

## **New River Valley Regional Jail**

Actuarial Valuation of Other Post Employment Benefits (OPEB)  
as of June 30, 2010



**November 2010**

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# I. INTRODUCTION

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## A. Purpose

This report presents the results of the June 30, 2010 actuarial valuation of the other post-employment benefits (OPEB) provided to eligible employees and retirees of New River Valley Regional Jail. The benefits considered in this valuation are those of the current substantive plan of benefits. The results of this report apply to the employer's fiscal years ending 2010 and 2011.

## B. Liabilities and Costs

Section II of this report provides the results of the calculations of the liabilities and annual required contributions of the program. The Actuarial Accrued Liability represents the present value of OPEB attributable to the service of active participants performed up to the valuation date plus the value of the benefits for the current retired participants. The unfunded actuarial accrued liability equals the difference between the total actuarial accrued liability and the value of assets accumulated for the future payment of the benefits.

The Annual Required Contribution (ARC) is equal to the normal cost plus the amortization of any unfunded actuarial accrued liability. The normal cost represents the annual ongoing cost of the benefits accruing to active participants. We have amortized the unfunded actuarial accrued liability over 30 years as a level percent of payroll amount. We have assumed payroll increases 3.75% per year and that required amounts are contributed periodically throughout the year.

The plan sponsor has elected to not fund the Annual Required Contribution. However, for comparison purposes, we developed the results of the June 30, 2010 actuarial valuation based upon (1) a policy of fully funding the Annual Required Contribution (7.50% interest) and (2) a policy of not funding the Annual Required Contribution (4.00% interest). In general, the interest rate assumption would be a best estimate of the expected long-term rate of return on assets, which is largely driven by your current and future asset allocation. If the plan has no assets, the assumption would be based on the rate of return of the plan sponsor's assets.

# I. INTRODUCTION

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These results are summarized as follows:

<b><i>Development of Annual Required Contribution (ARC)</i></b>		
	<b><i>Funded</i></b>	<b><i>Unfunded</i></b>
<b>Interest Rate</b>	<b>7.5%</b>	<b>4.0%</b>
<b>Actuarial Accrued Liability</b>	<b>\$286,900</b>	<b>\$462,600</b>
<b>Actuarial Value of Assets</b>	<b>\$0</b>	<b>N/A</b>
<b>Development of ARC</b>		
Employer Normal Cost	<b>\$56,600</b>	<b>\$99,500</b>
Amortization of Accrued Liability	<b>\$15,300</b>	<b>\$16,000</b>
<b>Total ARC for fiscal year ending 6/30/2010</b>	<b>\$71,900</b>	<b>\$115,500</b>
<b>ARC as a % of payroll</b>	<b>TBD</b>	<b>TBD</b>

## ***C. Actuarial Methods and Assumptions***

The primary methods and assumptions are disclosed in Section III C and Section V of this report. We have also provided a summary of the Virginia Retirement System (VRS) demographic assumptions for reference. For the purpose of developing required funding, we have used the projected unit credit actuarial cost method. The methods and assumptions used herein comply with the parameters specified by GASB Statement Nos. 43 and 45.

## ***D. Limitations and Certification***

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the plan sponsor. This information includes, but is not limited to benefit provisions, claims history, employee data, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

# I. INTRODUCTION

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Actuarial computations presented in this report under GASB Statements No. 43 and 45 are for purposes of fulfilling financial accounting requirements and have been made on a basis consistent with our understanding of the GASB Statements and the employer's funding goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purpose.

Differences between our projections and actual amounts depend on the extent to which future experience conforms to the assumptions used in this valuation. It is certain that actual experience will not conform exactly to the assumptions used in this valuation. Actual liability amounts will differ from projected amounts to the extent that actual experience deviates from expected experience.

