19,423
Accrued Liability	<u>65,354</u>	<u>67,682</u>
Total	\$ 84,558	\$ 87,105
Annual Required Contribution as a Percent of Active Payroll:		
Normal Cost	0.27%	0.28%
Accrued Liability	<u>0.91</u>	<u>0.96</u>
Total	1.18%	1.24%
Discount Rate	7.00%	7.00%

2. The current 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, 2012 valuation are presented for informational purposes only. Comments on the valuation results as of June 30, 2013 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 since the previous valuation include:

STATE SYSTEM	ASSUMPTION CHANGE
State	Update mortality table Decrease rates of service retirement Decrease rates of withdrawal for less than 10 years of service Decrease rates of male disability retirement Reduce rates of salary increase by 0.25% per year
Teachers	Update mortality table Adjustments to rates of service retirement Decrease rates of withdrawal for three through nine years of service Decrease rates of disability Reduce rates of salary increase by 0.25% per year
SPORS	Update mortality table Increase rate of service retirement at age 54
VaLORS	Update mortality table Adjustments to rates of service retirement Decrease rates of withdrawal for females under 10 years of service Increase rates of disability Decrease service related disability rate from 60% to 50%
JRS	Update mortality table

In addition, assumptions specific to the valuation of the Plan were made, including adjustments to rates of Plan participation, Plan benefit utilization, and the assumed age of initial Plan benefit receipt for deferred vested members.

- 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

1. 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, 2013, on the basis of which the valuation was prepared.

TABLE 1
THE NUMBER AND ANNUAL COVERED PAYROLL OF
ACTIVE MEMBERS AS OF JUNE 30, 2013
(\$ IN THOUSANDS)

Group	Number	Covered Payroll
State Employees*	106,780	\$ 5,724,611
Teachers	<u>147,257</u>	<u>7,188,884</u>
Total	254,037	\$12,913,495

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

The two tables of Schedule F, which can be found at 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.

2. 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
STATE EMPLOYEES				
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
6/30/2008	104,774	5,257,958	50,184	14.95
TEACHERS				
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
6/30/2008	147,833	6,889,702	46,605	2.90



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	Retirees			Current Total Annual Health Insurance Credit (\$ in Thousands)	Annualized % Increase in Health Insurance Credit	Average Annual Health Insurance Credit	% Increase in Average Health Insurance Credit
	Added	Removed	Total				
STATE EMPLOYEES							
6/30/2013	2,200	1,186	40,957	\$60,632	2.73%	\$1,480	0.14%
6/30/2012	2,136	1,153	39,943	59,018	2.73	1,478	0.20
6/30/2011	2,684	1,986	38,960	57,451	2.08	1,475	0.27
6/30/2010	3,521	1,279	38,262	56,283	7.45	1,471	1.17
6/30/2009	3,201	1,368	36,020	52,382	8.98	1,454	3.41
6/30/2008	n/a	n/a	34,187	48,067	n/a	1,406	n/a
TEACHERS							
6/30/2013	3,231	1,072	55,613	\$76,832	4.07%	\$1,382	0.07%
6/30/2012	2,898	933	53,454	73,828	3.90	1,381	0.07
6/30/2011	4,073	1,163	51,489	71,059	6.29	1,380	0.29
6/30/2010	3,216	1,101	48,579	66,851	4.80	1,376	0.22
6/30/2009	5,375	1,002	46,464	63,789	9.90	1,373	(0.44)
6/30/2008	n/a	n/a	42,091	58,045	n/a	1,379	n/a

*Excludes eligible deferred vested members.



Section III – Assets

- 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, 2013, 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, 2013 AND JUNE 30, 2012
(\$ IN THOUSANDS)**

Group	JUNE 30, 2013	JUNE 30, 2012
State Employees	\$ 59,879	\$ 54,288
Teachers	<u>68,956</u>	<u>56,871</u>
Total	\$ 128,835	\$ 111,159

- Schedule B shows the development of the five-year market related actuarial value of assets as of June 30, 2013. 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, 2013 AND JUNE 30, 2012
(\$ IN THOUSANDS)**

Group	JUNE 30, 2013	JUNE 30, 2012
State Employees	\$ 54,773	\$ 55,510
Teachers	<u>67,012</u>	<u>58,286</u>
Total	\$ 121,785	\$ 113,796



