



Cavanaugh Macdonald
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The experience and dedication you deserve



**Virginia
Retirement
System**

**Report on the Actuarial Valuation of the
Virginia Sickness and Disability Program**

Prepared as of June 30, 2014





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

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 long-term disability (LTD) benefits payable by the Virginia Sickness and Disability Program (VSDP), 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 for LTD benefits is 0.64% of active covered payroll of members covered by VSDP. Contribution rates for Virginia Retirement System (VRS) employers are established every two years. The actuarially calculated employer contribution rates based on the current valuation are for informational purposes only.

The promised LTD benefits of VSDP are included in the actuarially calculated contribution rates, 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 requires 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, LTD benefits have \$355,230,598 in 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 Fund and meet the parameters for the disclosures under GASB Statements 43 and 45.

The liability associated with long-term care (LTC) benefits was calculated by Milliman.

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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 VSDP 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: VSDP 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 VSDP's funded status); and changes in VSDP 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:bcn



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Section I – Summary of Principal Results

- For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized below. In addition, a summary of the LTD valuation results, split by employer group, are presented on the following page.

VIRGINIA SICKNESS AND DISABILITY PROGRAM (\$ IN THOUSANDS)

Valuation Date	June 30, 2014	June 30, 2013
Number Active (participating in VSDP)	74,399	74,178
Number Disabled	<u>2,701</u>	<u>2,637</u>
Total	77,100	76,815
Annual Covered Payroll*	\$ 3,585,486	\$ 3,472,669
LTD Assets:		
Market Value	\$ 355,231	\$ 324,510
Actuarial Value	\$ 325,354	\$ 313,480
LTD Unfunded Actuarial Accrued Liability	\$ (136,816)	\$ (130,534)
Effective Amortization Period (Years)	28.5	30.0
LTD Annual Required Contribution (ARC) in Dollars:		
Normal Cost***	\$ 30,340	\$ 28,124
Accrued Liability	<u>(7,716)</u>	<u>(7,164)</u>
Total	\$ 22,624	\$ 20,960
LTD ARC as a Percent of Active Payroll**:		
Normal Cost	0.86%	0.81%
Accrued Liability	<u>(0.22)</u>	<u>(0.21)</u>
Total	0.64%	0.60%
LTC Contribution Rate****	<u>0.13%</u>	<u>0.13%</u>
Total Combined ARC**	0.77%	0.73%
Discount Rate	7.00%	7.00%

*Annual Covered Payroll consists of only those State, VaLORS, SPORS, and Hybrid Plan JRS employees participating in VSDP. No Hybrid Plan active employees or disabled members of JRS were reported as of June 30, 2014.

**Includes timing adjustment factor of 1.0192

***Includes third party administrator expenses of \$7,830,427 and \$6,319,632 for 2014 and 2013, respectively.

****LTC contribution rate was calculated by Milliman.



Section I – Summary of Principal Results (continued)

SPLIT BY EMPLOYER GROUP* (\$ IN THOUSANDS)

Valuation Date – June 30, 2014	State	SPORS	VaLORS	Total
Number Active (participating in VSDP)	64,764	1,394	8,241	74,399
Number Disabled	<u>2,135</u>	<u>13</u>	<u>553</u>	<u>2,701</u>
Total	66,899	1,407	8,794	77,100
Annual Covered Payroll	\$ 3,217,406	\$ 68,880	\$ 299,200	\$ 3,585,486
LTD Assets: (Allocated by liabilities)				
Market Value	\$ 290,979	\$ 4,866	\$ 59,386	\$ 355,231
Actuarial Value	\$ 266,506	\$ 4,457	\$ 54,391	\$ 325,354
LTD Unfunded Actuarial Accrued Liability	\$ (112,070)	\$ (1,874)	\$ (22,872)	\$ (136,816)
Effective Amortization Period (Years)	28.6	26.2	28.5	28.5
LTD Annual Required Contribution (ARC) in Dollars:				
Normal Cost**	\$ 25,422	\$ 337	\$ 4,581	\$ 30,340
Accrued Liability	<u>(6,314)</u>	<u>(111)</u>	<u>(1,291)</u>	<u>(7,716)</u>
Total	\$ 19,108	\$ 226	\$ 3,290	\$ 22,624
LTD Annual Required Contribution as a Percent of Active Payroll:				
Normal Cost**	0.80%	0.50%	1.55%	0.86%
Accrued Liability	<u>(0.20)</u>	<u>(0.16)</u>	<u>(0.43)</u>	<u>(0.22)</u>
Total	0.60%	0.34%	1.12%	0.64%
Discount Rate	7.00%	7.00%	7.00%	7.00%

*No Hybrid Plan active employees or disabled members of JRS were reported as of June 30, 2014.

