

Virginia Retirement System

Four-Year Experience Study

July 1, 2020 – June 30, 2024



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September 25, 2025

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

Dear Board Members:

The results of the **4-year investigation of experience** of the Virginia Retirement System ("VRS") are presented in this report.

The purpose of this experience study is to review and update the actuarial assumptions used in the annual actuarial Pension and OPEB valuations for the following VRS classifications:

- State Employees, Teachers, State Police (SPORS), Virginia Law Officers (VaLORS), Judicial (JRS);
- Political Subdivisions;
- Group Life Insurance Program (GLI);
- Line of Duty Act Fund (LODA);
- Health Insurance Credit Program (HIC);
- Virginia Sickness and Disability Program (VSDP);
- Virginia Local Disability Program (VLDP);

This study was based on the census data furnished for annual actuarial valuations for the period from July 1, 2020 to June 30, 2024 and was carried out using generally accepted actuarial principles and techniques.

This report should not be relied on for any purpose other than described above. This report was prepared at the request of VRS and is intended for use by VRS and those designated or approved by VRS. This report may be provided to parties other than VRS only in its entirety and only with permission of VRS. GRS is not responsible for unauthorized use of this report.

Virginia Code, Section 51.1-124.22, Sec. A.4. states that, "The Retirement System shall be administered by the Board of Trustees, whose powers and duties include but are not limited to: "Causing an actuarial investigation to be made of all the experience under the Retirement System at least once in each four-year period. The Board shall also cause actuarial gain/loss analyses to be made in conjunction with each actuarial valuation of the System. Pursuant to such investigations and analyses, the Board shall periodically revise the actuarial assumptions used in the computation of employer contribution rates."

The investigation was based upon the statistical data furnished for annual actuarial valuations, supplemental information furnished by your Actuarial staff, concerning Participants who died, terminated, became disabled or retired during the last 4 years and on published historical and future expectations of economic data. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and with applicable statutes.

Board of Trustees
Virginia Retirement System
September 25, 2025

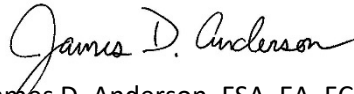
To the best of our knowledge, this report is complete and accurate and was made in accordance with generally recognized actuarial methods. Rebecca L. Stouffer, James D. Anderson, Shana M. Neeson, Kurt Dosson, Michael D. Kosciuk, Richard C. Koch Jr., and Adam Reese are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

We believe that the new actuarial assumptions resulting from this investigation represent a reasonable estimate of possible future experience of the Virginia Retirement System.

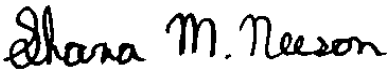
Respectfully submitted,
Gabriel, Roeder, Smith & Company



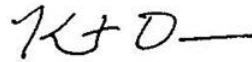
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SECTION A

EXECUTIVE SUMMARY

Executive Summary

The Virginia Statutes require reviewing the actuarial assumptions every four years. In this report, we review the current actuarial assumptions and methods and compare them to the actual experience of VRS for the plan years 2020-2024.

The actuarial principle in force is that over time contributions and investment income must be sufficient to pay benefits throughout retirement for all plan participants. Actuarial valuations make use of a number of assumptions to estimate investment accumulation and benefit payouts in order to determine the required level percent of payroll objective. From year to year, actual experience on any assumption will not coincide exactly with assumed experience. VRS manages these continually changing differences by having annual actuarial valuations and performing experience studies at least every four years.

VRS has taken great strides to strengthen valuation assumptions in previous experience studies, through the implementation of fully generational mortality and decreasing the assumed rate of investment income. Accordingly, this experience study provides an incremental update when compared to the recommended assumption updates of past experience studies.

In most cases, when adjustments are indicated, the proposed assumptions give partial recognition to present assumptions as well as to results from actual experience. Complete recognition is rarely given to actual experience over a limited period. This would cause contribution rates to be unduly sensitive to short-term experience fluctuations. In a typical assumption review, we move approximately 50% of the way between expected experience and observed experience.

This study includes experience both during and following the COVID-19 pandemic. There have not yet been sufficient years following the pandemic to determine if COVID-19 was more of a one-time shock to experience or will have long-term lasting impacts/trends. As such, due to COVID-19 impacts, we moved about 25% of the way to the observed experience for all decrements other than disability, for which we moved 50% to observed experience. In addition, for this study we introduced liability-weighting, which considers the impact of events based on the total liability impact. We retained headcount weighting solely for disability incidence.

Note that a regrouping of Political Subdivisions for the purposes of assumption setting occurred in this experience study, please reference page B-27.

This report includes many detailed recommendations. The recommendations that we expect to have the greatest impact on plan costs follow:

- Refining the calculation of Normal Cost to remove historical salaries and to adjust projected fiscal year payroll used to calculate the blended Normal Cost to reflect the closed nature of Plan 1 and Plan 2 for Plans with Hybrid members.
- Updating rates of merit & longevity pay increases by 50 basis points for all groups except JRS.

The actual impact of reflecting updated assumptions may vary significantly by Retirement System/OPEB and will certainly vary by Political Subdivision employer, given the varying demographics and funded status of each group. **Our recommendations and cost impacts are listed on the following page.** Additional detail may be found in the corresponding report sections.



Executive Summary

System	Assumption	Description
State Employees	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Maintain PUB-2010 tables with adjustments, update to MP-2021 projection scale multiplied by 75%
	2. Retirement Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	3. Termination Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	4. Disability Rates	Moved ~50% of the way to the observed experience, on a headcount-weighted basis, to maintain margin
	5. Salary Increases	Increase Merit & Longevity 50 basis points
Teachers	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Maintain PUB-2010 tables with adjustments, update to MP-2021 projection scale multiplied by 75%
	2. Retirement Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	3. Termination Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	4. Disability Rates	Moved ~50% of the way to the observed experience, on a headcount-weighted basis, to maintain margin
	5. Salary Increases	Increase Merit & Longevity 50 basis points
State Police	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Maintain PUB-2010 tables with adjustments, update to MP-2021 projection scale multiplied by 75%
	2. Retirement Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	3. Termination Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	4. Disability Rates	Moved ~50% of the way to the observed experience, on a headcount-weighted basis, to maintain margin
	5. Salary Increases	Increase Merit & Longevity 50 basis points
Judicial	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Maintain PUB-2010 tables with adjustments, update to MP-2021 projection scale multiplied by 75%
	2. Retirement Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	3. Termination Rates	No Change
	4. Disability Rates	No Change
	5. Salary Increases	No Change
Virginia Law Officers	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Maintain PUB-2010 tables with adjustments, update to MP-2021 projection scale multiplied by 75%
	2. Retirement Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	3. Termination Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	4. Disability Rates	Moved ~50% of the way to the observed experience, on a headcount-weighted basis, to maintain margin
	5. Salary Increases	Increase Merit & Longevity 50 basis points; use of 2.50% payroll growth assumption for purposes of amortizing any unfunded actuarial accrued liabilities

Executive Summary

System	Assumption	Description
Political Subdivisions Metro (Non-Hazardous Duty)	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Maintain PUB-2010 tables with adjustments, update to MP-2021 projection scale multiplied by 75%
	2. Retirement Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	3. Termination Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	4. Disability Rates	Moved ~50% of the way to the observed experience, on a headcount-weighted basis, to maintain margin
	5. Salary Increases	Increase Merit & Longevity 50 basis points
Political Subdivisions Metro (Hazardous Duty)	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Maintain PUB-2010 tables with adjustments, update to MP-2021 projection scale multiplied by 75%
	2. Retirement Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	3. Termination Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	4. Disability Rates	Moved ~50% of the way to the observed experience, on a headcount-weighted basis, to maintain margin
	5. Salary Increases	Increase Merit & Longevity 50 basis points
Political Subdivisions Non-Metro (Non-Hazardous Duty)	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Maintain PUB-2010 tables with adjustments, update to MP-2021 projection scale multiplied by 75%
	2. Retirement Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	3. Termination Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	4. Disability Rates	Moved ~50% of the way to the observed experience, on a headcount-weighted basis, to maintain margin
	5. Salary Increases	Increase Merit & Longevity 50 basis points
Political Subdivisions Non-Metro (Hazardous Duty)	1. Mortality Rates (Pre-retirement, post-retirement healthy and disabled)	Maintain PUB-2010 tables with adjustments, update to MP-2021 projection scale multiplied by 75%
	2. Retirement Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	3. Termination Rates	Moved ~25% of the way to the observed experience, on a liability-weighted basis
	4. Disability Rates	Moved ~50% of the way to the observed experience, on a headcount-weighted basis, to maintain margin
	5. Salary Increases	Increase Merit & Longevity 50 basis points

Executive Summary

System	Assumption	Description
GLI	1. Pension economic and demographic assumptions	Adjust in the same manner as the pension plan
	2. Retiree liability estimation for Life Only	Change from 1.618% to 2.0%
HIC	1. Pension economic and demographic assumptions	Adjust in the same manner as the pension plan
	2. Benefit participation (future service retirees)	Reduced Statewide Plan participation to 94% and increased Political Subdivisions and Special Coverage Groups to 87%
	3. Benefit participation (future disability)	Reduced participation to 92% State/JRS, 84% Teachers, 63% SPORS/VaLORS, and increased participation to 54% Political Subdivisions and Special Coverage Groups
	4. Benefit participation (from terminated vested)	Reduced participation to 94% for State and Teachers and increased participation to 87% for Political Subdivisions and Special Coverage Groups
	5. Benefit utilization (not receiving the max)	No change for State/JRS and reduction to 13% for Teachers, 9% for SPORS/VaLORS, and 4% for Political Subdivisions and Special Coverage Groups
	6. Benefit utilization (not receiving the max - amount of max received)	No change for all groups
	7. Benefit Utilization (benefit increase for those not at the max)	Removed
	8. Percentage of deferred vested members electing to withdraw from VRS	Reduced for all groups
	9. Terminated vested member commencement age	Adjusted slightly
VSDP / VLDP LTD	1. Pension economic and demographic assumptions (excluding disability)	Adjust in the same manner as the pension plan
	2. Rates of disability claim incidence	VSDP: Same disability incidence as pension VLDP: Pension assumption scaled up to reflect increased Hybrid incidence
	3. Rates of disability claim termination*	Lower termination in early years, higher in later years
	4. Benefit offsets*	Adjusted slightly
	5. Catastrophic claims	No Change
	6. Percentage eligible for additional 1% defined contribution	No Change
	* VLDP shows similar experience and trends and did not warrant separate assumptions for the current experience study.	
LODA	1. Pension wage, inflation and demographic assumptions	Adjust in the same manner as the pension plan
	2. Discount rate for funding	No Change
	3. Percentage of disabilities qualifying for benefits	VaLORS: Decreased from 35% to 25% Political Subdivisions: Increased to 100%
	4. Percentage of deaths qualifying for benefits	No Change
	5. Percentage of qualifying deaths that are a direct result of the performance of duty	No Change
	6. Spouse/dependent participation rate	No Change
	7. Percent assumed to be eligible for Medicare due to age	Increase from 75% to 85%
	8. Health Care trend rates	No Change: will be reviewed each valuation cycle
	9. Missing Data Assumptions	Unknown gender: No Change Unknown Date of Birth: No Change Missing Service: adjusted slightly
	10. Full-time Equivalent Weightings	National Guard Full-Time: from 100% to 75% National Guard Part-Time: from 10% to 5% Political Subdivisions Volunteer Part-Time: from 25% to 20% All Other Part-Time: 100% to 50%

Executive Summary

New assumptions will be first used in the June 30, 2025 actuarial valuations, at which time experience gains or losses incurred during 2025 will also be recognized. This would first impact employer contribution rates in 2027-2028.

Consequently, no contribution rate changes are recommended for 2025-2026 based upon this study. Accordingly, the cost impact results shown below are illustrative in nature.

Overall, changes to salary assumptions and the normal cost method were drivers of experience study cost increases (essentially reflecting all of the increase for SPORS and VaLORS), but the impact was dampened for plans with Hybrid members due to refining the projected payroll used in the normal cost calculations to reflect closed group payroll for Plan 1 and Plan 2 members. As a result, the experience study update had a very small impact on contribution rates for State and Teachers – these plans were within 0.42% of the rate developed under 2024 valuation assumption and methods. Judicial contribution rates decreased 1.35% due to the normal cost method changes. Of note, a change in payroll growth assumption to 2.5% for amortization purposes served to increase the VaLORS rate (all others have a 3.0% payroll growth assumption).

A detailed reconciliation of the impact on pension contribution rates follows.

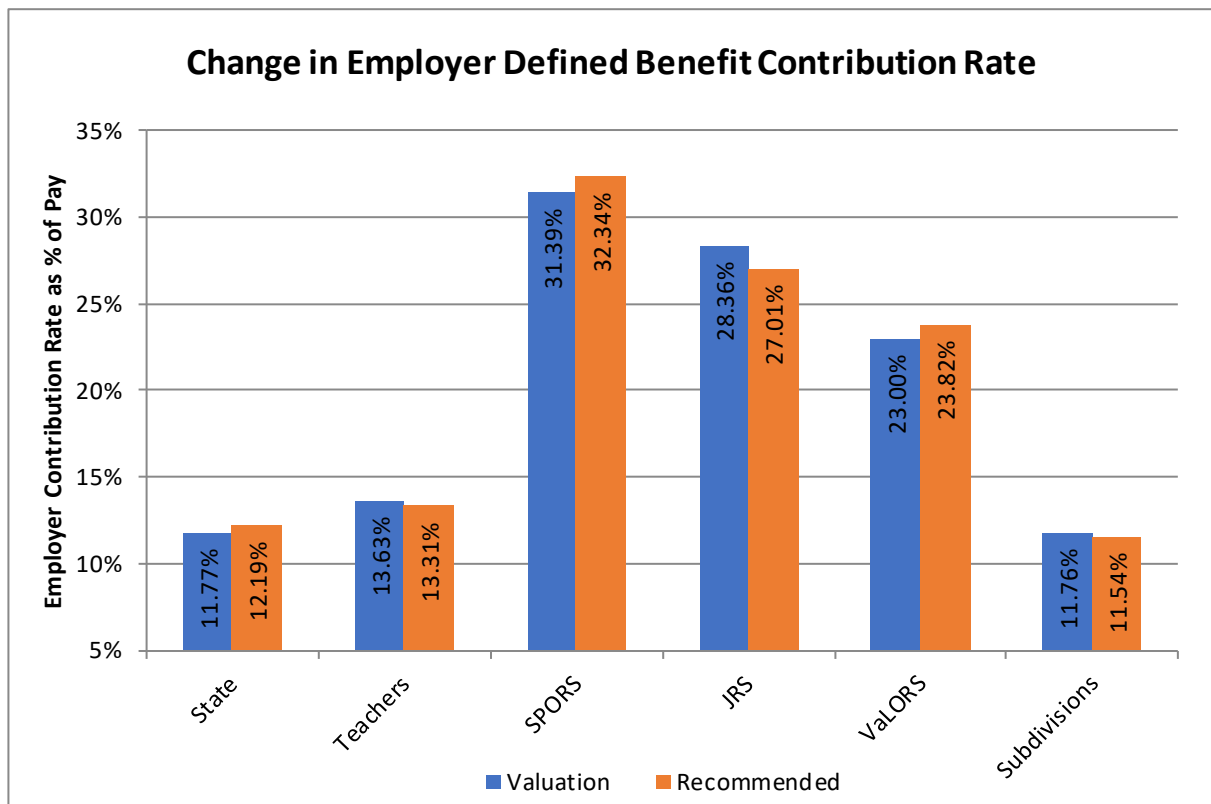
	State	Teachers	SPORS	VaLORS	JRS
2024 Valuation Contribution Rate	11.77%	13.63%	31.39%	23.00%	28.36%
Mortality	0.11%	0.08%	0.10%	0.09%	0.16%
Retirement	-0.02%	-0.04%	-0.15%	-0.02%	N/A
Termination	0.28%	-0.12%	0.05%	-0.34%	N/A
Disability	-0.04%	-0.13%	-0.02%	-0.24%	N/A
Salary	0.31%	0.36%	0.50%	0.53%	N/A
Normal Cost Method	0.11%	-0.16%	0.47%	0.27%	-0.78%
Projected Pay Change Plan 1/2 Normal Cost	-0.31%	-0.31%	N/A	N/A	-0.73%
Payroll Growth Change for UAL	N/A	N/A	N/A	0.53%	N/A
Final Experience Study Contribution Rate	12.19%	13.31%	32.34%	23.82%	27.01%

With respect to funded status – all statewide plans are within ½ of 1% relative to funded status developed under 2024 valuation assumptions and methods as shown in the following table.

Executive Summary

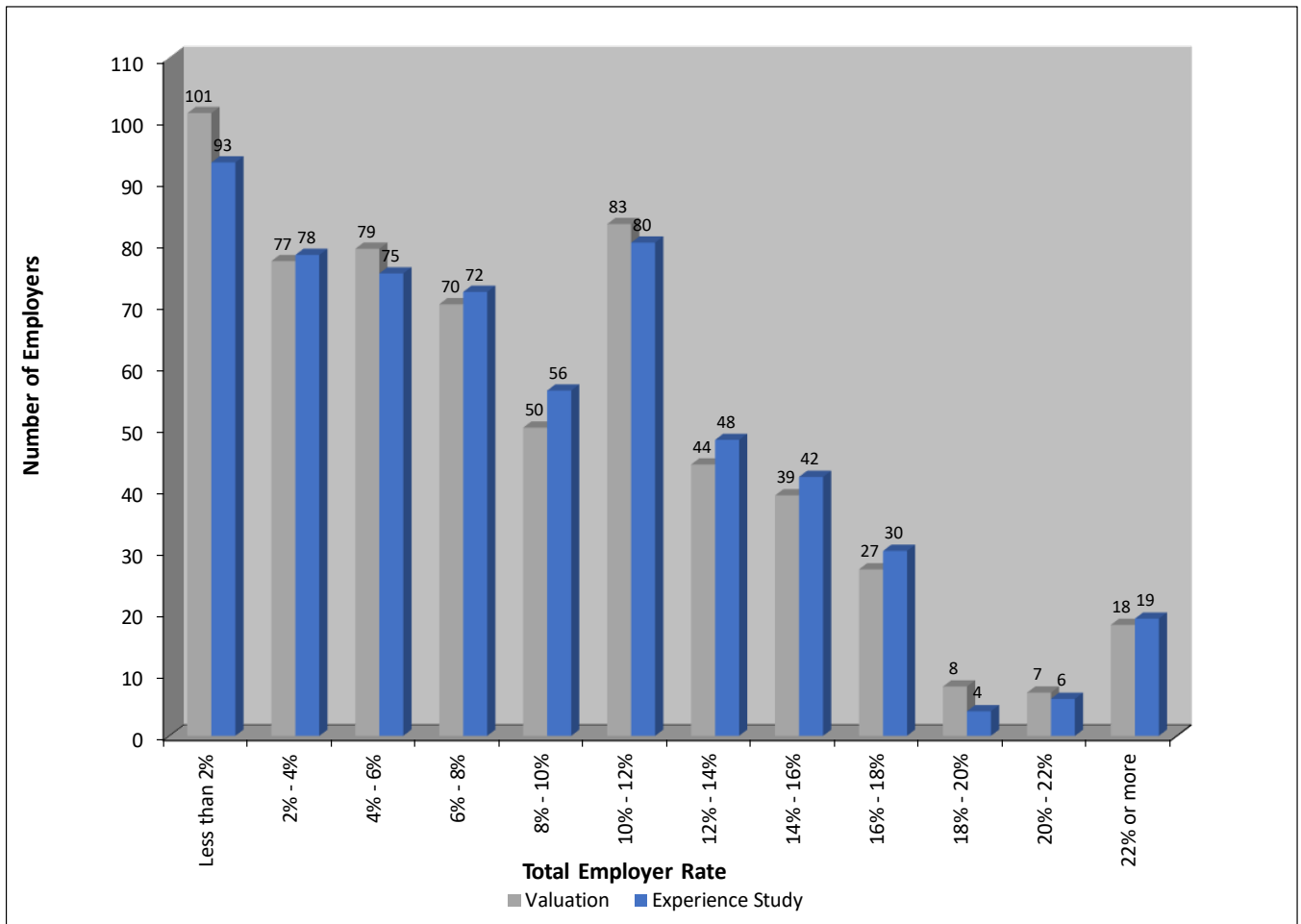
Financial Impact of Assumption/Method Changes Pension Plans

(\$ In Thousands)				
System		Before Assumption/Method Change	After Assumption/Method Change	Change
State Employees	Unfunded Accrued Liability	\$ 6,051,719	\$ 6,155,616	\$ 103,897
	Funded Status	79.99%	79.72%	(0.27)%
	DB Employer Contribution Rate	11.77%	12.19%	0.42%
Teachers	Unfunded Accrued Liability	\$ 12,022,101	\$ 12,410,719	\$ 388,618
	Funded Status	80.60%	80.10%	(0.50)%
	DB Employer Contribution Rate	13.63%	13.31%	(0.32)%
State Police	Unfunded Accrued Liability	\$ 458,924	\$ 449,750	\$ (9,174)
	Funded Status	71.14%	71.55%	0.41%
	DB Employer Contribution Rate	31.39%	32.34%	0.95%
Judicial	Unfunded Accrued Liability	\$ 113,497	\$ 110,514	\$ (2,983)
	Funded Status	86.02%	86.34%	0.32%
	DB Employer Contribution Rate	28.36%	27.01%	(1.35)%
Virginia Law Officers	Unfunded Accrued Liability	\$ 768,647	\$ 770,166	\$ 1,519
	Funded Status	72.48%	72.44%	(0.04)%
	DB Employer Contribution Rate	23.00%	23.82%	0.82%
Political Subdivisions	Unfunded Accrued Liability	\$ 3,601,170	\$ 3,671,811	\$ 70,641
	Funded Status	88.86%	88.67%	(0.19)%
	DB Employer Contribution Rate	11.76%	11.54%	(0.22)%



Executive Summary

Financial Impact of Assumption/Method Changes Pension Plans



The chart above shows 603 employers; employers with 0 actives are excluded. Experience Study ADEC Rates are illustrative.

Executive Summary

Financial Impact of Assumption/Method Changes OPEB Plans

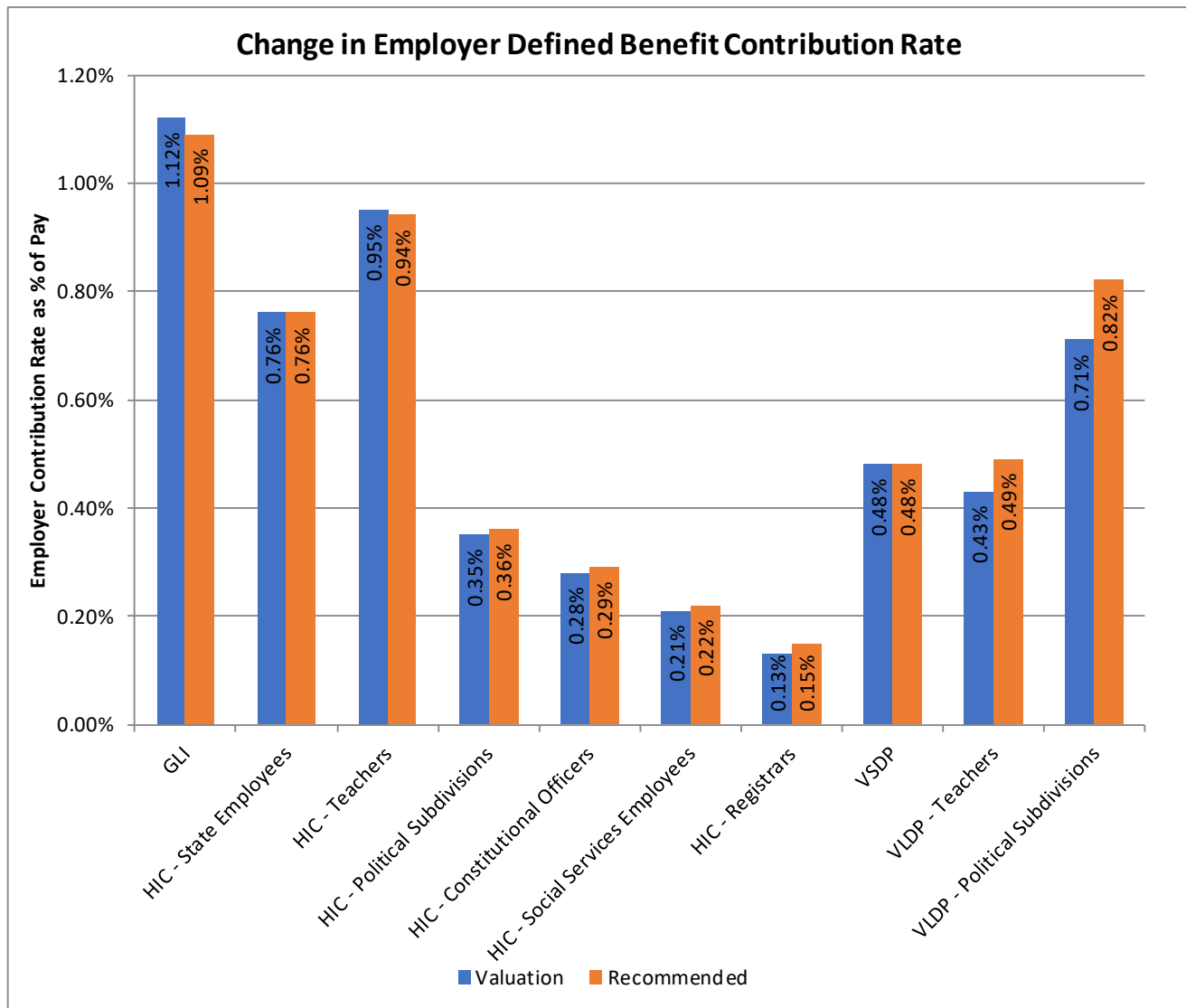
(\$ In Thousands)

System		Before Assumption/Method Change	After Assumption/Method Change	Change
GLI	Unfunded Accrued Liability	\$ 1,260,597	\$ 1,262,201	\$ 1,604
	Funded Status	70.32%	70.29%	(0.03)%
	DB Employer Contribution Rate	1.12%	1.09%	(0.03)%
HIC - State Employees	Unfunded Accrued Liability	\$ 691,541	\$ 684,686	\$ (6,855)
	Funded Status	35.61%	35.84%	0.23%
	DB Employer Contribution Rate	0.76%	0.76%	0.00%
HIC - Teachers	Unfunded Accrued Liability	\$ 1,145,675	\$ 1,122,542	\$ (23,133)
	Funded Status	21.74%	22.09%	0.35%
	DB Employer Contribution Rate	0.95%	0.94%	(0.01)%
HIC - Political Subdivisions	Unfunded Accrued Liability	\$ 29,409	\$ 31,129	\$ 1,720
	Funded Status	61.56%	60.21%	(1.35)%
	DB Employer Contribution Rate	0.35%	0.36%	0.01%
HIC - Constitutional Officers	Unfunded Accrued Liability	\$ 25,888	\$ 26,259	\$ 371
	Funded Status	35.37%	35.05%	(0.32)%
	DB Employer Contribution Rate	0.28%	0.29%	0.01%
HIC - Social Services Employees	Unfunded Accrued Liability	\$ 8,264	\$ 8,496	\$ 232
	Funded Status	44.11%	43.43%	(0.68)%
	DB Employer Contribution Rate	0.21%	0.22%	0.01%
HIC - Registrars	Unfunded Accrued Liability	\$ 226	\$ 240	\$ 14
	Funded Status	59.09%	57.69%	(1.40)%
	DB Employer Contribution Rate	0.13%	0.15%	0.02%
VSDP	Unfunded Accrued Liability	\$ (347,574)	\$ (387,794)	\$ (40,220)
	Funded Status	205.83%	234.56%	28.72%
	DB Employer Contribution Rate	0.48%	0.48%	0.00%
VLDP - Teachers	Unfunded Accrued Liability	\$ 623	\$ 1,717	\$ 1,094
	Funded Status	95.58%	88.71%	(6.88)%
	DB Employer Contribution Rate	0.43%	0.49%	0.06%
VLDP - Political Subdivisions	Unfunded Accrued Liability	\$ (3,391)	\$ (3,441)	\$ (50)
	Funded Status	127.98%	128.50%	0.53%
	DB Employer Contribution Rate	0.71%	0.82%	0.11%

Overall, the experience study update had a very small impact on contributions rates – all plans were within 0.11% of the rate developed under 2024 valuation assumptions and methods. For GLI and HIC, there was a similarly small sized impact for funded status - within 1.4% relative to 2024 assumptions. For the disability plans' funded status - VSDP became 28% more overfunded, VLDP-Political Subdivisions stayed flat and VLDP-Teachers decreased 6.9% impacted by disability, pay increase and lower recovery rate assumption changes.

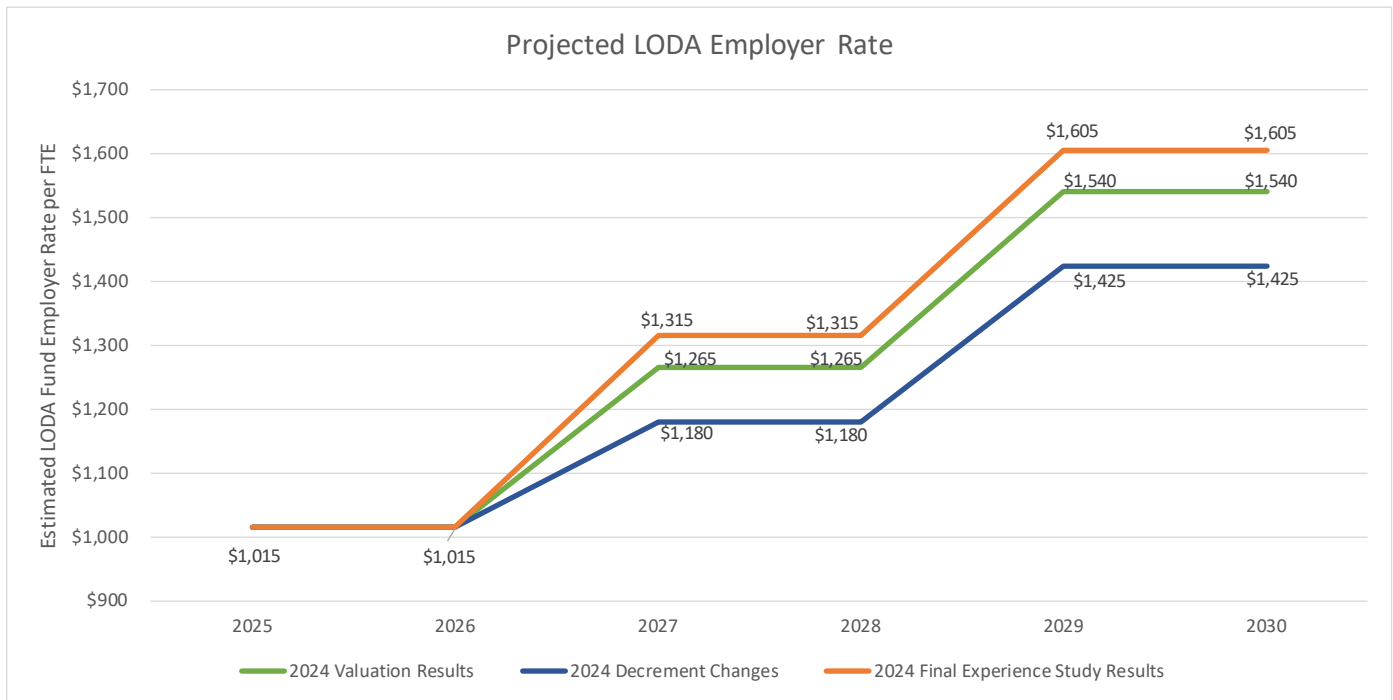
Executive Summary

Financial Impact of Assumption/Method Changes OPEB Plans



Executive Summary

Financial Impact of Assumption/Method Changes LODA Plan



Projected LODA employer rates increased as a result of the experience study updates. The changes to decrements (in particular, disability incidence) for the various member groups decreased rates for 2027 from \$1,265 per FTE to \$1,180 per FTE. The LODA-specific updates (described on pages D-2 through D-6) served to increase rates from \$1,180 per FTE to \$1,315 per FTE. In particular, the reduction in weight assigned to certain employer groups – especially for part-time employees as noted on page D-2 – had the largest impact due to the reduction in number of Full-Time Equivalent employees over which to spread projected benefit payments.

SECTION B

SUMMARY OF FINDINGS

Experience Study Process

Each year, as of June 30, the liabilities of the Virginia Retirement System are valued. A mathematical model is necessary for VRS' defined benefit and hybrid plans because there are "knowns" and "unknowns" which must be evaluated before the employer contribution can be determined. The knowns are:

- Who participates in the plan;
- The demographic characteristics of each active and inactive member (i.e., age, sex, salary, service, contribution balance, etc.);
- The demographic characteristics of each retired member and beneficiary (i.e., age, sex, benefit, form of payment, etc.);
- The conditions and characteristics of the plan (i.e., type and amount of benefits payable, eligibility for benefits, length of time benefit is payable, etc.);
- The current purchasing power of a dollar;
- The value of the pool of assets; and
- How the pool of assets is invested.

The unknowns are:

- Who will retire and at what age, service and final average salary;
- Who will quit before becoming vested;
- Who will quit and be entitled to a future vested benefit;
- Who will become disabled;
- How long will members and their beneficiaries live (before and after retirement);
- What is the future purchasing power of a dollar (future inflation); and
- How much income will the pool of assets generate.

The valuation model takes the "knowns," incorporates assumptions about the "unknowns" and develops the estimated cost of the plan for the current members. This cost is then financed using an actuarial cost method to determine the level contribution requirement.

Assumptions should be carefully chosen and continually monitored. A poor initial choice of assumptions or continued use of outdated assumptions can lead to:

- Understated costs resulting in either an inability to pay benefits when due, or sharp increases in required contributions at some point in the future; or
- Overstated costs resulting in either benefit levels that are kept below the level that could be supported by the computed rate or an unnecessarily large burden on the current generation of participants, employers and taxpayers.

A single set of assumptions will not be suitable indefinitely. Conditions change and our understanding of conditions also changes.

In recognition of this, Virginia statutes require that assumptions used to value the liabilities of the Virginia Retirement System be studied in-depth every four years. The package of assumptions is then adjusted to reflect basic experience trends – but not random year-to-year fluctuations. Actuarial assumptions were last revised for the June 30, 2021 valuation which impacted contribution rates for years beginning in 2023-2024.

Experience Study Process

The purpose of the experience study is to systematically review the actuarial assumptions used in the annual actuarial valuations. Actuarial valuations are mathematical models designed to meet the funding objectives.

Summary of Decrement Experience

Background: With the exception of mortality and disability, the decrements that we study tend to relate to voluntary human behavior. Human behavior in any short period can be influenced by economic and societal factors that change from time to time. Observed data will very often contain anomalies that cannot be assumed to continue into the future. This happens particularly in smaller groups.

When analyzing plan experience, we generally look at the ratio of actual experience to expected experience (A/E). The experience may be accumulated on either a headcount or liability basis. The A/E ratio gives a rough indication of the actual versus expected experience, but does not necessarily dictate what changes, if any, we may suggest. An A/E ratio of 100% does not preclude a suggested change in the assumption. The following reasons explain why we may suggest a new assumption across various A/E ratios:

- (1) Experience for an assumption may be too small to assign full credibility;
- (2) The direction of the change in this study may be the opposite of the change made in the last study which runs the risk of flip-flopping assumptions;
- (3) We may intentionally wish to maintain a ratio other than 100%, such as leaving a margin; or
- (4) There may be other facts and circumstances about the underlying data, the specific experience period, or the interaction with plan provisions or other changes. In addition, even if the A/E ratio is 100% in the aggregate, we may make changes to individual rates within the full assumption set.

Throughout the 5-year experience study period, a participant may decrement (i.e., change status) either by retiring, terminating, becoming disabled, or dying. Our analysis of the VRS decrement experience focuses on liability-weighted experience. For each decrement, the exposure is the number (or liability) of those who were subject to the specific decrement, the expected is the number (or liability) of those exposed who were assumed to decrement and the actual is the number (or liability) of those exposed who actually did decrement. The ratio of actual to expected decrements (the A/E ratio) provides a quick summary of experience for a particular decrement in total.

A headcount-weighted decrement is designed to mimic the event of a person decrementing. A liability-weighted decrement is designed to mimic the associated liability of a person decrementing, which in turn should reduce the likelihood of a gain or a loss. In general, from the perspective of mitigating gains and losses, we prefer to consider liability-weighted analysis whenever appropriate.

The relative magnitude of an actuarial gain or loss is typically due to the relative magnitude of the actuarial accrued liability of the members that decrement, rather than number counts alone. For example, consider a plan with only two members who are both the same age and assume member one has an actuarial accrued liability of \$10,000 and member two has an actuarial accrued liability of \$90,000. If one of the members leaves and forfeits all of their liability, the rate of decrement on a headcount weighted basis is one out of two for a rate of 50%. However, the rate of decrement on a liability weighted basis is \$10,000 out of \$100,000 for a rate of 10% if only member one leaves and is \$90,000 out of \$100,000 for a rate of 90% if only member two leaves. Given this, mortality, retirement, and termination experience were analyzed on liability-weighted basis with the combination of pay and benefit accrual rate being used as a proxy for liabilities.

Since disability is not a voluntary member behavior and is correlated to the general state of the economy, disability rates were developed on a headcount-weighted basis.



Summary of Decrement Experience

We also reviewed the format of various assumptions to determine if a more simplified assumption format would continue to yield reasonable valuation results. As a result, we, in general, simplified the format of the retirement and termination assumption sets. Historically, retirement rates were set using an age and service matrix with several service breakpoints. For this experience study, we simplified the retirement rates to use an age and service matrix with service breakpoints based on early reduced versus early unreduced retirement eligibility. Further, we moved from an age and service matrix for termination rates to a service-based table of rates. We believe updating the format of these assumptions simplifies the understanding and modeling of the assumptions while maintaining the integrity and accuracy of valuation results.

In most cases, when adjustments are indicated, the proposed assumptions give partial recognition to present assumptions as well as actual experience. Complete recognition is rarely given to actual experience over a limited period. This would cause contribution rates to be unduly sensitive to short-term experience fluctuations. Typically, we move approximately 50% of the way between expected experience and observed experience in an assumption review. However, due to COVID-19 impacts during the experience period, we moved about 25% of the way to the observed experience for all decrements except disability, for which we moved 50% of the way and preserved a margin.

Summary of Decrement Experience

As noted on the previous page, this experience study proposes minor changes to decrement assumptions, and as a result the impact on VRS Pension and OPEB plan costs are muted. Generally, updated Merit and Longevity assumptions had the largest impact on Pension and Group Life Insurance results, and updated disability assumptions impacted VLDP and VSDP more than other plans. Decrement assumption changes had little impact on Health Insurance Credit plans.

Retirement Experience: As noted above, this experience study simplified retirement rates -- including proposed Normal/Unreduced/Reduced retirement rates by Plan 1/2/Hybrid -- while maintaining the accuracy of the valuation results. Actual retirement experience (pages B-13 and B-14) varied across the different groups on a liability-weighted basis -- Teachers, VaLORS and non-Metro Local employers had more retirements than assumed, State Employees and Metro Local employers were within 2% of expectations, while Judges and State Police had fewer retirements than assumed. Generally we recommend small changes to move partially toward to the observed liability-weighted rates as shown on pages B-13 and B-14. These changes had a small downward effect on pension contribution rates. Year-by-year headcount-weighted experience is explored on pages B-15 to B-17 for informational purposes. Detailed information, including proposed rates, is presented in Section F.

Termination Experience: As noted above, this experience study simplified termination rates for all groups in moving to service-based rate tables while maintaining the accuracy of the valuation results. As shown on pages B-19 and B-20 -- with State (96%) as an exception -- there were more liabilities released due to terminations than expected (ranging from SPORS=108% to Non-Metro Locals=130%). We recommend that the termination rates be modified to move closer to the observed liability-weighted rates as shown on pages B-19 and B-20. These changes had a small upward effect on pension contribution rates for State Employees and State Police and a small downward effect on pension contribution rates for Teachers and Virginia Law Officers. Year-by-year headcount-weighted experience is explored on pages B-21 to B-23 for informational purposes. Detailed information, including proposed rates, is presented in Section F.

Disability Experience: Overall, there were fewer disabilities than expected for all groups -- actual/expected ratios ranged from 32% for non-Metro Locals to 80% for VaLORS. Accordingly we recommend decreasing the incidence of disability for all groups in the direction of the experience. This change had a small downward effect on pension contribution rates for all Plans. Year-by-year headcount-weighted experience is explored on pages B-26 to B-28. Detailed information, including proposed rates, is presented in Section F.