Milliman's work product was prepared exclusively for the New River Valley Regional Jail for a specific and limited purpose. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s):

- (a) The Jail may provide a copy of Milliman's work, in its entirety to the Jail's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Jail.
- (b) The Jail may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

On the basis of the foregoing, the undersigned certifies that, to the best of my knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with Actuarial Standards of Practice, the Code of Professional Conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries.

# I. INTRODUCTION

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We further certify that, in our opinion, each actuarial assumption used is related to the experience or reasonable expectations of the Plan which, in combination, represent our best estimate of anticipated experience. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law.

We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Respectfully submitted,

Milliman, Inc.



Katie J. Staub  
Actuarial Analyst



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Principal and Consulting Actuary

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## II. ACTUARIAL VALUATION RESULTS

### A. Development of the Annual Required Contribution

We calculated the annual required contribution (ARC) in compliance with GASB parameters as the normal cost plus amortization of the unfunded portion of actuarial accrued liability. We determined the amortization amount as a level percent of payroll.

<b>TABLE 1 – Actuarial Valuation Results</b>		
<b>Membership as of 6/30/2010</b>		
Active Members	232	
Total Active Covered Payroll	TBD	
Retirees	0	
Spouses	0	
<b>Assets and Liabilities as of 6/30/2010</b>		
	<b>Funded</b>	<b>Unfunded</b>
Interest Rate	7.5%	4.0%
Market Value of Assets	\$0	N/A
Actuarial Value of Assets	\$0	N/A
Accrued Liability for Active Members	\$286,900	\$462,600
Accrued Liability for Inactive Members	<u>0</u>	<u>0</u>
Total Accrued Liability	\$286,900	\$462,600
Unfunded Accrued Liability (UAL)	\$286,900	\$462,600
<b>Annual Required Contribution (ARC) for FYE 2010</b>		
	<b>Funded</b>	<b>Unfunded</b>
Normal Cost	\$56,600	\$99,500
Amortization of UAL	<u>15,300</u>	<u>16,000</u>
Annual Required Contribution (ARC)	\$71,900	\$115,500
ARC as a percentage of payroll.	TBD	TBD
<b>Expected Benefit Payments for the Year Ending:</b>		
June 30, 2010	\$ 0	
June 30, 2011	\$2,800	
June 30, 2012	\$9,700	

We recommend the ARC for FYE 2011 be increased to 1) \$76,900 if the ARC is fully funded or 2) \$123,700 if the ARC is unfunded.

## II. ACTUARIAL VALUATION RESULTS

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### B. Summary of Participant Data

<b>Active Participants</b>										
<b>AGE</b>	<b>Years of Service</b>									<b>Total</b>
	<b>&lt; 5</b>	<b>5 to 9</b>	<b>10 to 14</b>	<b>15 to 19</b>	<b>20 to 24</b>	<b>25 to 29</b>	<b>30 to 34</b>	<b>35 to 39</b>	<b>40 &amp; up</b>	
<b>&lt; 25</b>	23	0	0	0	0	0	0	0	0	23
<b>25 TO 29</b>	30	7	0	0	0	0	0	0	0	37
<b>30 TO 34</b>	21	8	2	0	0	0	0	0	0	31
<b>35 TO 39</b>	18	8	5	1	0	0	0	0	0	32
<b>40 TO 44</b>	21	2	10	2	0	0	0	0	0	35
<b>45 TO 49</b>	16	4	5	0	0	1	0	0	0	26
<b>50 TO 54</b>	8	2	2	0	0	0	0	0	0	12
<b>55 TO 59</b>	7	2	9	0	1	1	0	0	0	20
<b>60 TO 64</b>	4	3	4	0	1	0	0	0	0	12
<b>65 &amp; UP</b>	0	0	1	2	0	1	0	0	0	4
<b>TOTALS</b>	148	36	38	5	2	3	0	0	0	232



### III. GASB DISCLOSURE INFORMATION

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#### A. Schedule of Funding Progress