**Includes third party administrator expenses totaling \$7,830,427.

- The previous valuation as of June 30, 2013 indicates that the annual required contribution (ARC) for LTD benefits under GASB 43 and 45 is 0.60% of active covered payroll payable for the fiscal years 2015 and 2016 and 0.13% of active covered payroll for LTC benefits. 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 VSDP's LTD benefits, as summarized in Schedule E, were taken into account in the current valuation. The valuation for LTC benefits was performed by Milliman.
4. Changes to the actuarial assumptions and methods from the last actuarial valuation:
 - For contribution rates defined as a percent of payroll, a timing adjustment factor of 1.0192 was applied to the beginning of year 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.
 - 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. No Hybrid Plan active employees or disabled members of JRS were reported as of June 30, 2014.
5. Schedule B shows the market and 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 in VSDP for use as a basis of the valuation were furnished by VRS. The following table shows the number of active members who are participating in VSDP and the total annual covered payroll for each employer group, 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	64,764	\$ 3,217,406
SPORS	1,394	68,880
VALORS	8,241	299,200
Hybrid Plan JRS	0	0
Total	74,399	\$ 3,585,486

Schedule F shows the distribution by age and service of the number of active members 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
6/30/2014	74,399	\$3,585,486	\$48,193	2.94%
6/30/2013	74,178	3,472,669	46,815	0.50
6/30/2012	73,707	3,433,322	46,581	0.08
6/30/2011	72,440	3,371,773	46,546	5.10
6/30/2010	71,529	3,167,849	44,288	0.04
6/30/2009	73,003	3,231,897	44,271	0.15

*For the valuations prior to June 30, 2010, covered payroll included all State, VALORS, and SPORS employees within VRS, including those employees hired before January 1, 1999 who did not elect VSDP during one of two open enrollment periods offered in 1999 and 2002.



Section II – Membership Data (continued)

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

TABLE 3

SCHEDULE OF BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS

Valuation Date	Number Added to Rolls	Annualized LTD Payments (\$1,000s)	Number Removed from Rolls	Annualized LTD Payments (\$1,000s)	Number on Rolls at the End of the Year	Annualized LTD Payments (\$1,000s)	Increase in Annualized LTD Payments	Average Annualized LTD Payments	Increase in Average Annualized LTD Payments
6/30/2014	369	\$6,103	305	\$4,567	2,701	\$27,315	5.96%	\$10,113	3.45%
6/30/2013	401	6,256	434	4,707	2,637	25,779	6.39	9,776	7.72
6/30/2012	424	6,438	374	5,635	2,670	24,230	3.43	9,075	1.49
6/30/2011	411	6,262	365	6,252	2,620	23,427	0.04	8,942	(1.71)
6/30/2010	445	6,902	265	4,972	2,574	23,417	8.98	9,098	1.37
6/30/2009	377	5,688	297	6,500	2,394	21,487	(3.64)	8,975	(6.87)



Section III – Assets

1. Schedule B shows the additions and deductions of VSDP for the year preceding the valuation date and a reconciliation of the fund balances at market value. The market value of assets as of June 30, 2014 used to determine the actuarial value of assets for VSDP is shown below.

TABLE 4

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

	June 30, 2014	June 30, 2013
LTD	\$ 355,231	\$ 324,510
LTC	<u>54,867</u>	<u>45,611</u>
Total	410,098	370,121

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 used for valuation purposes.