Section IV – Comments on Valuation

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

1. For State Employees, the June 30, 2013 valuation shows total prospective benefit liabilities of \$1,073,588,840, of which \$562,447,798 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 \$511,141,041 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 \$54,772,425 as of June 30, 2013. The difference of \$1,018,816,415 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 0.32% of total active covered payroll.
3. Prospective normal contributions have a present value of \$129,006,851. When this amount is subtracted from \$1,018,816,415, which is the present value of the total future contributions to be made by the employers, there remains \$889,809,564 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 0.85% of total active covered payroll. This rate is sufficient to liquidate the unfunded accrued liability of \$889,809,564 over 30 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)

TEACHERS

1. For Teachers, the June 30, 2013 valuation shows total prospective benefit liabilities of \$1,416,088,052, of which \$728,611,997 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 \$687,476,055 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 \$67,012,645 as of June 30, 2013. The difference of \$1,349,075,407 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 0.27% of total active covered payroll.
3. Prospective normal contributions have a present value of \$158,295,941. When this amount is subtracted from \$1,349,075,407, which is the present value of the total future contributions to be made by the employers, there remains \$1,190,779,466 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 0.91% of salary. This rate is sufficient to liquidate the unfunded accrued liability of \$1,190,779,466 over 30 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 1.18% of total active covered payroll.



Section V – Contribution Rates

1. The actuarially determined employer contribution rates based on the June 30, 2013 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, 2013
State Employees	1.17%
Teachers	1.18%
State Employees and Teachers Combined	1.17%

2. The table below shows the normal contribution rate, the unfunded actuarial accrued liability (UAAL), amortization period and the actuarially required contribution rate with a 30-year 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, 2013	
	State Employees	Teachers
Normal Cost	0.32%	0.27%
Percent to Amortize Unfunded Actuarial Accrued Liability (UAAL)	<u>0.85%</u>	<u>0.91%</u>
Actuarial Required Contribution Rate to Pay Normal Cost and Amortize UAAL	1.17%	1.18%
Number of Years to Amortize UAAL	30 years	30 years



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, 2013**

Group	Count		
	State Employees	Teachers	Total
Active Members	106,780	147,257	254,037
Retired or Disabled Members	40,947	55,613	96,560
Eligible Deferred Vested Members	<u>1,866</u>	<u>1,691</u>	<u>3,557</u>
Total	149,593	204,561	354,154

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						
6/30/2013	\$ 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
6/30/2008	153,738	802,160	648,422	19.17	5,257,958	12.33
TEACHERS						
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
6/30/2008	98,266	1,078,025	979,759	9.12	6,889,702	14.22



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, 2013. Additional information as of the latest actuarial valuation follows:

Valuation date	6/30/2013
Actuarial cost method	Entry Age Normal
Amortization method	Level Percentage of Pay, Closed
Payroll Growth Rate	3.00%
Remaining amortization period	30 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 2013
(\$ IN MILLIONS)**

FISCAL YEAR 2013	STATE	
	EMPLOYEES*	TEACHERS
1. Beginning of Year:		
(a) Actuarial Accrued Liability (AAL)	\$ 917.2	\$ 1,269.1
(b) Normal Cost	\$ 17.4	\$ 19.4
(c) Benefit Payments	\$ 60.7	\$ 73.0
2. End of Year:		
(a) Expected AAL $[(1a) + (1b)] \times 1.07 - [(1c) \times (1 + [0.07 \times 0.50])]$	\$ 937.2	\$ 1,303.1
(b) Actual AAL	\$ 944.6	\$ 1,257.8
3. Total AAL Gain (or Loss) (2a) – (2b)	\$ (7.4)	\$ 45.3
(a) Gain/(Loss) due to assumption changes	\$ (2.6)	\$ 38.7
(b) Experience Gain/(Loss)	\$ (4.8)	\$ 6.6
4. Actuarial Value of Assets (AVA) Beginning of Year	\$ 55.5	\$ 58.3
5. Net external cash flow during the year	\$ 0.1	\$ 7.5
6. End of Year:		
(a) Expected AVA $[(4) \times 1.07] + [(5) \times (1 + [0.07 \times 0.50])]$	\$ 59.5	\$ 70.1
(b) Actual AVA	\$ 54.8	\$ 67.0
7. AVA Gain (or Loss) (6b) – (6a)	\$ (4.7)	\$ (3.1)
8. Expected UAAL at End of Year (2a) – (6a)	\$ 877.7	\$ 1,233.0
9. Actual UAAL at End of Year (2b) – (6b)	\$ 889.8	\$ 1,190.8
10. UAAL Gain (or Loss) (8) – (9)	\$ (12.1)	\$ 42.2