##### 1) Fully Funding ARC

<i>Actuarial Valuation Date</i>	<i>Actuarial Value of Assets (a)</i>	<i>Actuarial Accrued Liability (AAL) (b)</i>	<i>Unfunded AAL (UAAL) (b-a)</i>	<i>Funded Ratio (a / b)</i>	<i>Covered Payroll (c)</i>	<i>UAAL as a Percentage of Covered Payroll ((b - a) / c)</i>
6/30/2010	\$0	\$286,900	\$286,900	0%	TBD	TBD

##### 2) Unfunded ARC

<i>Actuarial Valuation Date</i>	<i>Actuarial Value of Assets (a)</i>	<i>Actuarial Accrued Liability (AAL) (b)</i>	<i>Unfunded AAL (UAAL) (b-a)</i>	<i>Funded Ratio (a / b)</i>	<i>Covered Payroll (c)</i>	<i>UAAL as a Percentage of Covered Payroll ((b - a) / c)</i>
6/30/2010	\$0	\$462,600	\$462,600	0%	TBD	TBD

### III. GASB DISCLOSURE INFORMATION

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#### *B. Schedule of Employer Contributions*

##### *1) Fully Funding ARC*

<i>Fiscal Year Ending June 30,</i>	<i>Annual Required Contribution</i>	<i>Actual Contribution</i>	<i>Percent Funded</i>
2010	\$71,900	TBD	- %

##### *2) Unfunded ARC*

<i>Fiscal Year Ending June 30,</i>	<i>Annual Required Contribution</i>	<i>Actual Contribution</i>	<i>Percent Funded</i>
2010	\$115,500	TBD	- %

### III. GASB DISCLOSURE INFORMATION

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#### ***C. Supplemental Information***

The complete descriptions of the actuarial methods and assumptions are provided in Section V of this report.

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Valuation Date:	June 30, 2010
Actuarial Cost Method:	Projected Unit Credit
Amortization Method:	Level Percent of Payroll
Amortization Period:	30 years
Asset Valuation Method:	N/A
Actuarial Assumptions:	
Investment Rate of Return:	7.50% for funded ARC 4.00% for unfunded ARC
Medical Cost Trend Assumption:	<i>Health</i> : Getzen Trend Model – 8.20% graded to 4.70% over 80 years
Payroll Growth:	3.75% per year

We used health cost trend rates consistent with the latest information from the Milliman *Health Cost Guidelines* and actuarial judgment. The trend rates are appropriate for all coverages. Refer to Section V for further information.

## IV. SUMMARY OF BENEFIT PROVISIONS

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### a. Health Plan Eligibility

Participants in the New River Valley Regional Jail Plan must meet the eligibility requirements for retirement (including early retirement) or disability retirement with VRS based on service earned with the Jail to be eligible to receive benefits upon retirement. In addition, retirees must have 12 months of service with the Jail. Participants who do not retire directly from active service are not eligible for a benefit.

The earliest eligibility requirements for VRS retirement are:

- Age 50 with 10 years of service for General Employees
- Age 55 with 5 years of service for General Employees
- Age 50 with 5 years of service for Safety Officers

Health benefits include medical, dental and vision coverage. Retirees under the age of 65 may elect coverage under one of the following plans:

- Key Advantage Expanded
- Key Advantage 250

Retirees over age 65 are not eligible for coverage.

Retirees may not elect to cover a spouse.

### b. Health Plan Benefits

Coverage is for the retiree only. The monthly premiums below are for the year beginning 7/1/2010. The medical options include basic dental and vision coverage.

<u>Medical Option</u>	<u>Retiree</u>
Key Advantage Expanded:	\$585.00
Key Advantage 250:	\$546.00

## IV. SUMMARY OF BENEFIT PROVISIONS

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### c. Retiree Contributions

The retiree is responsible for all premiums.

### d. Disability Retirement Benefit

There are no age or service requirements for disability. The retirement benefit and contribution for a participant who is awarded disability is the same as the benefit and contribution listed above.