TABLE 5

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

	June 30, 2014	June 30, 2013
LTD	\$ 325,354	\$ 313,480
LTC	<u>51,018</u>	<u>44,330</u>
Total	376,372	357,810



Section IV – Comments on Valuation

1. The June 30, 2014 valuation shows LTD benefits have total prospective benefit liabilities of \$357,303,058, of which \$138,510,509 is for the prospective LTD benefits payable on account of present disabled retirees, and \$218,792,549 is for the prospective LTD benefits payable on account of present active members. Against these liabilities, LTD benefits have present assets of \$325,354,283 as of June 30, 2014. The difference of \$31,948,775 between the total liabilities and the total present actuarial value of assets presents 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 the Plan on account of disabled retiree benefits consist of normal contributions and accrued liability contributions. The normal contribution is equal to the actuarial present value of LTD benefits accruing during the current year, plus third-party administrator expenses. The normal contribution of LTD benefits is determined to be 0.86% of total active covered payroll.
3. Prospective LTD normal contributions have a present value of \$168,764,869. When this amount is subtracted from \$31,948,775, which is the present value of the total future contributions to be made by the employers, a surplus of \$136,816,094 results.
4. It is recommended that the accrued liability contribution rate payable by employers on account of LTD benefits be set at -0.22% of total active covered payroll. This rate includes an amount sufficient to liquidate the surplus of \$136,816,094 over 28.5 years, based on a 7.00% investment rate of return and the assumption that the 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 contribution payable to support LTC benefits, as valued by Milliman, is 0.13% of total active covered payroll.
6. The total annual required contribution (ARC) for LTD benefits and LTC benefits, combined, is 0.77% of total active covered payroll.
7. There was an overall liability gain of \$3.3 million; \$1.4 million was due to the change in PVFS calculations to beginning of the year. The other \$1.9 million was due to demographic changes.



Section V – Contribution Rates

1. The actuarially determined employer contribution rates as of June 30, 2014 for LTD benefits and LTC benefits are shown in the following table:

TABLE 6

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

Plan	ARC
LTD	0.64%
LTC	<u>0.13%</u>
Total	0.77%

2. The normal contribution rate, the unfunded actuarial accrued liability (UAAL), amortization period and the actuarially required contribution rate as of June 30, 2014 with the new amortization method are shown in the following table.

TABLE 7

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

	Percentage of Covered Payroll
LTD Normal Cost	0.86%
LTD Percent to Amortize Unfunded Actuarial Accrued Liability (UAAL)	<u>(0.22)%</u>
Actuarial Required Contribution Rate to pay Normal Cost and amortize UAAL of LTD	0.64%
LTC Contribution Rate	<u>0.13%</u>
Total Actuarial Required Contribution Rate	0.77%



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. 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
Active Members	74,399
Disabled Members	<u>2,701</u>
Total	77,100

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

SCHEDULE OF FUNDING PROGRESS FOR VIRGINIA SICKNESS AND DISABILITY PROGRAM'S LTD BENEFITS (\$ IN THOUSANDS)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL)* (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll** (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
6/30/2014	\$325,354	\$188,538	\$(136,816)	172.57%	\$3,585,486	(3.82)%
6/30/2013	313,480	182,946	(130,534)	171.35	3,472,669	(3.76)
6/30/2012	305,170	261,729	(43,441)	116.60	3,433,322	(1.27)
6/30/2011	330,079	262,844	(67,235)	125.58	3,371,773	(1.99)
6/30/2010	302,683	281,979	(20,704)	107.34	3,167,849	(0.65)
6/30/2009***	266,635	267,584	949	99.65	4,079,522	0.02

* Actuarial cost method of Projected Unit Credit prior to 6/30/2013 and Entry Age Normal on 6/30/2013 and later.

** Annual covered payroll consist of only those State, VaLORS, SPORS, and Hybrid Plan JRS employees participating in VSDP. Annual covered payroll for the valuations prior to June 30, 2010 consist of all State, VaLORS, and SPORS employees within VRS, including those employees hired before January 1, 1999 who did not elect VSDP during one of two open enrollment periods offered in 1999 and 2002.

*** Includes the transfer of \$7,028,880 from the LTC plan of benefits.



Section VI – Accounting Information (continued)

3. The information presented in the required supplementary schedules was determined as part of the actuarial valuation of LTD benefits 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	28.5 years
Asset valuation method	5-year Smoothed Market
Actuarial assumptions:	
Investment rate of return*	7.00%
*Includes inflation at	2.50%
Post-disablement benefit increases	Compounded Annually
Plan 1	2.50%
Plan 2 and Hybrid Plan	2.25%

The assumed investment rate of return reflects the fact a Trust has been established to set aside assets that are legally held exclusively for long-term disability benefits.