Active Experience						
Decrement	Exposures	Actual	Current Assumptions		Proposed Assumptions	
			Expected	A/E	Expected	A/E
Healthy Post-Retirement Mortality Benefits-Weighted	20,321,592,341	527,136,772	471,346,418	112%	468,521,355	113%
Retirement Liability-Weighted	409,542,089	49,060,933	46,574,501	105%	47,154,080	104%
Termination Liability-Weighted	768,029,298	72,725,266	63,547,286	114%	65,705,057	111%
Disability Headcount-Weighted	1,389,050	2,024	3,936	51%	2,660	76%

Summary of Decrement Experience

Pay Increase Experience (Merit and Longevity Portion): Pay increases for all groups during the experience study period were higher than the current assumptions as shown on Page B-28. As a result, we are recommending a slight increase in the merit and longevity pay increase rates for all groups except for JRS which had lower increases than the other State Systems. This change had an upward effect on pension contribution rates for all Plans except for JRS (no change). Detailed information, including proposed rates, is presented in Section F.

Mortality Experience:

Perhaps the most critical demographic assumption used in pension and OPEB valuations, rates of mortality affect our estimate of how long each individual is expected to live and, consequently, how long each individual is expected to receive benefits. Life expectancy in turn has a direct impact on pension and OPEB liabilities.

Post-retirement mortality is an important component in cost calculations and should be updated from time to time to reflect current and expected future longevity improvements. Pre-retirement and disabled post-retirement mortality are relatively minor components in cost calculations.

Mortality rates have generally decreased over time in the United States, meaning that life expectancies have generally increased over time. The assumption for future decreases in mortality is referred to as the “mortality improvement assumption.” Actuarial Standards of Practice (ASOP) No. 35 Disclosure Section 4.1.1 states, “The disclosure of the mortality assumption should contain sufficient detail to permit another qualified actuary to understand the provision made for future mortality improvement. If the actuary assumes zero mortality improvement after the measurement date, the actuary should state that no provision was made for future mortality improvement.” The current mortality rates used in VRS valuations include a provision for future mortality improvement. As part of each experience study, we regularly update to the most recent mortality projection scale issued by the Society of Actuaries. Since the last VRS Experience study there was one update to Mortality Improvement Scales, to MP-2021 (Improvement Scales have not been issued since COVID). In light of COVID-19, we recommend maintaining the 75% weighting historically applied to the Improvement Scale and will review this with the next experience study.

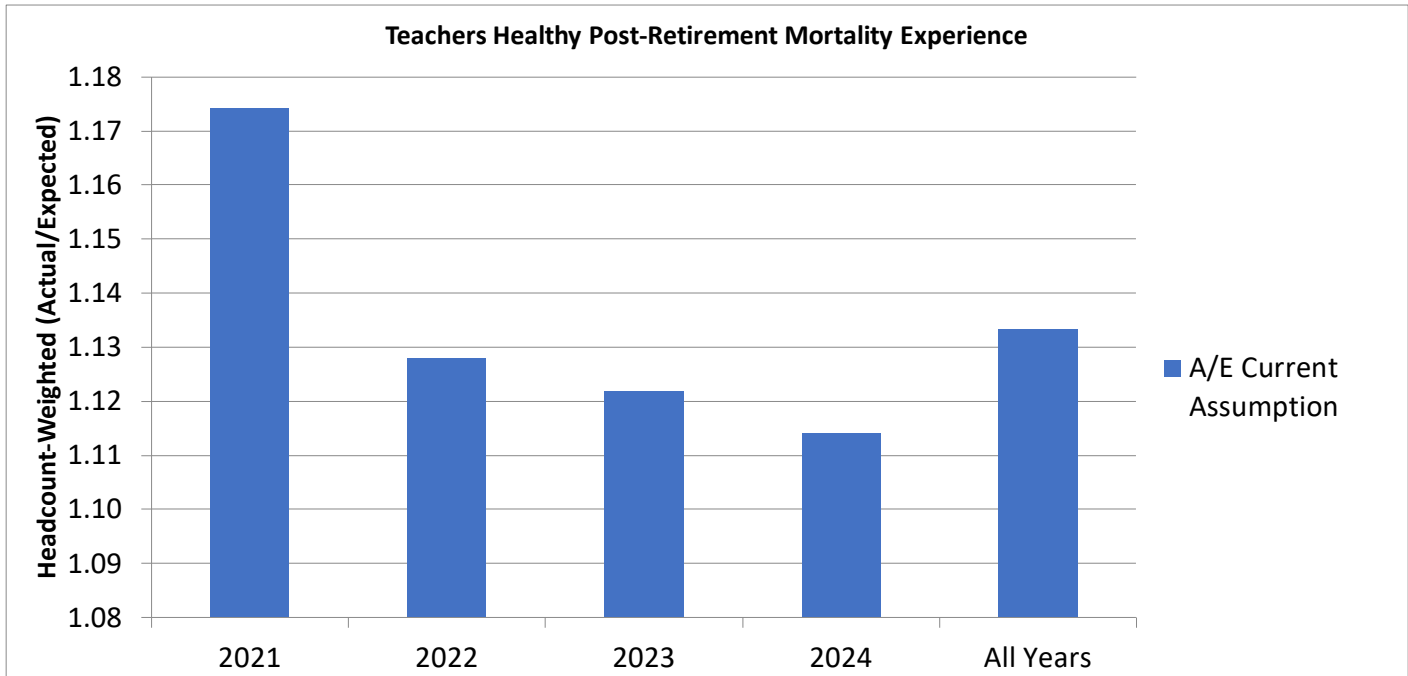
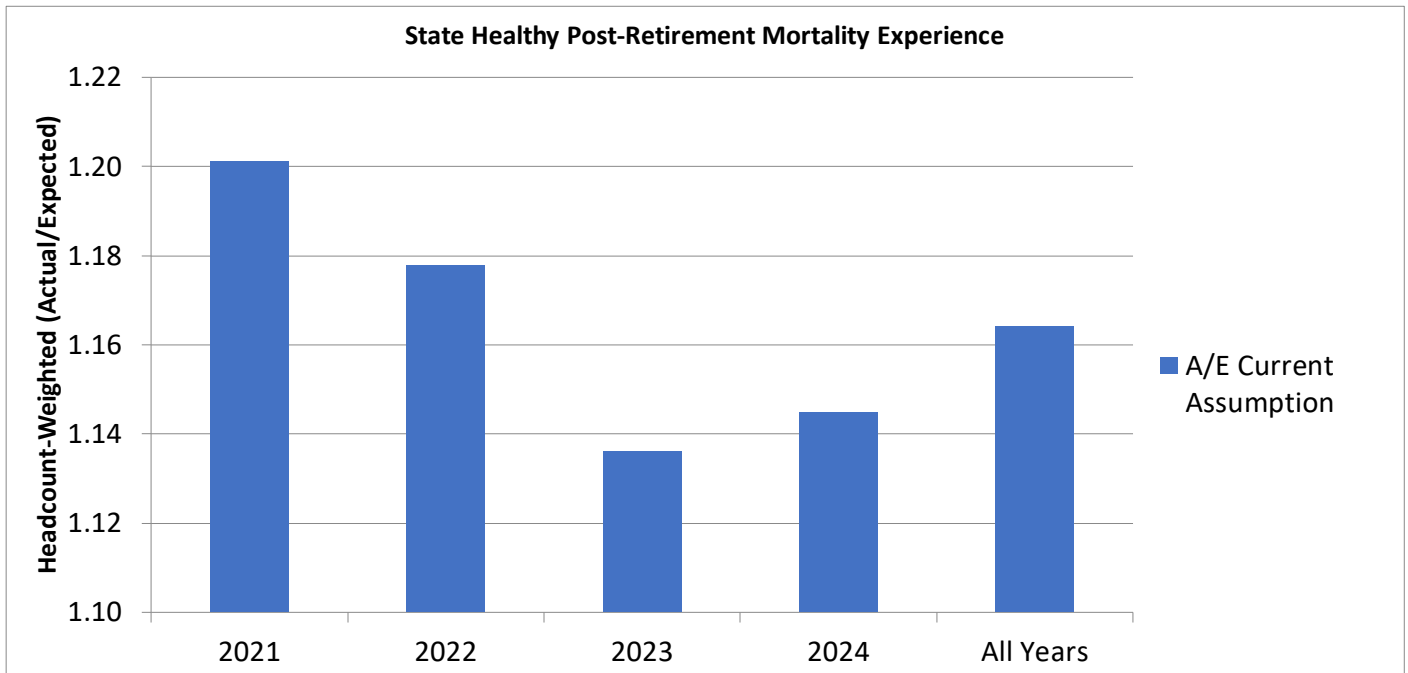
In general, the base mortality and mortality improvement assumptions are treated separately. The analysis in this section covers the period from July 1, 2020-June 30, 2024. During this time, mortality improvement may have been impacted by COVID-19.

We analyze mortality experience (healthy post-retirement, pre-retirement, disabled, and contingent mortality) in detail on pages F-49 through F-88 of this report. The chart below presents a summary of healthy post-retirement retiree mortality experience showing the impact of COVID-19 during the period on all groups except SPORS. The ratio of actual to expected deaths under the current assumption for all Systems except SPORS is greater than 1 on a benefits-weighted basis, indicating that more benefits were removed from the rolls than our assumptions expected. A benefits-weighted approach provides for *mitigating future gains and losses* from future mortality improvement.

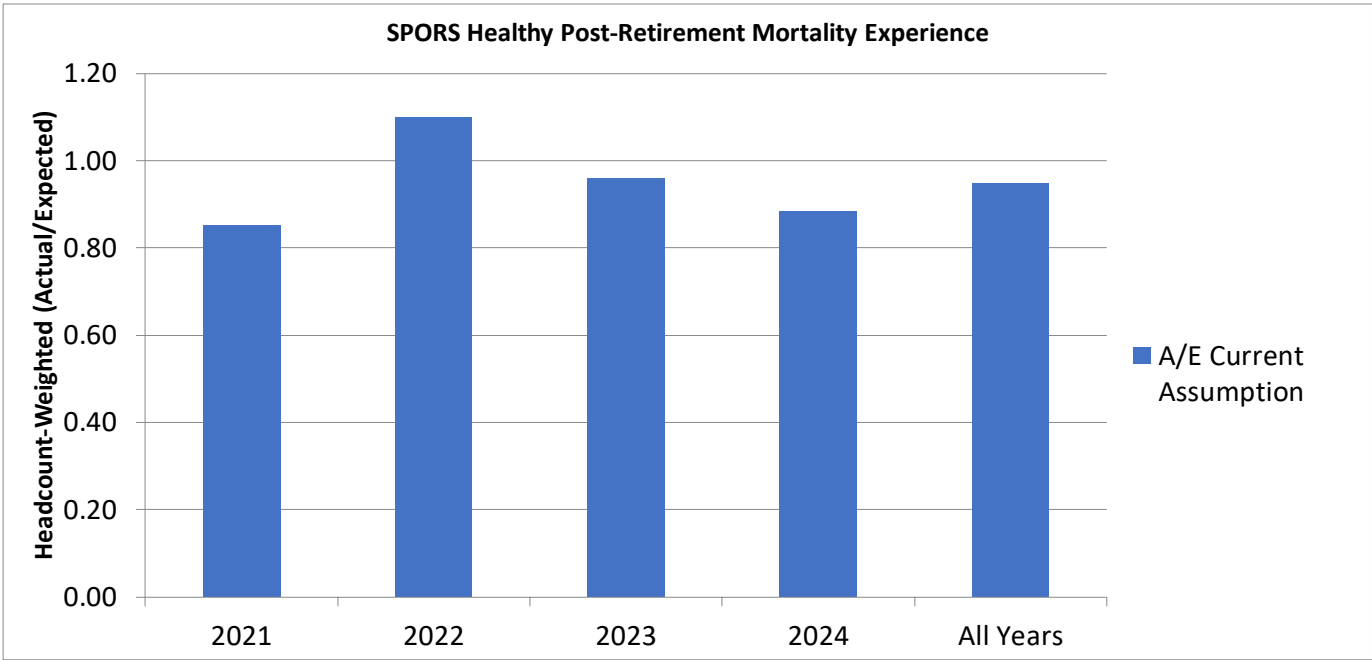
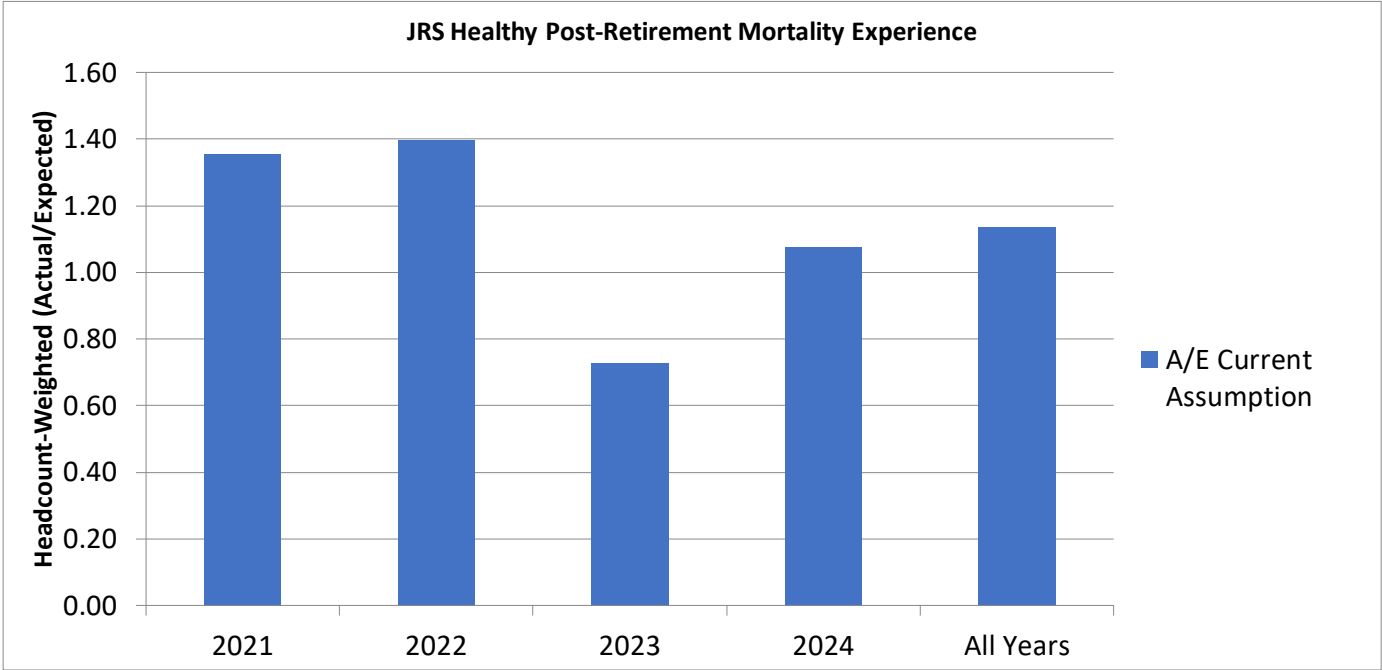
System	Exposures	Actual	Expected	A/E
State Employees	5,525,052,512	172,249,449	160,629,673	107%
Teachers	9,980,397,958	226,988,190	206,834,362	110%
Judicial	161,599,997	5,502,850	5,146,906	107%
SPORS	204,048,579	4,965,910	5,787,109	86%
VaLORS	385,864,141	6,984,664	6,248,391	112%
Locals	4,064,629,154	94,865,000	86,699,976	109%

Summary of Decrement Experience

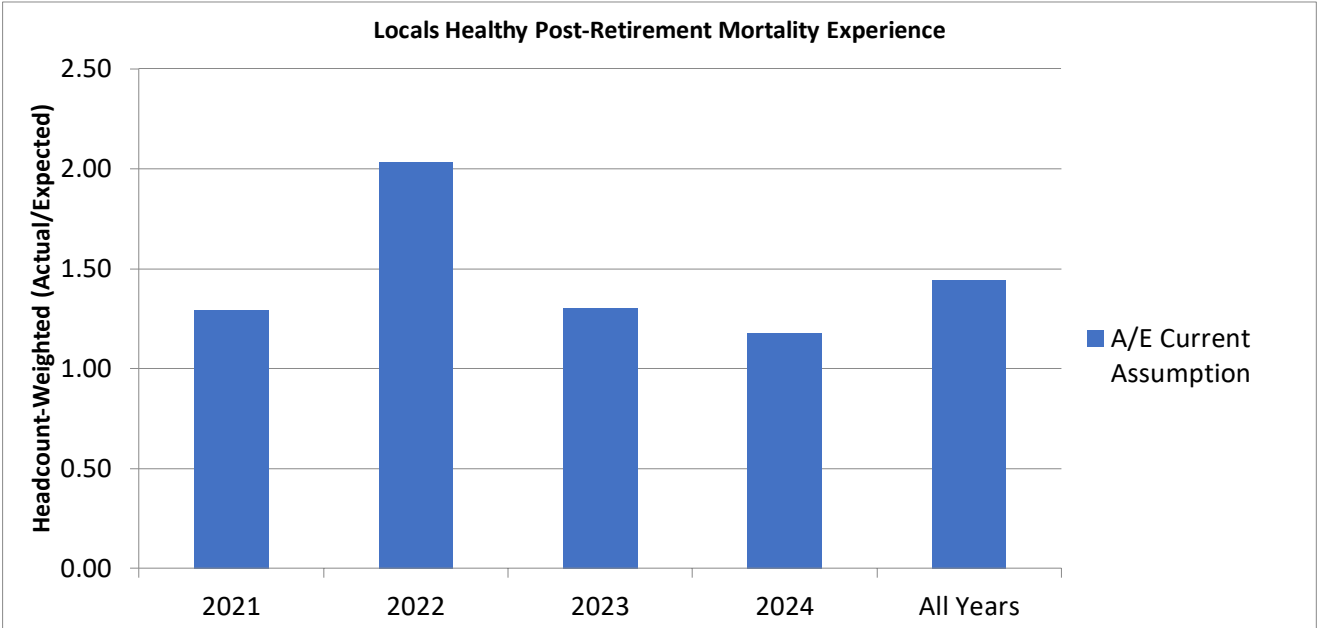
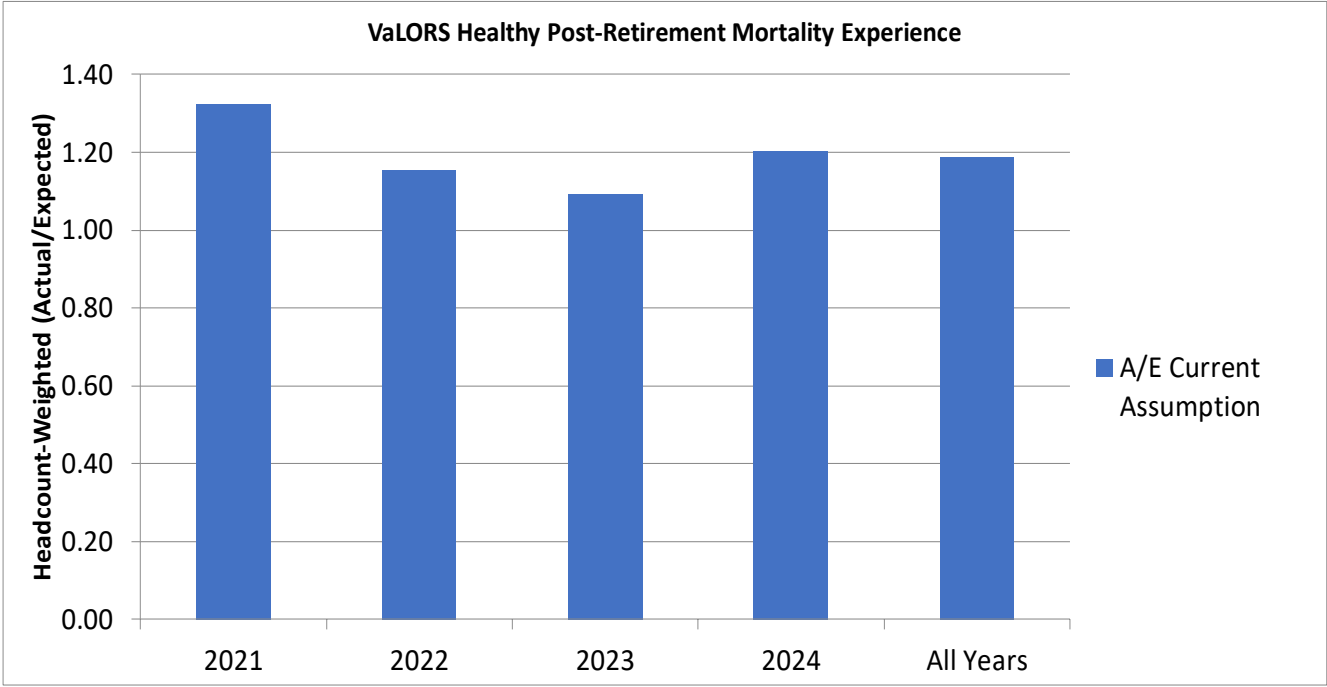
As mentioned throughout this report, the COVID pandemic influenced plan experience throughout the period.



Summary of Decrement Experience



Summary of Decrement Experience



Summary of Decrement Experience

Discussion: Pre-retirement mortality is used to measure the probabilities of members dying before retirement. Post-Retirement mortality is used to measure the probabilities of each benefit payment being made after retirement. The base mortality tables currently used in the VRS annual valuations are based on the Pub-2010, Amount-Weighted tables in conjunction with 75% of the MP-2020 Projection Scale on a fully generational basis with adjustments for each plan as shown in the 4 tables below.

Pre-Retirement Mortality Rate Adjustments

Plan	Job Classification	% of Male Table	% of Female Table	Male Set Forward/(Back)	Female Set Forward/(Back)	Service Related Deaths
State	General	100%	100%	None	2 years	25%
Teachers	Teachers	110%	100%	None	None	5%
VaLORS	Safety	95%	105%	None	2 years	35%
SPORS	Safety	95%	105%	None	2 years	85%
Judicial	General	100%	100%	2 years	None	5%
Locals – Metro, Non-Hazardous Duty	General	100%	105%	2 years	3 years	20%
Locals – Non-Metro, Non-Hazardous Duty	General	100%	105%	2 years	3 years	15%
Locals – Metro, Hazardous Duty	Safety	95%	105%	None	2 years	70%
Locals – Non-Metro, Hazardous Duty	Safety	95%	105%	None	2 years	45%

Healthy Post-Retirement Mortality Rate Adjustments

Plan	Job Classification	% of Male Table	% of Female Table	Male Set Forward/(Back)	Female Set Forward/(Back)
State	General	100%	110%	None	None
Teachers	Teachers	100%	105%	1 year	None
VaLORS	Safety	110%	105%	None	3 years
SPORS	Safety	110%	105%	None	3 years
Judicial	General	95%	95%	(2 years)	(2 years)
Locals – Metro, Non-Hazardous Duty	General	95%	95%	2 years	1 year
Locals – Non-Metro, Non-Hazardous Duty	General	95%	95%	2 years	1 year
Locals – Metro, Hazardous Duty	Safety	110%	105%	None	3 years
Locals – Non-Metro, Hazardous Duty	Safety	110%	105%	None	3 years

Disabled Post-Retirement Mortality Rate Adjustments

Plan	Job Classification	% of Male Disabled Table	% of Female Disabled Table	Male Set Forward/(Back)	Female Set Forward/(Back)
State	General	100%	100%	3 years	3 years
Teachers	Teachers	110%	110%	None	None
VaLORS	General	95%	90%	(3 years)	(3 years)
SPORS	General	95%	90%	(3 years)	(3 years)
Judicial	General	100%	100%	None	None
Locals – Top 10, Non-Hazardous Duty	General	110%	110%	3 years	2 years
Locals – Non-Top 10, Non-Hazardous Duty	General	110%	110%	3 years	2 years
Locals – Top 10, Hazardous Duty	General	95%	90%	(3 years)	(3 years)
Locals – Non-Top 10, Hazardous Duty	General	95%	90%	(3 years)	(3 years)

Beneficiary and Survivor Mortality Rate Adjustments

Plan	Job Classification	% of Male Disabled Table	% of Female Disabled Table	Male Set Forward/(Back)	Female Set Forward/(Back)
State	General	100%	100%	None	None
Teachers	General	100%	100%	None	None
VaLORS	General	100%	100%	None	None
SPORS	General	100%	100%	None	None
Judicial	General	100%	100%	None	None
Locals – Top 10, Non-Hazardous Duty	General	100%	100%	None	None
Locals – Non-Top 10, Non-Hazardous Duty	General	100%	100%	None	None
Locals – Top 10, Hazardous Duty	General	100%	100%	None	None
Locals – Non-Top 10, Hazardous Duty	General	100%	100%	None	None

COVID-19 Pandemic Impact: We note that the mortality, and for that matter all demographic experience for the 4-year study period includes years impacted by COVID-19. Sufficient data remains elusive – as of publication date of this report – to determine how COVID-19 will impact mortality rates in the long term. To wit, in January 2025, the Society of Actuaries (SOA) Research Institute’s Retirement Plans Experience Committee (“RPEC”) released an exposure draft of the Pub-2016 Public Retirement Plans Mortality Tables (“Pub-2016”). This study is the first issued since the publication of the Pub-2010 tables, providing an updated comprehensive review of recent mortality experience of public retirement plans in the United States. Importantly, the Pub-2016 tables are based on mortality experience collected from calendar years 2013–2020. However, and consistent with the proposal below to maintain the base mortality tables currently in place, RPEC avoided using experience affected by COVID-19 by excluding data contributed for calendar year 2020 from the study. The SOA Research Institute solicited comments on the exposure draft by March 31, 2025, which had not been published by April 16, 2025 – when the VRS Board approved the changes from this experience study.

Proposal: Given the uncertainty regarding the long-term impact of COVID-19 on mortality and the fact that much of the experience during the study period is still impacted by COVID-19, we recommend no changes to the base mortality tables noted above. Further, we recommend updating the mortality improvement scale to retain 75% scaling as applied to the MP-2021 projection scale (the most recent version published by the Society of Actuaries). Detailed information can be found in Section F.

Complete listings of all assumptions can be found in the Appendix.

Summary of Decrement Experience

Retirement

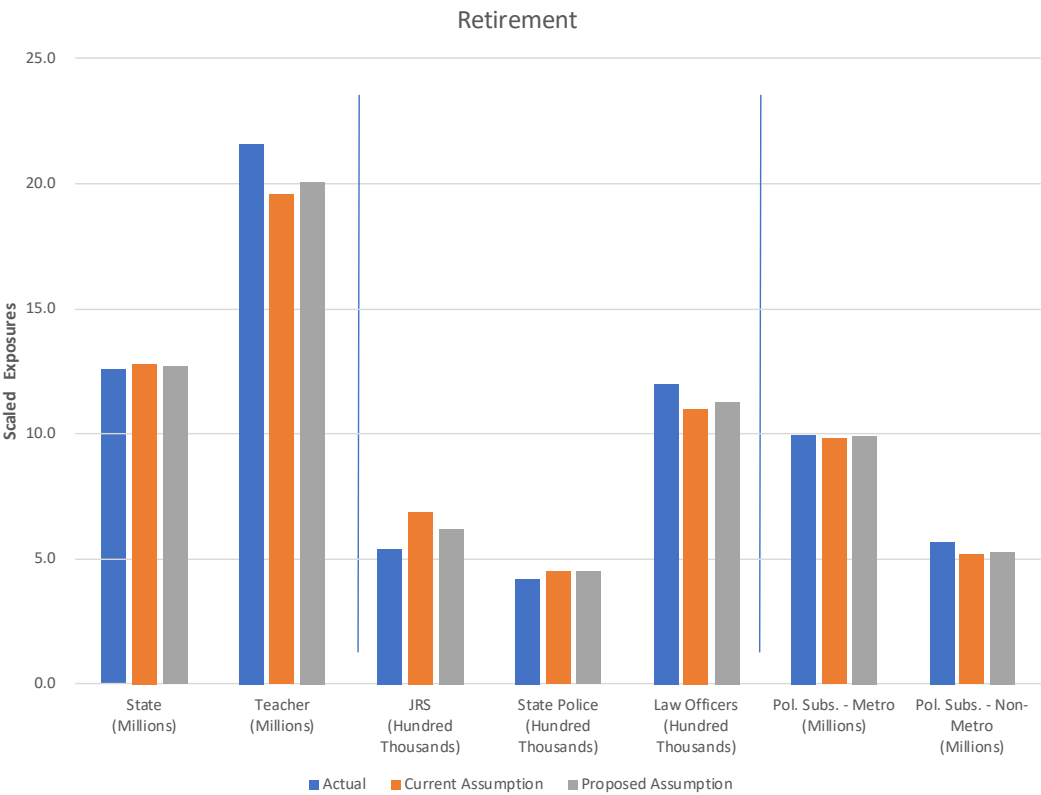
The table below shows the actual versus expected retirement experience on a liability-weighted basis by Plan under both current and proposed assumptions. For most Plans, there were more liabilities released from actives than expected as indicated by the A/E (Actual/Expected) column being greater than 100%. More detailed information regarding the exposures, actual and expected experience during the period can be found in Section F.

Active - Retirement Experience					
Plan	Actual	Current Assumptions		Proposed Assumptions	
		Expected	A/E	Expected	A/E
State (Millions)	12.6	12.8	98%	12.7	99%
Teacher (Millions)	21.6	19.6	110%	20.1	107%
JRS (Hundred Thousands)	5.4	6.9	78%	6.2	87%
State Police (Hundred Thousands)	4.2	4.5	93%	4.5	93%
Law Officers (Hundred Thousands)	12.0	11.0	109%	11.3	106%
Pol. Subs. - Metro (Millions)	10.0	9.8	102%	9.9	101%
Pol. Subs. - Non-Metro (Millions)	5.7	5.2	110%	5.3	108%
Total (Millions)	52.1	49.7	105%	50.2	104%

Summary of Decrement Experience

Retirement

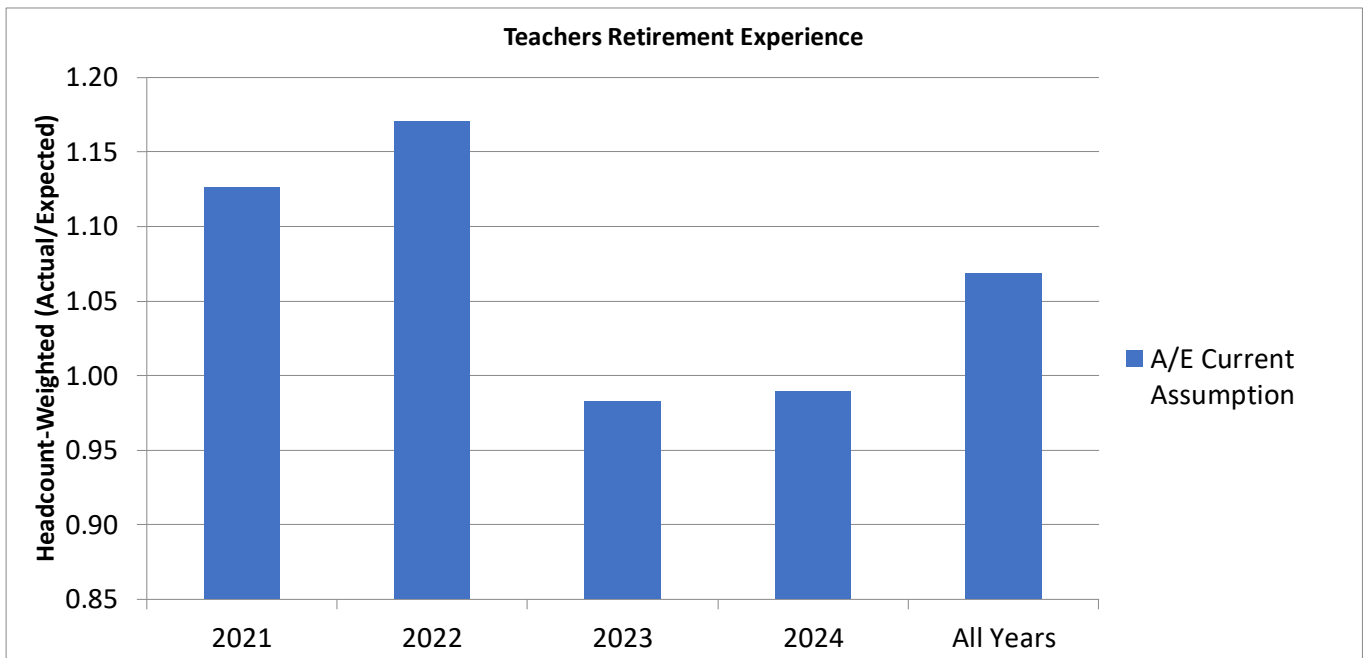
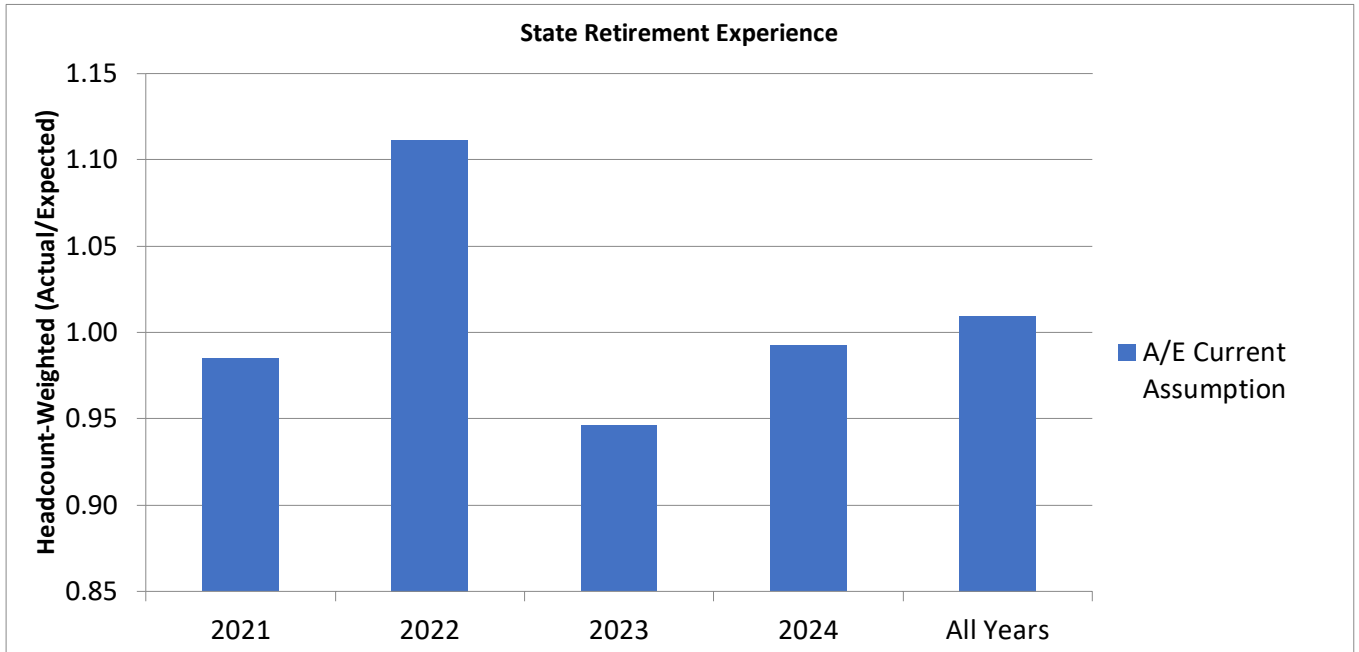
The graph below shows a comparison of the actual liabilities released due to retirement compared to the expected liabilities released under current and proposed assumptions. For all Plans, the proposed assumption reflects roughly 25% of actual experience indicated by the gray bar (proposed assumption) moving from the orange bar (current assumption) in the direction of the blue bar (actual experience).



In addition to the liability-weighted experience summarized above, the following exhibits show the headcount-weighted retirement experience by year for informational purposes.