*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, 2013	June 30, 2012
1. COVERED PAYROLL	\$ 5,724,611	\$ 5,641,862
2. ACTUARIAL ACCRUED LIABILITY		
Present value of prospective benefits payable in respect of:		
(a) Present active members	\$ 511,141	\$ 495,493
(b) Present retired, disabled, and deferred members	<u>562,448</u>	<u>542,874</u>
(c) Total present value of prospective benefits	\$ 1,073,589	\$ 1,038,367
(d) Present value of future normal contributions	<u>129,007</u>	<u>121,199</u>
(e) Total actuarial accrued liability (2c) – (2d)	\$ 944,582	\$ 917,168
3. PRESENT ASSETS FOR VALUATION PURPOSES	\$ 54,773	\$ 55,510
4. UNFUNDED ACTUARIAL ACCRUED LIABILITY (2e) – (3)	\$ 889,809	\$ 861,658
5. AMORTIZATION PERIOD	30	29
6. NORMAL CONTRIBUTION	\$ 18,381	\$ 17,410
7. ACCRUED LIABILITY CONTRIBUTION	<u>48,836</u>	<u>48,166</u>
8. TOTAL CONTRIBUTION BASED ON COVERED PAYROLL (6) + (7)	\$ 67,217	\$ 65,576
9. NORMAL CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (6) ÷ (1)	0.32%	0.31%
10. ACCRUED LIABILITY CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (7) ÷ (1)	<u>0.85%</u>	<u>0.85%</u>
11. TOTAL CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (9) + (10)	1.17%	1.16%
12. DISCOUNT RATE	7.00%	7.00%



Schedule A - Results of the Valuation (continued)

TEACHERS
(\$ IN THOUSANDS)

VALUATION DATE		June 30, 2013	June 30, 2012
1.	COVERED PAYROLL	\$ 7,188,884	\$ 7,004,577
2.	ACTUARIAL ACCRUED LIABILITY		
	Present value of prospective benefits payable in respect of:		
	(a) Present active members	\$ 687,476	\$ 694,134
	(b) Present retired, disabled, and deferred members	<u>728,612</u>	<u>732,146</u>
	(c) Total present value of prospective benefits	\$ 1,416,088	\$ 1,426,280
	(d) Present value of future normal contributions	<u>158,296</u>	<u>157,210</u>
	(e) Total actuarial accrued liability (2c) – (2d)	\$ 1,257,792	\$ 1,269,070
3.	PRESENT ASSETS FOR VALUATION PURPOSES	\$ 67,012	\$ 58,286
4.	UNFUNDED ACTUARIAL ACCRUED LIABILITY (2e) – (3)	\$ 1,190,780	\$ 1,210,784
5.	AMORTIZATION PERIOD	30	29
6.	NORMAL CONTRIBUTION	\$ 19,204	\$ 19,423
7.	ACCRUED LIABILITY CONTRIBUTION	<u>65,354</u>	<u>67,682</u>
8.	TOTAL CONTRIBUTION BASED ON ACTIVE PAYROLL (6) + (7)	\$ 84,558	\$ 87,105
9.	NORMAL CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (6) ÷ (1)	0.27%	0.28%
10.	ACCRUED LIABILITY CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (7) ÷ (1)	<u>0.91%</u>	<u>0.96%</u>
11.	TOTAL CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (9) + (10)	1.18%	1.24%
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*								
6/30/2013	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
6/30/2008	n/a	422,996	379,164	802,160	153,738	n/a	36.35	0.00
TEACHERS								
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
6/30/2008	n/a	554,541	523,484	1,078,025	98,266	n/a	17.72	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 \$54,772,425 and the actuarial value of assets used for the valuation of Teachers is \$67,012,645. The corresponding market value of assets for State Employees (State, SPORS, JRS, VaLORS, ORP, and UVA) is \$59,879,148 and the market value of assets for Teachers is \$67,012,645.