Section VII – Derivation of Experience Gains and Losses

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

Fiscal Year	2014
1. Beginning of Year:	
(a) Actuarial Accrued Liability (AAL)	\$ 182.9
(b) Normal Cost	\$ 28.1
(c) Benefit Payments	\$ 32.8
2. End of Year:	
(a) Expected AAL $[(1a) + (1b)] \times 1.07 - [(1c) \times (1 + [0.07 \times 0.50])]$	\$ 191.8
(b) Actual AAL	\$ 188.5
3. Total AAL Gain (or Loss) (2a) – (2b)	\$ 3.3
(a) Gain/(Loss) due to assumption/method changes	\$ 1.4
(b) Experience Gain/(Loss)	\$ 1.9
4. Actuarial Value of Assets (AVA) Beginning of Year	\$ 313.5
5. Net external cash flow during the year	\$ (18.4)
6. End of Year:	
(a) Expected AVA $[(4) \times 1.07] + [(5) \times (1 + [0.07 \times 0.50])]$	\$ 316.4
(b) Actual AVA	\$ 325.3
7. AVA Gain (or Loss) (6b) – (6a)	\$ 8.9
8. Expected UAAL at End of Year (2a) – (6a)	\$ (124.6)
9. Actual UAAL at End of Year (2b) – (6b)	\$ (136.8)
10. UAAL Gain (or Loss) (8) – (9)	\$ 12.2



Schedule A – Results of the Valuation

VIRGINIA SICKNESS AND DISABILITY PROGRAM (\$ IN THOUSANDS)

Valuation Date	June 30, 2014	June 30, 2013
1. COVERED PAYROLL*	\$ 3,585,486	\$ 3,472,669
2. LTD ACTUARIAL ACCRUED LIABILITY		
Present value of prospective benefits payable in respect of:		
(a) Present active members:	\$ 218,792	\$ 215,453
(b) Present disabled members:	138,511	132,841
(c) Total present value of prospective benefits	\$ 357,303	\$ 348,294
(d) Present value of future normal contributions	168,765	165,348
(e) Total actuarial accrued liability (2c) – (2d)	\$ 188,538	\$ 182,946
3. PRESENT ASSETS FOR LTD VALUATION PURPOSES	\$ 325,354	\$ 313,480
4. LTD UNFUNDED ACTUARIAL ACCRUED LIABILITY (2e) – (3)	\$ (136,816)	\$ (130,534)
5. EFFECTIVE AMORTIZATION PERIOD	28.5	30.0
6. LTD NORMAL CONTRIBUTION**	\$ 30,340	\$ 28,124
7. LTD ACCRUED LIABILITY CONTRIBUTION	(7,716)	(7,164)
8. TOTAL LTD CONTRIBUTION BASED ON COVERED PAYROLL (6) + (7)	\$ 22,624	\$ 20,960
9. LTD NORMAL CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (6) ÷ (1)***	0.86%	0.81%
10. LTD ACCRUED LIABILITY CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (7) ÷ (1)***	(0.22)%	(0.21)%
11. TOTAL LTD CONTRIBUTION AS A PERCENT OF COVERED PAYROLL (9) + (10)***	0.64%	0.60%
12. LTC CONTRIBUTION***	0.13%	0.13%
13. TOTAL VSDP CONTRIBUTION (11) + (12)***	0.77%	0.73%
14. DISCOUNT RATE	7.00%	7.00%

*Covered payroll consist of only those State, VaLORS, SPORS, and JRS employees participating in VSDP and exclude the compensation of those employees hired before January 1, 1999 who did not elect VSDP during one of two open enrollment periods offered in 1999 and 2002.

**Includes third party administrator expenses of \$7,830,427 and \$6,319,632 for 2014 and 2013, respectively.

***Includes timing adjustment factor of 1.0192



Schedule A – Solvency Test

LTD BENEFITS 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)
6/30/2014	n/a	\$138,511	\$50,027	\$188,538	\$325,354	n/a	100.00%	373.48%
6/30/2013	n/a	132,842	50,104	182,946	313,480	n/a	100.00	360.53
6/30/2012	n/a	125,578	136,151	261,729	305,170	n/a	100.00	131.91
6/30/2011	n/a	123,339	139,505	262,844	330,079	n/a	100.00	148.20
6/30/2010	n/a	133,728	148,251	281,979	302,683	n/a	100.00	113.97
6/30/2009	n/a	120,811	146,773	267,584	266,635	n/a	100.00	99.35



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. This asset valuation was initiated July 1, 2012, and gains and losses will be phased-in prospectively only. The actuarial value of assets used for the valuation of LTD benefits is \$325,354,283. The corresponding market value of assets for LTD benefits is \$355,230,598. The actuarial value of assets used for the valuation of LTC benefits is \$51,018,027. The corresponding market value of assets for LTC benefits is \$54,866,558.