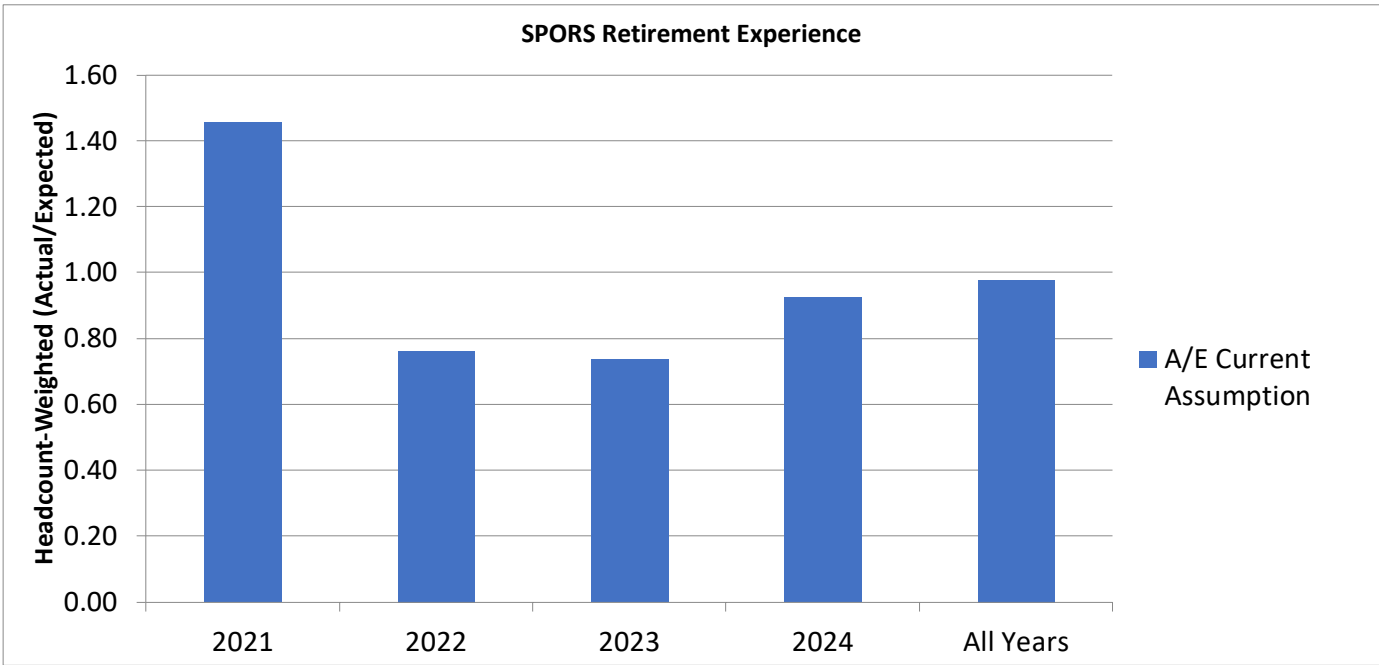
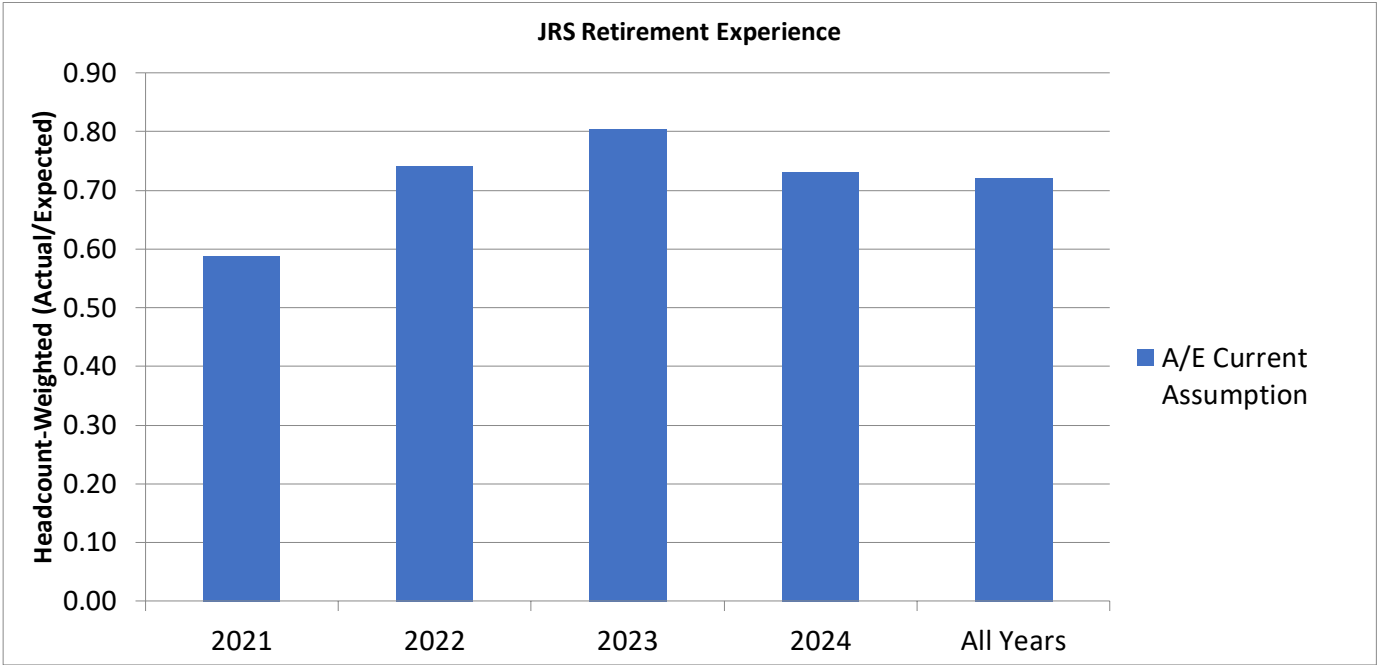
Summary of Decrement Experience

Retirement



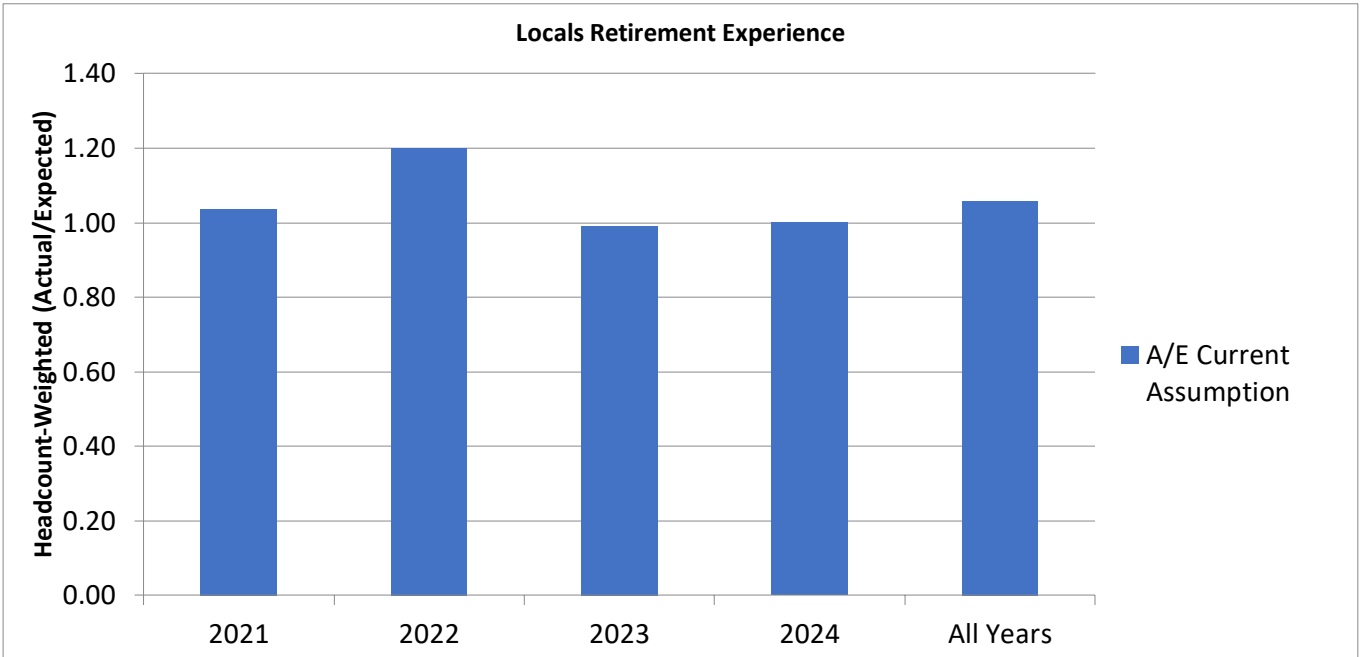
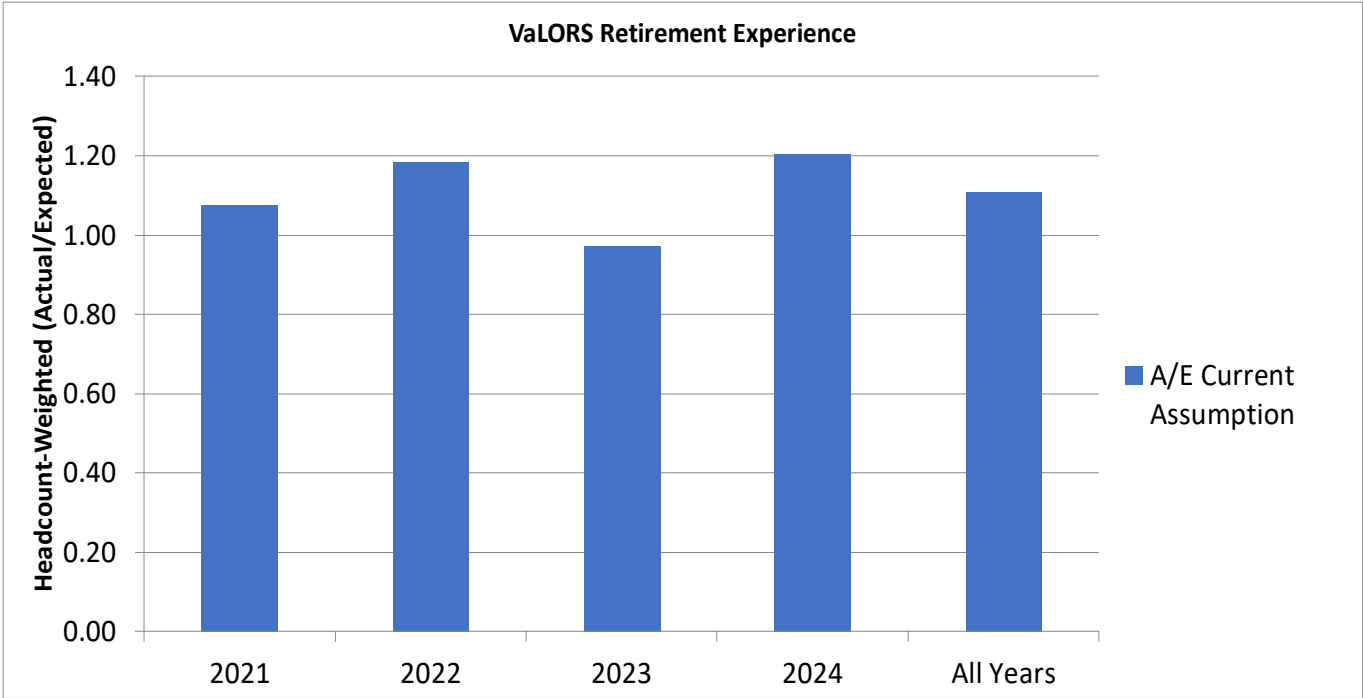
Summary of Decrement Experience

Retirement



Summary of Decrement Experience

Retirement



Summary of Decrement Experience

Termination

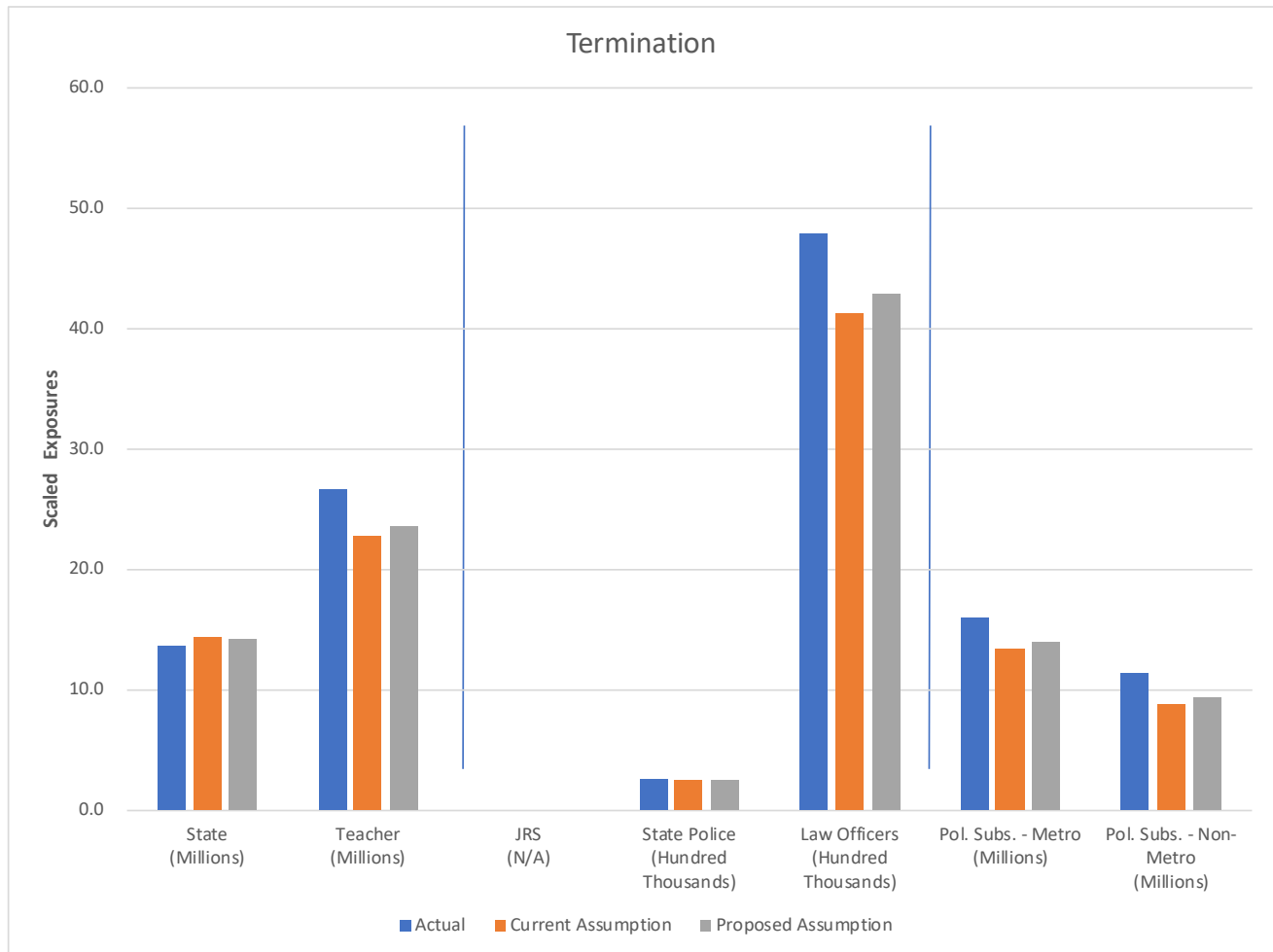
The table below shows the actual versus expected termination experience on a liability-weighted basis by Plan under both current and proposed assumptions. For all Plans except State, there were more liabilities released from actives than expected as indicated by the A/E (Actual/Expected) column being greater than 100%. Note that there is no termination assumption used in the annual JRS valuation. More detailed information regarding the exposures, actual and expected experience during the period can be found in Section F.

Active Termination Experience					
Plan	Actual	Current Assumptions		Proposed Assumptions	
		Expected	A/E	Expected	A/E
State (Millions)	13.7	14.3	96%	14.2	96%
Teacher (Millions)	26.6	22.7	117%	23.6	113%
JRS (N/A)	N/A	N/A	N/A	N/A	N/A
State Police (Hundred Thousands)	2.6	2.4	108%	2.5	104%
Law Officers (Hundred Thousands)	47.9	41.3	116%	42.8	112%
Pol. Subs. - Metro (Millions)	15.9	13.4	119%	13.9	114%
Pol. Subs. - Non-Metro (Millions)	11.4	8.8	130%	9.4	121%
Total (Millions)	72.7	63.5	114%	65.7	111%

Summary of Decrement Experience

Termination

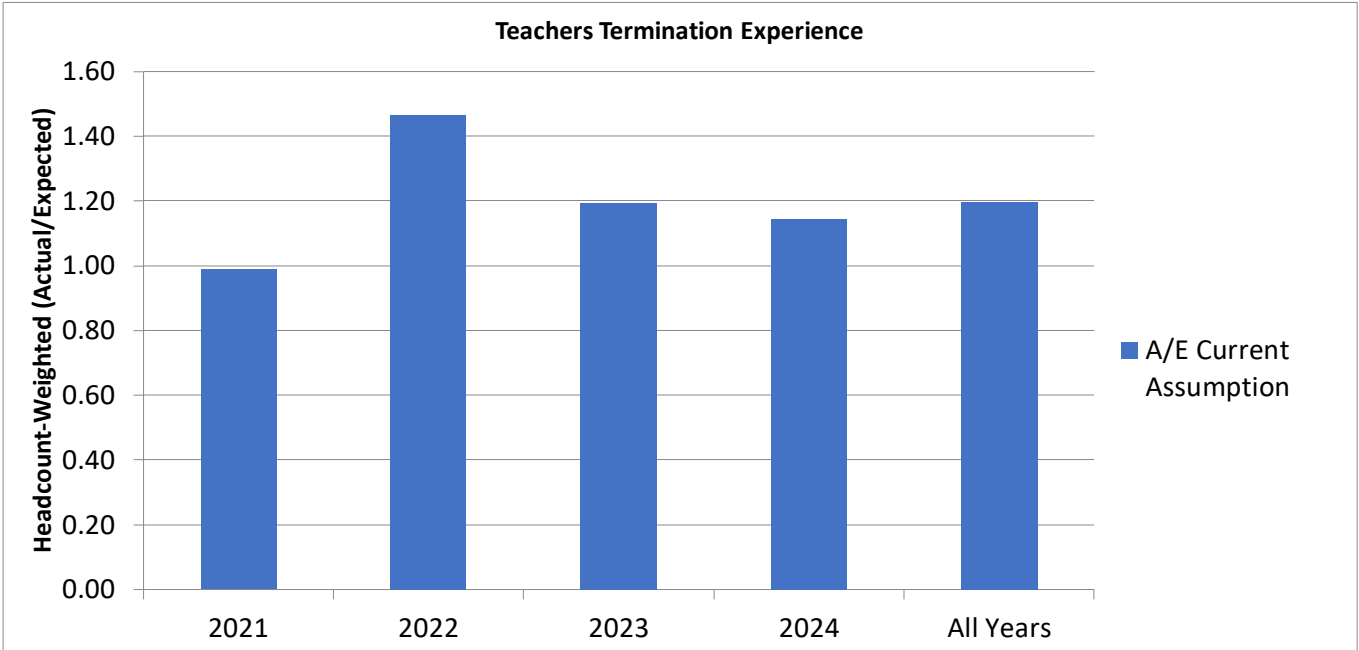
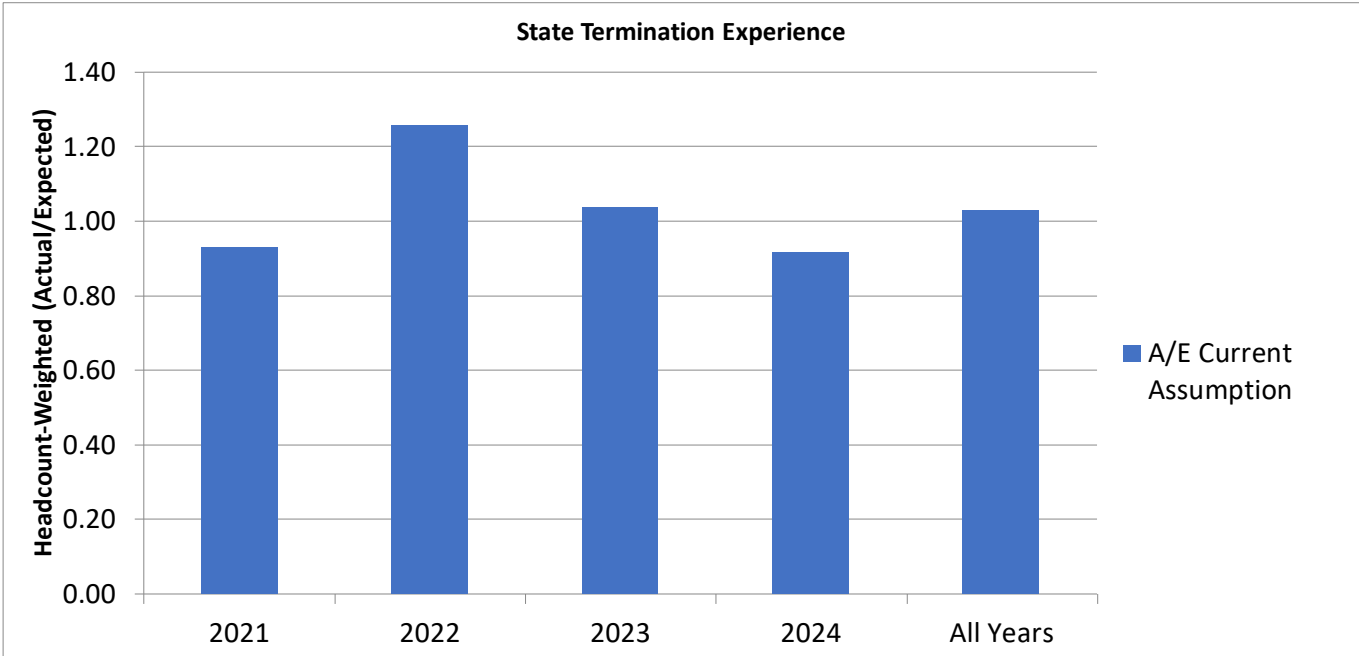
The graph below shows a comparison of the actual liabilities released due to termination compared to the expected liabilities released under current and proposed assumptions. For all Plans, the proposed assumption reflects roughly 25% of actual experience indicated by the gray bar (proposed assumption) moving from the orange bar (current assumption) in the direction of the blue bar (actual experience).



In addition to the liability-weighted experience summarized above, the following exhibits show the headcount-weighted termination experience by year for informational purposes. Since no termination assumption is used in the valuation of the JRS, the headcount-weighted termination experience is not included.

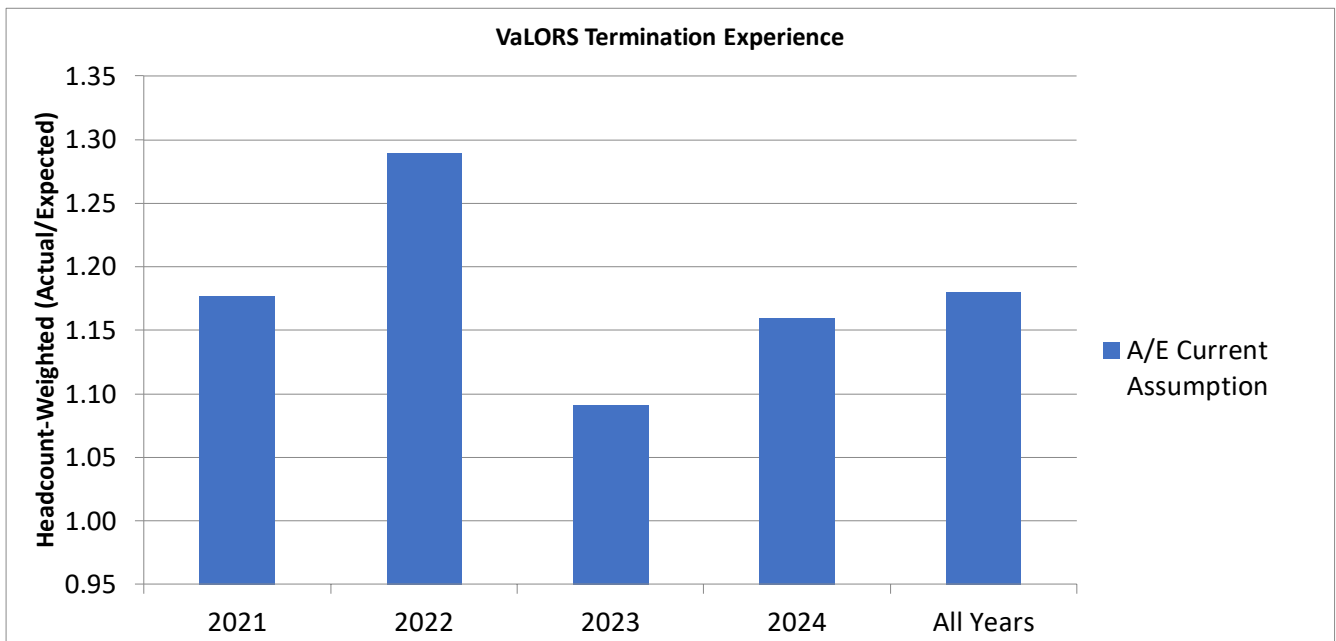
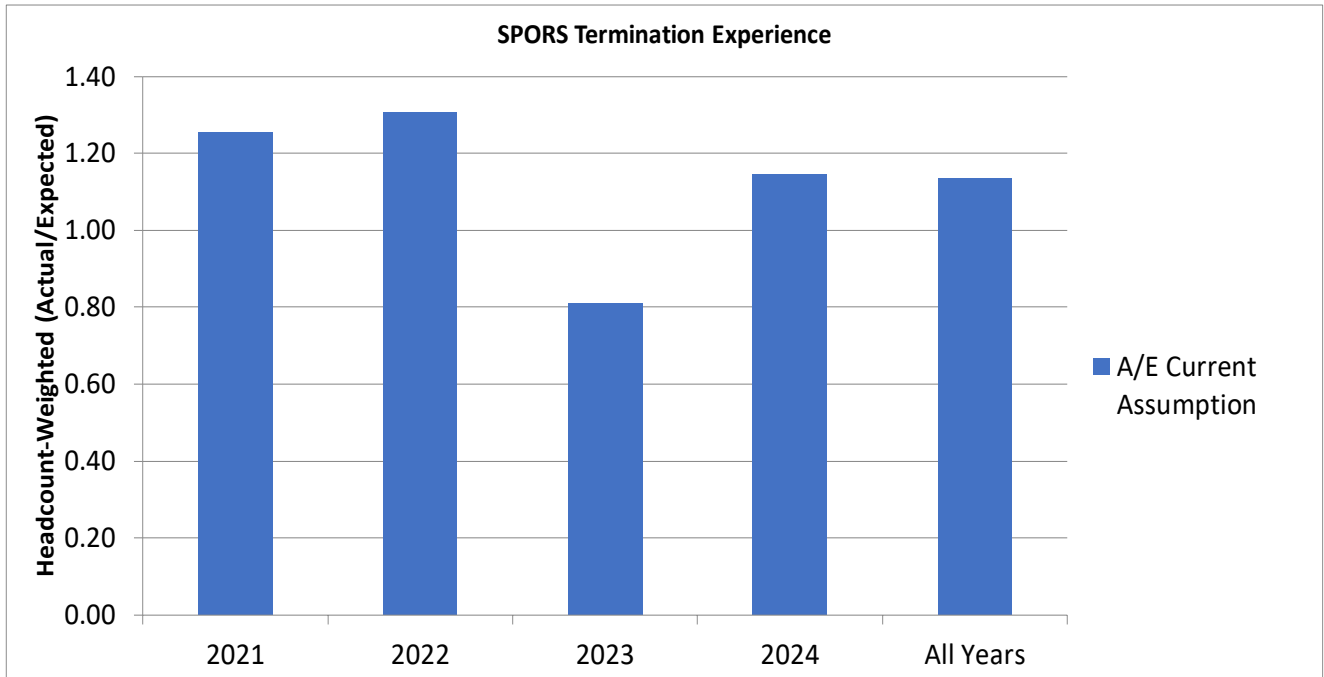
Summary of Decrement Experience

Termination



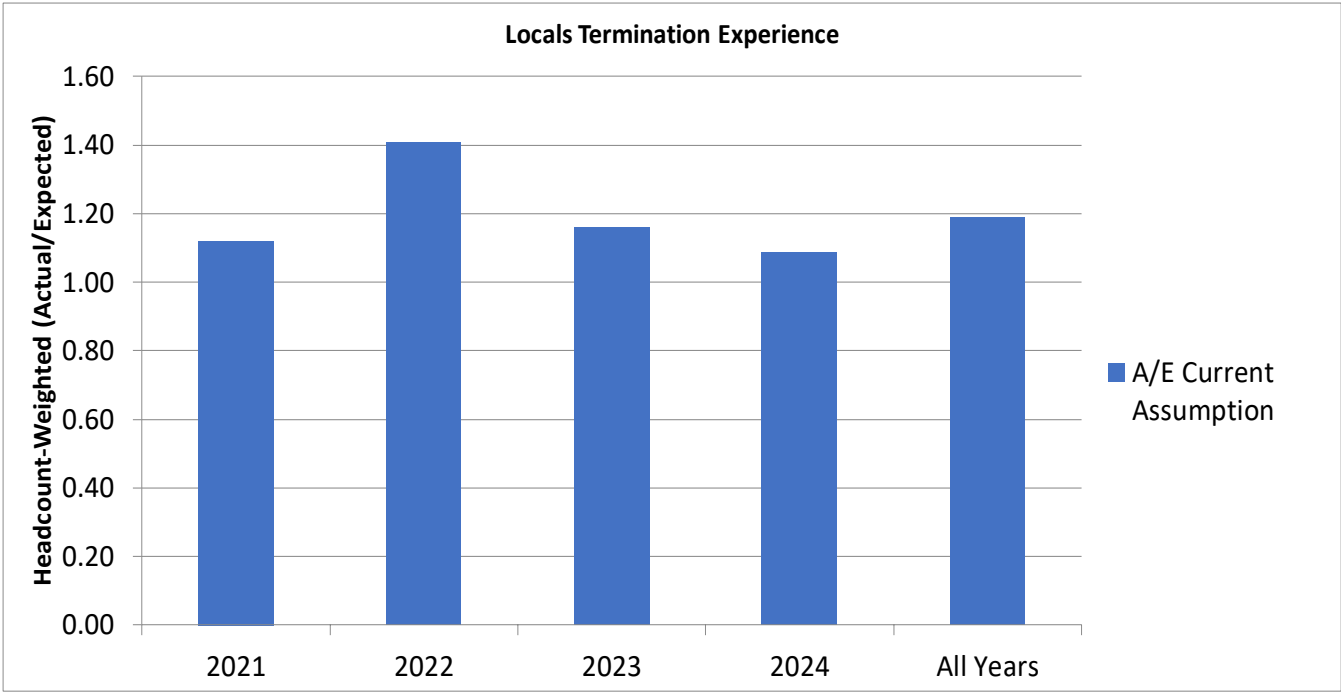
Summary of Decrement Experience

Termination



Summary of Decrement Experience

Termination



Summary of Decrement Experience

Disability

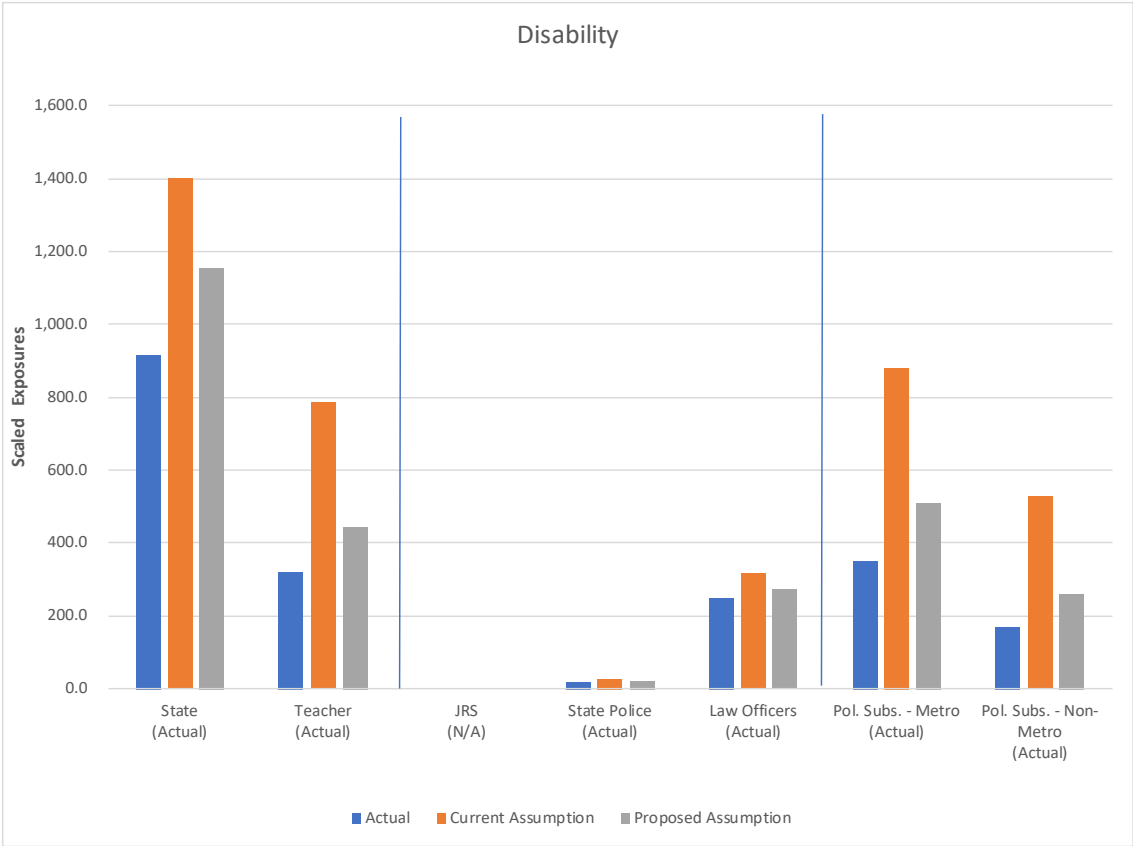
The table below shows the actual versus expected disability experience on a headcount-weighted basis by Plan under both current and proposed assumptions. For all Plans, there were fewer disabilities than expected as indicated by the A/E (Actual/Expected) column being less than 100% - a continued trend from the previous experience study. As a result, we propose scaling the current disability rates such that the expected experience moves roughly 50% of the way toward actual experience. Due to the nature of scaling the current rates, there may be some instances where the proposed assumption moves more or less than 50% of the way to actual experience. Note that there is no disability assumption used in the annual JRS valuation. More detailed information regarding the exposures, actual and expected experience during the period can be found in Section F.

Active Disability Experience					
		Current Assumptions		Proposed Assumptions	
Plan	Actual	Expected	A/E	Expected	A/E
State (Actual)	915.0	1,401.2	65%	1,155.1	79%
Teacher (Actual)	319.0	786.6	41%	442.0	72%
JRS (N/A)	N/A	N/A	N/A	N/A	N/A
State Police (Actual)	17.0	26.3	65%	21.5	79%
Law Officers (Actual)	250.0	314.4	80%	272.0	92%
Pol. Subs. - Metro (Actual)	353.0	881.5	40%	510.0	69%
Pol. Subs. - Non-Metro (Actual)	170.0	525.9	32%	259.7	65%
Total (Actual)	2,024.0	3,935.8	51%	2,660.4	76%

Summary of Decrement Experience

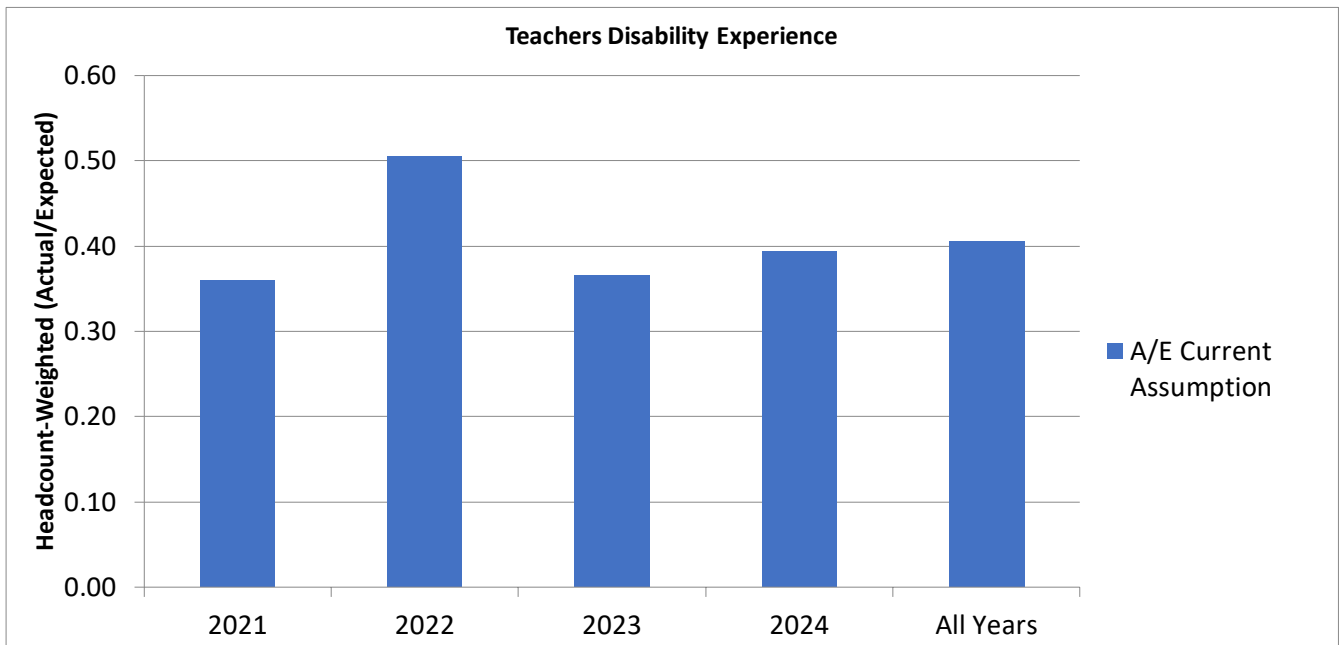
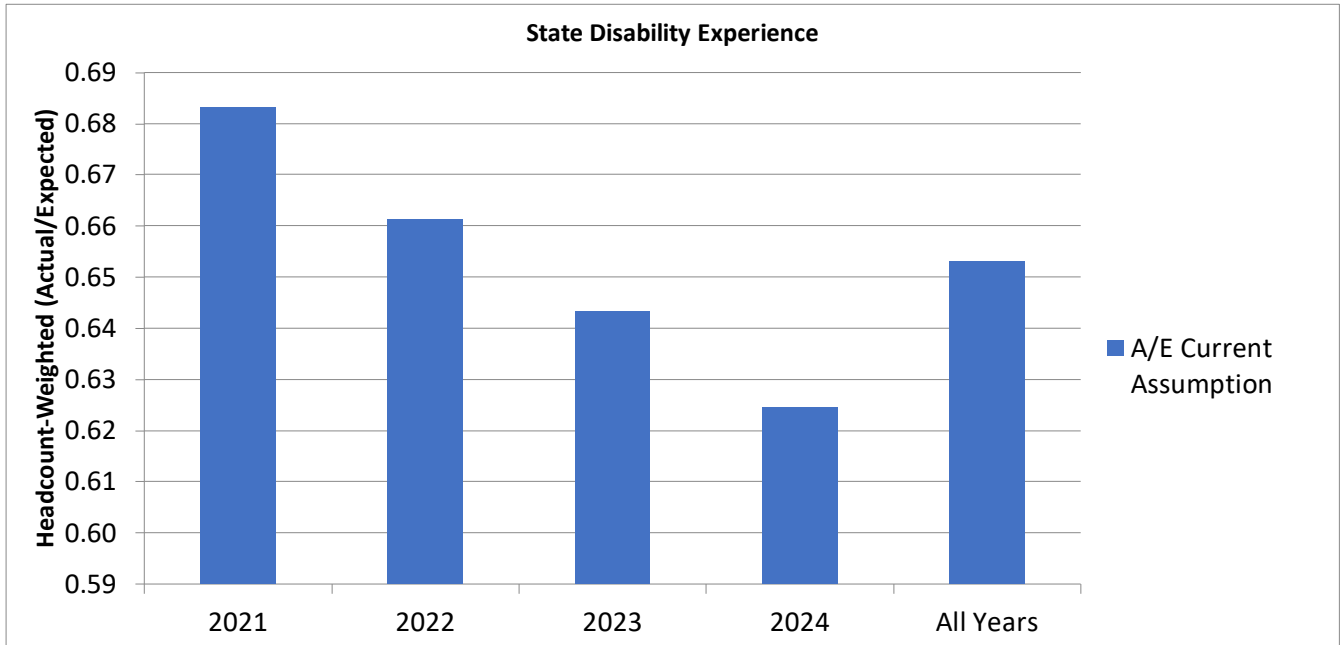
Disability

The graph below shows a comparison of the actual disabilities compared to the expected disabilities under current and proposed assumptions. For all Plans, the proposed assumption reflects roughly 50% of actual experience indicated by the gray bar (proposed assumption) moving from the orange bar (current assumption) in the direction of the blue bar (actual experience).