### e. Death Benefit

The Plan does not include a pre-retirement death benefit. If an employee dies, his spouse is only eligible for COBRA.

### f. Withdrawal Benefit

The Plan does not include a withdrawal benefit. Only COBRA is offered.

### g. Benefit Service

Benefit service is credited from the 1<sup>st</sup> of the first complete month of service.

### h. Life Insurance

The Plan offers retiree life insurance through VRS only. The life insurance benefit is fully paid up at retirement and is funded through VRS, so there is no GASB 45 liability.

## V. ACTUARIAL ASSUMPTIONS AND METHODS

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### Actuarial Assumptions

The demographic assumptions used in the calculations are predominantly consistent with those used in the July 1, 2008 valuations of the Virginia Retirement System (General Employees, Appendix A and Public Safety Employees, Appendix B). In addition, we used the following assumptions specific to other post-employment benefits:

**a. Valuation Date:** June 30, 2010

**b. Interest Rate:** A 7.50% annual rate of interest was used for the policy that contributed the ARC to a dedicated trust. A 4.00% annual rate of interest was used for the policy that did not contribute the ARC to a dedicated trust.

**c. Trend Rates:** We used medical trend rates consistent with information from the Getzen Trend Model, Milliman's *Health Cost Guidelines* and actuarial judgment. These trend rates do not include the effects of changes in demographics of the covered group.

Sample Trend Rates	
Period	Trend
2010 to 2011	8.20%
2011 to 2012	7.40%
2012 to 2013	6.40%
2013 to 2018	5.80%
2018 to 2023	5.70%
2023 to 2028	5.60%
2028 to 2034	5.50%
2034 to 2035	5.40%
2035 to 2036	5.30%
2036 to 2038	5.20%
2038 to 2040	5.10%
2040 to 2044	5.00%
2044 to 2050	4.90%
2050 to 2057	4.80%
2057 to 2068	4.70%
2068 to 2083	4.60%
2083 & after	4.70%

## V. ACTUARIAL ASSUMPTIONS AND METHODS

- d. Coverage Elections:** 30% of current active employees will elect medical coverage. Retirees may not cover spouses.
- e. Option Elections:** We assumed the proportion of members in each option will remain constant.
- f. Mortality Rates:**
- Pre- and Post- Retirement:** RP-2000 Combined Healthy mortality tables for males and females projected to 2010 using Scale AA.
  - Post-Disablement:** 70% of PBGC Disabled Mortality Table 5a for Males  
90% of PBGC Disabled Mortality Table 6a for Females

Deaths per 100 Lives

Age	Pre- and Post- Retirement		Post - Disablement	
	Male	Female	Male	Female
20	0.0285	0.0163	3.3810	2.3670
25	0.0340	0.0180	3.3810	2.3670
30	0.0422	0.0239	2.5340	2.1330
35	0.0735	0.0425	1.9460	1.9260
40	0.0996	0.0607	1.9740	1.8810
45	0.1323	0.0957	2.2540	2.0160
50	0.1783	0.1412	2.6810	2.3130
55	0.2991	0.2507	3.3740	2.6550
60	0.5742	0.4808	4.2210	2.9790
65	1.1062	0.9231	4.7460	3.3300
70	1.9091	1.5923	5.1730	3.6990
75	3.2859	2.5937	5.8940	4.4280
80	5.8213	4.2767	7.8960	6.7140
85	10.3244	7.2923	11.7740	10.1520

- g. Implicit Subsidy:** We assume the total cost of coverage for pre-65 retirees is 62% higher than the premium amount to account for implicitly subsidized costs. There are no post-65 costs.
- h. Payroll Growth:** For the purpose of amortizing the UAL as a level percent of payroll, a 3.75% annual rate of payroll growth is assumed.
- i. Future Expenses:** The assumed interest rate used in the valuation is net of the anticipated future administrative expenses of the trust fund.