Schedule B – Plan Assets (continued)

**RECONCILIATION OF ASSETS
VIRGINIA SICKNESS AND DISABILITY PLAN
(\$ IN THOUSANDS)**

VALUATION DATE – June 30, 2014	LTD	LTC	TOTAL
1. Market value of assets at beginning of year	\$ 324,510	\$ 45,611	\$ 370,121
Revenue of the Year			
Contributions and miscellaneous revenue	\$ 14,393	\$ 3,300	\$ 17,693
Net investment income	<u>49,604</u>	<u>6,970</u>	<u>56,574</u>
2. Total revenue	\$ 63,997	\$ 10,270	\$ 74,267
Expenditures for the year			
Benefit payments	\$ 24,920	\$ 931	\$ 25,851
Administrative expenses	<u>8,356</u>	<u>83</u>	<u>8,439</u>
3. Total expenditures	\$ 33,276	\$ 1,014	\$ 34,290
4. Change in net assets (2) – (3)	\$ 30,721	\$ 9,256	\$ 39,977
5. Market value of assets at end of year (1) + (4)	\$ 355,231	\$ 54,867	\$ 410,098



Schedule B – Plan Assets (continued)

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

BENEFIT	LTD	LTC
1. Excess (Shortfall) of invested income for current and previous three years		
a. Current Year	\$ 27,006	\$ 3,611
b. First Prior Year	13,787	1,601
c. Second Prior Year	0	0
d. Third Prior Year	<u>0</u>	<u>0</u>
e. Total for four years	\$ 40,793	\$ 5,212
2. Deferral of excess (shortfall) of investment income		
a. Current Year at 80%: (1a) x 0.80	\$ 21,605	\$ 2,889
b. First Prior Year at 60%: (1b) x 0.60	8,272	961
c. Second Prior Year at 40%: (1c) x 0.40	0	0
d. Third Prior Year at 20%: (1d) x 0.20	<u>0</u>	<u>0</u>
e. Total for four years	\$ 29,877	\$ 3,850
3. Market value of assets at end of year	\$ 355,231	\$ 54,867
4. Preliminary actuarial value of assets at end of year: (3) – (2e)	\$ 325,354	\$ 51,017
5. Actuarial value of assets corridor		
a. 80% of market value at end of year: (3) x 0.80	\$ 284,185	\$ 43,894
b. 120% of market value at end of year: (3) x 1.20	426,277	65,840
6. Actuarial value of assets at end of year	\$ 325,354	\$ 51,017



Schedule C – Outline of Actuarial Assumptions and Methods

Assumptions and Methods Applicable to all LTD Benefit Employer Groups

Investment Return Rate:	7.00% per annum, compounded annually (net of VRS 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.
Cost-Of-Living Increase:	
<u>Plan 1 Members:</u>	2.50% per year, compounded annually.
<u>Plan 2 and Hybrid Members:</u>	2.25% per year, compounded annually.
Administrative Expenses:	Third party administrative expenses are included in the normal cost.
Health Insurance Credit and Group Life Insurance Benefits	Health Insurance Credit and Group Life Insurance benefits provided by VSDP are valued under the respective programs.
Liability Assumed for Disabled Members in Waiting Period:	The liability associated for those disabled and not yet eligible to receive benefits was based upon the development method in which plan experience was applied to those claims reported in the second half of the most recent fiscal year.