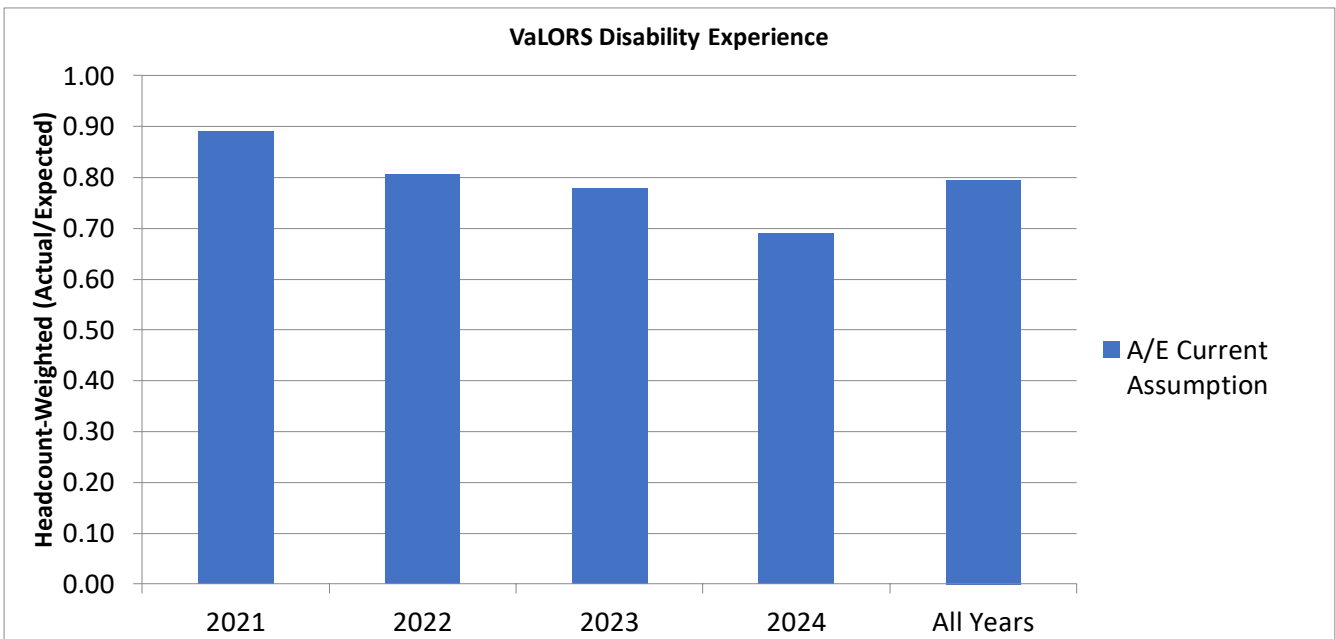
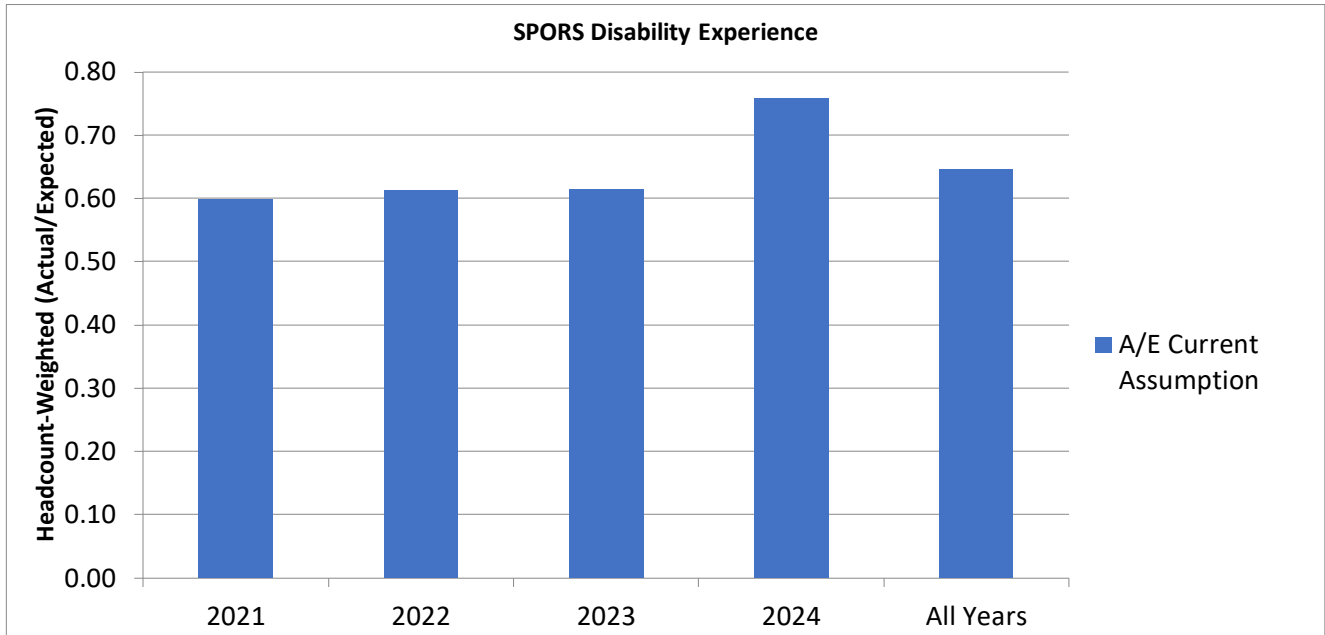
Summary of Decrement Experience

Disability



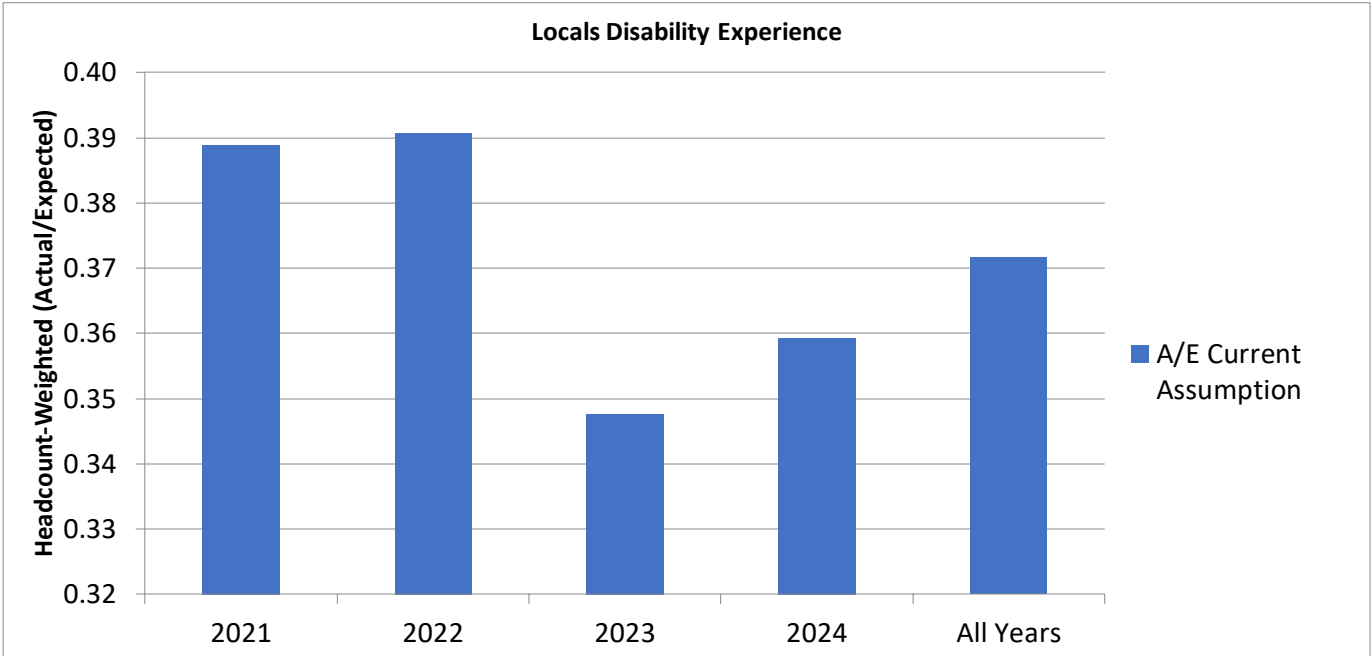
Summary of Decrement Experience

Disability



Summary of Decrement Experience

Disability



Summary of Decrement Experience

Merit and Longevity Pay Increases

Expected Salaries are based upon the assumptions determined in the previous experience study, and differ structurally for non-Judicial members (various rates for the first 20 years of service) versus Judicial members (a single rate for all years). The table below shows the actual versus expected aggregate salary experience by System/Category. In each category, the actual non-inflationary increases in pay were higher than expected. The categories considered are Hazardous Duty positions, Judicial, Teachers, and all other Non-Hazardous Duty positions. We analyzed salary data for SPORS, VaLORS, and local HD Hazardous Duty groups and found that the Actual/Expected results for Hazardous Duty (separately and combined) were consistent. Historically combined for assumption setting purposes, we recommend keeping them combined, especially since the experience study was impacted by COVID. We note that SPORS is a smaller group with roughly 6% of the exposures and will investigate breaking out SPORS separately in the next experience study. Lastly, the JLARC audit recommended review of salary experience at longer durations. We split out this experience and see possible justification for different periods for different groups, but this was an exceptional study period, and we want to confirm this trend in multiple experience studies before making changes. More detailed information regarding the actual and expected experience during the period can be found in Section F.

System	Actual Salaries ⁽¹⁾	Expected Salaries ⁽¹⁾	Actual Increase	Expected Increase	A/E
State Employees and Non-Hazardous Duty Locals	34,918,045	33,668,709	1.080	1.042	104%
Teachers	34,646,280	33,986,885	1.068	1.048	102%
Judicial	325,410	321,371	1.053	1.040	101%
Hazardous Duty (SPORS, VaLORS, Locals)	8,167,576	7,789,441	1.092	1.041	105%
⁽¹⁾ Amounts shown in \$1,000's					

Non-Judicial: In the current experience study, pay increases in aggregate were higher than expectations. The amount of pay increase above expectations was relatively steady when considered by amount of service over a 20 year period. The previous experience study found that experience in aggregate aligned with the assumptions over the four year period, and no changes to the pay increase assumptions were recommended. Looking deeper at the previous experience study period, we find that individual year pay increases were higher than expected for approximately half of the time periods during July 1, 2016-June 30, 2020. Given that actual pays exceeded assumptions for 1/2 of the previous experience study period and for all of this experience study, we recommend increasing the merit and longevity portion of the salary assumption by 50 basis points for all non-Judicial groups.

Judicial: Corresponding with experience, the assumed rates of salary increase for the JRS were lowered in the previous experience study from 4.5% to 4.0%, and the 2022 JLARC audit recommended further decreases in this assumption be considered going forward. The current experience study shows Judicial salary experience to be higher than expectations, a reversal from the previous study. Given the combination of 1) reversal in actual experience and 2) known scheduled increases at lower levels than the recent past, we believe the 4.0% per year salary increase assumption for Judicial remains a reasonable assumption.

Other Recommendations

Pension

Purchase of Prior Service Cost Rates:

As allowed in section 51.1-142.2 of the Virginia Code, there are select instances where a member may purchase prior service at the normal cost rate. The rates by group for the purchase of service are provided below based upon the assumption set recommended in this report.

The following Purchase of Prior Service Cost Rates will be effective July 1, 2025:

<u>Service up to 2 Years from Date of Hire or Return to Work</u>	
<u>Plan</u>	<u>Total Normal Cost Rate</u>
Plan 1 (State, Teacher, Local Non-Hazardous Duty)	12.50%
Plan 1 (VaLORS, SPORS, Local Hazardous Duty)	23.78%
Plan 1 JRS	31.97%
Plan 2 (State, Teacher, Local Non-Hazardous Duty)	10.74%
Plan 2 (VaLORS, SPORS, Local Hazardous Duty)	19.15%
Plan 2 JRS	29.67%
Alternate Hazardous Duty Option	10.01%
Hybrid (Non-JRS)	6.68%
Hybrid JRS	19.21%

Miscellaneous Assumptions – this experience study made no changes to the following assumptions.

Interest on Member Contributions: 4% per annum.

Administrative Expenses: Load set equal to current year expenses divided by payroll.

Cost-of-Living Increases: Directly related to the price inflation assumption of 2.5% noted on Page C-2 of this report and compounded annually at 2.50% per year for Plan 1 members receiving benefits or vested as of January 1, 2013 and 2.25% per year for all other members. SPORS and VaLORS temporary supplement assumed to be adjusted biennially based on increases of 2.50% compounded annually.

Percent Electing a Deferred Termination Benefit: Terminating members are assumed to elect a return of contributions or a deferred annuity, whichever is the most valuable benefit at the time of termination to provide margin for adverse deviation. Termination benefits are assumed to commence at normal retirement age.

Deferred Benefit Commencement: The valuation assumes benefits will commence at Normal Retirement.

Assumed Payment Form: Modified cash refund annuity to ensure value of contributions are received.

Marriage Assumption: 100% of active employees are married, males two years older than females.

Service-Related Disability: The service-related disability benefits do not include an adjustment for Social Security or Worker's Compensation benefits.



Other Recommendations

Miscellaneous Assumptions

Hazardous Duty Service: Since Hazardous Duty service is not reported separately and to provide margin for adverse deviation, SPORS, VaLORS and Local (with Hazardous Duty) valuations assume that all VRS service is hazardous duty service for purposes of determining eligibility for the temporary supplement.

Disability Election: All active members hired on or after January 1, 1999 will enter the Virginia Sickness and Disability Program (VSDP) and will not be eligible to receive non-VSDP disability benefits. For members hired before January 1, 1999, we measure the liabilities based upon the member's actual election contained in the valuation data.

Salary Increase for Disabled Members: It is assumed members covered under VSDP receive a 3.50% annual increase in pay while disabled and this adjusted pay is used to determine benefits payable from the System.

Other Recommendations

Political Subdivision Employer Grouping

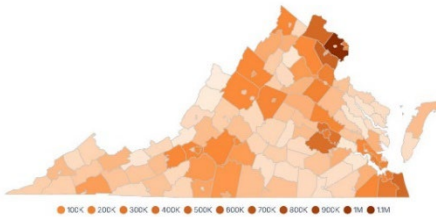
Political Subdivisions Employer Groups: Historically, VRS employers have been separated into “Top-10”/“Non-Top 10” groups to reflect differing characteristics of very large plans in setting valuation assumptions. Large plans offer a broader experience pool for analysis and determination of assumptions. The Top-10 employers are currently based on six cities: Alexandria, Chesapeake, Hampton, Lynchburg, Portsmouth, VA Beach; and four counties: Chesterfield, Henrico, Loudoun, and Prince William. Non-Top 10 employers consists of all other Virginia municipalities. We understand that this grouping was originally selected based on Market Value Asset size, which is an indicator that can and does change over time. On this note, large employers Norfolk and Richmond joined since the original Top-10 was conceived.

We agree with the concept that larger plans may merit separate assumptions. A question arises of how to group the data, and whether ten (10) represents a correct threshold of employers. Groupings could be considered based under a multitude of categories including: asset pool (the original basis for the current Top-10), active member counts, or total member counts. Under each of these groupings, the current Top-10 employers largely overlap. Employers may shift between potential groupings as asset values change - related to funding level and benefit level offered, population changes, and participation of new employers throughout the experience study period.

We also think that geographic proximity is an important consideration – nearby communities, regardless of size, will have similar cost-of-living and other characteristics unique to that particular part of Virginia. A larger geographical area (than a Top-10 City or County) will also encompass similarly situated employers. Therefore, we affirm the current Top-10 concept and recommend considering location of each current Top-10 entity as a basis for setting assumptions.

Effective with this experience study, the concept of the Top-10 grouping was refined and expanded to include surrounding entities – for example, current Top-10 employer cities Chesapeake, Portsmouth, and Virginia Beach are now all in a “Metro” grouping that includes the Virginia Beach City School Board (formerly a large Non-Top 10 employer which as of June 30, 2024 ranks 18th for Market Value Assets and 8th for number of plan members). A goal of the new Metro groupings is to move towards better reflecting the Virginia population centers shown in the map below:

Virginia Counties by Population (2025)



<https://worldpopulationreview.com/us-counties/virginia>

New grouping statistics based on the June 30, 2024 valuation data are shown below:

	Top 10	Non Top 10	Metro	Non-Metro	Total
# of Plans	10	608	190	428	618
# Actives	33,998	85,463	72,936	46,525	119,461
\$ Billions Pension Liability	\$13.5	\$18.8	\$21.7	\$10.6	\$32.3

SECTION C

ECONOMIC ASSUMPTIONS

Economic Assumptions

Economic assumptions include long-term rates of investment return and wage inflation (the across-the-board portion of salary increases). Unlike demographic activities, economic activities do not lend themselves to analysis solely on the basis of internal historical patterns because both salary increases and investment return are driven by external forces; and in particular by inflation which defies accurate long-term prediction. Estimates of investment return and pay increases are generally selected on the basis of expectations in an inflation-free environment and then both are increased by some provision for long-term inflation.

If inflation and/or productivity increases are higher than expected, actual rates of salary increase and investment return are likely to exceed the assumed rates. Salaries increasing faster than expected produce unexpected liabilities. Investment return exceeding the assumed rates (whether due to manager performance, change in the mix of assets, or general inflation) results in unanticipated assets. To the extent that inflation, productivity, and other factors have about the same effect on both sides of the balance sheet, these additional assets and liabilities can offset one another over the long term.

Sources considered in the analysis of the economic assumptions included:

- Actual System experience over the last 4 years (i.e., merit and seniority pay increases);
- Future expectations of the investment consultant for VRS and future expectations of other investment consultants;
- 2024 Social Security Trustees Report; and
- Historical observations of inflation statistics (both price and wage) and investment returns.

Current VRS economic assumptions follow:

Price Inflation	2.50%
Wage Inflation	3.50%
Investment Return	6.75%
Payroll Growth	3.00%

Economic Assumptions

Price Inflation: Price inflation underlies both the wage inflation and investment return assumptions. Therefore, we recommend that a specific price inflation assumption be adopted in conjunction with this Experience Study. The chart on the following page shows forward-looking inflation expectations from various published sources. One page further, we see that over the past 50 years, price inflation has averaged 3.9%. This result is heavily affected by the high inflationary period of the 1970s and early 1980s. During the past decade, price inflation averaged 2.8%.

Although there has been a recent increase in short-term inflation rates, forward-looking forecasts shown on the following page range from 2.23% to 2.45%. **Based upon the reviewed data, we recommend maintaining the 2.5% assumption.** (Remember that the selected wage inflation and investment return assumptions should be consistent with the final selected price inflation assumption.)

Note that assumptions for the Cost-of-Living-Adjustments (COLA) payable under Virginia Code for the Virginia Retirement System are directly related to the price inflation assumption:

- For Plan 1 members, the COLA equals 100% of the CPI-U Increase up to 3.00% plus 50% of the next 4.00%, with a minimum COLA of 0.00% and a maximum COLA of 5.00%.
- For Plan 2 and Hybrid members, the COLA equals 100% of the CPI-U Increase up to 2.00% plus 50% of the next 2.00%, with a minimum COLA of 0.00% and a maximum COLA of 3.00%.

Given the continuation of a 2.5% price inflation assumption, we recommend maintaining COLA assumptions of 2.5% for Plan 1 members and 2.25% for all other members.

Forward-Looking Price Inflation Forecasts ^a	
Congressional Budget Office^b	
5-Year Annual Average	2.44%
10-Year Annual Average	2.32%
Federal Reserve Bank of Philadelphia^c	
5-Year Annual Average	2.40%
10-Year Annual Average	2.23%
Federal Reserve Bank of Cleveland^d	
10-Year Expectation	2.32%
20-Year Expectation	2.38%
30-Year Expectation	2.44%
Federal Reserve Bank of St. Louis^e	
10-Year Breakeven Inflation	2.30%
20-Year Breakeven Inflation	2.42%
30-Year Breakeven Inflation	2.27%
U.S. Department of the Treasury^f	
10-Year Breakeven Inflation	2.27%
20-Year Breakeven Inflation	2.45%
30-Year Breakeven Inflation	2.30%
50-Year Breakeven Inflation	2.37%
100-Year Breakeven Inflation	2.42%
Social Security Trustees^g	
Ultimate Intermediate Assumption	2.40%

^aEnd of the Fourth Quarter, 2024. Version 2025-01-27 by Gabriel, Roeder, Smith & Company.

^bAn Update to the Budget and Economic Outlook: 2024 to 2034, Release Date: June 2024, Consumer Price Index (CPI-U), Percentage Change from Year to Year, 5-Year Annual Average (2024 - 2028), 10-Year Annual Average (2024 - 2033).

^cFourth Quarter 2024 Survey of Professional Forecasters, Release Date: November 15, 2024, Headline CPI, Annualized Percentage Points, 5-Year Annual Average (2024 - 2028), 10-Year Annual Average (2024 - 2033).

^dInflation Expectations, Model output date: December 1, 2024.

^eThe breakeven inflation rate represents a measure of expected inflation derived from X-Year Treasury Constant Maturity Securities and X-Year Treasury Inflation-Indexed Constant Maturity Securities. Observation date: December, 2024.

^fThe Treasury Breakeven Inflation (TBI) Curve, Monthly Average Rates, December, 2024.

^gThe 2024 Annual Report of The Board of Trustees of The Federal Old-Age And Survivors Insurance and Federal Disability Insurance Trust Funds, May 6, 2024, p. 10, Key Assumptions and Summary Measures for Long-Range (75-year) Projections, Intermediate, Consumer Price Index (CPI-W).

Economic Assumptions

Wage Inflation: Wage inflation consists of two components, 1) a portion due to pure price inflation (i.e., increases due to changes in the CPI), and 2) increases in average salary levels in excess of pure price inflation (i.e., increases due to changes in productivity levels, supply and demand in the labor market and other macroeconomic factors). The long-term rate of increase in National Average Earnings over the last 50 years is somewhat higher than the current VRS assumption, and shorter term averages reflect a temporary spike in price inflation. It is expected that, in the long run, salary increases in all parts of the country will be close to the national averages. However, none of the data we have reviewed suggests a repeat of the high inflation rates experienced in the 1970s. The spread between increases in wages and prices has ranged between 50-150 basis points over time. **Given that the price inflation assumption of 2.50% and the current wage inflation of 3.5% result in a spread of 100 basis points, we recommend no change to the wage inflation assumption at this time.**

Year	Annual Increase in		
	Prices (CPI-U)	Wages (NAE)	Difference
1964-1973	4.1%	5.6%	1.5%
1974-1983	8.2%	7.2%	-1.0%
1984-1993	3.7%	4.3%	0.6%
1994-2003	2.4%	3.9%	1.5%
2004-2013	2.4%	2.8%	0.4%
2014-2023	2.8%	4.0%	1.2%
3-Year Avg	5.6%	5.9%	0.3%
5-Year Avg	4.1%	4.9%	0.8%
10-Year Avg	2.8%	4.0%	1.2%
20-Year Avg	2.6%	3.4%	0.8%
30-Year Avg	2.5%	3.6%	1.1%
50-Year Avg	3.9%	4.4%	0.5%

Economic Assumptions

Investment Return: The relevant Actuarial Standard of Practice (ASOP) for economic assumptions is ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*. Under ASOP No. 27, Section 3.6, an economic assumption is reasonable if it has the following characteristics:

- It is appropriate for the purpose of the measurement;
- It reflects the actuary's professional judgment;
- It takes into account current and historical data that is relevant to selecting the assumption for the measurement date, to the extent such relevant data is reasonably available;
- It reflects the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data (if any), or a combination thereof; and
- It is expected to have no significant bias (i.e., it is not significantly optimistic or pessimistic), except when provisions for adverse deviation or plan provisions that are difficult to measure are included (as discussed in Section 3.5.1) or when alternative assumptions are used for the assessment of risk, in accordance with ASOP No. 51, *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions*.

For purposes of budgeting contributions and measuring liabilities for public employee retirement systems, the assumed rate of investment return is used as the discount rate to determine the present value of a system's pension obligations. For most valuations, an actuarial investment return assumption based on expected future experience is a single estimate for all years and, therefore, implicitly assumes that returns above and below expectations will average out over time. In other words, the expected risk premium is reflected in the assumed rate of investment return in advance of being earned, while the investment risk (i.e., volatility) is not reflected until actual experience emerges with each valuation.

The analysis of the investment return assumption in this report is based on forward-looking measures of expected investment return outcomes for the asset classes in the System's current investment policy. For purposes of this analysis, we have analyzed the System's investment policy with the capital market assumptions from 12 nationally recognized investment firms.

Our analysis is based on the GRS 2024 Capital Market Assumption Modeler (CMAM¹). The purpose of the CMAM is to assess the reasonability of the assumed rate of return for use in the actuarial valuations for the plan. In our professional judgment, the CMAM has the capability to provide results that are consistent with this purpose. A description of the strengths, limitations and weaknesses of the model are incorporated in this report. In our opinion, the limitations and weaknesses are not material. We performed tests to ensure that the model reasonably represents that which is intended to be modeled. We are relying on the GRS actuaries and Internal Software, Training, and Processes Team who developed and maintain the model.

¹ Issued April 15, 2024.

Economic Assumptions

Because GRS is a benefits consulting firm and does not develop or maintain its own capital market expectations, we request and monitor forward-looking expectations developed by several major investment firms. We update our CMAM on an annual basis. The capital market assumptions in the 2024 CMAM are from the following investment firms (in alphabetical order): Aon Hewitt, Blackrock, BNY Mellon, Callan, Cambridge, JPMorgan, Meketa, Mercer, NEPC, RVK, Verus, and Wilshire. We believe that the benefit of performing this analysis using multiple investment firms is to recognize the uncertain nature of the items affecting the selection of the investment return assumption. While there may be differences in asset classes, investment horizons, inflation assumptions, treatment of investment expenses, excess manager performance (i.e., alpha), etc., we have attempted to align the various assumption sets from the different investment firms to be as consistent as possible. In some cases, we have made minor adjustments or assumptions to align the various assumptions sets with our model.

Each investment firm provided capital market assumptions over an investment horizon of approximately 10 years. Although investment firms often refer to this period as “short term” it is important to remember that 10 years is actually a very long time. Therefore, returns during the next 10 years will affect the plan’s funding materially. A subset of eight investment firms provided capital market expectations over a longer horizon, varying between 20 and 30 years.

In general, our understanding is that the methodology for developing these capital market expectations is forward-looking, not purely backward-looking. Over the years, we have observed a general decreasing trend in capital market expectations, which reversed with information provided for the 2022 CMAM. However, we have also observed that some of the investment firms’ assumption sets are dependent on the market conditions at the time they are developed and consequently may be sensitive to short-term market fluctuations. Some expectations are contrarian – meaning that when the market is high, future expectations are lowered and when the market is low, future expectations are raised. The amount of these fluctuations as they appear in the year-to-year capital market assumptions varies between the various investment firms.

Economic Assumptions

To the best of our ability, we have adapted the System’s investment policy to fit with the investment firms’ assumptions adjusting for these known differences in assumptions and methodology. The asset classes in the System’s investment allocation often do not exactly align with the asset classes of all investment firms in the survey. This may require us to make approximations which can introduce some subjectivity into the process. In the following charts, to the extent possible all returns are net of passive investment expenses and administrative expenses and have no assumption for excess manager performance (alpha) in excess of active management fees.

Presented below is the approximate VRS asset allocation:

Asset Class	2024 Allocation
Public Equity	33%
Private Equity	16%
Real Assets	14%
Credit Strategies	14%
Diversifying Strategies	4%
Private Investment Partnerships	2%
Fixed Income	16%
Cash	2%
Leverage	-1%

Based upon the approximate asset allocation, future expectations of various investment consultants were analyzed. The exhibit on the following page shows the results of this analysis. Final expected nominal investment return results are based upon the recommended 2.5% price inflation assumption. We used the actuarial assumption for price inflation rather than the consultant assumption, in order to be consistent with the calculation of liabilities. Investment results presented are net of investment and administrative expenses.

ASOP No. 27, Section 3.6.2, states that “due to the uncertain nature of the items for which assumptions are selected, the actuary may consider several different assumptions reasonable for a given measurement. Different actuaries will apply different professional judgment and may choose different reasonable assumptions. As a result, a range of reasonable assumptions may develop, both for an individual actuary and across actuarial practice.” This range of different expectations from the CMAs is evident from the summaries we show from our CMAM.

Economic Assumptions

Below we compare the probabilities of achieving returns over a 10-year horizon. We compute the 40th, 50th, and 60th percentiles of returns as well as the probability of achieving the current assumption of 6.75% over a 10-year horizon. These estimates are based on the assumption that the distribution of returns for the next 10 years is the same each year. The average median return of 6.70% from the last three years of CMAMs is shown at the bottom of the table below for reference.

GRS 2024 CMAM				
Capital Market Assumption Set (CMA)	Distribution of 20-Year Average Geometric Net Nominal Return			Probability of exceeding 6.75%
	40th	50th	60th	
(1)	(2)	(3)	(4)	(5)
1	5.49%	6.21%	6.94%	42.58%
2	5.73%	6.45%	7.17%	45.73%
3	6.24%	6.94%	7.65%	52.72%
4	6.43%	7.10%	7.78%	55.26%
5	6.53%	7.16%	7.80%	56.58%
6	6.52%	7.21%	7.91%	56.75%
7	6.63%	7.29%	7.96%	58.16%
8	6.82%	7.43%	8.05%	61.17%
9	6.76%	7.48%	8.20%	60.09%
10	6.97%	7.64%	8.31%	63.14%
11	7.05%	7.75%	8.46%	64.14%
12	7.24%	7.86%	8.48%	67.56%
Average	6.53%	7.21%	7.89%	56.99%
Average from last 3 CMAMs over 10-year horizon		6.70%		
Current CMAM average over 20- to 30-year horizon		7.42%		

The 50th percentile return is also related to the geometric average return. The geometric average of a sequence of returns over a number of years is the compound average of those returns over the number of years compounded. As the number of years in the geometric average increases and if the distributions of returns each year are independent and identically distributed, then the geometric average will converge to the median return. The median return may be considered a reasonable rate of return for purposes of the valuation. The average of 50th percentile returns is 7.21% per year.

While the chart above is based on a 10-year horizon, a subset of these firms also provided results over a longer horizon, varying from 20 to 30 years and showing average expected geometric returns of 7.42%. In addition to conducting our own analysis, VRS Investment staff provided expectations including a 20-year forecast of 7.10%.

Economic Assumptions

Please note that it is not uncommon for the actuary and investment managers to develop different forecasted rates of return. The following areas are reasons for some of these differences:

- Number of managers – Actuary typically will use survey information from many investment managers instead of using just one forecast.
- Mapping error – The various asset classes provided by the various investment consultants may be difficult to map exactly to the VRS asset classes.
- Current year expectations – Year to year forecasts for portfolios can change by 50 to 100 basis points a year. Actuaries may decide to apply smoothing to these forecasts so that there will not be large changes each year in the investment return assumption.
- Purpose – The purpose of the return assumption for actuaries is generally to develop a discount rate for determining liabilities, which may be different from the overall purpose of the investment manager forecast (i.e., beating their benchmarks).
- Inflation – Inflation forecasts will tend to vary by investment forecaster.
- Time Horizon – While there is no universally agreed upon time horizon to base the investment return assumption on, longer term forecasts tend to be less reliable than shorter term forecasts.
- Treatment of alpha – In general, actuaries are not allowed to include alpha in their assumption. ASOP No. 27, Section 3.8.3 d. states, "Investment Manager Performance—Anticipating superior (or inferior) investment manager performance may be unduly optimistic (or pessimistic). The actuary should not assume that superior or inferior returns will be achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy unless the actuary believes, based on relevant supporting data, that such superior or inferior returns represent a reasonable expectation over the measurement period." In practice, assuming alpha as part of the total investment assumption is rare.

Summary investment return recommendation:

Forward-looking investment return expectations have rebounded since the prior experience study (since 2022 in particular), stopping movement among nearly all Public Sector Retirement Systems to reduce this assumption. It is important to remember that this assumption should not drive the asset allocation or investment goals of the investment managers. Rather, it is intended to reflect the expected return of the portfolio based upon the given asset allocation. Based upon this data, in our opinion, the Board's assumed rate of return of 6.75% remains a reasonable assumption.

Economic Assumptions

Payroll growth: This assumption is needed for developing amortization payments as a level percent of payroll. Central to setting this assumption are two elements: 1) how the active member population is expected to evolve, and 2) actual payroll growth.

Population Growth:

The growth in the active populations for the Statewide systems since 2012 is shown below.

Growth in Active Population												
Year	State	% Change	Teachers	% Change	VaLORS	% Change	State Police	% Change	Judicial	% Change	Locals	% Change
2012	76,274		147,216		9,383		1,881		380			
2013	75,812	-0.6%	146,730	-0.3%	9,372	-0.1%	2,002	6.4%	381	0.3%		
2014	75,730	-0.1%	146,977	0.2%	9,429	0.6%	2,011	0.4%	385	1.0%		
2015	75,256	-0.6%	147,645	0.5%	8,820	-6.5%	1,994	-0.8%	401	4.2%	105,932	
2016	74,968	-0.4%	149,018	0.9%	9,106	3.2%	1,940	-2.7%	416	3.7%	106,271	0.3%
2017	74,807	-0.2%	150,416	0.9%	8,718	-4.3%	1,882	-3.0%	421	1.2%	107,315	1.0%
2018	74,582	-0.3%	151,585	0.8%	8,718	0.0%	1,885	0.2%	416	-1.2%	108,693	1.3%
2019	74,799	0.3%	149,396	-1.4%	8,692	-0.3%	1,914	1.5%	462	11.1%	110,415	1.6%
2020	75,069	0.4%	150,681	0.9%	8,554	-1.6%	1,924	0.5%	449	-2.8%	110,854	0.4%
2021	73,685	-1.8%	149,793	-0.6%	7,823	-8.5%	1,947	1.2%	453	0.9%	108,613	-2.0%
2022	74,048	0.5%	153,356	2.4%	7,289	-6.8%	1,885	-3.2%	461	1.8%	109,906	1.2%
2023	76,876	3.8%	153,107	-0.2%	7,478	2.6%	1,882	-0.2%	458	-0.7%	114,279	4.0%
2024	80,017	4.1%	156,504	2.2%	7,307	-2.3%	1,890	0.4%	471	2.8%	119,461	4.5%
12-Years		0.4%		0.5%		-2.1%		0.0%		1.8%		1.0%

The chart shows that over the last 12 years VaLORS has contracted in size, while the other groups remained relatively level. We understand that VaLORS has gone through numerous consolidations over this period, but may not have yet reached a steady state during which the population remains level. Some of the population growth for the Locals is due to new employers joining the system.

Actual Payroll Growth:

Actual payroll growth for the active populations in the Statewide systems since 2012 is shown below.

Growth in Total Payroll (\$ Millions)												
Year	State	% Change	Teachers	% Change	VaLORS	% Change	State Police	% Change	Judicial	% Change	Locals	% Change
2012	\$3,713.12		\$7,004.58		\$344.62		\$104.19		\$56.96			
2013	\$3,716.55	0.1%	\$7,211.54	3.0%	\$342.15	-0.7%	\$109.01	4.6%	\$57.11	0.3%		
2014	\$3,854.78	3.7%	\$7,362.79	2.1%	\$352.71	3.1%	\$112.30	3.0%	\$59.37	4.0%		
2015	\$3,872.72	0.5%	\$7,488.51	1.7%	\$330.40	-6.3%	\$110.54	-1.6%	\$61.88	4.2%	\$4,340.14	
2016	\$4,002.48	3.4%	\$7,666.82	2.4%	\$352.68	6.7%	\$114.88	3.9%	\$65.52	5.9%	\$4,656.69	7.3%
2017	\$4,037.07	0.9%	\$7,919.45	3.3%	\$339.15	-3.8%	\$110.27	-4.0%	\$66.29	1.2%	\$4,808.36	3.3%
2018	\$4,161.92	3.1%	\$8,086.93	2.1%	\$346.11	2.1%	\$126.52	14.7%	\$67.42	1.7%	\$4,973.56	3.4%
2019	\$4,375.06	5.1%	\$8,210.13	1.5%	\$369.78	6.8%	\$132.23	4.5%	\$76.85	14.0%	\$5,258.47	5.7%
2020	\$4,428.50	1.2%	\$8,498.52	3.5%	\$363.90	-1.6%	\$131.25	-0.7%	\$74.73	-2.8%	\$5,409.54	2.9%
2021	\$4,594.35	3.7%	\$8,557.00	0.7%	\$351.09	-3.5%	\$142.80	8.8%	\$79.13	5.9%	\$5,494.73	1.6%
2022	\$4,946.31	7.7%	\$9,263.31	8.3%	\$372.49	6.1%	\$159.21	11.5%	\$80.75	2.0%	\$6,121.69	11.4%
2023	\$5,448.99	10.2%	\$9,666.67	4.4%	\$398.11	6.9%	\$168.61	5.9%	\$88.39	9.5%	\$6,762.22	10.5%
2024	\$5,979.31	9.7%	\$10,500.72	8.6%	\$407.76	2.4%	\$176.48	4.7%	\$95.36	7.9%	\$7,473.91	10.5%
12-Years		4.1%		3.4%		1.4%		4.5%		4.4%		4.6%

Most groups experienced average payroll growth in excess of the current 3% assumption driven, in part, due to the recent high inflationary environment. VaLORS experienced lower average payroll growth over last 12 years in spite of the recent high inflation.

Proposal: Based on the information above, update the payroll growth assumption to 2.5% going forward for VaLORS and maintain the current 3.0% assumption for all others. Continue monitoring VaLORS experience with respect to the active member population and payroll growth.

Here follows an overall summary of all economic assumptions investigated in the section:

Summary of Recommended Economic Assumptions

Measure	Recommended Assumption
Price Inflation	2.50%
Wage Inflation	3.50%
Investment Return	6.75%
Payroll Growth	2.50% - VaLORS Pension 3.00% - all others

SECTION D

OPEB ASSUMPTIONS

Group Life Insurance (GLI)

This study explored the following assumptions related to GLI. These assumptions are used to estimate inactive/retiree liability in instances where full data reporting is not available.

Life-Only Retiree Estimate

Select groups with eligible persons do not provide retiree census data. These groups are comprised of local groups that participate in the group life insurance program but do not participate in other VRS programs such as retirement benefits. GLI valuation results include an estimate of inactive/retiree liability for such groups. The estimation assumptions are based on the ratio of actual benefit payments paid to these groups and the actual benefit payments made to all other groups. Currently, the Life Only group includes an estimated retiree liability equal to 1.618% of the inactive accrued liability of the non-Life Only groups. Securian provided data regarding basic life insurance payments for the study period. This data shows that the basic Life Only benefit payments comprise 3.1% of the basic Non-Life Only benefit payments.

Group Life Insurance Amount Paid During 2020 2024	
Life Only	\$ 34,970,123
All Group Life (Excluding Life Only)	\$ 1,133,042,492
Ratio	3.1%

Recommendation: We recommend maintaining the approximation method and increasing the ratio from 1.618% of liabilities to 2.0% of liabilities, noting that we do not recommend increasing to 3.1% because life insurance claims during the experience study period were higher than normal due to COVID-19.

Optional Retirement Program (ORP) Estimate

The Optional Retirement Program (ORP) group includes an estimate retiree liability equal to 10% of the active ORP liability multiplied by the ratio of the average non-ORP/Life Only retiree accrued liability to the average non-ORP/Life Only accrued liability.

Recommendation: As we were unable to fully isolate the ORP group in the Securian data provided to us by the System, we recommend no changes to this assumption for the ORP group.

Line of Duty Act Fund (LODA)

This study explored the following assumptions related to LODA:

Full-Time Equivalent Basis

Employers contribute on the basis of full-time equivalent active member counts (“employees”). Full-time, part-time, volunteers and National Guard positions are each considered separately in the determination of contribution and liability weighting. Weights are set with the idea that these members are proportionately likely to incur duty death or disability benefits in the line of duty. The current and proposed full-time equivalent weightings are shown below.

Recommendation: An additional break out of part-time members was considered in this experience study with actual experience over the study period suggesting part-time members are less likely to incur line of duty benefit claims. Further consideration was given to the relative likelihood of the National Guard and Volunteer categories receiving benefit claims. Data during the experience study period shows no claims for National Guard or Volunteer members. As such, we recommend separate weighting percentages for part-time employees and reducing the National Guard and Volunteers weighting percentages as follows:

Employer Group	Current Weighting	Proposed Weighting
State/VaLORS/SPORS Full-Time	100%	100%
State/VaLORS/SPORS Part-Time	100%	50%
National Guard		
Full-Time	100%	75%
Part-Time	10%	5%
Participating PoliticalSubdivisions		
Full-Time	100%	100%
Part-Time	100%	50%
Volunteers	25%	20%

This change serves to reduce the number of full-time equivalent members with which to spread projected benefit payments, resulting in an increase to the full-time equivalent rate.

Administrative Expenses

Administrative expenses are set equal to the immediately preceding fiscal year end’s actual expenses. During the experience period, these expenses bounced between roughly \$550,000 to \$750,000 per year. We retain the assumption that administrative expenses increase 3.0% annually for purposes of FTE contribution rate projections.

Line of Duty Act Fund (LODA)

Spouse Health Care Coverage

Current assumption: 80% of males and 80% of females were assumed to be married for purposes of spouse coverage under the Fund. The following experience emerged over the experience period and resulted in rates in line with the current assumption.

	Year Ending June 30,				Total
	2021	2022	2023	2024	
Newly Disabled Members	17	39	38	33	127
With 1+ Dependents	13	33	30	26	102
% with Dependents	76%	85%	79%	79%	80%

Recommendation: No change.

Medicare Due to Disability

Current assumption: 25% of members are assumed to become eligible for Medicare earlier than age 65 due to disability. The following experience emerged over the experience period. It is not uncommon for a new claimant to be non-Medicare coverage in the initial year of claim and be given Medicare eligibility the following year. As such, we look to move toward an assumption between the initial year and lagged one-year results.

Under Age 65	Year Ending June 30,				Total ¹
	2021	2022	2023	2024	
Newly Disabled Members	17	39	38	33	127
With Medicare (Initial Year)	0	2	7	1	10
With Medicare (Lagged One Year)	1	7	10	N/A	18
With Medicare (Initial Year)	0%	5%	18%	3%	8%
With Medicare (Lagged One Year)	6%	18%	26%	N/A	19%

¹ Lagged One Year results do not include 2024 counts.

Recommendation: Decrease the percentage of members assumed to become eligible for Medicare earlier than age 65 due to disability to 15%.

Line of Duty Act Fund (LODA)

Service-Related Disabilities

Active disabilities are assumed to be service related and result in coverage under the Fund based on differing percentages by group. Data and credibility to set this assumption is limited, and recommended percentages are adjusted to align expected new claim counts to recent claimant counts for each group.

State	0	1	0	0.3	0.5	0.5
SPORS	3	7	3	4.3	5.6	4.9
VaLORS	10	6	10	8.7	21.8	14.0
Political Subdivisions ²	26	24	20	23.3	19.0	22.2

¹ Includes adjustments to full-time equivalent weights and disability incidence.

² Includes National Guard.

Recommendation: Adjust the percentage of qualifying disabilities as shown below.

Group	Qualifying Disability % Current	Group	Qualifying Disability % Proposed
State	25%	State	25%
SPORS	85%	SPORS	85%
VaLORS	35%	VaLORS	25%
Non-Top 10 LEOs	65%	Non-Metro LEOs	100%
Top 10 LEOs	70%	Metro LEOs	100%

Service-Related Deaths

Active employee deaths are assumed to be service related and result in coverage under the Fund based on differing percentages by group as shown below. Of the service-related deaths, 50% are assumed to be paid as a direct or proximate result of the performance of duty, with the remainder paid under the presumptive clause. Active employee death experience is not credible, and as such, we see no reason to modify the qualifying death percentages.

Group	Qualifying Death % Current and Proposed
State	25%
SPORS	85%
VaLORS	35%
Non-Top 10 LEOs/Non-Metro LEOs	45%
Top 10 LEOs/Metro LEOs	70%

Recommendation: No change.

Line of Duty Act Fund (LODA)

Missing Data Assumptions

Modeling LODA benefits requires collecting data from entities not otherwise covered by VRS programs. Where data is unable to be reasonably provided, assumptions regarding missing data must be set.

Unknown Gender

Current Assumption: Members with unknown gender are assumed to be male.

78.3% of active members included in the LODA valuation are male.

Recommendation: No change.

Unknown Date of Birth

Current Assumption: Members with unknown date of birth are assumed to be age 30 for National Guard and age 40 for all others.

The average age of National Guard members with known dates of birth is 31.8 years. The average age of all other with known dates of birth is 40.4 years.

Recommendation: No change.

Unknown Service

Service assumptions are used for members with missing service. The proposed table is based on most recent data for National Guard members with known service.