Schedule B – Plan Assets (continued)

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

RECONCILIATION OF ASSETS
(\$ IN THOUSANDS)

VALUATION DATE	June 30, 2013	June 30, 2012
1. Market value of assets at beginning of year	\$ 54,288	\$ 107,775
Revenue for the year		
Contributions	\$ 60,848	\$ 5,859
Net investment income	<u>5,668</u>	<u>(1,097)</u>
2. Total revenue	\$ 66,516	\$ 4,762
Expenditures for the year		
Benefit payments	\$ 60,748	\$ 58,074
Administrative expenses	<u>177</u>	<u>175</u>
3. Total expenditures	\$ 60,925	\$ 58,249
4. Change in net assets (2) - (3)	\$ 5,591	\$ (53,487)
5. Market value of assets at end of year (1) + (4)	\$ 59,879	\$ 54,288



Schedule B – Plan Assets (continued)

TEACHERS

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

VALUATION DATE	June 30, 2013	June 30, 2012
1. Market value of assets at beginning of year	\$ 56,871	\$ 85,007
Revenue for the year		
Contributions	\$ 80,489	\$ 42,245
Net investment income	<u>4,761</u>	<u>(573)</u>
2. Total revenue	\$ 82,250	\$ 41,672
Expenditures for the year		
Benefit payments	\$ 72,997	\$ 69,638
Administrative expenses	<u>168</u>	<u>170</u>
3. Total expenditures	\$ 73,165	\$ 69,808
4. Change in net assets (2) - (3)	\$ 12,085	\$ (28,136)
5. Market value of assets at end of year (1) + (4)	\$ 68,956	\$ 56,871



Schedule B – Plan Assets (continued)

**DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS
PREPARED AS OF JUNE 30, 2013
(\$ IN THOUSANDS)**

GROUP	STATE EMPLOYEES*	TEACHERS
1. Excess (Shortfall) of invested income for current and previous three years		
a. Current year	\$ 1,687	\$ 351
b. First Prior Year	(6,988)	(5,734)
c. Second Prior Year	15,118	9,699
d. Third Prior Year	<u>9,512</u>	<u>6,117</u>
e. Total for four years	\$ 19,329	\$ 10,433
2. Deferral of excess (shortfall) of investment income		
a. Current year at 80%: (1a) x 0.80	\$ 1,350	\$ 281
b. First Prior Year at 60%: (1b) x 0.60	(4,193)	(3,440)
c. Second Prior Year at 40%: (1c) x 0.40	6,047	3,880
d. Third Prior Year at 20%: (1d) x 0.20	<u>1,902</u>	<u>1,223</u>
e. Total for four years	\$ 5,106	\$ 1,944
3. Market value of assets at end of year	\$ 59,879	\$ 68,956
4. Preliminary actuarial value of assets at end of year: (3) – (2e)	\$ 54,773	\$ 67,012
5. Actuarial value of assets corridor		
a. 80% of market value at end of year: (3) x 0.80	\$ 47,903	\$ 55,165
b. 120% of market value at end of year: (3) x 1.20	71,855	82,747
6. Actuarial value of assets at end of year	\$ 54,773	\$ 67,012

*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, 2013	June 30, 2012
1. Market value of assets at beginning of year	\$ 54,288	\$ 107,775
2. Net external cash flow during the year	\$ 100	\$ (52,390)
3. Market value of assets at end of year	\$ 59,879	\$ 54,288
4. Actual investment income during the year based on market value: (3) – (2) – (1)	\$ 5,491	\$ (1,097)
5. Assumed earning rate	7.00%	7.00%
6. Expected earnings for the year		
a. Market value of assets at beginning of year	\$ 3,800	\$ 7,544
b. Net external cash flow	<u>4</u>	<u>(1,653)</u>
c. Total: (6a) + (6b)	\$ 3,804	\$ 5,891
7. Excess investment income for the year: (4) – (6)	\$ 1,687	\$ (6,988)



Schedule B – Plan Assets (continued)