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

Assumptions and Methods Applicable to all LTD Benefit Employer Groups

Offsets for Disabled Members:

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

Year of Long-Term Disability	Percentage Receiving Offsets in the Next Year if Currently Not in Receipt	Average Percentage of Full Benefit Paid if in Receipt of Offsets
1	38%	25%
2	32%	25%
3	24%	25%
4	14%	25%
5	14%	25%
6 and Longer	0%	30%

Offsets for Active Members:

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

Year of Long-Term Disability	Benefit Adjustment Factor
1	0.745
2	0.557
3	0.493
4	0.439
5	0.414
6 and Longer	0.378

Income Replacement for Future Disabled Members:

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



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

Assumptions and Methods which apply to all LTD benefit employer groups

Rates of Termination of Benefits Due to Death or Recovery:

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

Adjustment Factor

Month of Disability	Male	Female
4 - 24	0.944	0.870
25 - 60	1.016	0.992
61 - 120	1.086	1.083
121 and over	1.066	1.095

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 and VaLORS are in Plan 2.

Hybrid Plan:

State and JRS 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 and VaLORS are not eligible to participate in the Hybrid Plan.



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

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 of service credit. A member may retire early with reduced pension benefits after reaching age 50 with at least ten years of service credit, or age 55 with credit for at least five years of service.

Plan 2 and Hybrid 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 – 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)

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	0.030	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 (continued)

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 (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	3-4	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 (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)

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 – 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).

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	0.030
25	0.075	0.075	0.075	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	0.030
35	0.075	0.075	0.075	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	0.018
45	0.100	0.100	0.100	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
55	0.100	0.100	0.100	0.067	0.067	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
65	0.100	0.100	0.100	0.075	0.075	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

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 (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)

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

JRS

WEIGHTED SERVICE CREDIT:

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 - 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 (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	n/a	n/a	n/a	n/a
60	0.00	0.00	0.50	0.50	n/a	n/a	n/a	n/a
61	0.00	0.00	0.50	0.15	n/a	n/a	n/a	n/a
62	0.00	0.00	0.50	0.15	n/a	n/a	n/a	n/a
63	0.00	0.00	0.50	0.15	n/a	n/a	n/a	n/a
64	0.00	0.00	0.50	0.15	n/a	n/a	n/a	n/a
65	0.00	0.50	0.50	0.15	n/a	n/a	n/a	n/a
66	0.00	0.15	0.15	0.15	n/a	n/a	n/a	n/a
67	0.00	0.15	0.15	0.15	n/a	n/a	n/a	n/a
68	0.00	0.15	0.15	0.15	n/a	n/a	n/a	n/a
69	0.00	0.15	0.15	0.15	n/a	n/a	n/a	n/a
>=70	0.00	1.00	1.00	1.00	n/a	n/a	n/a	n/a



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 D – Actuarial Cost Method

1. The LTD benefit valuation is prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable at disability. 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 retirement 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 LTD benefits of the Virginia Sickness and Disability 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. Third party administrator expenses are included in the normal contribution.
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 for LTD benefits. 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

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

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

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

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

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

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

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



Schedule F – Schedule of Active Member Data

**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	1,064	970	6							2,040
25 - 29	1,554	3,822	927	8						6,311
30 - 34	983	3,167	3,055	666	10					7,881
35 - 39	702	2,278	2,682	1,746	404	8				7,820
40 - 44	645	2,102	2,521	1,857	1,284	302	13			8,724
45 - 49	509	1,818	2,468	1,922	1,252	984	457	13		9,423
50 - 54	466	1,636	2,383	1,964	1,379	1,096	1,211	397	36	10,568
55 - 59	367	1,298	2,056	1,740	1,312	1,009	1,085	806	524	10,197
60 - 64	163	714	1,361	1,355	1,068	845	823	552	970	7,851
65 - 69	19	179	469	523	405	300	299	190	449	2,833
70 & Up	10	38	106	117	119	61	71	51	178	751
Totals	6,482	18,022	18,034	11,898	7,233	4,605	3,959	2,009	2,157	74,399



Schedule G – Unfunded Actuarial Accrued Liability Amortization Schedule

**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	\$(130,534)	\$(130,534)	\$(7,164)	\$(132,006)	\$(7,379)	29
June 30, 2014 Experience (Gain)/Loss	(4,810)	n/a	n/a	(4,810)	(337)	20
Total		\$(130,534)	\$(7,164)	\$(136,816)	\$(7,716)	

Date	Projected UAAL (\$ in Thousands)
July 1, 2014	\$(136,816)
July 1, 2015	(138,137)
July 1, 2016	(139,302)
July 1, 2043	0