Age Less Than	Assumed Service Current	Age Less Than	Assumed Service Proposed
16	0.00	20	0.7
24	0.90	22	1.1
26	1.75	24	1.6
28	2.74	26	2.3
30	3.70	28	3.2
31	4.85	30	4.2
34	6.07	32	5.1
35	7.81	34	6.1
38	8.90	36	7.4
40	10.59	38	8.0
42	11.77	40	9.5
44	13.07	42	11.7
45	14.67	44	13.2
47	14.95	46	14.5
48	16.15	48	15.6
50	17.12	50	17.0
55	18.21	52	17.2
60	18.48	52+	18.0
65	21.42		
65+	23.32		

Recommendation: Adjust the assumed amounts of service based on the proposed table above.

Line of Duty Act Fund (LODA)

Health Care Trend Assumption

The health care cost trend rate assumption is used to project health care costs in future years. The health care cost trend rate is the rate of change in per capita health care claims over time as a result of factors such as medical inflation, utilization of health care services, plan design, and technological improvements. It is a crucial economic assumption that is required for measuring retiree health care benefit obligations.

The LODA valuations use a health care cost trend assumption (trend vector) that changes over the years. The trend vector used in this valuation begins with a near-term trend assumption and declines over a time to an ultimate trend rate, currently 4.25%. The near-term rates reflect the increases in the current cost of health care goods and services. The process of trending down to a lower ultimate trend relies on the theory that premiums will moderate over the long term; otherwise, the health care sector would eventually consume the entire GDP.

While experience is often the best starting point for future costs, we do not rely on a group's experience in setting the near-term trend assumptions since trends vary significantly from year to year and are not credible for most groups. Therefore, professional judgment, trends from GRS' book of business, and industry benchmarks (e.g., trend reports from various Pharmacy Benefit Management (PBM) organizations and national healthcare benefit consulting firms) are used to establish the beginning trend assumptions. Medicare Part B beginning trend assumptions are set based on annual Medicare Trustees report projections.

Separate trend assumptions are used for pre-65, post-65, and Medicare Part B coverage. The assumption used in the most recent valuation of the LODA Fund is shown below.

Fiscal Year Ending	Non-Medicare	Medicare Primary	Medicare Part B
2026	7.25%	6.50%	3.39%
2027	7.00%	6.25%	6.02%
2028	6.50%	6.00%	7.71%
2029	6.25%	5.75%	5.98%
2030	6.00%	5.50%	6.47%
2031	5.50%	5.25%	6.05%
2032	5.25%	5.00%	6.63%
2033	5.00%	4.75%	7.01%
2034	4.50%	4.50%	5.59%
2035 and Beyond	4.25%	4.25%	4.25%

Recommendation: No change to the ultimate trend rate of 4.25%. Beginning (near-term) trend assumptions will be reviewed each valuation cycle.

Health Insurance Credit Program (HIC)

General Discussion

For purposes of the Health Insurance Credit Program specific assumptions, the experience and recommendations throughout the next several pages of this report were based on the 2024 valuation data reporting. Transition of the actuarial service provider and changes in the HIC allocation method since the last experience study limited our ability to review actual experience back to June 30, 2020.

Recommendations on the following several pages generally include a reasonable margin for adverse experience, moving roughly halfway between the current assumption and actual experience. This approach allows us to make small adjustments over time as the assumptions are honed with each subsequent experience study.

Benefit Participation

Upon retirement not all eligible retirees and disabled members elect to receive the HIC benefit. As such, an assumption exists related to benefit participation.

Experience and Recommendations

Eligible Future Service Retirees from Active Status

System	Current Assumption	Actual Participation	Proposed Assumption
Statewide Plans (Incl. Teachers)	95%	92%	94%
Political Subdivision & Special Coverage Groups	85%	90%	87%

The actual percentage of service retirees electing coverage is 92% for Statewide Plan participants and 90% for participants of the Political Subdivisions & Special Coverage Groups. We looked at the data further and learned that service retiree coverage election does not vary significantly by retirement date. As a result of actual experience, for the Statewide Plans we recommend a slight reduction in the valuation assumption to 94% and for the Political Subdivision & Special Coverage Group, we recommend a slight increase in the valuation assumption to 87%.

Health Insurance Credit Program (HIC)

Benefit Participation (Concluded)

Experience and Recommendations (Concluded)

Eligible Future Disabled Members from Active Status

System	Current Assumption	Actual Participation	Proposed Assumption
State/JRS	95%	89%	92%
Teachers	90%	77%	84%
SPORS/VaLORS	80%	45%	63%
Political Subdivision & Special Coverage Groups	50%	58%	54%

We recommend adjusting the assumption for future disabled members based on the actual experience noted in the table above (center column). We recommend the State/JRS assumption be reduced from 95% to 92%, the Teachers assumption be reduced from 90% to 84%, the SPORS/VaLORS assumption be reduced from 80% to 63%, and the Political Subdivision & Special Coverage Groups assumption be increased from 50% to 54%.

Eligible Future Service Retirees from Terminated Vested Status

System	Current Assumption	Proposed Assumption
Statewide Plans	95%	94%
Political Subdivision & Special Coverage Groups	85%	87%

For Eligible Future Service Retirees from Terminated Vested Status we recommend continuing to set the assumption so it mirrors the assumption for Eligible Future Service Retirees from Active Status (see page D-7), as the data necessary to determine actual participation of retirees from terminated vested status is not available.

Benefit Utilization

Upon benefit commencement not all eligible retirees and disabled members electing to commence HIC benefits elect to receive the maximum HIC benefit for which they are eligible. As a result, an assumption exists related to HIC benefit utilization. Currently, the HIC utilization assumption consists of four components.

- Percentage of members electing HIC benefits and receiving the maximum benefit;
- Percentage of members electing HIC benefits and not receiving the maximum;
- Percentage of benefit utilized for those not receiving the maximum; and
- Increase in benefit for those not electing the maximum benefit.

Health Insurance Credit Program (HIC)

Benefit Utilization (Continued)

Experience and Recommendations

Percentage of Members Electing HIC Benefits but Not Receiving the Full Amount

System	Current Assumption	Actual Percentage Not Utilizing Maximum Benefit	Proposed Assumption	Implied Proposed Percentage Utilizing Maximum Benefit
State/JRS	5%	6%	5%	95%
Teachers	15%	11%	13%	87%
SPORS/VaLORS	10%	9%	9%	91%
Political Subdivision & Special Coverage Groups	5%	4%	4%	96%

The actual experience of members utilizing less than the full HIC benefit during the study period are as indicated above (second column of results). Experience over the study period indicates that actual experience is relatively close to expectations for State/JRS, SPORS/VaLORS, and Political Subdivision & Special Coverage groups. Actual experience for the Teachers group is slightly less than the current assumption.

As a result of actual experience, we are recommending no change to State/JRS and a slight decrease to Teachers, SPORS/VaLORS, and Political Subdivision & Special Coverage group assumptions.

Percentage of Full Benefit Received for Those Eligible but Not Receiving the Maximum

System	Current Assumption	Actual Portion of Maximum Benefit Received	Proposed Assumption
Statewide Plans (Incl. Teachers)	70%	70%	70%
Political Subdivision & Special Coverage Groups	70%	69%	70%

Experience over the study period indicates that members of the Statewide Plans who do not utilize the full benefit amount utilize, on average, 70% of the full benefit. Additionally, similar members of the Political Subdivision and Special Coverage Groups utilize, on average, 69% of the full benefit amount. As a result, no change is recommended to the assumption regarding the amount of benefit utilized by members who are assumed to utilize less than the full benefit.

Health Insurance Credit Program (HIC)

Benefit Utilization (Concluded)

Experience and Recommendations (Concluded)

Annual Increase in Benefit for Those Not Receiving Maximum Benefit

Duration Since Retirement	Current Assumption
1 Year	4.50%
2 - 3 Years	4.25%
4 or More Years	3.00%

Experience over the study period shows that on average benefit utilization of members not utilizing the maximum is 70% regardless of date of retirement. This means individuals who retired 20 years in the past who are not utilizing the maximum, utilize 70% of the benefit; similarly, individuals who retired in the last year electing to not utilize the maximum also utilize 70% of the benefit. Based on recent experience over and in an effort to simplify the valuation process, we recommend eliminating the annual increase in benefit assumption for members not receiving the maximum benefit.

Terminated Vested Member Withdrawals and Retirement Ages

Members who terminated employment before being eligible for retirement who are vested may withdraw their contributions with VRS but are no longer eligible to receive HIC benefits. In order to receive a pension benefit and an HIC benefit, vested members must elect to leave their contributions with VRS. As such, assumptions exist related to the portion of terminated vested members withdrawing and their expected retirement age.

Experience and Recommendations

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

System	Current Assumption		Proposed Assumption
	Under Age 50	Age 50 and Over	
State/JRS	75%	35%	6%
Teachers	75%	35%	6%
SPORS/VaLORS	90%	55%	6%
Political Subdivision & Special Coverage Groups	85%	50%	13%

Health Insurance Credit Program (HIC)

Terminated Vested Member Withdrawals and Retirement Ages (Concluded)

Experience and Recommendations (Concluded)

We recommend an adjustment to the assumed percentage of terminated vested members who withdraw thus eliminating their eligibility for HIC benefits at retirement to bring the assumption into alignment with the participation assumption applied to Eligible Future Service Retirees from Terminated Vested Status. Reasons for the recommended change are as follows:

- GRS has insufficient data to analyze the specifics of this assumption directly;
- Pension valuation assumptions do not include a forfeiture assumption. The recommended change brings the pension and HIC assumptions into alignment; and
- The proposed assumption provides margin for adverse deviation.

Deferred Vested Deferral Period – Age of Initial Benefit Receipt

System	Current Assumption	Actual Average Age of Initial Benefit Receipt	Proposed Assumption
State/Teachers/JRS Political Subdivision & Special Coverage Groups (with General EE Pension Benefit Coverage)			
Plan 1	60	61	60
Plan 2 & Hybrid		65	62
DOB before 1938	60	-	-
1937 < DOB < 1960	61	-	-
DOB > 1959	62	-	-
SPORS/VaLORS Political Subdivision & Special Coverage Groups (with Enhanced Hazardous Duty Pension Benefit Coverage)		55	55
Members with < 25 YOS	55	-	-
Members with >= 25 YOS	50	-	-

For State/Teachers/JRS and Political Subdivision & Special Coverage Groups (with General EE Pension Benefit Coverage) actual experience was reviewed separately for Plan 1 and Plan 2 & Hybrid. Plan 1 experience indicated that members commence HIC benefits at age 61 on average. Consequently, no change to this assumption is recommended. Plan 2 & Hybrid experience is rather limited, but indicated an average benefit commencement age of 65. Since the actual retirement age for pension purposes is higher than Plan 1, the benefit commencement age of members belonging to Plan 2 & Hybrid is expected to trend up over time. Due to the actual experience, expectations, and in an attempt to reduce valuation complexity we are recommending this assumption be set to age 62 regardless of year of birth. Using age 62 provides margin in the valuation results until this assumption can be further evaluated at the next experience study.

For SPORS/VaLORS and Political Subdivision & Special Coverage Groups (with Enhanced Hazardous Duty Pension Benefit Coverage) actual experience indicated that members commence HIC benefits at age 55 on average, regardless of service accrual at retirement. As a result, we recommend moving to a singular Age of Initial Benefit Receipt of 55 for such members.

Health Insurance Credit Program (HIC)

ORP and UVA Deferred Vested Member Adjustment

As part of the valuation data collection process data is received for ORP/UVA members who are active and those currently in payment status. The data does not include deferred vested ORP/UVA membership. Since liabilities are expected for ORP/UVA members who are no longer active and elect to commence HIC benefits at a later date, the valuation includes an estimate of these liabilities. Currently the estimate is developed based on the relationship of deferred to retirees for other HIC Plans (non-ORP/UVA). We are recommending no change to this adjustment as part of the experience study.

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

This study explored the following assumptions related to the VSDP and VLDP programs:

Disability Incidence

Each of the VSDP and VLDP plans are subsets of larger pension systems. As such, disability incidence among the VSDP and VLDP plans was compared to that of the larger pension system for which disability rates are set. If necessary, a scaling factor to the proposed pension disability rates was developed. The analysis is shown below:

Subgroup	Actual to Expected			
	Pension		VSDP/VLDP	
	Male	Female	Male	Female
State	70%	63%	73%	60%
SPORS	65%		86%	
VaLORS	99%	55%	86%	49%
Teachers	45%	40%	152%	121%
Metro (Non-Haz)	44%	39%	107%	147%
Non-Metro (Non-Haz)	30%	31%	104%	153%

For the VSDP subgroups (State, SPORS, and VaLORS), the experience aligns well with the larger pension system and recommended pension scaling factors below. However, each of the VLDP subgroups (Teachers, Metro, and Non-Metro) experienced unfavorable disability experience when compared to that of the pension. Therefore, we are recommending scaling factors to each of the VLDP subgroups, such that the rates of disability for each group will differ from that of the pension.

Recommendation: Adjust the VLDP specific disability rates from proposed pension disability rates with the following scaling factors:

Subgroup	Proposed Scaling Factors			
	Pension		VSDP/VLDP ¹	
	Male	Female	Male	Female
State	90%	85%	N/A	N/A
SPORS	90%		N/A	
VaLORS	100%	70%	N/A	N/A
Teachers	50%	45%	2.40	2.50
Metro (Non-Haz)	45%	50%	2.00	2.40
Non-Metro (Non-Haz)	40%	40%	2.50	3.00

¹ Scaling factor applied to proposed pension rates in this study. The factors also apply to LODA disability rates.

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

Recovery from Disability

Rates of termination of benefits due to death or recovery are based on the 2012 Group Long Term Disability Valuation Table (2012 GLTD) as proposed by the Society of Actuaries' Group Disability Experience Committee for use by the National Association of Insurance Commissioners. Used as a basis are those rates applicable to plans with a six-month elimination period, "Own Occupation" definition of disability in the first twenty-four months and "Any Occupation" definition of disability for the twenty-fifth month onward, initial maximum guaranteed benefit of \$1,900, "No Diagnosis" cause of disability. The current VRS specific adjustment factors are shown below:

Month of Disability	Male	Female
4 - 24	0.852	0.803
25 - 60	0.811	0.821
61 - 120	1.164	1.184
121 and over	1.073	1.126

We examined the recovery experience of the disabled participants in VSDP and VLDP. Disability payments can end due to a number of reasons, including commencing a VRS retirement benefit. In order to isolate recoveries, we removed the experience for those who ceased LTD coverage due to retirement or maximum benefit age. The emerging results showed a lighter recovery experience than the valuation assumptions at the short durations (first three years since onset of the disability), and heavier death or recovery experience at the longer durations. Experience for males and females were similar. The small amount of experience data for VLDP was concentrated in the first 5 years of disability. Here too, we saw lighter recoveries than the valuation rates, leading to recommended adjustment factors that are the same as those for VSDP.

The emerging experience was given a partial weight based on how close it was to the valuation assumption, and adjustment factors were replaced with current adjustment factors where the number of disabled by duration was small (under 15). The resulting actual to expected recoveries when compared to current recovery rates is shown below.

Month of Disability	Actual to Expected Recoveries	
	Male	Female
4 - 24	0.790	0.760
25 - 60	1.050	1.050
61 - 120	1.100	1.100
121 and over	1.380	1.400

When applied to the current VRS adjustment factors, the proposed adjustment factors are shown on the following page.

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

Recommendation: Adjust the VRS specific adjustment factors to those shown below.

Month of Disability	Male	Female
4 - 24	0.673	0.610
25 - 60	0.852	0.862
61 - 120	1.280	1.302
121 and over	1.481	1.576

Offsets for Active Members

Most LTD recipients will receive benefit income from Social Security and/or Workers Compensation. As there can be delays between the disabling event and the receipt of a Social Security disability award, the valuation projects benefit adjustments, with factors varying by years since disability.

We compared the aggregate experience of benefit offsets to the gross benefit and compared the experience from 2021 – 2024, as shown below. The emerging experience was close to the current factors, with actual to expected values between 89% and 122%. When the experience was within 10% of the assumption, the assumption was adjusted by giving 25% weight to the emerging experience. When the experience was below 90% or above 110%, 50% weight was given to the emerging experience.

Years of LTD	Benefit Adjustment Factor	VSDP Experience	VLDP Experience	VSDP Actual to Expected	VLDP Actual to Expected	Adjusted VSDP Factors	Adjusted VLDP Factors
1	71%	76%	76%	106%	108%	72%	72%
2	57%	66%	66%	115%	117%	61%	62%
3	52%	51%	51%	98%	99%	52%	52%
4	49%	51%	51%	104%	103%	49%	49%
5	42%	46%	46%	109%	108%	43%	43%
6	36%	42%	42%	117%	116%	39%	39%
7	36%	43%	43%	119%	120%	39%	40%
8	36%	44%	44%	122%	122%	40%	40%
9	36%	37%	37%	102%	102%	36%	36%
10	43%	45%	45%	104%	104%	43%	43%
11	43%	38%	38%	89%	89%	41%	41%
12	43%	49%	49%	114%	114%	46%	46%
13	43%	44%	44%	102%	102%	43%	43%
14	45%	41%	41%	92%	92%	44%	44%
15+	51%	48%	48%	94%	94%	50%	50%

Recommendation: VSDP and VLDP adjusted factors are not dissimilar enough to warrant separate assumption tables. We recommend moving VSDP and VLDP adjustment factors to those shown in the “Adjusted VSDP Factors” column above.

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

Offsets for Disabled Members

Many LTD recipients will receive benefit income from Social Security and/or Workers Compensation. The longer a person is on long-term disability the more likely the individual is to be awarded an offset. The following analysis shows the likelihood of having an offset and the average offset at each duration.

Years Since Disability	1	2	3	4	5	6	7	8+
Records without Offsets	496	119	71	44	46	36	37	198
Records with Offsets	306	186	147	136	131	113	125	733
Total Records	802	305	218	180	177	149	162	931
% With Offset	38%	61%	67%	76%	74%	76%	77%	79%
% Offset of Gross	77%	80%	76%	72%	76%	77%	76%	73%
% Paid If Offset	23%	20%	24%	28%	24%	23%	24%	27%
Current Assumption	27%	26%	26%	26%	26%	26%	26%	30%
Actual to Expected	117%	130%	108%	93%	108%	113%	108%	110%
Proposed	26%	25%	25%	26%	27%	26%	25%	29%

Recommendation: Small adjustments to the average percentage of full benefit paid if in receipt of offsets as shown below. No change to the percentage receiving offsets in the next year.

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	36%	26%
2	27%	25%
3	23%	25%
4	16%	26%
5	14%	27%
6	9%	26%
7	4%	25%
8+	0%	29%

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

Income Replacement for Future Disabled Members

Members approved for long-term disability receive 60% of their pre-disability income. If the long-term disability is determined to be catastrophic, the 60% income replacement level may be increased to 80% for the duration of the disability. The current assumption is a 62% income replacement level.

Approximately 6% of participants as of June 30, 2024 qualify for the 80% catastrophic disability coverage (139 out of 2,331 open records). Percentages between VSDP and VLDP are similar around 6%. The resulting income replacement level is 61.2% ($6\% * 80\% + 94\% * 60\%$). Given the assumption was increased from 61% to 62% in the last experience study and the 62% allows for some margin, we recommend no change.

Recommendation: No change.

Members with 1% Employer Contribution

Long-term disabled members covered under the Hybrid Retirement Plan who qualify for Social Security Disability Insurance (SSDI) benefits receive the mandatory 1% employer contribution to the Hybrid 401(a) plan. The current assumption is 65% of disabled Hybrid members will qualify for SSDI benefits. The analysis shows just under 65% of all active disability records during the 4 years of experience receive a SSDI award.

Year	Percentage Qualifying for 1% Employer Contribution
2021	64%
2022	61%
2023	59%
2024	60%

Recommendation: No change.

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

Long-Term Care Benefits

Recommendation Approach: due to the nuances of the LTC benefit and efforts to simplify the approach, recommendations will be forthcoming in a separate document.

SECTION E

ACTUARIAL METHODS/FUNDING POLICY

Actuarial Methods/Funding Policy

Actuarial Cost Method

The pertinent ASOP for actuarial cost methods and amortization methods is ASOP No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions. The pertinent ASOP for the asset valuation method is ASOP No. 44, Selection and Use of Asset Valuation Methods for Pension Valuations. For purposes of this experience study, we review the methods within the context of the current ASOPs.

The preliminary actuarial calculation for each member in the valuation is to compute the present value of future benefits based on the plan provisions and adopted actuarial assumptions. An actuarial cost method is a process for spreading the present value of benefits over time based on the funding objectives of the Board. An actuarial cost method generally determines a normal cost – the portion of the present value of future benefits allocated to the current year – and may also determine an actuarial accrued liability - the portion of the present value of future benefits allocated to past service. All three calculations, the present value of future benefits, the normal cost, and the actuarial accrued liability, are critical components of the funding valuation.

VRS valuations are performed using the entry age normal cost method, under which the total actuarially determined contribution requirement equals the sum of the normal cost plus the payment required to fund the unfunded actuarial accrued liability over a period of years. Funding or amortizing the unfunded actuarial accrued liability includes a payment toward the liability (principal) plus a payment to reflect the time value of money (interest).

Normal Cost

In general terms, the normal cost is the cost of benefit rights accruing on the basis of current service. Technically, the normal cost rate is the level percentage-of-pay contribution required each year, with respect to each member, to accumulate over their projected working lifetime the reserves needed to meet the cost of earned benefits. The normal cost represents the ultimate cost of the Retirement System, if the unfunded liability is paid up and the actual experience of the System conforms to the assumptions. This experience study refined the calculation of Normal Cost to remove historical salaries and to adjust projected fiscal year payroll used to calculate the blended Normal Cost to reflect the closed nature of Plan 1 and Plan 2 for Plans with Hybrid members.

Actuarial Accrued Liability

The total actuarial present value of future benefits is computed using the valuation's actuarial assumptions.

Subtracting the present value of future normal costs results in the actuarial accrued liability.

The total actuarial accrued liability essentially represents the amount that would have been accumulated as of a given valuation date, if:

- (i) Contributions sufficient to meet the normal costs of the Retirement System had been made each year in the past;
- (ii) Benefit provisions had always been the same as current benefit provisions; and
- (iii) Actual past experience had always conformed to current actuarial assumptions.

If assets equaled the total accrued liability, there would be no unfunded liability and future contribution requirements would consist solely of the calculated normal cost rates.

In our opinion, the entry age normal actuarial cost method is appropriate for the purpose of the funding valuations.



Actuarial Methods/Funding Policy

Recent Changes to ASOP No. 4

There has been an update to ASOP 4 since the previous experience study. Updates impacting VRS include additional disclosures of the annual gain or loss on actuarial accrued liability and the actuarial value of assets and the disclosure of a market value based liability, the LDROM or Low Default Risk Obligation Measure. These additional disclosures have been incorporated into the reports issued for VRS each year.

In addition, another change to ASOP No. 4 includes a requirement for the actuary to opine on the reasonableness of the actuarially determined contribution (ADC). One requirement is that the ADC must not allow perpetual negative amortization. Negative amortization can exist under the contribution policy if the unfunded actuarial accrued liability is expected to increase when all contributions are made and all assumptions are met. Perpetual negative amortization results in an ever-increasing unfunded actuarial accrued liability. Therefore, while we monitor the valuation results, we do not expect this change in the ASOP to impact VRS.

Asset Valuation Method

For most Systems/Plans in the Virginia Retirement System, funding valuation results are developed using an asset smoothing method under which the Actuarial Value of Assets (AVA) recognizes assumed investment income fully each year, with differences between actual and assumed investment income phased-in over closed 5-year periods. We recommend extending the use of 5-year asset smoothing to the following HIC plans: Political Subdivisions, Constitutional Officers, Social Services and Registrars.

Funding Policy Changes

Generally, a review of funding policy may be considered as part of an experience study review under ASOP No. 4 with the actuarial cost method and asset smoothing method. GRS and VRS staff discussed and recommended the following updates to the Funding Policy:

Surplus Funding Policy

Once the funded status on actuarial value of assets (AVA) basis exceeds 100% for Statewide Plans:

1. Continue normal cost contributions until funding reaching 120%,
2. Recognize the Unfunded Accrued Liability (UAL) credit when AVA funding exceeds 120%, and
3. Amortize such overfunding, over 100% funded, using a 20-year rolling period.

Administrative Expenses Policy

To ensure full accounting of expenses, add a floor of 0.01% for plan administration expense for all OPEB plans.

Future considerations include:

1. Requiring 10-year financing of benefit changes for all Statewide Plans, and
2. Conducting a separate surplus funding study for Political Subdivisions.

SECTION F

DEMOGRAPHIC ASSUMPTIONS

State Normal Retirement Experience – Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed
65	2,012,321	524,407	503,080	0.2606	0.2500	1.042	0.2500	503,080	1.042
66	1,614,231	466,284	403,660	0.2889	0.2501	1.155	0.2600	419,700	1.111
67	1,233,343	323,951	271,370	0.2627	0.2200	1.194	0.2300	283,669	1.142
68	998,300	224,234	219,626	0.2246	0.2200	1.021	0.2200	219,626	1.021
69	847,248	162,652	186,395	0.1920	0.2200	0.873	0.2100	177,922	0.914
70	714,908	145,480	157,280	0.2035	0.2200	0.925	0.2200	157,280	0.925
71	591,762	111,210	130,188	0.1879	0.2200	0.854	0.2100	124,270	0.895
72	520,563	100,655	114,524	0.1934	0.2200	0.879	0.2100	109,318	0.921
73	413,928	76,346	91,064	0.1844	0.2200	0.838	0.2100	86,925	0.878
74	345,490	59,283	76,008	0.1716	0.2200	0.780	0.2100	72,553	0.817
75	294,248	74,152	64,735	0.2520	0.2200	1.145	0.2300	67,677	1.096
76	207,561	31,092	45,663	0.1498	0.2200	0.681	0.2000	41,512	0.749
77	217,348	31,260	47,816	0.1438	0.2200	0.654	0.2000	43,470	0.719
78	187,312	33,702	41,209	0.1799	0.2200	0.818	0.2100	39,336	0.857
79	155,597	55,994	34,231	0.3599	0.2200	1.636	0.2500	38,899	1.439
Total	10,354,161	2,420,701	2,386,849	0.2338	0.2305	1.014		2,385,237	1.015

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed
65	2,490,333	761,047	708,811	0.3056	0.2846	1.074	0.2900	722,197	1.054
66	1,827,501	597,174	548,250	0.3268	0.3000	1.089	0.3100	566,525	1.054
67	1,313,443	356,798	328,402	0.2717	0.2500	1.086	0.2600	341,495	1.045
68	977,220	233,210	244,305	0.2386	0.2500	0.955	0.2500	244,305	0.955
69	812,036	207,456	219,250	0.2555	0.2700	0.946	0.2700	219,250	0.946
70	616,697	180,952	166,508	0.2934	0.2700	1.087	0.2800	172,675	1.048
71	418,698	104,725	104,675	0.2501	0.2500	1.000	0.2500	104,675	1.000
72	316,084	57,438	79,021	0.1817	0.2500	0.727	0.2300	72,699	0.790
73	250,307	55,636	62,577	0.2223	0.2500	0.889	0.2400	60,074	0.926
74	183,638	38,537	45,910	0.2099	0.2500	0.839	0.2400	44,073	0.874
75	131,345	39,679	32,836	0.3021	0.2500	1.208	0.2600	34,150	1.162
76	98,419	24,295	24,605	0.2469	0.2500	0.987	0.2500	24,605	0.987
77	68,114	8,317	17,029	0.1221	0.2500	0.488	0.2200	14,985	0.555
78	59,194	12,983	14,799	0.2193	0.2500	0.877	0.2400	14,207	0.914
79	42,432	9,677	10,608	0.2281	0.2500	0.912	0.2400	10,184	0.950
Total	9,605,463	2,687,925	2,607,584	0.2798	0.2715	1.031		2,646,098	1.016

State Unreduced Early Retirement Experience - Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	35,892	8,919	4,486	0.2485	0.1250	1.988	0.1600	5,743	1.553
51	83,281	6,283	7,093	0.0754	0.0852	0.886	0.0800	6,662	0.943
52	146,668	12,619	12,636	0.0860	0.0862	0.999	0.0900	13,200	0.956
53	241,956	17,323	20,925	0.0716	0.0865	0.828	0.0800	19,357	0.895
54	341,242	30,649	29,805	0.0898	0.0873	1.028	0.0900	30,712	0.998
55	437,063	40,735	38,394	0.0932	0.0878	1.061	0.0900	39,336	1.036
56	595,991	41,195	52,391	0.0691	0.0879	0.786	0.0800	47,679	0.864
57	702,797	63,570	62,218	0.0905	0.0885	1.022	0.0900	63,252	1.005
58	813,442	66,127	74,281	0.0813	0.0913	0.890	0.0900	73,210	0.903
59	883,059	81,720	80,390	0.0925	0.0910	1.017	0.0900	79,475	1.028
60	998,057	118,657	92,908	0.1189	0.0931	1.277	0.1000	99,806	1.189
61	1,061,759	141,885	161,185	0.1336	0.1518	0.880	0.1500	159,264	0.891
62	1,018,564	185,744	201,171	0.1824	0.1975	0.923	0.1900	193,527	0.960
63	1,001,175	162,346	174,819	0.1622	0.1746	0.929	0.1700	170,200	0.954
64	961,462	187,072	167,907	0.1946	0.1746	1.114	0.1800	173,063	1.081
Total	9,322,407	1,164,844	1,180,609	0.1250	0.1266	0.987		1,174,485	0.992

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	51,309	2,381	3,848	0.0464	0.0750	0.619	0.0700	3,592	0.663
51	99,052	8,321	6,473	0.0840	0.0654	1.285	0.0700	6,934	1.200
52	203,783	15,366	13,411	0.0754	0.0658	1.146	0.0700	14,265	1.077
53	342,319	36,734	26,733	0.1073	0.0781	1.374	0.0900	30,809	1.192
54	477,877	39,782	37,579	0.0832	0.0786	1.059	0.0800	38,230	1.041
55	593,965	33,361	46,942	0.0562	0.0790	0.711	0.0700	41,578	0.802
56	758,786	61,534	60,076	0.0811	0.0792	1.024	0.0800	60,703	1.014
57	903,675	71,062	82,628	0.0786	0.0914	0.860	0.0900	81,331	0.874
58	1,123,132	80,889	102,375	0.0720	0.0912	0.790	0.0900	101,082	0.800
59	1,261,294	120,308	117,498	0.0954	0.0932	1.024	0.0900	113,516	1.060
60	1,272,891	140,053	158,519	0.1100	0.1245	0.884	0.1200	152,747	0.917
61	1,324,473	167,218	207,529	0.1263	0.1567	0.806	0.1500	198,671	0.842
62	1,331,933	221,606	269,594	0.1664	0.2024	0.822	0.1900	253,067	0.876
63	1,294,655	203,978	232,005	0.1576	0.1792	0.879	0.1700	220,091	0.927
64	1,217,377	269,956	217,159	0.2218	0.1784	1.243	0.1900	231,302	1.167
Total	12,256,520	1,472,547	1,582,371	0.1201	0.1291	0.931		1,547,916	0.951

State Reduced Early Retirement Experience - Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	2,045,831	46,650	66,437	0.0228	0.0325	0.702	0.0300	61,375	0.760
51	2,171,581	65,410	65,102	0.0301	0.0300	1.005	0.0300	65,147	1.004
52	2,239,935	74,621	67,188	0.0333	0.0300	1.111	0.0300	67,198	1.110
53	2,197,497	67,892	65,819	0.0309	0.0300	1.031	0.0300	65,925	1.030
54	2,032,097	60,739	60,938	0.0299	0.0300	0.997	0.0300	60,963	0.996
55	2,015,516	60,541	70,799	0.0300	0.0351	0.855	0.0300	60,465	1.001
56	1,965,198	49,763	78,608	0.0253	0.0400	0.633	0.0400	78,608	0.633
57	1,963,483	60,730	78,550	0.0309	0.0400	0.773	0.0400	78,539	0.773
58	1,915,930	86,169	76,647	0.0450	0.0400	1.124	0.0400	76,637	1.124
59	1,911,359	76,648	76,454	0.0401	0.0400	1.003	0.0400	76,454	1.003
60	1,789,754	102,412	89,469	0.0572	0.0500	1.145	0.0500	89,488	1.144
61	1,644,528	108,191	123,340	0.0658	0.0750	0.877	0.0700	115,117	0.940
62	1,569,042	200,561	156,904	0.1278	0.1000	1.278	0.1100	172,595	1.162
63	1,399,819	101,159	139,982	0.0723	0.1000	0.723	0.0900	125,984	0.803
64	1,316,248	204,137	177,694	0.1551	0.1350	1.149	0.1400	184,275	1.108
Total	28,177,818	1,365,623	1,393,930	0.0485	0.0495	0.980		1,378,770	0.990

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	2,375,584	89,597	94,887	0.0377	0.0399	0.944	0.0400	95,023	0.943
51	2,496,276	64,201	74,799	0.0257	0.0300	0.858	0.0300	74,888	0.857
52	2,596,278	97,079	90,644	0.0374	0.0349	1.071	0.0300	77,888	1.246
53	2,508,676	101,738	87,811	0.0406	0.0350	1.159	0.0300	75,260	1.352
54	2,427,299	100,194	85,021	0.0413	0.0350	1.178	0.0300	72,819	1.376
55	2,482,164	88,918	99,508	0.0358	0.0401	0.894	0.0400	99,287	0.896
56	2,504,967	104,960	100,207	0.0419	0.0400	1.047	0.0400	100,199	1.048
57	2,465,390	94,869	98,630	0.0385	0.0400	0.962	0.0400	98,616	0.962
58	2,532,774	100,454	113,991	0.0397	0.0450	0.881	0.0400	101,311	0.992
59	2,507,774	133,502	125,389	0.0532	0.0500	1.065	0.0500	125,389	1.065
60	2,493,939	151,283	137,156	0.0607	0.0550	1.103	0.0600	149,636	1.011
61	2,403,870	163,130	192,285	0.0679	0.0800	0.848	0.0800	192,310	0.848
62	2,190,660	225,621	262,814	0.1030	0.1200	0.858	0.1200	262,879	0.858
63	1,961,297	153,442	235,500	0.0782	0.1201	0.652	0.1100	215,743	0.711
64	1,794,763	312,199	269,214	0.1739	0.1500	1.160	0.1600	287,162	1.087
Total	35,741,712	1,981,186	2,067,857	0.0554	0.0579	0.958		2,028,410	0.977

State Retirement Experience – Plan 2/Hybrid

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	795,142	48,382	63,611	0.0608	0.0800	0.761	0.0800	63,611	0.761
61	764,781	52,625	57,640	0.0688	0.0754	0.913	0.0700	53,535	0.983
62	732,277	48,853	73,228	0.0667	0.1000	0.667	0.0900	65,905	0.741
63	684,791	58,655	68,479	0.0857	0.1000	0.857	0.1000	68,479	0.857
64	604,185	56,515	60,419	0.0935	0.1000	0.935	0.1000	60,419	0.935
65	526,470	71,749	105,335	0.1363	0.2001	0.681	0.1800	94,765	0.757
66	452,562	100,658	90,512	0.2224	0.2000	1.112	0.2100	95,038	1.059
67	358,939	69,611	72,485	0.1939	0.2019	0.960	0.2000	71,788	0.970
68	258,297	57,217	52,712	0.2215	0.2041	1.085	0.2100	54,242	1.055
69	211,183	53,635	42,716	0.2540	0.2023	1.256	0.2200	46,460	1.154
70	154,042	38,007	31,222	0.2467	0.2027	1.217	0.2100	32,349	1.175
71	113,382	17,379	23,107	0.1533	0.2038	0.752	0.1900	21,543	0.807
72	86,527	9,911	17,417	0.1145	0.2013	0.569	0.1800	15,575	0.636
73	68,962	20,488	14,081	0.2971	0.2042	1.455	0.1700	11,724	1.748
74	41,384	3,978	8,418	0.0961	0.2034	0.473	0.1800	7,449	0.534
75	38,423	3,821	7,799	0.0995	0.2030	0.490	0.1800	6,916	0.553
76	29,841	5,190	6,130	0.1739	0.2054	0.847	0.1700	5,073	1.023
77	19,282	1,085	3,876	0.0562	0.2010	0.280	0.1700	3,278	0.331
78	11,318	3,868	2,405	0.3418	0.2125	1.608	0.1700	1,924	2.010
79	6,734	0	1,347	0.0000	0.2000	0.000	0.1700	1,145	0.000
Total	5,958,524	721,626	802,940	0.1211	0.1348	0.899		781,217	0.924

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	987,333	61,806	78,987	0.0626	0.0800	0.782	0.0800	78,987	0.782
61	884,734	79,901	66,720	0.0903	0.0754	1.198	0.0800	70,779	1.129
62	821,738	91,179	82,174	0.1110	0.1000	1.110	0.1000	82,174	1.110
63	753,778	68,412	75,378	0.0908	0.1000	0.908	0.1000	75,378	0.908
64	666,106	92,282	66,611	0.1385	0.1000	1.385	0.1100	73,272	1.259
65	579,029	98,354	115,967	0.1699	0.2003	0.848	0.1900	110,015	0.894
66	434,594	107,196	86,919	0.2467	0.2000	1.233	0.2100	91,265	1.175
67	302,434	73,101	61,369	0.2417	0.2029	1.191	0.2100	63,511	1.151
68	224,328	45,198	45,780	0.2015	0.2041	0.987	0.2000	44,866	1.007
69	173,587	34,069	35,203	0.1963	0.2028	0.968	0.2000	34,717	0.981
70	119,603	30,301	24,100	0.2533	0.2015	1.257	0.2000	23,921	1.267
71	84,899	11,312	17,155	0.1332	0.2021	0.659	0.2000	16,980	0.666
72	61,052	7,123	12,468	0.1167	0.2042	0.571	0.2000	12,210	0.583
73	41,536	8,322	8,473	0.2004	0.2040	0.982	0.2000	8,307	1.002
74	34,889	9,118	7,157	0.2614	0.2051	1.274	0.2000	6,978	1.307
75	17,853	1,783	3,683	0.0999	0.2063	0.484	0.2000	3,571	0.499
76	14,464	2,512	2,924	0.1737	0.2021	0.859	0.2000	2,893	0.868
77	7,603	1,977	1,521	0.2600	0.2000	1.300	0.2000	1,521	1.300
78	3,649	0	730	0.0000	0.2000	0.000	0.2000	730	0.000
79	2,167	1,160	451	0.5352	0.2079	2.574	0.2000	433	2.676
Total	6,215,375	825,106	793,767	0.1328	0.1277	1.039		802,506	1.028

Teacher Normal Retirement Experience – Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
65	854,741	271,932	265,812	0.3181	0.3110	1.023	0.3100	264,970	1.026
66	596,689	213,459	202,808	0.3577	0.3399	1.053	0.3400	202,874	1.052
67	415,409	130,623	141,218	0.3144	0.3399	0.925	0.3300	137,085	0.953
68	324,566	83,895	97,370	0.2585	0.3000	0.862	0.2900	94,124	0.891
69	259,713	85,121	77,914	0.3277	0.3000	1.092	0.3100	80,511	1.057
70	197,308	60,819	59,192	0.3082	0.3000	1.027	0.3000	59,192	1.027
71	139,701	44,416	41,910	0.3179	0.3000	1.060	0.3000	41,910	1.060
72	89,048	27,467	22,262	0.3085	0.2500	1.234	0.2600	23,153	1.186
73	68,838	15,504	17,210	0.2252	0.2500	0.901	0.2400	16,521	0.938
74	65,018	10,844	16,255	0.1668	0.2500	0.667	0.2300	14,954	0.725
75	57,630	14,108	14,407	0.2448	0.2500	0.979	0.2500	14,407	0.979
76	52,137	8,541	13,034	0.1638	0.2500	0.655	0.2300	11,991	0.712
77	44,397	7,455	11,099	0.1679	0.2500	0.672	0.2300	10,211	0.730
78	28,629	4,137	7,157	0.1445	0.2500	0.578	0.2200	6,298	0.657
79	24,873	3,759	6,218	0.1511	0.2500	0.604	0.2300	5,721	0.657
Total	3,218,697	982,080	993,866	0.3051	0.3088	0.988		983,924	0.998

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
65	3,471,663	1,244,304	1,254,931	0.3584	0.3615	0.992	0.3600	1,249,799	0.996
66	2,342,412	826,802	936,965	0.3530	0.4000	0.882	0.3900	913,541	0.905
67	1,599,426	483,055	511,816	0.3020	0.3200	0.944	0.3200	511,816	0.944
68	1,226,464	351,899	392,469	0.2869	0.3200	0.897	0.3100	380,204	0.926
69	870,172	296,998	278,455	0.3413	0.3200	1.067	0.3300	287,157	1.034
70	613,320	170,110	196,245	0.2774	0.3200	0.867	0.3100	190,129	0.895
71	467,682	131,891	128,613	0.2820	0.2750	1.025	0.2800	130,951	1.007
72	349,314	69,193	96,087	0.1981	0.2751	0.720	0.2600	90,822	0.762
73	287,365	73,492	79,025	0.2557	0.2750	0.930	0.2700	77,588	0.947
74	211,308	45,699	58,110	0.2163	0.2750	0.786	0.2600	54,940	0.832
75	154,254	37,942	42,420	0.2460	0.2750	0.894	0.2700	41,648	0.911
76	104,302	22,732	28,683	0.2179	0.2750	0.793	0.2600	27,119	0.838
77	70,071	19,009	19,270	0.2713	0.2750	0.986	0.2700	18,919	1.005
78	46,764	11,077	12,860	0.2369	0.2750	0.861	0.2700	12,626	0.877
79	38,296	10,454	10,531	0.2730	0.2750	0.993	0.2700	10,340	1.011
Total	11,852,814	3,794,657	4,046,479	0.3201	0.3414	0.938		3,997,599	0.949