## V. ACTUARIAL ASSUMPTIONS AND METHODS

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### Actuarial Cost Method

The cost method for valuation of liabilities used for this valuation is the **Projected Unit Credit (PUC) Actuarial Cost Method**. A PUC accrued benefit is determined for each active member in the Plan on the basis of the member's benefit projected to the assumed date of retirement and the member's creditable service at the valuation date. The actuarial liability for retirement benefits is the sum of the actuarial present value of the PUC accrued benefit of each active member. The normal cost for retirement benefits is the sum of the actuarial present value for the expected increase in the PUC accrued benefit during the plan year for each active member under the assumed retirement age.

The actuarial liability and the normal cost for disability benefits are determined in a similar manner by projecting the member's benefit to each assumed date of disablement. The actuarial liability and normal cost for the disability benefits are based upon the present value of the expected benefit expected to be paid to those covered employees attaining eligibility. The actuarial liability for inactive members is determined as the actuarial present value of the benefits expected to be paid.

The difference between the actuarial liability and the actuarial value of assets is the unfunded actuarial liability. The annual required contribution is the sum of the normal cost and the amount necessary to amortize the unfunded actuarial liability over the amortization period. The amortization amount is determined as a level percentage of payroll.

### Asset Valuation Method

The plan is currently funded on a pay-as-you-go basis, so the plan has no assets.



## V. ACTUARIAL ASSUMPTIONS AND METHODS

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### Appendix A – General Assumptions

The following is an excerpt of Actuarial Assumptions from the Virginia Retirement System Valuation of those assumptions applicable to this valuation for General Employees.

- a. **Retirement Rates:** We assume that participants begin to retire when they become eligible to receive the explicit subsidy for the OPEB benefit.

Retirements per 100 Members

Age	Retirements with less than 30 years of service		Retirements with more than 30 years of service	
	Male	Female	Male	Female
<=49	3.0	3.0	10.0	10.0
50	3.0	3.0	10.0	10.0
51	3.0	3.0	10.0	10.0
52	3.0	3.0	10.0	10.0
53	3.0	3.0	10.0	10.0
54	3.0	3.0	10.0	10.0
55	5.0	5.0	10.0	10.0
56	5.0	5.0	10.0	10.0
57	4.5	4.5	10.0	10.0
58	4.0	4.0	10.0	10.0
59	5.0	5.0	10.0	10.0
60	5.0	7.5	15.0	15.0
61	10.0	10.0	20.0	20.0
62	15.0	15.0	30.0	30.0
63	15.0	15.0	21.0	25.0
64	15.0	20.0	25.0	20.0
65	80.0	80.0	35.0	45.0
66	80.0	80.0	35.0	40.0
67	70.0	100.0	30.0	30.0
68	70.0	100.0	20.0	25.0
69	100.0	100.0	20.0	25.0
>=70	100.0	100.0	100.0	100.0

## V. ACTUARIAL ASSUMPTIONS AND METHODS

b. **Withdrawal:** Sample select and ultimate rates for participants are as follows:

Probability of Withdrawal											
Years of Service – Male Employees											
Age	0	1	2	3	4	5	6	7	8	9	10+
25	0.2163	0.1883	0.1603	0.1346	0.1118	0.0945	0.0810	0.0698	0.0596	0.0498	0.0483
30	0.2002	0.1678	0.1423	0.1217	0.1050	0.0922	0.0814	0.0719	0.0621	0.0512	0.0434
35	0.1866	0.1490	0.1233	0.1064	0.0953	0.0867	0.0787	0.0708	0.0615	0.0498	0.0368
40	0.1724	0.1308	0.1047	0.0904	0.0834	0.0783	0.0731	0.0668	0.0585	0.0462	0.0289
45	0.1555	0.1143	0.0892	0.0762	0.0704	0.0673	0.0642	0.0597	0.0527	0.0407	0.0214
50	0.1388	0.1022	0.0791	0.0656	0.0583	0.0547	0.0526	0.0493	0.0440	0.0338	0.0159
55	0.1291	0.0975	0.0753	0.0596	0.0489	0.0429	0.0399	0.0373	0.0335	0.0260	0.0134
60	0.1321	0.1020	0.0780	0.0585	0.0434	0.0336	0.0283	0.0250	0.0220	0.0179	0.0130
65	0.1493	0.1158	0.0869	0.0626	0.0424	0.0279	0.0190	0.0138	0.0125	0.0105	0.0110
Years of Service – Female Employees											
Age	0	1	2	3	4	5	6	7	8	9	10+
25	0.2578	0.2309	0.2024	0.1755	0.1563	0.1461	0.1388	0.1213	0.0964	0.0753	0.0586
30	0.2253	0.1975	0.1742	0.1549	0.1400	0.1283	0.1181	0.1045	0.0883	0.0725	0.0520
35	0.1994	0.1708	0.1496	0.1336	0.1213	0.1101	0.1002	0.0904	0.0797	0.0668	0.0432
40	0.1769	0.1486	0.1280	0.1130	0.1021	0.0928	0.0847	0.0779	0.0704	0.0586	0.0330
45	0.1594	0.1315	0.1106	0.0953	0.0850	0.0779	0.0718	0.0666	0.0601	0.0490	0.0240
50	0.1484	0.1201	0.0983	0.0818	0.0711	0.0648	0.0599	0.0554	0.0491	0.0385	0.0171
55	0.1454	0.1155	0.0919	0.0734	0.0605	0.0529	0.0476	0.0430	0.0370	0.0279	0.0121
60	0.1513	0.1191	0.0926	0.0707	0.0539	0.0425	0.0351	0.0299	0.0246	0.0183	0.0101
65	0.1659	0.1309	0.1005	0.0743	0.0519	0.0347	0.0235	0.0156	0.0114	0.0098	0.0072

## V. ACTUARIAL ASSUMPTIONS AND METHODS

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- c. **Disabilities Rates:** 14% of disability cases are assumed to be service related.

Disabilities Per 100 Members

General - Disabilities		
Age	Male	Female
20	0.0300	0.0140
25	0.0900	0.0270
30	0.1400	0.0540
35	0.1800	0.0810
40	0.2700	0.1220
45	0.2900	0.2290
50	0.5100	0.4590
55	0.9800	0.8770
60	1.5000	1.3500
65	0.0000	0.0000

- d. **Salary Increase Rates:** Inflation rate of 2.50% plus productivity component of 1.25% plus step-rate/promotional component as shown:

Salary Increase		
Years of Service	Step Rate/ Promotional Rates of Increase	Total Annual Rate of Increase
1	1.85%	5.60%
2	1.85%	5.60%
3	1.25%	5.00%
4	0.95%	4.70%
5	0.95%	4.70%
6	0.95%	4.70%
7	0.85%	4.60%
8	0.75%	4.50%
9	0.50%	4.25%
10	0.50%	4.25%
11 - 19	0.15%	3.90%
20 +	0.00%	3.75%

## V. ACTUARIAL ASSUMPTIONS AND METHODS

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### Appendix B - Public Safety Employees Assumptions

The following is an excerpt of Actuarial Assumptions from the Virginia Retirement System Valuation of those assumptions applicable to this valuation for Law Officers.

- a. **Retirement Rates:** We assume that participants begin to retire when they become eligible to receive the explicit subsidy for the OPEB benefit.