TEACHERS

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

VALUATION DATE	June 30, 2013	June 30, 2012
1. Market value of assets at beginning of year	\$ 56,871	\$ 85,007
2. Net external cash flow during the year	\$ 7,491	\$ (27,563)
3. Market value of assets at end of year	\$ 68,956	\$ 56,871
4. Actual investment income during the year based on market value: (3) – (2) – (1)	\$ 4,594	\$ (573)
5. Assumed earning rate	7.00%	7.00%
6. Expected earnings for the year		
a. Market value of assets at beginning of year	\$ 3,981	\$ 5,950
b. Net external cash flow	<u>262</u>	<u>(789)</u>
c. Total: (6a) + (6b)	\$ 4,243	\$ 5,161
7. Excess investment income for the year: (4) – (6)	\$ 351	\$ (5,734)



Schedule C – Outline of Actuarial Assumptions and Methods (continued)

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: 30 years from the valuation date decreasing by one year each year in subsequent valuation until reaching 0 years (closed amortization, computed as a level percent of payroll).

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 (continued)

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 (continued)

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:

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 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.

Hybrid Retirement Plan:

The valuation assumes no eligible members will elect to opt into the Hybrid Retirement Plan during the election window to be held January 1 through April 30, 2014.



Schedule C – Outline of Actuarial Assumptions and Methods (continued)

STATE*

NORMAL RETIREMENT ELIGIBILITY:

Plan 1 Members (Members hired prior to July 1, 2010 and who were vested as of January 1, 2013):

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 Members (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):

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 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 (continued)

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 (continued)

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	0.035	0.130	0.032	0.100
51	0.035	0.125	0.031	0.100
52	0.035	0.090	0.030	0.100
53	0.035	0.104	0.030	0.100
54	0.035	0.108	0.035	0.100
55	0.050	0.115	0.050	0.100
56	0.055	0.130	0.050	0.100
57	0.049	0.130	0.045	0.100
58	0.045	0.120	0.055	0.100
59	0.045	0.135	0.055	0.100
60	0.060	0.170	0.055	0.150
61	0.105	0.190	0.100	0.200
62	0.175	0.310	0.150	0.300
63	0.130	0.210	0.150	0.200
64	0.165	0.290	0.150	0.200
65	0.400	0.410	0.300	0.400
66	0.400	0.275	0.300	0.300
67	0.400	0.240	0.300	0.250
68	0.400	0.210	0.300	0.250
69	0.400	0.100	0.300	0.200
>=70	1.000	1.000	1.000	1.000



Schedule C – Outline of Actuarial Assumptions and Methods (continued)

STATE

RETIREMENT RATES:

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

State Rates of Retirement, Plan 2				
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 (continued)

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 (continued)

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

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



Schedule C – Outline of Actuarial Assumptions and Methods (continued)

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 (continued)

TEACHERS*

NORMAL RETIREMENT ELIGIBILITY:

Plan 1 Members (Members hired prior to July 1, 2010 and who were vested as of January 1, 2013):

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 Members (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):

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 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:

A member is eligible for disability retirement benefits from the first day of employment.

*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 (continued)

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 (continued)

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 (continued)

TEACHERS

RETIREMENT RATES:

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

Teachers Rates of Retirement, Plan 2				
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 (continued)

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 (continued)

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	3-9	>=10	0-2	3-9	>=10
20	0.182	0.143	0.008	0.159	0.160	0.000
25	0.154	0.118	0.008	0.146	0.120	0.150
30	0.149	0.090	0.037	0.164	0.110	0.047
35	0.141	0.073	0.031	0.149	0.090	0.039
40	0.141	0.070	0.025	0.127	0.075	0.028
45	0.147	0.075	0.019	0.117	0.064	0.021
50	0.138	0.070	0.000	0.118	0.058	0.000
55	0.143	0.000	0.000	0.124	0.000	0.000
60	0.166	0.000	0.000	0.129	0.000	0.000
65	0.170	0.000	0.000	0.130	0.000	0.000
70	0.170	0.000	0.000	0.130	0.000	0.000

Teachers Rates of Termination, Plan 2						
Age	Male			Female		
	Years of Service					
	0-2	3-9	>=10	0-2	3-9	>=10
20	0.182	0.143	0.008	0.159	0.143	0.008
25	0.154	0.118	0.008	0.146	0.118	0.008
30	0.149	0.090	0.037	0.164	0.090	0.037
35	0.141	0.073	0.031	0.149	0.073	0.031
40	0.141	0.070	0.025	0.127	0.070	0.025
45	0.147	0.075	0.019	0.117	0.075	0.019
50	0.138	0.070	0.016	0.118	0.070	0.016
55	0.143	0.070	0.003	0.124	0.070	0.003
60	0.166	0.000	0.000	0.129	0.000	0.000
65	0.170	0.000	0.000	0.130	0.000	0.000
70	0.170	0.000	0.000	0.130	0.000	0.000