Teacher Unreduced Early Retirement Experience - Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	2,845	0	427	0.0000	0.1500	0.000	0.1100	313	0.000
51	14,881	0	1,921	0.0000	0.1291	0.000	0.1000	1,488	0.000
52	90,131	11,672	12,637	0.1295	0.1402	0.924	0.1400	12,618	0.925
53	276,043	34,584	37,277	0.1253	0.1350	0.928	0.1300	35,886	0.964
54	451,314	85,470	54,932	0.1894	0.1217	1.556	0.1400	63,184	1.353
55	485,361	76,219	83,817	0.1570	0.1727	0.909	0.1700	82,511	0.924
56	559,899	93,216	95,542	0.1665	0.1706	0.976	0.1700	95,183	0.979
57	571,882	103,181	92,971	0.1804	0.1626	1.110	0.1700	97,220	1.061
58	582,484	105,802	92,951	0.1816	0.1596	1.138	0.1700	99,022	1.068
59	579,337	106,693	92,613	0.1842	0.1599	1.152	0.1700	98,487	1.083
60	581,604	97,788	102,773	0.1681	0.1767	0.951	0.1700	98,873	0.989
61	535,256	129,384	129,120	0.2417	0.2412	1.002	0.2400	128,461	1.007
62	481,993	105,947	147,172	0.2198	0.3053	0.720	0.2800	134,958	0.785
63	427,863	112,941	110,356	0.2640	0.2579	1.023	0.2600	111,244	1.015
64	336,781	103,875	87,937	0.3084	0.2611	1.181	0.2700	90,931	1.142
Total	5,977,671	1,166,773	1,142,447	0.1952	0.1911	1.021		1,150,380	1.014

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	12,510	3,339	1,877	0.2669	0.1500	1.779	0.1800	2,252	1.483
51	38,071	1,577	4,741	0.0414	0.1245	0.333	0.1000	3,807	0.414
52	437,286	40,362	63,351	0.0923	0.1449	0.637	0.1300	56,847	0.710
53	1,095,994	123,720	143,608	0.1129	0.1310	0.862	0.1300	142,479	0.868
54	1,609,785	278,238	213,322	0.1728	0.1325	1.304	0.1400	225,370	1.235
55	1,681,302	297,752	295,879	0.1771	0.1760	1.006	0.1800	302,634	0.984
56	1,706,492	286,801	296,516	0.1681	0.1738	0.967	0.1700	290,104	0.989
57	1,728,492	301,122	293,983	0.1742	0.1701	1.024	0.1700	293,844	1.025
58	1,651,381	311,926	277,589	0.1889	0.1681	1.124	0.1700	280,735	1.111
59	1,611,114	320,224	285,417	0.1988	0.1772	1.122	0.1800	290,000	1.104
60	1,609,448	299,067	341,185	0.1858	0.2120	0.877	0.2100	337,984	0.885
61	1,515,968	364,291	388,136	0.2403	0.2560	0.939	0.2500	378,992	0.961
62	1,401,719	349,905	429,502	0.2496	0.3064	0.815	0.2900	406,499	0.861
63	1,195,633	286,656	342,516	0.2398	0.2865	0.837	0.2700	322,821	0.888
64	1,080,076	358,265	309,227	0.3317	0.2863	1.159	0.3000	324,023	1.106
Total	18,375,271	3,623,246	3,686,849	0.1972	0.2006	0.983		3,658,391	0.990

Teacher Reduced Early Retirement Experience - Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	1,564,281	32,519	39,107	0.0208	0.0250	0.832	0.0200	31,286	1.039
51	3,274,225	68,555	114,794	0.0209	0.0351	0.597	0.0300	98,227	0.698
52	3,208,851	132,306	112,408	0.0412	0.0350	1.177	0.0400	128,354	1.031
53	2,998,589	139,612	104,967	0.0466	0.0350	1.330	0.0400	119,944	1.164
54	2,535,346	208,567	101,414	0.0823	0.0400	2.057	0.0500	126,767	1.645
55	2,217,314	159,352	110,994	0.0719	0.0501	1.436	0.0600	133,039	1.198
56	1,974,542	138,215	98,727	0.0700	0.0500	1.400	0.0600	118,472	1.167
57	1,687,530	119,400	84,377	0.0708	0.0500	1.415	0.0600	101,252	1.179
58	1,504,621	117,615	75,231	0.0782	0.0500	1.563	0.0600	90,277	1.303
59	1,390,705	131,413	97,349	0.0945	0.0700	1.350	0.0800	111,256	1.181
60	1,242,577	117,984	93,193	0.0950	0.0750	1.266	0.0800	99,406	1.187
61	1,174,170	142,005	140,900	0.1209	0.1200	1.008	0.1200	140,900	1.008
62	1,021,953	121,459	153,293	0.1189	0.1500	0.792	0.1400	143,073	0.849
63	943,895	151,900	141,584	0.1609	0.1500	1.073	0.1500	141,584	1.073
64	802,996	232,652	120,449	0.2897	0.1500	1.932	0.1800	144,539	1.610
Total	27,541,595	2,013,556	1,588,788	0.0731	0.0577	1.267		1,728,378	1.165

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	4,934,610	170,400	148,038	0.0345	0.0300	1.151	0.0300	148,038	1.151
51	10,291,954	361,350	309,288	0.0351	0.0301	1.168	0.0300	308,759	1.170
52	10,058,563	443,073	402,526	0.0440	0.0400	1.101	0.0400	402,343	1.101
53	9,149,201	449,661	366,204	0.0491	0.0400	1.228	0.0400	365,968	1.229
54	8,061,051	518,636	362,747	0.0643	0.0450	1.430	0.0500	403,053	1.287
55	7,286,938	520,241	364,069	0.0714	0.0500	1.429	0.0600	437,216	1.190
56	6,868,335	506,585	377,760	0.0738	0.0550	1.341	0.0600	412,100	1.229
57	6,509,974	500,456	358,049	0.0769	0.0550	1.398	0.0600	390,598	1.281
58	6,296,031	504,620	346,287	0.0801	0.0550	1.457	0.0600	377,762	1.336
59	6,175,228	598,818	432,295	0.0970	0.0700	1.385	0.0800	494,018	1.212
60	5,812,515	613,786	494,064	0.1056	0.0850	1.242	0.0900	523,126	1.173
61	5,449,228	833,072	599,415	0.1529	0.1100	1.390	0.1200	653,907	1.274
62	4,676,008	733,320	701,401	0.1568	0.1500	1.046	0.1500	701,401	1.046
63	4,119,571	668,656	617,936	0.1623	0.1500	1.082	0.1500	617,936	1.082
64	3,553,571	1,075,972	710,714	0.3028	0.2000	1.514	0.2300	817,321	1.316
Total	99,242,779	8,498,646	6,590,793	0.0856	0.0664	1.289		7,053,547	1.205

Teacher Retirement Experience – Plan 2/Hybrid

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed
60	213,523	12,543	19,217	0.0587	0.0900	0.653	0.0800	17,082	0.734
61	357,042	34,413	37,055	0.0964	0.1038	0.929	0.1000	35,704	0.964
62	344,096	42,059	45,434	0.1222	0.1320	0.926	0.1300	44,733	0.940
63	320,638	30,431	42,257	0.0949	0.1318	0.720	0.1300	41,683	0.730
64	293,770	41,515	41,398	0.1413	0.1409	1.003	0.1300	38,190	1.087
65	235,245	43,390	70,574	0.1844	0.3000	0.615	0.2700	63,516	0.683
66	164,288	51,831	49,286	0.3155	0.3000	1.052	0.3000	49,286	1.052
67	111,955	33,376	23,493	0.2981	0.2098	1.421	0.2300	25,750	1.296
68	89,544	18,408	18,486	0.2056	0.2064	0.996	0.2000	17,909	1.028
69	69,264	16,934	14,772	0.2445	0.2133	1.146	0.2000	13,853	1.222
70	65,255	14,477	13,403	0.2219	0.2054	1.080	0.2000	13,051	1.109
71	50,036	15,142	10,088	0.3026	0.2016	1.501	0.2000	10,007	1.513
72	28,195	7,986	5,803	0.2833	0.2058	1.376	0.2000	5,639	1.416
73	20,992	7,126	4,296	0.3395	0.2047	1.659	0.2000	4,198	1.697
74	16,266	4,899	3,394	0.3012	0.2086	1.443	0.2000	3,253	1.506
75	12,860	555	2,787	0.0432	0.2167	0.199	0.2000	2,572	0.216
76	13,211	4,190	2,689	0.3172	0.2036	1.558	0.2000	2,642	1.586
77	7,498	326	1,550	0.0435	0.2067	0.210	0.2000	1,500	0.217
78	4,794	1,360	1,010	0.2837	0.2108	1.346	0.2000	959	1.419
79	6,586	1,985	1,317	0.3014	0.2000	1.507	0.2000	1,317	1.507
Total	2,425,058	382,949	408,309	0.1579	0.1684	0.938		392,844	0.975

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed
60	788,980	67,139	71,008	0.0851	0.0900	0.946	0.0900	71,008	0.946
61	1,427,378	183,616	147,126	0.1286	0.1031	1.248	0.1100	157,012	1.169
62	1,177,071	145,892	154,769	0.1239	0.1315	0.943	0.1300	153,019	0.953
63	963,745	110,406	126,879	0.1146	0.1317	0.870	0.1300	125,287	0.881
64	836,539	162,883	117,799	0.1947	0.1408	1.383	0.1500	125,481	1.298
65	604,219	135,173	181,266	0.2237	0.3000	0.746	0.2800	169,181	0.799
66	422,109	100,441	126,633	0.2379	0.3000	0.793	0.2800	118,191	0.850
67	297,409	77,733	61,497	0.2614	0.2068	1.264	0.2200	65,430	1.188
68	212,021	41,884	43,945	0.1975	0.2073	0.953	0.2000	42,404	0.988
69	162,283	41,760	33,895	0.2573	0.2089	1.232	0.2000	32,457	1.287
70	121,755	25,360	25,546	0.2083	0.2098	0.993	0.2000	24,351	1.041
71	89,056	20,911	18,722	0.2348	0.2102	1.117	0.2000	17,811	1.174
72	61,400	15,081	12,483	0.2456	0.2033	1.208	0.2000	12,280	1.228
73	45,291	6,764	9,542	0.1493	0.2107	0.709	0.2000	9,058	0.747
74	34,699	6,059	7,196	0.1746	0.2074	0.842	0.2000	6,940	0.873
75	21,537	6,409	4,406	0.2976	0.2046	1.455	0.2000	4,307	1.488
76	10,340	3,370	2,126	0.3259	0.2056	1.585	0.2000	2,068	1.629
77	6,317	318	1,430	0.0503	0.2264	0.222	0.2000	1,263	0.252
78	4,139	2,099	919	0.5072	0.2221	2.284	0.2000	828	2.536
79	1,788	171	358	0.0958	0.2000	0.479	0.2000	358	0.479
Total	7,288,077	1,153,469	1,147,543	0.1583	0.1575	1.005		1,138,734	1.013

VaLORS Normal Retirement Experience

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	232,783	31,829	46,047	0.1367	0.1978	0.691	0.1800	41,901	0.760
61	209,308	37,023	41,229	0.1769	0.1970	0.898	0.1900	39,769	0.931
62	163,295	49,572	48,393	0.3036	0.2964	1.024	0.3000	48,988	1.012
63	130,970	20,375	33,017	0.1556	0.2521	0.617	0.2300	30,123	0.676
64	102,335	19,560	25,198	0.1911	0.2462	0.776	0.2300	23,537	0.831
65	89,938	24,914	26,342	0.2770	0.2929	0.946	0.2900	26,082	0.955
66	74,909	21,581	22,101	0.2881	0.2950	0.976	0.2900	21,724	0.993
67	50,465	10,383	14,700	0.2058	0.2913	0.706	0.2700	13,626	0.762
68	44,681	10,522	12,555	0.2355	0.2810	0.838	0.2700	12,064	0.872
69	25,318	8,108	7,595	0.3202	0.3000	1.067	0.3100	7,849	1.033
Total	1,124,002	233,868	277,177	0.2081	0.2466	0.844		265,662	0.880

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	118,699	32,527	23,379	0.2740	0.1970	1.391	0.2200	26,114	1.246
61	94,444	24,389	18,889	0.2582	0.2000	1.291	0.2200	20,778	1.174
62	67,224	9,905	22,670	0.1473	0.3372	0.437	0.2900	19,495	0.508
63	67,921	11,580	16,445	0.1705	0.2421	0.704	0.2200	14,943	0.775
64	51,148	14,155	12,492	0.2768	0.2442	1.133	0.2500	12,787	1.107
65	34,594	15,370	16,546	0.4443	0.4783	0.929	0.4700	16,259	0.945
66	16,206	4,832	4,770	0.2982	0.2943	1.013	0.3000	4,862	0.994
67	14,201	3,656	3,852	0.2575	0.2713	0.949	0.2700	3,834	0.954
68	11,882	3,222	3,565	0.2712	0.3000	0.904	0.2900	3,446	0.935
69	12,622	7,383	3,787	0.5849	0.3000	1.950	0.3700	4,670	1.581
Total	488,940	127,020	126,393	0.2598	0.2585	1.005		127,187	0.999

VaLORS Unreduced Retirement Experience

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	125,997	53,632	56,699	0.4257	0.4500	0.946	0.4400	55,439	0.967
51	71,766	19,649	21,530	0.2738	0.3000	0.913	0.2900	20,812	0.944
52	74,010	25,140	22,203	0.3397	0.3000	1.132	0.3100	22,943	1.096
53	69,961	20,185	18,297	0.2885	0.2615	1.103	0.2700	18,889	1.069
54	68,996	17,623	17,139	0.2554	0.2484	1.028	0.2500	17,249	1.022
55	63,507	17,277	15,316	0.2721	0.2412	1.128	0.2500	15,877	1.088
56	64,562	15,915	15,298	0.2465	0.2370	1.040	0.2400	15,495	1.027
57	52,695	19,110	10,454	0.3627	0.1984	1.828	0.2400	12,647	1.511
58	52,859	9,426	10,359	0.1783	0.1960	0.910	0.2300	12,158	0.775
59	56,104	17,766	11,021	0.3167	0.1964	1.612	0.2300	12,904	1.377
Total	700,457	215,723	198,316	0.3080	0.2831	1.088		204,412	1.055

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	49,543	20,305	18,579	0.4098	0.3750	1.093	0.3800	18,826	1.079
51	28,863	9,673	6,029	0.3351	0.2089	1.604	0.2400	6,927	1.396
52	32,784	8,654	7,081	0.2640	0.2160	1.222	0.2300	7,540	1.148
53	33,188	10,269	7,739	0.3094	0.2332	1.327	0.2500	8,297	1.238
54	29,794	10,551	8,671	0.3541	0.2910	1.217	0.3100	9,236	1.142
55	34,539	8,287	10,019	0.2399	0.2901	0.827	0.2800	9,671	0.857
56	32,562	6,536	9,472	0.2007	0.2909	0.690	0.2700	8,792	0.743
57	30,301	5,006	5,762	0.1652	0.1902	0.869	0.2600	7,878	0.635
58	34,493	5,772	7,901	0.1673	0.2291	0.731	0.2600	8,968	0.644
59	35,516	13,250	8,043	0.3731	0.2265	1.647	0.2600	9,234	1.435
Total	341,583	98,302	89,295	0.2878	0.2614	1.101		95,370	1.031

VaLORS Reduced Early Retirement Experience

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	379,608	62,955	55,986	0.1658	0.1475	1.124	0.1500	56,941	1.106
51	333,979	44,085	26,345	0.1320	0.0789	1.673	0.0900	30,058	1.467
52	304,675	40,752	24,471	0.1338	0.0803	1.665	0.0900	27,421	1.486
53	286,991	32,535	22,615	0.1134	0.0788	1.439	0.0900	25,829	1.260
54	238,874	38,120	18,837	0.1596	0.0789	2.024	0.1000	23,887	1.596
55	220,128	21,713	17,302	0.0986	0.0786	1.255	0.0800	17,610	1.233
56	223,429	24,658	19,627	0.1104	0.0878	1.256	0.0900	20,109	1.226
57	230,862	23,360	22,607	0.1012	0.0979	1.033	0.1000	23,086	1.012
58	215,364	24,279	21,333	0.1127	0.0991	1.138	0.1000	21,536	1.127
59	205,540	31,481	23,583	0.1532	0.1147	1.335	0.1200	24,665	1.276
Total	2,639,450	343,938	252,707	0.1303	0.0957	1.361		271,143	1.268

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	192,481	36,335	27,899	0.1888	0.1449	1.302	0.1600	30,797	1.180
51	175,536	19,155	17,462	0.1091	0.0995	1.097	0.1000	17,554	1.091
52	162,581	27,743	14,466	0.1706	0.0890	1.918	0.1100	17,884	1.551
53	147,303	10,370	12,929	0.0704	0.0878	0.802	0.0800	11,784	0.880
54	140,343	18,948	12,517	0.1350	0.0892	1.514	0.1000	14,034	1.350
55	137,812	14,251	11,884	0.1034	0.0862	1.199	0.0900	12,403	1.149
56	137,963	15,347	13,701	0.1112	0.0993	1.120	0.1000	13,796	1.112
57	135,115	19,181	17,111	0.1420	0.1266	1.121	0.1300	17,565	1.092
58	125,178	6,491	15,745	0.0519	0.1258	0.412	0.1100	13,770	0.471
59	110,994	15,147	14,034	0.1365	0.1264	1.079	0.1300	14,429	1.050
Total	1,465,307	182,968	157,749	0.1249	0.1077	1.160		164,016	1.116

SPORS Normal Retirement Experience

Males and Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	183,924	41,277	22,615	0.2244	0.1230	1.825	0.1500	27,589	1.496
61	152,208	23,326	18,966	0.1533	0.1246	1.230	0.1300	19,787	1.179
62	117,181	13,928	23,436	0.1189	0.2000	0.594	0.1800	21,093	0.660
63	104,211	25,201	29,952	0.2418	0.2874	0.841	0.2800	29,179	0.864
64	49,408	14,009	14,492	0.2835	0.2933	0.967	0.2900	14,328	0.978
65	43,310	10,204	21,655	0.2356	0.5000	0.471	0.4300	18,623	0.548
66	38,427	11,151	18,834	0.2902	0.4901	0.592	0.4400	16,908	0.659
67	20,807	5,178	10,016	0.2488	0.4814	0.517	0.4200	8,739	0.592
68	17,353	4,005	8,250	0.2308	0.4754	0.485	0.4100	7,115	0.563
69	18,015	10,365	8,553	0.5753	0.4748	1.212	0.5000	9,008	1.151
Total	744,846	158,644	176,769	0.2130	0.2373	0.897		172,368	0.920

SPORS Unreduced Early Retirement Experience

Males and Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	196,253	23,525	19,625	0.1199	0.1000	1.199	0.1100	21,588	1.090
51	193,642	8,652	19,364	0.0447	0.1000	0.447	0.0900	17,428	0.496
52	208,394	24,471	20,839	0.1174	0.1000	1.174	0.1000	20,839	1.174
53	186,874	21,255	18,687	0.1137	0.1000	1.137	0.1000	18,687	1.137
54	195,381	17,676	19,538	0.0905	0.1000	0.905	0.1000	19,538	0.905
55	202,354	21,578	39,310	0.1066	0.1943	0.549	0.1700	34,400	0.627
56	199,256	31,189	25,543	0.1565	0.1282	1.221	0.1400	27,896	1.118
57	181,325	25,332	23,515	0.1397	0.1297	1.077	0.1300	23,572	1.075
58	144,166	15,149	18,684	0.1051	0.1296	0.811	0.1200	17,300	0.876
59	128,758	12,125	16,641	0.0942	0.1292	0.729	0.1200	15,451	0.785
Total	1,836,403	200,952	221,746	0.1094	0.1208	0.906		216,700	0.927

SPORS Reduced Early Retirement Experience

Males and Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	198,499	23,981	19,850	0.1208	0.1000	1.208	0.1100	21,835	1.098
51	165,024	9,462	4,916	0.0573	0.0298	1.925	0.0400	6,601	1.433
52	120,441	7,759	3,648	0.0644	0.0303	2.127	0.0400	4,818	1.611
53	100,184	4,599	2,937	0.0459	0.0293	1.566	0.0300	3,006	1.530
54	81,379	1,232	2,475	0.0151	0.0304	0.498	0.0300	2,441	0.505
55	73,917	5,431	4,506	0.0735	0.0610	1.205	0.0600	4,435	1.225
56	61,254	2,461	3,675	0.0402	0.0600	0.670	0.0600	3,675	0.670
57	51,959	1,423	3,118	0.0274	0.0600	0.456	0.0500	2,598	0.548
58	46,356	3,532	4,636	0.0762	0.1000	0.762	0.0900	4,172	0.847
59	40,580	1,297	4,058	0.0320	0.1000	0.320	0.0800	3,246	0.400
Total	939,592	61,176	53,817	0.0651	0.0573	1.137		56,827	1.077

JRS Normal Retirement Experience

Males and Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	249,548	7,473	24,955	0.0299	0.1000	0.299	0.0800	19,964	0.374
61	255,868	8,239	25,587	0.0322	0.1000	0.322	0.0800	20,469	0.402
62	316,741	0	31,674	-	0.1000	0.000	0.0800	25,339	0.000
63	353,743	14,198	35,374	0.0401	0.1000	0.401	0.0800	28,299	0.502
64	381,112	48,149	38,111	0.1263	0.1000	1.263	0.1000	38,111	1.263
65	540,848	61,792	54,085	0.1142	0.1000	1.142	0.1000	54,085	1.142
66	509,292	53,206	50,929	0.1045	0.1000	1.045	0.1000	50,929	1.045
67	448,940	69,956	67,341	0.1558	0.1500	1.039	0.1300	58,362	1.199
68	438,929	37,887	65,839	0.0863	0.1500	0.575	0.1300	57,061	0.664
69	416,985	43,720	62,548	0.1048	0.1500	0.699	0.1300	54,208	0.807
70	371,304	41,238	92,826	0.1111	0.2500	0.444	0.2000	74,261	0.555
71	312,194	50,853	78,048	0.1629	0.2500	0.652	0.2000	62,439	0.814
72	241,288	102,769	60,322	0.4259	0.2500	1.704	0.3000	72,386	1.420
Total	4,836,790	539,478	687,639	0.1115	0.1422	0.785		615,914	0.876

Metro Non-Hazardous Duty

Normal Retirement Experience – Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
65	1,027,773	250,348	285,580	0.2436	0.2779	0.877	0.2700	277,499	0.902
66	767,667	265,174	237,823	0.3454	0.3098	1.115	0.3200	245,654	1.079
67	534,559	142,481	126,422	0.2665	0.2365	1.127	0.2400	128,294	1.111
68	434,397	106,577	90,960	0.2453	0.2094	1.172	0.2200	95,567	1.115
69	343,921	92,219	71,977	0.2681	0.2093	1.281	0.2200	75,663	1.219
70	273,237	81,049	57,379	0.2966	0.2100	1.413	0.2300	62,844	1.290
71	204,279	47,013	43,037	0.2301	0.2107	1.092	0.2200	44,941	1.046
72	166,341	49,288	35,003	0.2963	0.2104	1.408	0.2300	38,259	1.288
73	118,060	30,100	24,794	0.2550	0.2100	1.214	0.2200	25,973	1.159
74	89,093	12,980	18,754	0.1457	0.2105	0.692	0.1900	16,928	0.767
75	70,061	18,518	14,794	0.2643	0.2112	1.252	0.2200	15,413	1.201
76	47,842	14,270	10,087	0.2983	0.2108	1.415	0.2300	11,004	1.297
77	37,322	8,475	7,859	0.2271	0.2106	1.078	0.2100	7,838	1.081
78	35,188	10,628	7,421	0.3020	0.2109	1.432	0.2300	8,093	1.313
79	21,479	7,507	4,522	0.3495	0.2105	1.660	0.2500	5,370	1.398
Total	4,171,218	1,136,627	1,036,409	0.2725	0.2485	1.097		1,059,339	1.073

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
65	1,061,891	291,005	303,877	0.2740	0.2862	0.958	0.2800	297,330	0.979
66	763,757	245,154	222,106	0.3210	0.2908	1.104	0.3000	229,127	1.070
67	543,655	137,177	136,095	0.2523	0.2503	1.008	0.2500	135,914	1.009
68	388,080	78,040	97,015	0.2011	0.2500	0.804	0.2400	93,139	0.838
69	313,989	63,129	78,046	0.2011	0.2486	0.809	0.2400	75,357	0.838
70	250,360	68,773	61,919	0.2747	0.2473	1.111	0.2500	62,590	1.099
71	163,202	34,881	35,990	0.2137	0.2205	0.969	0.2200	35,904	0.971
72	128,873	35,067	27,932	0.2721	0.2167	1.255	0.2300	29,641	1.183
73	90,688	29,898	21,641	0.3297	0.2386	1.382	0.2600	23,579	1.268
74	74,305	11,183	17,499	0.1505	0.2355	0.639	0.2100	15,604	0.717
75	56,953	14,752	12,920	0.2590	0.2268	1.142	0.2300	13,099	1.126
76	47,021	12,024	10,546	0.2557	0.2243	1.140	0.2300	10,815	1.112
77	35,088	7,253	7,811	0.2067	0.2226	0.929	0.2200	7,719	0.940
78	24,412	5,090	5,461	0.2085	0.2237	0.932	0.2200	5,371	0.948
79	21,862	4,868	5,020	0.2227	0.2296	0.970	0.2300	5,028	0.968
Total	3,964,134	1,038,293	1,043,877	0.2619	0.2633	0.995		1,040,217	0.998

Metro Non-Hazardous Duty

Unreduced Early Retirement Experience Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	48,189	9,945	6,333	0.2064	0.1314	1.570	0.1500	7,228	1.376
51	88,142	9,246	7,579	0.1049	0.0860	1.220	0.0900	7,933	1.166
52	138,667	8,640	14,230	0.0623	0.1026	0.607	0.0900	12,480	0.692
53	185,906	22,791	17,793	0.1226	0.0957	1.281	0.1000	18,591	1.226
54	234,917	32,954	24,233	0.1403	0.1032	1.360	0.1100	25,841	1.275
55	293,264	34,129	32,416	0.1164	0.1105	1.053	0.1100	32,259	1.058
56	380,478	45,344	39,695	0.1192	0.1043	1.142	0.1100	41,853	1.083
57	443,576	54,490	44,624	0.1228	0.1006	1.221	0.1100	48,793	1.117
58	513,224	61,335	51,587	0.1195	0.1005	1.189	0.1100	56,455	1.086
59	557,116	61,374	69,926	0.1102	0.1255	0.878	0.1200	66,854	0.918
60	606,619	71,921	80,781	0.1186	0.1332	0.890	0.1300	78,860	0.912
61	609,510	111,161	92,955	0.1824	0.1525	1.196	0.1600	97,522	1.140
62	551,165	112,767	124,773	0.2046	0.2264	0.904	0.2200	121,256	0.930
63	483,151	81,913	101,257	0.1695	0.2096	0.809	0.2000	96,630	0.848
64	428,234	106,509	89,803	0.2487	0.2097	1.186	0.2200	94,211	1.131
Total	5,562,157	824,518	797,984	0.1482	0.1435	1.033		806,766	1.022

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	41,008	5,137	4,882	0.1253	0.1190	1.052	0.1200	4,921	1.044
51	60,010	6,519	4,958	0.1086	0.0826	1.315	0.0900	5,401	1.207
52	103,752	8,910	9,622	0.0859	0.0927	0.926	0.0900	9,338	0.954
53	150,351	23,266	15,954	0.1547	0.1061	1.458	0.1200	18,042	1.290
54	213,806	25,815	24,326	0.1207	0.1138	1.061	0.1200	25,657	1.006
55	253,480	40,080	35,271	0.1581	0.1391	1.136	0.1400	35,487	1.129
56	294,221	47,700	40,838	0.1621	0.1388	1.168	0.1400	41,191	1.158
57	339,441	50,567	46,329	0.1490	0.1365	1.091	0.1400	47,522	1.064
58	367,403	47,326	50,290	0.1288	0.1369	0.941	0.1300	47,762	0.991
59	420,322	58,389	58,590	0.1389	0.1394	0.997	0.1400	58,845	0.992
60	423,028	57,122	60,473	0.1350	0.1430	0.945	0.1400	59,224	0.965
61	421,071	76,214	70,959	0.1810	0.1685	1.074	0.1700	71,582	1.065
62	399,391	71,532	93,397	0.1791	0.2338	0.766	0.2200	87,866	0.814
63	368,978	65,409	71,085	0.1773	0.1927	0.920	0.1900	70,106	0.933
64	347,800	76,544	85,942	0.2201	0.2471	0.891	0.2400	83,472	0.917
Total	4,204,063	660,531	672,913	0.1571	0.1601	0.982		666,416	0.991

Metro Non-Hazardous Duty

Reduced Early Retirement Experience - Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	1,227,812	54,611	76,502	0.0445	0.0623	0.714	0.0600	73,669	0.741
51	1,254,105	45,112	56,996	0.0360	0.0454	0.791	0.0400	50,164	0.899
52	1,231,875	50,295	61,718	0.0408	0.0501	0.815	0.0500	61,594	0.817
53	1,148,861	36,951	62,887	0.0322	0.0547	0.588	0.0500	57,443	0.643
54	1,163,311	49,551	49,931	0.0426	0.0429	0.992	0.0400	46,532	1.065
55	1,161,860	53,989	64,028	0.0465	0.0551	0.843	0.0500	58,093	0.929
56	1,110,548	51,308	61,058	0.0462	0.0550	0.840	0.0500	55,527	0.924
57	1,159,083	66,456	55,012	0.0573	0.0475	1.208	0.0500	57,954	1.147
58	1,152,070	51,232	57,486	0.0445	0.0499	0.891	0.0500	57,604	0.889
59	1,174,510	55,917	55,964	0.0476	0.0476	0.999	0.0500	58,725	0.952
60	1,165,602	68,637	64,247	0.0589	0.0551	1.068	0.0600	69,936	0.981
61	1,107,508	89,875	96,813	0.0812	0.0874	0.928	0.0900	99,676	0.902
62	1,000,895	143,507	120,673	0.1434	0.1206	1.189	0.1300	130,116	1.103
63	863,268	75,748	103,459	0.0877	0.1198	0.732	0.1100	94,959	0.798
64	805,312	147,972	120,797	0.1837	0.1500	1.225	0.1600	128,850	1.148
Total	16,726,619	1,041,160	1,107,571	0.0622	0.0662	0.940		1,100,843	0.946

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	1,332,795	51,618	66,640	0.0387	0.0500	0.775	0.0500	66,640	0.775
51	1,442,025	61,114	64,111	0.0424	0.0445	0.953	0.0400	57,681	1.060
52	1,497,280	84,921	66,607	0.0567	0.0445	1.275	0.0500	74,864	1.134
53	1,473,785	68,070	80,221	0.0462	0.0544	0.849	0.0500	73,689	0.924
54	1,461,321	81,252	95,583	0.0556	0.0654	0.850	0.0600	87,679	0.927
55	1,434,997	92,652	82,421	0.0646	0.0574	1.124	0.0600	86,100	1.076
56	1,478,835	81,333	81,336	0.0550	0.0550	1.000	0.0500	73,942	1.100
57	1,463,322	101,269	76,825	0.0692	0.0525	1.318	0.0600	87,799	1.153
58	1,414,087	80,055	74,268	0.0566	0.0525	1.078	0.0500	70,704	1.132
59	1,442,588	83,933	86,414	0.0582	0.0599	0.971	0.0600	86,555	0.970
60	1,392,404	95,830	90,506	0.0688	0.0650	1.059	0.0700	97,468	0.983
61	1,359,214	130,911	107,841	0.0963	0.0793	1.214	0.0800	108,737	1.204
62	1,293,686	164,122	177,594	0.1269	0.1373	0.924	0.1300	168,179	0.976
63	1,081,620	116,334	143,654	0.1076	0.1328	0.810	0.1300	140,611	0.827
64	952,999	190,125	149,732	0.1995	0.1571	1.270	0.1700	162,010	1.174
Total	20,520,959	1,483,539	1,443,754	0.0723	0.0704	1.028		1,442,659	1.028

Metro Non-Hazardous Duty Retirement Experience – Plan 2/Hybrid

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	522,742	37,056	41,819	0.0709	0.0800	0.886	0.0800	41,819	0.886
61	522,919	57,188	50,017	0.1094	0.0956	1.143	0.1000	52,292	1.094
62	503,833	52,101	64,959	0.1034	0.1289	0.802	0.1200	60,460	0.862
63	461,458	49,097	57,609	0.1064	0.1248	0.852	0.1200	55,375	0.887
64	410,718	55,849	55,350	0.1360	0.1348	1.009	0.1400	57,501	0.971
65	358,683	52,514	78,655	0.1464	0.2193	0.668	0.2000	71,737	0.732
66	303,743	79,226	63,258	0.2608	0.2083	1.252	0.2200	66,824	1.186
67	214,781	47,573	40,040	0.2215	0.1864	1.188	0.2200	47,252	1.007
68	161,460	26,788	26,969	0.1659	0.1670	0.993	0.1700	27,448	0.976
69	135,780	20,791	20,305	0.1531	0.1495	1.024	0.1500	20,367	1.021
70	112,208	32,901	18,882	0.2932	0.1683	1.742	0.2000	22,442	1.466
71	78,423	13,584	12,056	0.1732	0.1537	1.127	0.1700	13,332	1.019
72	74,262	13,169	11,513	0.1773	0.1550	1.144	0.1700	12,625	1.043
73	65,049	17,117	9,737	0.2631	0.1497	1.758	0.1700	11,058	1.548
74	54,217	8,915	9,555	0.1644	0.1762	0.933	0.1700	9,217	0.967
75	40,119	10,444	7,678	0.2603	0.1914	1.360	0.1700	6,820	1.531
76	23,696	2,621	4,285	0.1106	0.1808	0.612	0.1700	4,028	0.651
77	17,484	4,542	3,078	0.2598	0.1761	1.475	0.1700	2,972	1.528
78	11,685	465	2,093	0.0398	0.1791	0.222	0.1700	1,986	0.234
79	10,783	1,267	1,898	0.1175	0.1760	0.667	0.1700	1,833	0.691
Total	4,084,042	583,207	579,759	0.1428	0.1420	1.006		587,387	0.993

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	578,791	50,098	46,303	0.0866	0.0800	1.082	0.0800	46,303	1.082
61	537,218	50,195	51,369	0.0934	0.0956	0.977	0.1000	53,722	0.934
62	506,189	68,399	66,815	0.1351	0.1320	1.024	0.1300	65,805	1.039
63	434,587	42,321	55,900	0.0974	0.1286	0.757	0.1200	52,150	0.812
64	383,023	55,090	51,298	0.1438	0.1339	1.074	0.1400	53,623	1.027
65	318,177	59,283	71,353	0.1863	0.2243	0.831	0.2100	66,817	0.887
66	257,764	69,943	54,990	0.2713	0.2133	1.272	0.2300	59,286	1.180
67	169,092	29,072	32,064	0.1719	0.1896	0.907	0.1900	32,128	0.905
68	138,291	30,071	24,923	0.2174	0.1802	1.207	0.1900	26,275	1.144
69	110,133	26,459	16,953	0.2402	0.1539	1.561	0.1700	18,723	1.413
70	82,976	12,840	14,675	0.1547	0.1769	0.875	0.1700	14,106	0.910
71	63,532	20,071	9,930	0.3159	0.1563	2.021	0.1700	10,800	1.858
72	43,975	7,066	6,665	0.1607	0.1516	1.060	0.1700	7,476	0.945
73	28,475	6,117	4,294	0.2148	0.1508	1.424	0.1700	4,841	1.264
74	21,408	4,041	4,100	0.1888	0.1915	0.986	0.1700	3,639	1.110
75	13,409	2,639	2,374	0.1968	0.1771	1.111	0.1700	2,280	1.158
76	11,742	4,947	2,088	0.4213	0.1778	2.369	0.1700	1,996	2.478
77	8,093	1,015	1,427	0.1254	0.1763	0.711	0.1700	1,376	0.738
78	6,639	3,147	1,179	0.4739	0.1775	2.670	0.1700	1,129	2.788
79	2,936	1,180	515	0.4018	0.1754	2.291	0.1700	499	2.364
Total	3,716,452	543,993	519,216	0.1464	0.1397	1.048		522,973	1.040

Non-Metro Non-Hazardous Duty Normal Retirement Experience – Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
65	488,151	140,849	146,033	0.2885	0.2992	0.965	0.3000	146,445	0.962
66	371,775	114,987	118,826	0.3093	0.3196	0.968	0.3200	118,968	0.967
67	306,719	74,627	67,681	0.2433	0.2207	1.103	0.2300	70,545	1.058
68	220,616	54,213	48,412	0.2457	0.2194	1.120	0.2300	50,742	1.068
69	169,596	39,050	37,109	0.2303	0.2188	1.052	0.2200	37,311	1.047
70	131,076	40,899	28,664	0.3120	0.2187	1.427	0.2400	31,458	1.300
71	90,216	21,061	19,758	0.2335	0.2190	1.066	0.2200	19,848	1.061
72	73,737	15,838	16,153	0.2148	0.2191	0.980	0.2200	16,222	0.976
73	66,912	9,641	14,648	0.1441	0.2189	0.658	0.2000	13,382	0.720
74	59,143	7,011	12,976	0.1185	0.2194	0.540	0.1900	11,237	0.624
75	44,890	11,184	9,859	0.2491	0.2196	1.134	0.2300	10,325	1.083
76	23,242	5,618	5,113	0.2417	0.2200	1.099	0.2300	5,346	1.051
77	18,677	4,594	4,109	0.2460	0.2200	1.118	0.2300	4,296	1.069
78	13,741	3,034	3,023	0.2208	0.2200	1.004	0.2200	3,023	1.004
79	16,668	2,370	3,667	0.1422	0.2200	0.646	0.2000	3,334	0.711
Total	2,095,159	544,976	536,032	0.2601	0.2558	1.017		542,482	1.005

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
65	625,365	174,855	186,936	0.2796	0.2989	0.935	0.2900	181,356	0.964
66	466,466	152,724	130,847	0.3274	0.2805	1.167	0.2900	135,275	1.129
67	321,595	84,371	71,180	0.2624	0.2213	1.185	0.2300	73,967	1.141
68	244,414	60,293	54,137	0.2467	0.2215	1.114	0.2300	56,215	1.073
69	199,339	39,583	44,112	0.1986	0.2213	0.897	0.2200	43,855	0.903
70	149,880	32,496	33,051	0.2168	0.2205	0.983	0.2200	32,974	0.986
71	131,986	24,621	22,762	0.1865	0.1725	1.082	0.1800	23,758	1.036
72	116,017	20,983	19,994	0.1809	0.1723	1.049	0.1700	19,723	1.064
73	91,687	23,596	18,423	0.2574	0.2009	1.281	0.2200	20,171	1.170
74	74,123	16,259	14,953	0.2194	0.2017	1.087	0.2100	15,566	1.045
75	52,176	14,811	10,435	0.2839	0.2000	1.419	0.2200	11,479	1.290
76	39,943	8,782	7,989	0.2199	0.2000	1.099	0.2000	7,989	1.099
77	32,457	4,560	6,491	0.1405	0.2000	0.702	0.1900	6,167	0.739
78	31,432	5,576	6,286	0.1774	0.2000	0.887	0.1900	5,972	0.934
79	25,555	10,240	5,111	0.4007	0.2000	2.004	0.2500	6,389	1.603
Total	2,602,435	673,752	632,708	0.2589	0.2431	1.065		640,854	1.051