Retirements per 100 Members

Age	Retirements with less than 30 years of service	Retirements with more than 30 years of service
<=49	10.0	20.0
50	10.0	20.0
51	10.0	15.0
52	10.0	10.0
53	10.0	10.0
54	10.0	10.0
55	10.0	20.0
56	10.0	20.0
57	10.0	20.0
58	12.0	25.0
59	12.0	35.0
60	25.0	50.0
61	35.0	50.0
62	50.0	100.0
63	50.0	100.0
>=64	100.0	100.0

## V. ACTUARIAL ASSUMPTIONS AND METHODS

b. **Withdrawal:** Sample select and ultimate rates for participants are as follows:

Probability of Withdrawal											
Years of Service – Male Employees											
Age	0	1	2	3	4	5	6	7	8	9	10+
25	0.0965	0.0854	0.0798	0.0803	0.0836	0.0828	0.0728	0.0567	0.0405	0.0299	0.0360
30	0.0953	0.0899	0.0842	0.0795	0.0749	0.0684	0.0596	0.0489	0.0392	0.0320	0.0305
35	0.0989	0.0936	0.0857	0.0773	0.0680	0.0590	0.0515	0.0443	0.0381	0.0323	0.0248
40	0.1067	0.0975	0.0861	0.0746	0.0627	0.0528	0.0465	0.0414	0.0372	0.0314	0.0189
45	0.1185	0.1022	0.0866	0.0722	0.0593	0.0495	0.0438	0.0399	0.0362	0.0293	0.0141
50	0.1343	0.1079	0.0882	0.0711	0.0578	0.0488	0.0426	0.0393	0.0348	0.0263	0.0113
55	0.1541	0.1149	0.0917	0.0719	0.0582	0.0503	0.0417	0.0393	0.0335	0.0224	0.0098
60	0.1778	0.1232	0.0975	0.0747	0.0609	0.0539	0.0411	0.0399	0.0324	0.0177	0.0095
Years of Service – Female Employees											
Age	0	1	2	3	4	5	6	7	8	9	10+
25	0.1829	0.1332	0.1085	0.1047	0.1041	0.1047	0.1023	0.0834	0.0659	0.0543	0.0438
30	0.1808	0.1442	0.1188	0.1017	0.0908	0.0839	0.0779	0.0686	0.0623	0.0575	0.0552
35	0.1703	0.1437	0.1209	0.0996	0.8460	0.0744	0.0671	0.0632	0.0617	0.0599	0.0608
40	0.1524	0.1347	0.1173	0.0984	0.0843	0.0740	0.0668	0.0651	0.0636	0.0620	0.0621
45	0.1268	0.1172	0.1080	0.0984	0.0899	0.0824	0.0770	0.0747	0.0680	0.0639	0.0591
50	0.0938	0.0912	0.0935	0.0998	0.1014	0.0999	0.0977	0.0923	0.0749	0.0657	0.0521
55	0.0516	0.0573	0.0735	0.1023	0.1188	0.1262	0.1289	0.1176	0.0842	0.0671	0.0411
60	0.0102	0.0132	0.0488	0.1064	0.1422	0.1616	0.1706	0.1509	0.0957	0.0684	0.0263

c. **Disabilities Rates:** 60% of disability cases are assumed to be service related.

Disabilities Per 100 Members

Disabilities	
Age	Male/Female
25	0.0000
30	0.0281
35	0.1341
40	0.2100
45	0.4106
50	0.6750
55	1.0013
60	0.0000

## V. ACTUARIAL ASSUMPTIONS AND METHODS

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- d. **Salary Increase Rates:** Inflation rate of 2.50% plus productivity component of 1.25% plus step-rate/promotional component as shown:

Salary Increase		
Years of Service	Step Rate/ Promotional Rates of Increase	Total Annual Rate of Increase
1	1.25%	4.75%
2	1.25%	4.75%
3	1.25%	4.75%
4	1.25%	4.75%
5	1.15%	4.65%
6	0.90%	4.40%
7	0.90%	4.40%
8	0.90%	4.40%
9	0.90%	4.40%
10	0.50%	4.00%
11 - 19	0.50%	4.00%
20 +	0.00%	3.50%