Schedule C – Outline of Actuarial Assumptions and Methods (continued)

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 (continued)

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 (continued)

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 (continued)

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 (continued)

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 (continued)

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			Females		
	Years of Service					
	0-2	3-9	>=10	0-2	3-9	>=10
20	0.075	0.210	0.030	0.101	0.053	0.036
25	0.075	0.055	0.030	0.108	0.054	0.044
30	0.075	0.045	0.030	0.119	0.057	0.055
35	0.075	0.048	0.024	0.121	0.060	0.061
40	0.075	0.048	0.018	0.117	0.062	0.062
45	0.100	0.045	0.014	0.108	0.064	0.059
50	0.100	0.045	0.012	0.093	0.066	0.052
55	0.100	0.067	0.012	0.074	0.067	0.041
60	0.100	0.075	0.012	0.049	0.068	0.026
65	0.100	0.075	0.012	0.015	0.069	0.006
70	0.100	0.075	0.012	0.000	0.071	0.000



Schedule C – Outline of Actuarial Assumptions and Methods (continued)

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 (continued)

JRS

WEIGHTED SERVICE CREDIT:

Plan 1 Members (Members hired prior to July 1, 2010 and who were vested as of January 1, 2013):

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 Members (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):

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:

A member is eligible for disability retirement benefits from the first day of employment.



Schedule C – Outline of Actuarial Assumptions and Methods (continued)

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 (continued)

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 (continued)

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 (continued)

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 (continued)

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 (continued)

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 (continued)

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 (continued)

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 (continued)

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 post-employment disability benefits. VaLORS, SPORS, and State 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 teacher 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.

Each former member whose retirement was for disability 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.

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 – Schedules of Active Member Data

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

**SCHEDULE OF ACTIVE MEMBER DATA
AS OF JUNE 30, 2013**

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	1,072	1,268	31							2,371
25 - 29	1,617	4,381	1,419	17						7,434
30 - 34	1,268	3,992	3,826	714	14					9,814
35 - 39	904	3,199	3,713	2,134	567	11				10,528
40 - 44	702	2,865	3,723	2,668	1,877	567	20			12,422
45 - 49	618	2,326	3,433	2,683	2,132	1,896	931	26		14,045
50 - 54	513	1,998	3,214	2,695	2,179	2,219	2,220	926	67	16,031
55 - 59	408	1,563	2,637	2,321	2,002	2,098	2,007	1,796	1,129	15,961
60 - 64	192	846	1,777	1,717	1,582	1,682	1,521	1,113	1,658	12,088
65 - 69	43	228	640	711	578	661	616	430	841	4,748
70 & Up	7	47	152	176	155	185	168	94	354	1,338
Totals	7,344	22,713	24,565	15,836	11,086	9,319	7,483	4,385	4,049	106,780



Schedule F – Schedules of Active Member Data (continued)

TEACHERS

**SCHEDULE OF ACTIVE MEMBER DATA
AS OF JUNE 30, 2013**

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	389	1,923	9							2,321
25 - 29	779	10,088	3,138	7						14,012
30 - 34	427	4,580	10,258	2,221	5					17,491
35 - 39	337	3,014	5,346	6,483	1,222	3				16,405
40 - 44	389	3,336	5,086	4,916	4,855	1,095	3			19,680
45 - 49	391	2,854	4,895	4,138	2,889	3,346	884	6		19,403
50 - 54	230	2,104	4,476	4,483	2,738	2,361	2,976	953	17	20,338
55 - 59	134	1,268	3,075	3,750	2,928	2,532	2,168	2,471	907	19,233
60 - 64	67	559	1,752	2,293	2,158	2,111	1,818	1,098	1,661	13,517
65 - 69	14	176	527	723	618	652	587	316	459	4,072
70 & Up	4	29	113	134	101	104	86	77	137	785
Totals	3,161	29,931	38,675	29,148	17,514	12,204	8,522	4,921	3,181	147,257