Non-Metro Non-Hazardous Duty

Unreduced Early Retirement Experience - Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	38,360	4,376	5,479	0.1141	0.1428	0.799	0.1400	5,370	0.815
51	65,847	2,780	5,551	0.0422	0.0843	0.501	0.0700	4,609	0.603
52	107,530	6,403	11,895	0.0595	0.1106	0.538	0.1000	10,753	0.595
53	123,849	23,338	13,242	0.1884	0.1069	1.762	0.1300	16,100	1.450
54	143,279	12,006	16,279	0.0838	0.1136	0.737	0.1100	15,761	0.762
55	181,921	19,641	21,286	0.1080	0.1170	0.923	0.1100	20,011	0.982
56	197,782	21,591	21,404	0.1092	0.1082	1.009	0.1100	21,756	0.992
57	199,795	16,003	20,196	0.0801	0.1011	0.792	0.1000	19,979	0.801
58	224,645	30,025	22,787	0.1337	0.1014	1.318	0.1100	24,711	1.215
59	218,450	19,323	24,127	0.0885	0.1104	0.801	0.1000	21,845	0.885
60	268,487	39,017	33,892	0.1453	0.1262	1.151	0.1300	34,903	1.118
61	273,305	55,257	43,531	0.2022	0.1593	1.269	0.1700	46,462	1.189
62	254,948	48,241	57,720	0.1892	0.2264	0.836	0.2200	56,089	0.860
63	234,100	58,177	44,628	0.2485	0.1906	1.304	0.2100	49,161	1.183
64	202,891	49,519	39,667	0.2441	0.1955	1.248	0.2100	42,607	1.162
Total	2,735,189	405,697	381,682	0.1483	0.1395	1.063		390,118	1.040

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	38,040	5,039	3,900	0.1325	0.1025	1.292	0.1100	4,184	1.204
51	57,500	6,716	4,741	0.1168	0.0825	1.417	0.0900	5,175	1.298
52	97,972	11,054	8,277	0.1128	0.0845	1.336	0.0900	8,817	1.254
53	122,335	7,346	12,923	0.0601	0.1056	0.568	0.0900	11,010	0.667
54	155,019	24,004	16,124	0.1548	0.1040	1.489	0.1200	18,602	1.290
55	168,563	19,649	17,923	0.1166	0.1063	1.096	0.1100	18,542	1.060
56	194,269	11,249	19,823	0.0579	0.1020	0.567	0.0900	17,484	0.643
57	220,521	29,876	22,308	0.1355	0.1012	1.339	0.1100	24,257	1.232
58	234,394	20,490	23,731	0.0874	0.1012	0.863	0.1000	23,439	0.874
59	240,421	48,624	24,549	0.2022	0.1021	1.981	0.1300	31,255	1.556
60	235,376	35,758	25,233	0.1519	0.1072	1.417	0.1200	28,245	1.266
61	243,006	38,961	41,118	0.1603	0.1692	0.948	0.1700	41,311	0.943
62	243,777	45,791	49,475	0.1878	0.2030	0.926	0.2000	48,755	0.939
63	248,659	47,158	49,599	0.1897	0.1995	0.951	0.2000	49,732	0.948
64	246,864	64,870	54,992	0.2628	0.2228	1.180	0.2300	56,779	1.143
Total	2,746,715	416,585	374,716	0.1517	0.1364	1.112		387,589	1.075

Non-Metro Non-Hazardous Duty

Reduced Early Retirement Experience - Plan 1

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	648,200	37,327	39,013	0.0576	0.0602	0.957	0.0600	38,892	0.960
51	621,949	39,325	30,920	0.0632	0.0497	1.272	0.0500	31,097	1.265
52	600,166	43,347	30,085	0.0722	0.0501	1.441	0.0600	36,010	1.204
53	553,995	59,357	27,915	0.1071	0.0504	2.126	0.0600	33,240	1.786
54	508,776	22,728	25,274	0.0447	0.0497	0.899	0.0500	25,439	0.893
55	522,412	35,191	31,256	0.0674	0.0598	1.126	0.0600	31,345	1.123
56	536,838	30,153	32,082	0.0562	0.0598	0.940	0.0600	32,210	0.936
57	598,471	30,493	32,521	0.0510	0.0543	0.938	0.0500	29,924	1.019
58	581,929	32,662	34,496	0.0561	0.0593	0.947	0.0600	34,916	0.935
59	571,943	42,467	31,135	0.0742	0.0544	1.364	0.0600	34,317	1.237
60	535,716	37,916	27,028	0.0708	0.0505	1.403	0.0600	32,143	1.180
61	513,502	51,794	43,708	0.1009	0.0851	1.185	0.0900	46,215	1.121
62	451,003	43,867	67,262	0.0973	0.1491	0.652	0.1400	63,140	0.695
63	467,149	63,333	69,341	0.1356	0.1484	0.913	0.1500	70,072	0.904
64	396,387	85,269	59,458	0.2151	0.1500	1.434	0.1700	67,386	1.265
Total	8,108,436	655,230	581,495	0.0808	0.0717	1.127		606,346	1.081

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	699,418	41,560	34,971	0.0594	0.0500	1.188	0.0500	34,971	1.188
51	768,048	58,602	38,251	0.0763	0.0498	1.532	0.0600	46,083	1.272
52	768,519	42,662	38,285	0.0555	0.0498	1.114	0.0500	38,426	1.110
53	779,716	48,773	46,648	0.0626	0.0598	1.046	0.0600	46,783	1.043
54	758,364	42,766	45,652	0.0564	0.0602	0.937	0.0600	45,502	0.940
55	763,193	57,144	45,803	0.0749	0.0600	1.248	0.0600	45,792	1.248
56	756,554	59,624	41,610	0.0788	0.0550	1.433	0.0600	45,393	1.314
57	764,488	47,131	41,937	0.0617	0.0549	1.124	0.0600	45,869	1.028
58	799,716	58,398	43,871	0.0730	0.0549	1.331	0.0600	47,983	1.217
59	780,915	59,667	43,234	0.0764	0.0554	1.380	0.0600	46,855	1.273
60	771,176	77,057	50,126	0.0999	0.0650	1.537	0.0700	53,982	1.427
61	748,947	77,466	70,202	0.1034	0.0937	1.103	0.1000	74,895	1.034
62	691,040	89,101	99,821	0.1289	0.1445	0.893	0.1400	96,746	0.921
63	612,053	64,964	88,260	0.1061	0.1442	0.736	0.1300	79,567	0.816
64	550,646	110,956	79,990	0.2015	0.1453	1.387	0.1600	88,103	1.259
Total	11,012,792	935,871	808,662	0.0850	0.0734	1.157		836,949	1.118

Non-Metro Non-Hazardous Duty Retirement Experience – Plan 2/Hybrid

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed
60	274,023	23,153	21,922	0.0845	0.0800	1.056	0.0800	21,922	1.056
61	257,004	28,062	23,591	0.1092	0.0918	1.189	0.1000	25,700	1.092
62	242,077	34,747	27,762	0.1435	0.1147	1.252	0.1200	29,049	1.196
63	217,516	25,002	25,046	0.1149	0.1151	0.998	0.1200	26,102	0.958
64	203,347	33,173	28,217	0.1631	0.1388	1.176	0.1500	30,502	1.088
65	178,697	43,815	36,020	0.2452	0.2016	1.216	0.2100	37,526	1.168
66	130,391	31,050	24,119	0.2381	0.1850	1.287	0.2000	26,078	1.191
67	111,736	16,587	17,523	0.1484	0.1568	0.947	0.1500	16,760	0.990
68	91,005	18,862	12,057	0.2073	0.1325	1.564	0.1500	13,651	1.382
69	79,594	11,670	10,849	0.1466	0.1363	1.076	0.1500	11,939	0.977
70	73,454	14,279	10,013	0.1944	0.1363	1.426	0.1500	11,018	1.296
71	58,838	11,858	8,119	0.2015	0.1380	1.460	0.1600	9,414	1.260
72	45,338	10,474	6,250	0.2310	0.1379	1.676	0.1600	7,254	1.444
73	31,666	7,452	4,314	0.2353	0.1362	1.727	0.1600	5,067	1.471
74	28,249	4,158	5,017	0.1472	0.1776	0.829	0.1700	4,802	0.866
75	23,229	3,973	4,147	0.1710	0.1785	0.958	0.1700	3,949	1.006
76	18,224	4,184	3,253	0.2296	0.1785	1.286	0.1700	3,098	1.351
77	16,577	4,024	2,961	0.2428	0.1786	1.359	0.1700	2,818	1.428
78	11,749	1,458	2,089	0.1241	0.1778	0.698	0.1700	1,997	0.730
79	9,841	2,766	1,771	0.2811	0.1800	1.562	0.1700	1,673	1.654
Total	2,102,556	330,747	275,042	0.1573	0.1308	1.203		290,321	1.139

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed
60	363,936	38,959	29,115	0.1070	0.0800	1.338	0.0900	32,754	1.189
61	325,203	31,897	29,917	0.0981	0.0920	1.066	0.0900	29,268	1.090
62	302,917	44,322	34,595	0.1463	0.1142	1.281	0.1200	36,350	1.219
63	276,534	36,751	31,937	0.1329	0.1155	1.151	0.1200	33,184	1.107
64	257,817	46,251	35,843	0.1794	0.1390	1.290	0.1500	38,672	1.196
65	207,322	40,747	41,504	0.1965	0.2002	0.982	0.2000	41,464	0.983
66	159,051	40,955	29,262	0.2575	0.1840	1.400	0.2000	31,810	1.287
67	110,149	24,533	17,007	0.2227	0.1544	1.443	0.1700	18,725	1.310
68	80,293	20,193	10,784	0.2515	0.1343	1.873	0.1600	12,847	1.572
69	63,162	12,563	8,650	0.1989	0.1370	1.452	0.1500	9,474	1.326
70	44,684	9,408	6,085	0.2105	0.1362	1.546	0.1500	6,703	1.404
71	34,220	6,752	4,686	0.1973	0.1369	1.441	0.1500	5,133	1.315
72	32,278	7,780	4,515	0.2410	0.1399	1.723	0.1500	4,842	1.607
73	21,229	3,261	2,921	0.1536	0.1376	1.116	0.1500	3,184	1.024
74	17,954	3,177	3,215	0.1770	0.1791	0.988	0.1800	3,232	0.983
75	12,877	2,894	2,291	0.2247	0.1779	1.263	0.1800	2,318	1.248
76	12,066	1,655	2,162	0.1371	0.1791	0.765	0.1800	2,172	0.762
77	11,265	0	1,991	0.0000	0.1767	0.000	0.1800	2,028	0.000
78	11,159	2,157	1,996	0.1933	0.1789	1.081	0.1800	2,009	1.074
79	6,866	4,467	1,230	0.6507	0.1791	3.633	0.1800	1,236	3.615
Total	2,350,981	378,722	299,706	0.1611	0.1275	1.264		317,405	1.193

Metro Hazardous Duty Normal Retirement Experience

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	556,169	106,940	115,099	0.1923	0.2070	0.929	0.2000	111,234	0.961
61	420,159	80,467	98,306	0.1915	0.2340	0.819	0.2200	92,435	0.871
62	354,180	86,118	96,195	0.2431	0.2716	0.895	0.2600	92,087	0.935
63	297,002	51,886	80,787	0.1747	0.2720	0.642	0.2500	74,251	0.699
64	239,959	62,898	65,180	0.2621	0.2716	0.965	0.2700	64,789	0.971
65	164,420	57,529	53,748	0.3499	0.3269	1.070	0.3300	54,259	1.060
66	102,317	26,810	41,244	0.2620	0.4031	0.650	0.3700	37,857	0.708
67	68,763	11,722	27,909	0.1705	0.4059	0.420	0.3500	24,067	0.487
68	46,093	16,178	19,341	0.3510	0.4196	0.836	0.4000	18,437	0.877
69	31,933	18,467	13,913	0.5783	0.4357	1.327	0.4700	15,009	1.230
Total	2,280,996	519,015	611,722	0.2275	0.2682	0.848		584,424	0.888

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	69,673	17,811	11,515	0.2556	0.1653	1.547	0.1900	13,238	1.345
61	54,818	10,611	10,642	0.1936	0.1941	0.997	0.1900	10,415	1.019
62	41,006	10,458	8,056	0.2550	0.1965	1.298	0.2100	8,611	1.214
63	31,930	7,304	6,549	0.2287	0.2051	1.115	0.2100	6,705	1.089
64	26,719	5,496	7,330	0.2057	0.2743	0.750	0.2600	6,947	0.791
65	21,593	8,256	7,147	0.3823	0.3310	1.155	0.3400	7,342	1.125
66	11,422	5,232	4,084	0.4581	0.3575	1.281	0.3800	4,340	1.205
67	5,045	2,976	1,611	0.5899	0.3193	1.848	0.3900	1,967	1.513
68	6,300	1,895	2,197	0.3007	0.3487	0.862	0.3400	2,142	0.884
69	5,719	2,786	1,837	0.4871	0.3211	1.517	0.3600	2,059	1.353
Total	274,226	72,825	60,967	0.2656	0.2223	1.194		63,767	1.142

Metro Hazardous Duty Unreduced Early Retirement Experience

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	760,735	173,557	169,135	0.2281	0.2223	1.026	0.2200	167,362	1.037
51	775,962	146,171	160,749	0.1884	0.2072	0.909	0.2000	155,192	0.942
52	760,096	137,041	157,558	0.1803	0.2073	0.870	0.2000	152,019	0.901
53	739,550	161,476	171,837	0.2183	0.2324	0.940	0.2300	170,097	0.949
54	600,157	120,500	139,206	0.2008	0.2319	0.866	0.2200	132,034	0.913
55	500,663	123,431	115,971	0.2465	0.2316	1.064	0.2400	120,159	1.027
56	440,478	118,510	88,420	0.2690	0.2007	1.340	0.2200	96,905	1.223
57	368,012	57,506	73,873	0.1563	0.2007	0.778	0.1900	69,922	0.822
58	314,440	72,902	60,242	0.2318	0.1916	1.210	0.2000	62,888	1.159
59	253,637	35,116	53,672	0.1385	0.2116	0.654	0.1900	48,191	0.729
Total	5,513,729	1,146,211	1,190,663	0.2079	0.2159	0.963		1,174,770	0.976

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	82,871	26,392	22,126	0.3185	0.2670	1.193	0.2800	23,204	1.137
51	68,968	14,726	17,928	0.2135	0.2599	0.821	0.2500	17,242	0.854
52	80,363	13,596	21,513	0.1692	0.2677	0.632	0.2400	19,287	0.705
53	90,110	25,676	24,227	0.2849	0.2689	1.060	0.2700	24,330	1.055
54	78,801	19,429	22,524	0.2466	0.2858	0.863	0.2800	22,064	0.881
55	64,909	24,201	23,000	0.3728	0.3543	1.052	0.3600	23,367	1.036
56	44,826	10,049	14,439	0.2242	0.3221	0.696	0.3000	13,448	0.747
57	32,906	8,721	8,227	0.2650	0.2500	1.060	0.2500	8,227	1.060
58	26,336	8,637	6,494	0.3279	0.2466	1.330	0.2700	7,111	1.215
59	26,428	11,840	6,559	0.4480	0.2482	1.805	0.3000	7,928	1.493
Total	596,518	163,266	167,038	0.2737	0.2800	0.977		166,208	0.982

Metro Hazardous Duty Reduced Early Retirement Experience

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed	Ratio: Actual over Expected Under Proposed
50	1,395,005	121,108	100,919	0.0868	0.0723	1.200	0.0800	111,600	1.085
51	1,187,735	85,375	76,420	0.0719	0.0643	1.117	0.0700	83,141	1.027
52	1,021,593	65,506	65,931	0.0641	0.0645	0.994	0.0600	61,296	1.069
53	871,451	53,915	56,470	0.0619	0.0648	0.955	0.0600	52,287	1.031
54	709,434	57,740	46,015	0.0814	0.0649	1.255	0.0700	49,660	1.163
55	628,830	54,038	40,926	0.0859	0.0651	1.320	0.0700	44,018	1.228
56	577,705	42,093	37,660	0.0729	0.0652	1.118	0.0700	40,439	1.041
57	512,218	64,774	33,417	0.1265	0.0652	1.938	0.0800	40,977	1.581
58	433,430	40,819	29,012	0.0942	0.0669	1.407	0.0700	30,340	1.345
59	391,085	62,304	41,480	0.1593	0.1061	1.502	0.1200	46,930	1.328
Total	7,728,487	647,671	528,250	0.0838	0.0684	1.226		560,690	1.155

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed	Ratio: Actual over Expected Under Proposed
50	211,887	24,371	12,713	0.1150	0.0600	1.917	0.0700	14,832	1.643
51	195,530	19,770	17,286	0.1011	0.0884	1.144	0.0900	17,598	1.123
52	188,371	14,588	15,001	0.0774	0.0796	0.973	0.0800	15,070	0.968
53	188,143	19,174	15,128	0.1019	0.0804	1.267	0.0900	16,933	1.132
54	164,761	21,967	13,360	0.1333	0.0811	1.644	0.0900	14,828	1.481
55	134,982	15,520	10,952	0.1150	0.0811	1.417	0.0900	12,148	1.278
56	124,902	17,184	16,507	0.1376	0.1322	1.041	0.1300	16,237	1.058
57	102,594	6,575	13,616	0.0641	0.1327	0.483	0.1200	12,311	0.534
58	76,113	7,831	9,907	0.1029	0.1302	0.791	0.1200	9,134	0.857
59	72,012	9,547	9,427	0.1326	0.1309	1.013	0.1300	9,361	1.020
Total	1,459,293	156,527	133,896	0.1073	0.0918	1.169		138,453	1.131

Non-Metro Hazardous Duty Normal Retirement Experience

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	302,725	64,649	55,729	0.2136	0.1841	1.160	0.1900	57,518	1.124
61	250,251	36,762	59,729	0.1469	0.2387	0.615	0.2200	55,055	0.668
62	207,433	51,083	56,553	0.2463	0.2726	0.903	0.2700	56,007	0.912
63	150,488	28,204	41,258	0.1874	0.2742	0.684	0.2500	37,622	0.750
64	117,623	24,505	32,255	0.2083	0.2742	0.760	0.2600	30,582	0.801
65	102,249	25,599	28,699	0.2504	0.2807	0.892	0.2700	27,607	0.927
66	76,175	12,236	38,088	0.1606	0.5000	0.321	0.4200	31,994	0.382
67	62,072	12,682	31,036	0.2043	0.5000	0.409	0.4300	26,691	0.475
68	44,104	10,593	22,052	0.2402	0.5000	0.480	0.4400	19,406	0.546
69	30,075	13,722	15,038	0.4563	0.5000	0.913	0.4900	14,737	0.931
Total	1,343,196	280,035	380,436	0.2085	0.2832	0.736		357,218	0.784

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
60	54,189	16,803	9,065	0.3101	0.1673	1.854	0.2000	10,838	1.550
61	42,902	7,431	10,726	0.1732	0.2500	0.693	0.2300	9,868	0.753
62	42,597	6,574	10,591	0.1543	0.2486	0.621	0.2300	9,797	0.671
63	30,877	5,480	7,719	0.1775	0.2500	0.710	0.2300	7,102	0.772
64	23,118	7,122	5,691	0.3080	0.2462	1.251	0.2600	6,011	1.185
65	13,291	2,570	5,316	0.1933	0.4000	0.483	0.3500	4,652	0.552
66	9,893	5,858	3,957	0.5921	0.4000	1.480	0.4500	4,452	1.316
67	3,605	1,505	1,442	0.4176	0.4000	1.044	0.4000	1,442	1.044
68	4,174	2,204	1,670	0.5281	0.4000	1.320	0.4300	1,795	1.228
69	2,068	0	827	0.0000	0.4000	0.000	0.3000	620	0.000
Total	226,716	55,548	57,005	0.2450	0.2514	0.974		56,576	0.982

Non-Metro Hazardous Duty Unreduced Early Retirement Experience

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	338,226	114,170	91,144	0.3376	0.2695	1.253	0.2900	98,086	1.164
51	278,052	56,727	55,778	0.2040	0.2006	1.017	0.2000	55,610	1.020
52	255,348	40,169	51,198	0.1573	0.2005	0.785	0.1900	48,516	0.828
53	230,108	57,278	46,680	0.2489	0.2029	1.227	0.2100	48,323	1.185
54	211,450	45,104	42,804	0.2133	0.2024	1.054	0.2100	44,405	1.016
55	193,795	54,783	39,307	0.2827	0.2028	1.394	0.2200	42,635	1.285
56	167,133	38,811	33,439	0.2322	0.2001	1.161	0.2100	35,098	1.106
57	143,490	26,606	28,698	0.1854	0.2000	0.927	0.2000	28,698	0.927
58	137,283	31,605	23,186	0.2302	0.1689	1.363	0.1800	24,711	1.279
59	137,161	23,212	32,265	0.1692	0.2352	0.719	0.2200	30,175	0.769
Total	2,092,045	488,467	444,499	0.2335	0.2125	1.099		456,256	1.071

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
50	24,056	7,292	7,217	0.3031	0.3000	1.010	0.3000	7,217	1.010
51	22,518	2,767	4,504	0.1229	0.2000	0.614	0.1800	4,053	0.683
52	17,438	5,955	3,488	0.3415	0.2000	1.707	0.2400	4,185	1.423
53	14,815	6,257	2,963	0.4223	0.2000	2.112	0.2600	3,852	1.624
54	18,976	3,217	5,117	0.1695	0.2697	0.629	0.2400	4,554	0.706
55	17,586	8,565	4,983	0.4870	0.2833	1.719	0.3300	5,803	1.476
56	9,469	3,372	2,640	0.3561	0.2788	1.277	0.3000	2,841	1.187
57	9,106	3,040	2,051	0.3338	0.2252	1.482	0.2500	2,276	1.335
58	7,544	3,734	1,833	0.4950	0.2430	2.037	0.3100	2,339	1.597
59	4,328	0	1,010	0.0000	0.2333	0.000	0.1700	736	0.000
Total	145,835	44,198	35,805	0.3031	0.2455	1.234		37,856	1.168

Non-Metro Hazardous Duty Reduced Early Retirement Experience

Males Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed
50	583,054	72,977	51,983	0.1252	0.0892	1.404	0.1000	58,305	1.252
51	520,857	64,578	38,847	0.1240	0.0746	1.662	0.0900	46,877	1.378
52	460,157	46,270	34,327	0.1006	0.0746	1.348	0.0800	36,813	1.257
53	430,452	42,110	32,106	0.0978	0.0746	1.312	0.0800	34,436	1.223
54	361,031	38,786	26,872	0.1074	0.0744	1.443	0.0800	28,883	1.343
55	296,415	31,133	22,051	0.1050	0.0744	1.412	0.0800	23,713	1.313
56	273,646	30,723	20,382	0.1123	0.0745	1.507	0.0800	21,892	1.403
57	242,650	23,604	18,125	0.0973	0.0747	1.302	0.0800	19,412	1.216
58	235,397	29,863	18,680	0.1269	0.0794	1.599	0.0900	21,186	1.410
59	211,795	40,180	25,240	0.1897	0.1192	1.592	0.1400	29,651	1.355
Total	3,615,454	420,224	288,612	0.1162	0.0798	1.456		321,168	1.308

Females Liability Weighted									
Age	Exposed	Actual Retirements	Expected Retirements	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Retirements Under Proposed Rates	Ratio: Actual over Expected Under Proposed
50	104,760	13,883	6,286	0.1325	0.0600	2.209	0.0800	8,381	1.657
51	100,274	8,540	9,056	0.0852	0.0903	0.943	0.0900	9,025	0.946
52	85,897	5,443	7,727	0.0634	0.0900	0.704	0.0800	6,872	0.792
53	91,349	9,631	8,216	0.1054	0.0899	1.172	0.0900	8,221	1.171
54	77,488	6,481	6,991	0.0836	0.0902	0.927	0.0900	6,974	0.929
55	73,556	7,758	6,620	0.1055	0.0900	1.172	0.0900	6,620	1.172
56	66,848	4,924	7,999	0.0737	0.1197	0.616	0.1100	7,353	0.670
57	66,027	7,254	7,901	0.1099	0.1197	0.918	0.1200	7,923	0.916
58	58,243	9,975	6,949	0.1713	0.1193	1.435	0.1300	7,572	1.317
59	52,966	5,758	6,305	0.1087	0.1190	0.913	0.1200	6,356	0.906
Total	777,408	79,647	74,049	0.1025	0.0953	1.076		75,297	1.058

State Termination Experience

Males Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed
0	5,858,496	1,080,716	1,089,435	0.1845	0.1860	0.992	0.1860	1,089,680	0.992
1	5,202,508	782,863	788,268	0.1505	0.1515	0.993	0.1510	785,579	0.997
2	4,257,640	522,494	532,108	0.1227	0.1250	0.982	0.1240	527,947	0.990
3	4,149,063	393,265	446,500	0.0948	0.1076	0.881	0.1040	431,503	0.911
4	3,754,947	379,146	361,546	0.1010	0.0963	1.049	0.0970	364,230	1.041
5	3,253,170	275,307	285,728	0.0846	0.0878	0.964	0.0870	283,026	0.973
6	3,375,506	236,397	274,341	0.0700	0.0813	0.862	0.0780	263,289	0.898
7	3,514,230	223,211	259,729	0.0635	0.0739	0.859	0.0710	249,510	0.895
8	3,714,013	215,455	242,834	0.0580	0.0654	0.887	0.0640	237,697	0.906
9	3,866,142	205,355	217,529	0.0531	0.0563	0.944	0.0550	212,638	0.966
10	3,401,685	151,991	156,435	0.0447	0.0460	0.972	0.0460	156,478	0.971
11	3,070,155	146,793	137,517	0.0478	0.0448	1.067	0.0460	141,227	1.039
12	2,736,513	88,387	119,884	0.0323	0.0438	0.737	0.0410	112,197	0.788
13	2,367,136	73,570	98,899	0.0311	0.0418	0.744	0.0390	92,318	0.797
14	2,239,917	84,393	90,770	0.0377	0.0405	0.930	0.0390	87,357	0.966
15	2,053,728	69,336	79,874	0.0338	0.0389	0.868	0.0380	78,042	0.888
16	1,684,599	49,225	62,628	0.0292	0.0372	0.786	0.0350	58,961	0.835
17	1,398,892	36,302	51,088	0.0260	0.0365	0.711	0.0340	47,562	0.763
18	1,195,228	21,521	42,832	0.0180	0.0358	0.502	0.0310	37,052	0.581
19	1,076,459	19,356	37,948	0.0180	0.0353	0.510	0.0310	33,370	0.580
20+	4,427,782	86,703	154,347	0.0196	0.0349	0.562	0.0310	137,261	0.632
Total	66,597,808	5,141,786	5,530,239	0.0772	0.0830	0.930		5,426,924	0.947

Females Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed
0	8,728,408	1,850,305	1,848,873	0.2120	0.2118	1.001	0.2120	1,850,423	1.000
1	7,570,155	1,308,643	1,324,350	0.1729	0.1749	0.988	0.1740	1,317,207	0.993
2	6,159,650	915,213	882,131	0.1486	0.1432	1.038	0.1450	893,149	1.025
3	5,873,121	698,355	705,888	0.1189	0.1202	0.989	0.1200	704,775	0.991
4	5,261,791	594,534	553,709	0.1130	0.1052	1.074	0.1070	563,012	1.056
5	4,472,773	465,039	419,642	0.1040	0.0938	1.108	0.0960	429,386	1.083
6	4,409,815	393,803	377,658	0.0893	0.0856	1.043	0.0870	383,654	1.026
7	4,489,090	369,553	354,653	0.0823	0.0790	1.042	0.0800	359,127	1.029
8	4,677,477	322,411	339,683	0.0689	0.0726	0.949	0.0720	336,778	0.957
9	4,766,863	288,753	312,964	0.0606	0.0657	0.923	0.0640	305,079	0.946
10	4,350,929	281,400	248,524	0.0647	0.0571	1.132	0.0590	256,705	1.096
11	3,949,690	207,727	224,695	0.0526	0.0569	0.924	0.0560	221,183	0.939
12	3,548,790	185,840	196,557	0.0524	0.0554	0.945	0.0550	195,183	0.952
13	3,242,917	140,684	170,808	0.0434	0.0527	0.824	0.0500	162,146	0.868
14	3,123,221	128,436	155,776	0.0411	0.0499	0.824	0.0480	149,915	0.857
15	2,822,915	122,987	130,568	0.0436	0.0463	0.942	0.0460	129,854	0.947
16	2,398,440	70,789	104,511	0.0295	0.0436	0.677	0.0400	95,938	0.738
17	1,900,845	75,105	81,120	0.0395	0.0427	0.926	0.0400	76,034	0.988
18	1,566,634	39,383	66,537	0.0251	0.0425	0.592	0.0380	59,532	0.662
19	1,327,860	34,218	56,218	0.0258	0.0423	0.609	0.0380	50,459	0.678
20+	4,901,059	111,231	213,002	0.0227	0.0435	0.522	0.0380	186,240	0.597
Total	89,542,445	8,604,409	8,767,868	0.0961	0.0979	0.981		8,725,778	0.986

Teacher Termination Experience

Males Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	2,552,014	461,093	484,369	0.1807	0.1898	0.952	0.1880	479,779	0.961
1	4,120,104	616,786	655,067	0.1497	0.1590	0.942	0.1570	646,856	0.954
2	3,577,010	491,613	481,000	0.1374	0.1345	1.022	0.1350	482,896	1.018
3	3,281,486	385,272	379,335	0.1174	0.1156	1.016	0.1160	380,652	1.012
4	3,268,475	357,034	331,226	0.1092	0.1013	1.078	0.1030	336,653	1.061
5	2,989,410	272,192	267,213	0.0911	0.0894	1.019	0.0900	269,047	1.012
6	2,925,878	256,761	232,098	0.0878	0.0793	1.106	0.0810	236,996	1.083
7	3,116,841	226,068	220,317	0.0725	0.0707	1.026	0.0710	221,296	1.022
8	3,298,385	214,116	202,816	0.0649	0.0615	1.056	0.0620	204,500	1.047
9	3,439,809	220,058	176,738	0.0640	0.0514	1.245	0.0550	189,189	1.163
10	3,375,353	191,689	109,723	0.0568	0.0325	1.747	0.0390	131,639	1.456
11	3,134,560	152,682	97,332	0.0487	0.0311	1.569	0.0350	109,710	1.392
12	3,035,604	146,361	91,268	0.0482	0.0301	1.604	0.0350	106,246	1.378
13	2,967,271	127,416	87,127	0.0429	0.0294	1.462	0.0330	97,920	1.301
14	3,104,647	140,138	89,914	0.0451	0.0290	1.559	0.0330	102,453	1.368
15	3,247,369	128,509	92,065	0.0396	0.0284	1.396	0.0310	100,668	1.277
16	3,195,277	92,348	88,765	0.0289	0.0278	1.040	0.0280	89,468	1.032
17	3,126,269	77,543	85,018	0.0248	0.0272	0.912	0.0270	84,409	0.919
18	2,859,397	64,567	76,383	0.0226	0.0267	0.845	0.0260	74,344	0.868
19	2,684,951	47,512	70,603	0.0177	0.0263	0.673	0.0240	64,439	0.737
20+	11,072,797	215,323	280,511	0.0194	0.0253	0.768	0.0240	265,747	0.810
Total	74,372,907	4,885,081	4,598,886	0.0657	0.0618	1.062		4,674,908	1.045

Females Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	8,483,236	1,536,840	1,458,769	0.1812	0.1720	1.054	0.1740	1,476,083	1.041
1	15,891,460	2,524,603	2,342,872	0.1589	0.1474	1.078	0.1500	2,383,719	1.059
2	14,129,464	2,161,598	1,838,673	0.1530	0.1301	1.176	0.1360	1,921,607	1.125
3	13,397,952	1,769,308	1,568,951	0.1321	0.1171	1.128	0.1210	1,621,152	1.091
4	13,427,943	1,690,402	1,413,955	0.1259	0.1053	1.196	0.1100	1,477,074	1.144
5	12,509,249	1,416,798	1,167,025	0.1133	0.0933	1.214	0.0980	1,225,906	1.156
6	12,494,671	1,263,259	1,054,365	0.1011	0.0844	1.198	0.0890	1,112,026	1.136
7	13,416,006	1,245,215	1,030,924	0.0928	0.0768	1.208	0.0810	1,086,696	1.146
8	14,044,252	1,168,007	972,725	0.0832	0.0693	1.201	0.0730	1,025,230	1.139
9	14,562,453	1,054,251	873,462	0.0724	0.0600	1.207	0.0630	917,435	1.149
10	13,958,272	982,159	510,299	0.0704	0.0366	1.925	0.0450	628,122	1.564
11	12,783,252	774,780	447,770	0.0606	0.0350	1.730	0.0410	524,113	1.478
12	12,348,840	729,872	418,479	0.0591	0.0339	1.744	0.0400	493,954	1.478
13	11,447,211	606,742	380,245	0.0530	0.0332	1.596	0.0380	434,994	1.395
14	11,333,085	533,611	370,039	0.0471	0.0327	1.442	0.0360	407,991	1.308
15	11,130,167	448,777	356,395	0.0403	0.0320	1.259	0.0340	378,426	1.186
16	10,265,222	395,868	319,425	0.0386	0.0311	1.239	0.0330	338,752	1.169
17	9,454,044	312,289	281,840	0.0330	0.0298	1.108	0.0310	293,075	1.066
18	8,712,119	247,413	250,520	0.0284	0.0288	0.988	0.0290	252,651	0.979
19	7,611,404	221,158	210,607	0.0291	0.0277	1.050	0.0280	213,119	1.038
20+	31,785,220	647,766	811,099	0.0204	0.0255	0.799	0.0240	762,845	0.849
Total	273,185,520	21,730,717	18,078,437	0.0795	0.0662	1.202		18,974,972	1.145

VaLORS Termination Experience

Males Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	2,232,338	868,390	735,456	0.3890	0.3295	1.181	0.3440	767,924	1.131
1	1,530,421	421,323	393,201	0.2753	0.2569	1.072	0.2620	400,970	1.051
2	1,254,868	286,043	261,567	0.2279	0.2084	1.094	0.2130	267,287	1.070
3	1,186,710	242,294	212,133	0.2042	0.1788	1.142	0.1850	219,541	1.104
4	990,827	185,681	166,882	0.1874	0.1684	1.113	0.1730	171,413	1.083
5	730,983	152,822	118,316	0.2091	0.1619	1.292	0.1730	126,460	1.208
6	615,346	90,723	92,012	0.1474	0.1495	0.986	0.1490	91,686	0.989
7	531,215	74,710	72,031	0.1406	0.1356	1.037	0.1370	72,777	1.027
8	475,388	60,346	56,353	0.1269	0.1185	1.071	0.1210	57,522	1.049
9	471,572	54,774	45,868	0.1162	0.0973	1.194	0.1020	48,100	1.139
10	370,928	29,253	26,116	0.0789	0.0704	1.120	0.0730	27,078	1.080
11	337,332	31,795	22,674	0.0943	0.0672	1.402	0.0730	24,625	1.291
12	337,445	31,052	21,269	0.0920	0.0630	1.460	0.0700	23,621	1.315
13	342,021	25,841	20,605	0.0756	0.0602	1.254	0.0640	21,889	1.181
14	392,545	30,937	22,343	0.0788	0.0569	1.385	0.0620	24,338	1.271
15	393,313	26,425	21,016	0.0672	0.0534	1.257	0.0570	22,419	1.179
16	354,242	22,520	17,825	0.0636	0.0503	1.263	0.0540	19,129	1.177
17	285,609	16,671	13,681	0.0584	0.0479	1.218	0.0510	14,566	1.144
18	223,109	7,955	10,217	0.0357	0.0458	0.779	0.0430	9,594	0.829
19	178,319	11,509	7,855	0.0645	0.0441	1.465	0.0430	7,668	1.501
20+	1,317,088	105,875	52,616	0.0804	0.0399	2.012	0.0430	56,635	1.869
Total	14,551,619	2,776,937	2,390,038	0.1908	0.1642	1.162		2,475,243	1.122

Females Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	1,567,285	757,553	620,198	0.4834	0.3957	1.221	0.4180	655,125	1.156
1	981,256	334,604	303,332	0.3410	0.3091	1.103	0.3170	311,058	1.076
2	787,237	214,537	197,151	0.2725	0.2504	1.088	0.2560	201,533	1.065
3	637,315	151,953	134,977	0.2384	0.2118	1.126	0.2180	138,935	1.094
4	553,998	118,304	110,592	0.2135	0.1996	1.070	0.2030	112,462	1.052
5	398,671	90,068	76,250	0.2259	0.1913	1.181	0.2000	79,734	1.130
6	329,645	60,514	59,758	0.1836	0.1813	1.013	0.1820	59,995	1.009
7	273,804	36,890	45,411	0.1347	0.1659	0.812	0.1580	43,261	0.853
8	218,551	41,128	31,561	0.1882	0.1444	1.303	0.1550	33,875	1.214
9	184,230	24,043	21,298	0.1305	0.1156	1.129	0.1190	21,923	1.097
10	152,572	24,467	12,138	0.1604	0.0796	2.016	0.1000	15,257	1.604
11	132,054	12,058	9,853	0.0913	0.0746	1.224	0.0790	10,432	1.156
12	151,025	9,586	11,297	0.0635	0.0748	0.849	0.0720	10,874	0.882
13	183,442	19,720	12,770	0.1075	0.0696	1.544	0.0720	13,208	1.493
14	208,493	18,143	14,251	0.0870	0.0684	1.273	0.0720	15,011	1.209
15	215,949	12,817	14,200	0.0594	0.0658	0.903	0.0640	13,821	0.927
16	211,333	15,664	13,209	0.0741	0.0625	1.186	0.0640	13,525	1.158
17	156,019	7,484	9,218	0.0480	0.0591	0.812	0.0560	8,737	0.857
18	123,581	6,242	6,782	0.0505	0.0549	0.920	0.0540	6,673	0.935
19	102,402	6,932	5,076	0.0677	0.0496	1.366	0.0540	5,530	1.254
20+	577,742	53,718	26,425	0.0930	0.0457	2.033	0.0540	31,198	1.722
Total	8,146,603	2,016,427	1,735,745	0.2475	0.2131	1.162		1,802,168	1.119

SPORS Termination Experience

Males and Females Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	265,142	46,902	21,211	0.1769	0.0800	2.211	0.1040	27,575	1.701
1	327,917	23,600	19,675	0.0720	0.0600	1.199	0.0630	20,659	1.142
2	345,949	22,004	20,757	0.0636	0.0600	1.060	0.0610	21,103	1.043
3	333,175	21,961	19,991	0.0659	0.0600	1.099	0.0610	20,324	1.081
4	308,484	19,039	18,509	0.0617	0.0600	1.029	0.0600	18,509	1.029
5	244,449	9,471	14,667	0.0387	0.0600	0.646	0.0550	13,445	0.704
6	272,759	14,691	16,366	0.0539	0.0600	0.898	0.0550	15,002	0.979
7	325,710	7,346	9,771	0.0226	0.0300	0.752	0.0350	11,400	0.644
8	357,106	18,165	10,713	0.0509	0.0300	1.696	0.0350	12,499	1.453
9	401,380	4,652	12,041	0.0116	0.0300	0.386	0.0250	10,034	0.464
10	367,546	11,823	6,432	0.0322	0.0175	1.838	0.0210	7,718	1.532
11	259,969	9,623	4,549	0.0370	0.0175	2.115	0.0210	5,459	1.763
12	238,308	7,526	4,170	0.0316	0.0175	1.805	0.0210	5,004	1.504
13	194,402	5,460	3,402	0.0281	0.0175	1.605	0.0200	3,888	1.404
14	252,182	4,484	4,413	0.0178	0.0175	1.016	0.0180	4,539	0.988
15	281,022	2,819	4,918	0.0100	0.0175	0.573	0.0160	4,496	0.627
16	360,142	3,543	6,302	0.0098	0.0175	0.562	0.0160	5,762	0.615
17	366,976	2,758	6,422	0.0075	0.0175	0.429	0.0150	5,505	0.501
18	341,203	4,414	5,971	0.0129	0.0175	0.739	0.0150	5,118	0.862
19	345,939	1,483	6,054	0.0043	0.0175	0.245	0.0150	5,189	0.286
20+	1,607,305	14,642	28,128	0.0091	0.0175	0.521	0.0150	24,110	0.607
Total	7,797,064	256,405	244,464	0.0329	0.0314	1.049		247,338	1.037

Metro Non-Hazardous Duty Termination Experience

Males Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	2,178,283	506,128	519,135	0.2324	0.2383	0.975	0.2380	518,431	0.976
1	4,043,506	779,163	827,179	0.1927	0.2046	0.942	0.2020	816,788	0.954
2	3,090,896	494,723	545,905	0.1601	0.1766	0.906	0.1730	534,725	0.925
3	2,756,353	364,402	431,614	0.1322	0.1566	0.844	0.1500	413,453	0.881
4	2,753,371	326,886	393,172	0.1187	0.1428	0.831	0.1380	379,965	0.860
5	2,161,722	239,274	302,377	0.1107	0.1399	0.791	0.1340	289,671	0.826
6	1,968,396	200,022	258,421	0.1016	0.1313	0.774	0.1230	242,113	0.826
7	2,006,247	186,343	244,396	0.0929	0.1218	0.762	0.1150	230,718	0.808
8	1,995,395	172,310	221,080	0.0864	0.1108	0.779	0.1050	209,517	0.822
9	2,017,983	163,260	199,521	0.0809	0.0989	0.818	0.0940	189,690	0.861
10	1,943,342	159,958	158,423	0.0823	0.0815	1.010	0.0820	159,354	1.004
11	1,656,659	117,449	133,872	0.0709	0.0808	0.877	0.0780	129,219	0.909
12	1,579,214	107,360	126,168	0.0680	0.0799	0.851	0.0770	121,599	0.883
13	1,369,664	76,870	108,904	0.0561	0.0795	0.706	0.0740	101,355	0.758
14	1,359,676	89,750	106,364	0.0660	0.0782	0.844	0.0740	100,616	0.892
15	1,312,248	61,248	99,134	0.0467	0.0755	0.618	0.0680	89,233	0.686
16	1,107,945	53,706	81,536	0.0485	0.0736	0.659	0.0670	74,232	0.723
17	954,026	35,941	69,292	0.0377	0.0726	0.519	0.0640	61,058	0.589
18	810,838	39,438	57,691	0.0486	0.0711	0.684	0.0640	51,894	0.760
19	695,382	40,793	47,912	0.0587	0.0689	0.851	0.0640	44,504	0.917
20+	3,115,755	106,295	206,767	0.0341	0.0664	0.514	0.0580	180,714	0.588
Total	40,876,902	4,321,319	5,138,862	0.1057	0.1257	0.841		4,938,850	0.875

Females Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	2,778,226	713,834	654,312	0.2569	0.2355	1.091	0.2410	669,552	1.066
1	5,248,723	1,144,795	1,049,636	0.2181	0.2000	1.091	0.2050	1,075,988	1.064
2	4,098,610	783,533	699,241	0.1912	0.1706	1.121	0.1760	721,355	1.086
3	3,687,061	607,049	559,905	0.1646	0.1519	1.084	0.1560	575,182	1.055
4	3,600,391	498,706	502,931	0.1385	0.1397	0.992	0.1400	504,055	0.989
5	2,937,485	421,310	399,824	0.1434	0.1361	1.054	0.1390	408,310	1.032
6	2,572,625	333,010	333,560	0.1294	0.1297	0.998	0.1300	334,441	0.996
7	2,510,129	294,201	302,263	0.1172	0.1204	0.973	0.1200	301,216	0.977
8	2,525,560	304,617	275,131	0.1206	0.1089	1.107	0.1120	282,863	1.077
9	2,405,864	239,374	225,449	0.0995	0.0937	1.062	0.0950	228,557	1.047
10	2,286,647	203,601	169,723	0.0890	0.0742	1.200	0.0780	178,358	1.142
11	1,941,524	159,707	142,857	0.0823	0.0736	1.118	0.0760	147,556	1.082
12	1,824,130	127,884	132,183	0.0701	0.0725	0.967	0.0720	131,337	0.974
13	1,625,302	141,516	115,115	0.0871	0.0708	1.229	0.0720	117,022	1.209
14	1,524,553	102,320	105,738	0.0671	0.0694	0.968	0.0690	105,194	0.973
15	1,475,588	94,561	99,583	0.0641	0.0675	0.950	0.0670	98,864	0.956
16	1,223,037	87,428	79,180	0.0715	0.0647	1.104	0.0660	80,720	1.083
17	1,088,605	83,093	69,794	0.0763	0.0641	1.191	0.0660	71,848	1.157
18	901,310	46,305	56,503	0.0514	0.0627	0.820	0.0600	54,079	0.856
19	800,516	40,201	48,966	0.0502	0.0612	0.821	0.0580	46,430	0.866
20+	3,182,290	122,186	192,878	0.0384	0.0606	0.633	0.0550	175,026	0.698
Total	50,238,175	6,549,230	6,214,773	0.1304	0.1237	1.054		6,307,954	1.038

Non-Metro Non-Hazardous Duty Termination Experience

Males Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	1,161,275	323,938	302,270	0.2789	0.2603	1.072	0.2670	310,060	1.045
1	2,256,770	514,475	501,444	0.2280	0.2222	1.026	0.2240	505,516	1.018
2	1,723,387	308,586	329,187	0.1791	0.1910	0.937	0.1900	327,443	0.942
3	1,484,899	254,575	248,499	0.1714	0.1674	1.024	0.1700	252,433	1.008
4	1,377,106	212,470	211,867	0.1543	0.1538	1.003	0.1550	213,451	0.995
5	1,076,942	147,511	160,988	0.1370	0.1495	0.916	0.1460	157,233	0.938
6	966,498	125,250	134,123	0.1296	0.1388	0.934	0.1360	131,444	0.953
7	982,076	106,987	126,854	0.1089	0.1292	0.843	0.1240	121,777	0.879
8	1,030,095	125,965	122,439	0.1223	0.1189	1.029	0.1200	123,611	1.019
9	1,031,532	103,377	111,607	0.1002	0.1082	0.926	0.1060	109,342	0.945
10	1,054,090	95,138	100,798	0.0903	0.0956	0.944	0.0940	99,084	0.960
11	907,876	74,810	85,775	0.0824	0.0945	0.872	0.0910	82,617	0.906
12	857,747	74,861	79,505	0.0873	0.0927	0.942	0.0910	78,055	0.959
13	742,776	64,209	67,652	0.0864	0.0911	0.949	0.0900	66,850	0.960
14	720,562	55,751	64,512	0.0774	0.0895	0.864	0.0870	62,689	0.889
15	682,279	42,731	60,273	0.0626	0.0883	0.709	0.0820	55,947	0.764
16	562,031	36,211	48,297	0.0644	0.0859	0.750	0.0810	45,524	0.795
17	518,049	33,825	43,675	0.0653	0.0843	0.774	0.0800	41,444	0.816
18	416,314	24,658	34,579	0.0592	0.0831	0.713	0.0770	32,056	0.769
19	404,383	26,999	33,257	0.0668	0.0822	0.812	0.0770	31,138	0.867
20+	1,864,423	99,043	148,485	0.0531	0.0796	0.667	0.0730	136,103	0.728
Total	21,821,110	2,851,369	3,016,088	0.1307	0.1382	0.945		2,983,820	0.956

Females Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	1,551,807	438,055	400,397	0.2823	0.2580	1.094	0.2640	409,677	1.069
1	3,139,362	728,082	696,363	0.2319	0.2218	1.046	0.2250	706,356	1.031
2	2,513,584	535,217	478,359	0.2129	0.1903	1.119	0.1970	495,176	1.081
3	2,120,765	423,114	354,144	0.1995	0.1670	1.195	0.1760	373,255	1.134
4	1,970,978	356,570	298,928	0.1809	0.1517	1.193	0.1590	313,386	1.138
5	1,543,724	255,970	223,748	0.1658	0.1449	1.144	0.1510	233,102	1.098
6	1,352,923	205,530	184,150	0.1519	0.1361	1.116	0.1400	189,409	1.085
7	1,381,526	184,781	175,181	0.1338	0.1268	1.055	0.1290	178,217	1.037
8	1,387,577	168,734	160,878	0.1216	0.1159	1.049	0.1170	162,346	1.039
9	1,362,910	169,080	139,850	0.1241	0.1026	1.209	0.1080	147,194	1.149
10	1,289,051	139,711	110,925	0.1084	0.0861	1.260	0.0920	118,593	1.178
11	1,134,056	139,793	96,627	0.1233	0.0852	1.447	0.0920	104,333	1.340
12	1,029,164	103,633	86,879	0.1007	0.0844	1.193	0.0880	90,566	1.144
13	933,383	82,910	77,836	0.0888	0.0834	1.065	0.0850	79,338	1.045
14	876,368	75,769	71,530	0.0865	0.0816	1.059	0.0830	72,739	1.042
15	848,071	62,761	67,471	0.0740	0.0796	0.930	0.0780	66,150	0.949
16	711,804	46,001	54,792	0.0646	0.0770	0.840	0.0740	52,674	0.873
17	634,395	43,544	48,145	0.0686	0.0759	0.904	0.0740	46,945	0.928
18	532,640	31,448	39,959	0.0590	0.0750	0.787	0.0710	37,817	0.832
19	437,201	25,653	32,653	0.0587	0.0747	0.786	0.0710	31,041	0.826
20+	2,079,749	88,760	156,462	0.0427	0.0752	0.567	0.0670	139,343	0.637
Total	28,831,038	4,305,117	3,955,275	0.1493	0.1372	1.088		4,047,657	1.064

Metro Hazardous Duty Termination Experience

Males Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	1,711,539	375,195	135,465	0.2192	0.0791	2.770	0.1140	195,115	1.923
1	3,404,383	525,754	244,599	0.1544	0.0718	2.149	0.0920	313,203	1.679
2	2,926,642	453,526	182,403	0.1550	0.0623	2.486	0.0850	248,765	1.823
3	2,764,663	364,336	156,001	0.1318	0.0564	2.335	0.0750	207,350	1.757
4	2,743,202	308,747	143,831	0.1125	0.0524	2.147	0.0670	183,795	1.680
5	2,468,832	257,431	101,364	0.1043	0.0411	2.540	0.0570	140,723	1.829
6	2,248,310	216,591	84,706	0.0963	0.0377	2.557	0.0520	116,912	1.853
7	2,118,464	156,947	63,309	0.0741	0.0299	2.479	0.0410	86,857	1.807
8	1,813,755	108,430	54,067	0.0598	0.0298	2.005	0.0370	67,109	1.616
9	1,818,442	97,693	41,113	0.0537	0.0226	2.376	0.0300	54,553	1.791
10	1,722,221	105,063	25,342	0.0610	0.0147	4.146	0.0260	44,778	2.346
11	1,526,699	74,953	22,289	0.0491	0.0146	3.363	0.0230	35,114	2.135
12	1,732,610	55,426	25,055	0.0320	0.0145	2.212	0.0190	32,920	1.684
13	1,729,114	54,947	24,740	0.0318	0.0143	2.221	0.0190	32,853	1.673
14	1,865,073	53,068	23,606	0.0285	0.0127	2.248	0.0170	31,706	1.674
15	2,096,229	45,613	23,403	0.0218	0.0112	1.949	0.0140	29,347	1.554
16	2,051,211	41,878	22,666	0.0204	0.0111	1.848	0.0130	26,666	1.570
17	1,922,944	23,221	21,335	0.0121	0.0111	1.088	0.0110	21,152	1.098
18	1,839,205	32,251	20,321	0.0175	0.0110	1.587	0.0110	20,231	1.594
19	1,649,528	38,190	18,193	0.0232	0.0110	2.099	0.0110	18,145	2.105
20+	7,619,587	340,180	85,932	0.0446	0.0113	3.959	0.0110	83,815	4.059
Total	49,772,652	3,729,440	1,519,739	0.0749	0.0305	2.454		1,991,110	1.873

Females Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	476,849	143,929	63,406	0.3018	0.1330	2.270	0.1750	83,449	1.725
1	991,283	223,985	107,186	0.2260	0.1081	2.090	0.1380	136,797	1.637
2	866,521	170,295	71,955	0.1965	0.0830	2.367	0.1110	96,184	1.771
3	765,399	124,349	49,190	0.1625	0.0643	2.528	0.0890	68,120	1.825
4	738,129	121,084	42,732	0.1640	0.0579	2.834	0.0840	62,003	1.953
5	593,385	82,853	33,848	0.1396	0.0570	2.448	0.0780	46,284	1.790
6	507,813	61,303	22,168	0.1207	0.0437	2.765	0.0630	31,992	1.916
7	424,114	38,604	18,983	0.0910	0.0448	2.034	0.0560	23,750	1.625
8	367,687	38,447	17,703	0.1046	0.0481	2.172	0.0560	20,590	1.867
9	333,886	24,392	10,369	0.0731	0.0311	2.352	0.0420	14,023	1.739
10	290,877	25,589	6,544	0.0880	0.0225	3.911	0.0390	11,344	2.256
11	260,725	28,407	5,743	0.1090	0.0220	4.947	0.0390	10,168	2.794
12	258,544	21,145	5,546	0.0818	0.0214	3.813	0.0370	9,566	2.210
13	265,386	19,841	5,691	0.0748	0.0214	3.486	0.0350	9,289	2.136
14	284,481	17,998	6,046	0.0633	0.0213	2.977	0.0320	9,103	1.977
15	310,881	17,158	6,574	0.0552	0.0211	2.610	0.0300	9,326	1.840
16	305,375	16,983	6,378	0.0556	0.0209	2.663	0.0300	9,161	1.854
17	291,589	10,491	5,914	0.0360	0.0203	1.774	0.0240	6,998	1.499
18	284,880	12,337	5,811	0.0433	0.0204	2.123	0.0240	6,837	1.804
19	249,015	8,782	5,199	0.0353	0.0209	1.689	0.0240	5,976	1.469
20+	1,014,715	66,678	22,126	0.0657	0.0218	3.014	0.0240	24,353	2.738
Total	9,881,534	1,274,651	519,113	0.1290	0.0525	2.455		695,316	1.833

Non-Metro Hazardous Duty Termination Experience

Males Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	1,105,041	342,429	119,614	0.3099	0.1082	2.863	0.1590	175,701	1.949
1	2,244,336	455,646	243,262	0.2030	0.1084	1.873	0.1320	296,252	1.538
2	2,049,396	383,294	191,303	0.1870	0.0933	2.004	0.1170	239,779	1.599
3	1,866,109	298,142	155,975	0.1598	0.0836	1.911	0.1030	192,209	1.551
4	1,812,909	303,176	134,149	0.1672	0.0740	2.260	0.0970	175,852	1.724
5	1,525,395	206,033	97,550	0.1351	0.0640	2.112	0.0820	125,082	1.647
6	1,390,343	172,542	88,987	0.1241	0.0640	1.939	0.0790	109,837	1.571
7	1,247,175	168,481	49,355	0.1351	0.0396	3.414	0.0630	78,572	2.144
8	1,105,314	117,627	43,707	0.1064	0.0395	2.691	0.0560	61,898	1.900
9	1,004,525	93,702	39,403	0.0933	0.0392	2.378	0.0530	53,240	1.760
10	932,343	86,323	22,694	0.0926	0.0243	3.804	0.0410	38,226	2.258
11	834,256	63,323	20,434	0.0759	0.0245	3.099	0.0370	30,867	2.051
12	770,637	50,672	18,881	0.0658	0.0245	2.684	0.0350	26,972	1.879
13	831,057	60,898	20,297	0.0733	0.0244	3.000	0.0350	29,087	2.094
14	801,588	40,820	19,642	0.0509	0.0245	2.078	0.0310	24,849	1.643
15	884,887	49,008	17,397	0.0554	0.0197	2.817	0.0290	25,662	1.910
16	898,904	44,299	17,639	0.0493	0.0196	2.511	0.0270	24,270	1.825
17	793,098	34,320	15,570	0.0433	0.0196	2.204	0.0260	20,621	1.664
18	774,156	32,177	15,175	0.0416	0.0196	2.120	0.0250	19,354	1.663
19	713,741	44,205	13,961	0.0619	0.0196	3.166	0.0250	17,844	2.477
20+	3,727,054	249,728	72,072	0.0670	0.0193	3.465	0.0250	93,176	2.680
Total	27,312,264	3,296,845	1,417,065	0.1207	0.0519	2.327		1,859,352	1.773

Females Liability Weighted									
Service	Exposed	Actual Terminations	Expected Terminations	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Terminations Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
0	387,815	147,128	75,924	0.3794	0.1958	1.938	0.2420	93,851	1.568
1	670,472	190,535	99,086	0.2842	0.1478	1.923	0.1820	122,026	1.561
2	546,223	140,036	53,999	0.2564	0.0989	2.593	0.1380	75,379	1.858
3	450,240	102,850	37,594	0.2284	0.0835	2.736	0.1200	54,029	1.904
4	371,282	80,737	25,755	0.2175	0.0694	3.135	0.1060	39,356	2.051
5	294,400	60,617	20,403	0.2059	0.0693	2.971	0.1030	30,323	1.999
6	246,300	40,738	16,992	0.1654	0.0690	2.398	0.0930	22,906	1.778
7	199,999	30,830	13,734	0.1541	0.0687	2.245	0.0900	18,000	1.713
8	199,387	30,884	13,759	0.1549	0.0690	2.245	0.0900	17,945	1.721
9	160,064	26,006	9,405	0.1625	0.0588	2.765	0.0850	13,605	1.911
10	146,117	15,828	5,020	0.1083	0.0344	3.153	0.0530	7,744	2.044
11	125,490	15,240	4,297	0.1214	0.0342	3.546	0.0530	6,651	2.291
12	115,359	13,382	3,888	0.1160	0.0337	3.442	0.0530	6,114	2.189
13	107,894	11,431	3,661	0.1059	0.0339	3.122	0.0520	5,610	2.037
14	120,739	15,054	4,117	0.1247	0.0341	3.657	0.0520	6,278	2.398
15	124,249	5,150	4,285	0.0414	0.0345	1.202	0.0360	4,473	1.151
16	128,187	9,324	4,451	0.0727	0.0347	2.095	0.0360	4,615	2.021
17	110,949	4,144	3,843	0.0374	0.0346	1.078	0.0350	3,883	1.067
18	103,878	4,227	3,571	0.0407	0.0344	1.184	0.0350	3,636	1.163
19	105,634	9,836	3,608	0.0931	0.0342	2.726	0.0350	3,697	2.660
20+	386,979	31,555	13,300	0.0815	0.0344	2.373	0.0350	13,544	2.330
Total	5,101,657	985,532	420,693	0.1932	0.0825	2.343		553,666	1.780

State Disability Experience

Males Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	82	0	0	0.0000	0.0002	0.000	0.000000	0	0.000
20-24	2,623	0	2	0.0000	0.0006	0.000	0.000351	1	0.000
25-29	8,234	5	7	0.0006	0.0008	0.761	0.000645	5	0.941
30-34	11,348	7	12	0.0006	0.0010	0.594	0.000815	9	0.757
35-39	13,039	7	21	0.0005	0.0016	0.339	0.001159	15	0.463
40-44	13,712	23	36	0.0017	0.0026	0.643	0.001908	26	0.879
45-49	14,065	30	57	0.0021	0.0041	0.526	0.003085	43	0.691
50-54	16,633	54	92	0.0032	0.0055	0.586	0.004470	74	0.726
55-59	16,869	79	111	0.0047	0.0066	0.709	0.005657	95	0.828
60-64	14,983	80	103	0.0053	0.0068	0.780	0.006209	93	0.860
65+	10,118	62	53	0.0061	0.0053	1.163	0.005917	60	1.036
Total	121,706	347	493	0.0029	0.0040	0.704		423	0.821

Females Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	73	0	0	0.0000	0.0005	0.000	0.000000	0	0.000
20-24	3,725	1	2	0.0003	0.0006	0.457	0.000281	1	0.955
25-29	12,245	8	19	0.0007	0.0015	0.431	0.000850	10	0.769
30-34	16,797	17	41	0.0010	0.0024	0.418	0.001793	30	0.564
35-39	19,252	27	59	0.0014	0.0031	0.455	0.002390	46	0.587
40-44	20,858	45	83	0.0022	0.0040	0.543	0.003006	63	0.718
45-49	20,690	56	111	0.0027	0.0054	0.505	0.004032	83	0.671
50-54	24,039	87	164	0.0036	0.0068	0.531	0.005345	128	0.677
55-59	25,863	143	194	0.0055	0.0075	0.737	0.006304	163	0.877
60-64	22,721	134	160	0.0059	0.0070	0.838	0.006251	142	0.943
65+	11,710	50	76	0.0043	0.0065	0.659	0.005552	65	0.769
Total	177,973	568	908	0.0032	0.0051	0.625		732	0.776

Teacher Disability Experience

Males Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	27	0	0	0.0000	0.0000	0.000	0.000000	0	0.000
20-24	2,353	0	0	0.0000	0.0000	0.000	0.000003	0	0.000
25-29	10,191	0	0	0.0000	0.0000	0.000	0.000032	0	0.000
30-34	13,788	1	1	0.0001	0.0001	0.787	0.000068	1	1.067
35-39	15,146	1	3	0.0001	0.0002	0.337	0.000163	2	0.405
40-44	16,492	7	8	0.0004	0.0005	0.910	0.000363	6	1.169
45-49	16,030	11	16	0.0007	0.0010	0.697	0.000722	12	0.950
50-54	16,691	12	30	0.0007	0.0018	0.395	0.001222	20	0.588
55-59	12,543	14	35	0.0011	0.0028	0.396	0.001698	21	0.657
60-64	8,600	12	31	0.0014	0.0036	0.389	0.001887	16	0.739
65+	4,187	4	14	0.0010	0.0034	0.284	0.001887	8	0.506
Total	116,048	62	139	0.0005	0.0012	0.447		87	0.712

Females Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	128	0	0	0.0000	0.0000	0.000	0.000000	0	0.000
20-24	11,395	0	0	0.0000	0.0000	0.000	0.000010	0	0.000
25-29	45,628	3	2	0.0001	0.0000	1.449	0.000036	2	1.826
30-34	52,998	3	6	0.0001	0.0001	0.467	0.000088	5	0.643
35-39	57,320	15	17	0.0003	0.0003	0.890	0.000216	12	1.212
40-44	64,617	20	40	0.0003	0.0006	0.504	0.000356	23	0.869
45-49	67,330	29	71	0.0004	0.0011	0.409	0.000724	49	0.595
50-54	74,012	54	149	0.0007	0.0020	0.363	0.001134	84	0.643
55-59	59,633	70	168	0.0012	0.0028	0.417	0.001494	89	0.786
60-64	41,507	50	143	0.0012	0.0034	0.350	0.001579	66	0.763
65+	16,321	13	52	0.0008	0.0032	0.250	0.001579	26	0.504
Total	490,889	257	648	0.0005	0.0013	0.397		355	0.724

Teacher Disability Experience (VLDP)

Males Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	6	0	0	0.0000	0.0000	0.000	0.000006	0	0.000
20-24	517	0	0	0.0000	0.0000	0.000	0.000006	0	0.000
25-29	2,326	0	0	0.0000	0.0000	0.000	0.000077	0	0.000
30-34	2,467	0	0	0.0000	0.0001	0.000	0.000162	0	0.000
35-39	1,576	1	0	0.0006	0.0002	3.448	0.000390	1	1.627
40-44	1,118	2	1	0.0018	0.0005	3.846	0.000870	1	2.056
45-49	974	2	1	0.0021	0.0010	2.105	0.001733	2	1.185
50-54	795	2	1	0.0025	0.0018	1.379	0.002932	2	0.858
55-59	679	1	2	0.0015	0.0028	0.524	0.004074	3	0.362
60-64	469	2	2	0.0043	0.0036	1.183	0.004528	2	0.942
65+	223	2	1	0.0090	0.0033	2.740	0.004528	1	1.981
Total	11,150	12	8	0.0011	0.0007	1.533		12	0.993

Females Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	15	0	0	0.0000	0.0000	0.000	0.000003	0	0.000
20-24	2,419	0	0	0.0000	0.0000	0.000	0.000026	0	0.000
25-29	10,312	3	0	0.0003	0.0000	6.383	0.000091	1	3.197
30-34	8,929	2	1	0.0002	0.0001	1.923	0.000221	2	1.014
35-39	6,133	6	2	0.0010	0.0003	3.390	0.000541	3	1.808
40-44	6,103	11	4	0.0018	0.0006	2.949	0.000891	5	2.023
45-49	5,802	6	6	0.0010	0.0010	0.995	0.001810	11	0.571
50-54	5,117	10	10	0.0020	0.0020	0.980	0.002836	15	0.689
55-59	3,064	7	9	0.0023	0.0028	0.816	0.003736	11	0.612
60-64	1,685	3	6	0.0018	0.0034	0.517	0.003948	7	0.451
65+	650	0	2	0.0000	0.0032	0.000	0.003948	3	0.000
Total	50,229	48	40	0.0010	0.0008	1.209		57	0.836

ValORS Disability Experience

Males Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	97	0	0	0.0000	0.0014	0.000	0.001443	0	0.000
20-24	1,786	0	3	0.0000	0.0020	0.000	0.001954	3	0.000
25-29	2,809	8	13	0.0028	0.0044	0.640	0.004450	13	0.640
30-34	2,853	9	18	0.0032	0.0064	0.490	0.006439	18	0.490
35-39	2,451	14	18	0.0057	0.0075	0.763	0.007491	18	0.763
40-44	2,223	26	19	0.0117	0.0083	1.404	0.008331	19	1.404
45-49	2,643	34	27	0.0129	0.0101	1.278	0.010064	27	1.278
50-54	2,191	36	28	0.0164	0.0128	1.280	0.012839	28	1.280
55-59	1,542	20	25	0.0130	0.0162	0.801	0.016200	25	0.801
60-64	899	19	17	0.0211	0.0184	1.151	0.018365	17	1.151
65+	336	6	6	0.0179	0.0165	1.081	0.016518	6	1.081
Total	19,830	172	173	0.0087	0.0087	0.993		173	0.993

Females Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	49	0	0	0.0000	0.0055	0.000	0.003857	0	0.000
20-24	965	0	5	0.0000	0.0055	0.000	0.003866	4	0.000
25-29	1,793	4	11	0.0022	0.0061	0.363	0.004302	8	0.519
30-34	1,827	9	13	0.0049	0.0070	0.708	0.004870	9	1.012
35-39	1,375	3	12	0.0022	0.0085	0.258	0.005921	8	0.368
40-44	1,304	12	15	0.0092	0.0114	0.805	0.008004	10	1.150
45-49	1,339	16	21	0.0119	0.0156	0.764	0.010947	15	1.092
50-54	1,169	13	23	0.0111	0.0199	0.560	0.013910	16	0.799
55-59	962	13	24	0.0135	0.0249	0.543	0.017420	17	0.776
60-64	424	7	13	0.0165	0.0317	0.520	0.022222	9	0.743
65+	107	1	4	0.0093	0.0358	0.261	0.025056	3	0.373
Total	11,314	78	141	0.0069	0.0125	0.552		99	0.789

SPORS Disability Experience

Males and Females Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.001744	0	0.000
20-24	367	1	1	0.0027	0.0019	1.408	0.001744	1	1.562
25-29	1,019	1	2	0.0010	0.0019	0.508	0.001744	2	0.563
30-34	1,187	2	2	0.0017	0.0019	0.870	0.001744	2	0.966
35-39	1,083	0	2	0.0000	0.0019	0.000	0.001744	2	0.000
40-44	1,076	5	2	0.0046	0.0019	2.392	0.001744	2	2.664
45-49	1,032	3	3	0.0029	0.0032	0.901	0.002098	2	1.386
50-54	926	5	5	0.0054	0.0059	0.917	0.004326	4	1.248
55-59	589	0	5	0.0000	0.0082	0.000	0.006927	4	0.000
60-64	294	0	3	0.0000	0.0096	0.000	0.008070	2	0.000
65+	65	0	1	0.0000	0.0111	0.000	0.009968	1	0.000
Total	7,638	17	26	0.0022	0.0034	0.646		22	0.790

Metro Non-Hazardous Duty Disability Experience

Males Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	149	0	0	0.0000	0.0001	0.000	0.000022	0	0.000
20-24	2,530	0	0	0.0000	0.0001	0.000	0.000022	0	0.000
25-29	5,474	0	1	0.0000	0.0001	0.000	0.000032	0	0.000
30-34	7,984	2	2	0.0003	0.0003	0.922	0.000224	2	1.118
35-39	8,866	3	7	0.0003	0.0008	0.420	0.000626	6	0.541
40-44	9,287	9	17	0.0010	0.0018	0.534	0.001132	11	0.856
45-49	9,348	16	30	0.0017	0.0032	0.528	0.001726	16	0.992
50-54	11,568	25	55	0.0022	0.0048	0.452	0.002657	31	0.813
55-59	12,464	34	81	0.0027	0.0065	0.419	0.003636	45	0.750
60-64	11,378	41	84	0.0036	0.0074	0.486	0.004241	48	0.850
65+	7,915	16	51	0.0020	0.0064	0.314	0.004599	36	0.440
Total	86,963	146	329	0.0017	0.0038	0.444		195	0.749

Females Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	49	0	0	0.0000	0.0000	0.000	0.000006	0	0.000
20-24	2,049	0	0	0.0000	0.0000	0.000	0.000025	0	0.000
25-29	7,408	1	0	0.0001	0.0001	2.439	0.000115	1	1.174
30-34	10,963	5	2	0.0005	0.0002	2.016	0.000310	3	1.471
35-39	12,300	2	7	0.0002	0.0006	0.268	0.000669	8	0.243
40-44	13,162	5	16	0.0004	0.0012	0.313	0.001143	15	0.332
45-49	14,424	14	31	0.0010	0.0022	0.445	0.001649	24	0.589
50-54	17,340	20	63	0.0012	0.0036	0.317	0.002212	38	0.521
55-59	17,935	38	95	0.0021	0.0053	0.402	0.002648	47	0.800
60-64	14,950	40	91	0.0027	0.0061	0.439	0.002730	41	0.980
65+	8,144	11	44	0.0014	0.0054	0.251	0.002730	22	0.495
Total	118,724	136	351	0.0011	0.0030	0.388		200	0.679

Metro Non-Hazardous Duty Disability Experience (VLDP)

Males Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	39	0	0	0.0000	0.0000	0.000	0.000027	0	0.000
20-24	734	0	0	0.0000	0.0001	0.000	0.000027	0	0.000
25-29	1,698	0	0	0.0000	0.0001	0.000	0.000047	0	0.000
30-34	2,058	2	1	0.0010	0.0003	3.774	0.000615	1	1.580
35-39	1,799	2	1	0.0011	0.0008	1.399	0.000953	2	1.167
40-44	1,627	6	3	0.0037	0.0018	2.034	0.002750	4	1.341
45-49	1,513	6	5	0.0040	0.0032	1.232	0.003592	5	1.104
50-54	1,537	6	7	0.0039	0.0048	0.817	0.004340	7	0.899
55-59	1,634	12	11	0.0073	0.0065	1.136	0.006903	11	1.064
60-64	1,370	9	10	0.0066	0.0072	0.916	0.006869	9	0.956
65+	1,192	5	7	0.0042	0.0060	0.701	0.005088	6	0.824
Total	15,201	48	45	0.0032	0.0029	1.071		46	1.034

Females Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	16	0	0	0.0000	0.0000	0.000	0.000008	0	0.000
20-24	613	0	0	0.0000	0.0000	0.000	0.000008	0	0.000
25-29	2,373	1	0	0.0004	0.0001	7.692	0.000238	1	1.771
30-34	3,126	5	1	0.0016	0.0002	7.353	0.000909	3	1.760
35-39	2,805	1	2	0.0004	0.0006	0.621	0.000465	1	0.767
40-44	2,794	3	3	0.0011	0.0011	0.938	0.001110	3	0.967
45-49	2,563	7	5	0.0027	0.0021	1.313	0.002405	6	1.136
50-54	2,480	13	9	0.0052	0.0036	1.456	0.004421	11	1.186
55-59	2,443	22	13	0.0090	0.0054	1.682	0.007180	18	1.254
60-64	1,905	16	12	0.0084	0.0062	1.354	0.007302	14	1.150
65+	1,029	6	6	0.0058	0.0054	1.087	0.005598	6	1.042
Total	22,147	74	50	0.0033	0.0023	1.471		62	1.191

Non-Metro Non-Hazardous Duty Disability Experience

Males Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	175	0	0	0.0000	0.0001	0.000	0.000019	0	0.000
20-24	2,212	0	0	0.0000	0.0001	0.000	0.000034	0	0.000
25-29	3,830	0	0	0.0000	0.0001	0.000	0.000086	0	0.000
30-34	4,664	0	1	0.0000	0.0003	0.000	0.000210	1	0.000
35-39	4,738	1	4	0.0002	0.0008	0.267	0.000519	2	0.407
40-44	5,210	1	9	0.0002	0.0018	0.106	0.001085	6	0.177
45-49	5,727	3	19	0.0005	0.0034	0.155	0.001717	10	0.305
50-54	6,852	11	34	0.0016	0.0049	0.327	0.002338	16	0.687
55-59	7,715	14	48	0.0018	0.0063	0.289	0.002626	20	0.691
60-64	7,090	18	47	0.0025	0.0066	0.384	0.002626	19	0.967
65+	5,327	10	28	0.0019	0.0053	0.355	0.002626	14	0.715
Total	53,540	58	192	0.0011	0.0036	0.302		88	0.657

Females Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	90	0	0	0.0000	0.0000	0.000	0.000004	0	0.000
20-24	2,364	1	0	0.0004	0.0000	50.000	0.000004	0	105.753
25-29	5,546	0	0	0.0000	0.0000	0.000	0.000004	0	0.000
30-34	7,110	2	1	0.0003	0.0001	2.985	0.000096	1	2.930
35-39	7,715	0	3	0.0000	0.0004	0.000	0.000232	2	0.000
40-44	8,653	4	7	0.0005	0.0008	0.557	0.000508	4	0.910
45-49	9,068	6	17	0.0007	0.0018	0.363	0.001096	10	0.604
50-54	11,441	13	41	0.0011	0.0036	0.318	0.001932	22	0.588
55-59	12,157	20	68	0.0016	0.0056	0.296	0.002561	31	0.642
60-64	10,610	24	69	0.0023	0.0065	0.348	0.002623	28	0.862
65+	6,223	5	34	0.0008	0.0054	0.147	0.002623	16	0.306
Total	80,977	75	239	0.0009	0.0029	0.314		114	0.657

Non-Metro Non-Hazardous Duty Disability Experience (VLDP)

Males Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	36	0	0	0.0000	0.0000	0.000	0.000032	0	0.000
20-24	462	0	0	0.0000	0.0001	0.000	0.000032	0	0.000
25-29	660	0	0	0.0000	0.0001	0.000	0.000068	0	0.000
30-34	636	0	0	0.0000	0.0003	0.000	0.000157	0	0.000
35-39	473	0	0	0.0000	0.0008	0.000	0.000381	0	0.000
40-44	411	1	1	0.0024	0.0018	1.333	0.002129	1	1.143
45-49	433	1	1	0.0023	0.0034	0.685	0.002841	1	0.813
50-54	474	2	2	0.0042	0.0049	0.855	0.004578	2	0.922
55-59	518	4	3	0.0077	0.0062	1.238	0.006979	4	1.106
60-64	408	2	3	0.0049	0.0066	0.746	0.005735	2	0.855
65+	253	3	1	0.0119	0.0056	2.113	0.008735	2	1.357
Total	4,764	13	13	0.0027	0.0026	1.035		13	1.017

Females Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	20	0	0	0.0000	0.0000	0.000	0.001362	0	0.000
20-24	367	1	0	0.0027	0.0000	0.000	0.001362	0	2.001
25-29	903	0	0	0.0000	0.0000	0.000	0.000006	0	0.000
30-34	1,046	2	0	0.0019	0.0001	25.000	0.000994	1	1.924
35-39	771	0	0	0.0000	0.0004	0.000	0.000188	0	0.000
40-44	768	3	1	0.0039	0.0008	4.839	0.002357	2	1.657
45-49	734	2	1	0.0027	0.0018	1.515	0.002262	2	1.205
50-54	736	3	3	0.0041	0.0035	1.163	0.003791	3	1.075
55-59	697	4	4	0.0057	0.0056	1.031	0.005653	4	1.015
60-64	496	3	3	0.0060	0.0065	0.929	0.006280	3	0.963
65+	194	2	1	0.0103	0.0056	1.835	0.007964	2	1.294
Total	6,732	20	13	0.0030	0.0019	1.527		17	1.206

Metro Hazardous Duty Disability Experience

Males Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	104	0	0	0.0000	0.0001	0.000	0.000075	0	0.000
20-24	2,994	1	0	0.0003	0.0001	2.632	0.000088	0	3.795
25-29	7,537	0	2	0.0000	0.0003	0.000	0.000209	2	0.000
30-34	8,580	1	7	0.0001	0.0008	0.145	0.000531	5	0.219
35-39	8,124	8	14	0.0010	0.0017	0.572	0.001067	9	0.923
40-44	6,871	4	21	0.0006	0.0030	0.192	0.001620	11	0.359
45-49	6,729	10	28	0.0015	0.0042	0.354	0.001999	13	0.743
50-54	5,949	13	30	0.0022	0.0051	0.430	0.002627	16	0.832
55-59	3,039	12	21	0.0039	0.0068	0.581	0.004222	13	0.935
60-64	1,309	4	13	0.0031	0.0100	0.306	0.007146	9	0.428
65+	279	0	4	0.0000	0.0134	0.000	0.012338	3	0.000
Total	51,515	53	141	0.0010	0.0027	0.377		81	0.655

Females Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	12	0	0	0.0000	0.0000	0.000	0.000042	0	0.000
20-24	848	0	1	0.0000	0.0006	0.000	0.000866	1	0.000
25-29	2,020	0	6	0.0000	0.0028	0.000	0.001954	4	0.000
30-34	2,030	2	9	0.0010	0.0044	0.224	0.002466	5	0.400
35-39	1,619	1	8	0.0006	0.0052	0.118	0.002780	5	0.222
40-44	1,354	3	8	0.0022	0.0057	0.392	0.003170	4	0.699
45-49	1,249	6	8	0.0048	0.0067	0.713	0.003816	5	1.259
50-54	1,041	2	10	0.0019	0.0092	0.208	0.004817	5	0.399
55-59	570	2	7	0.0035	0.0130	0.270	0.006257	4	0.561
60-64	195	1	4	0.0051	0.0194	0.265	0.008145	2	0.630
65+	49	1	1	0.0204	0.0229	0.893	0.010866	1	1.878
Total	10,987	18	61	0.0016	0.0056	0.293		34	0.530

Non-Metro Hazardous Duty Disability Experience

Males Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	102	0	0	0.0000	0.0000	0.000	0.000007	0	0.000
20-24	2,822	0	0	0.0000	0.0001	0.000	0.000081	0	0.000
25-29	5,709	0	2	0.0000	0.0003	0.000	0.000288	2	0.000
30-34	5,769	1	5	0.0002	0.0008	0.215	0.000604	3	0.287
35-39	4,968	5	8	0.0010	0.0016	0.646	0.001091	5	0.922
40-44	4,089	5	11	0.0012	0.0026	0.462	0.001652	7	0.740
45-49	4,248	4	16	0.0009	0.0037	0.253	0.002081	9	0.452
50-54	3,309	4	15	0.0012	0.0045	0.271	0.002479	8	0.488
55-59	1,831	3	10	0.0016	0.0053	0.308	0.002873	5	0.570
60-64	906	5	6	0.0055	0.0061	0.909	0.003148	3	1.753
65+	250	0	2	0.0000	0.0061	0.000	0.003297	1	0.000
Total	34,003	27	73	0.0008	0.0021	0.372		44	0.621

Females Headcount Weighted									
Age	Exposed	Actual Disabilities	Expected Disabilities	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Disabilities Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	36	0	0	0.0000	0.0000	0.000	0.000023	0	0.000
20-24	767	0	0	0.0000	0.0002	0.000	0.000302	0	0.000
25-29	1,318	0	2	0.0000	0.0012	0.000	0.000706	1	0.000
30-34	1,171	1	2	0.0009	0.0019	0.446	0.000851	1	1.003
35-39	852	0	2	0.0000	0.0020	0.000	0.000903	1	0.000
40-44	826	3	2	0.0036	0.0023	1.563	0.001099	1	3.305
45-49	719	2	2	0.0028	0.0031	0.889	0.001857	1	1.498
50-54	600	1	3	0.0017	0.0056	0.300	0.003740	2	0.446
55-59	405	2	4	0.0049	0.0107	0.460	0.007223	3	0.684
60-64	211	0	4	0.0000	0.0195	0.000	0.012359	3	0.000
65+	38	1	1	0.0263	0.0287	0.917	0.020289	1	1.297
Total	6,943	10	23	0.0014	0.0033	0.438		14	0.729

State Pre-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	27,681	0	11	0.0000	0.0004	0.000	0.0004	11	0.000
20-24	1,090,998	1,581	373	0.0014	0.0003	4.240	0.0003	365	4.329
25-29	4,062,207	420	1,571	0.0001	0.0004	0.267	0.0004	1,540	0.273
30-34	7,297,490	7,331	3,954	0.0010	0.0005	1.854	0.0005	3,897	1.881
35-39	10,817,581	8,685	7,655	0.0008	0.0007	1.135	0.0007	7,627	1.139
40-44	13,315,513	10,590	11,804	0.0008	0.0009	0.897	0.0009	11,868	0.892
45-49	15,011,172	17,622	17,561	0.0012	0.0012	1.003	0.0012	17,640	0.999
50-54	18,587,479	41,481	31,278	0.0022	0.0017	1.326	0.0017	31,183	1.330
55-59	19,253,470	42,495	49,463	0.0022	0.0026	0.859	0.0026	49,257	0.863
60-64	17,726,611	60,021	67,400	0.0034	0.0038	0.891	0.0038	67,175	0.894
65+	13,772,831	103,381	86,859	0.0075	0.0063	1.190	0.0063	86,450	1.196
Total	120,963,034	293,607	277,928	0.0024	0.0023	1.056		277,013	1.060

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	22,164	0	3	0.0000	0.0001	0.000	0.0001	3	0.000
20-24	1,460,888	0	160	0.0000	0.0001	0.000	0.0001	157	0.000
25-29	5,783,964	1,300	981	0.0002	0.0002	1.326	0.0002	962	1.352
30-34	10,013,278	4,328	2,800	0.0004	0.0003	1.546	0.0003	2,757	1.570
35-39	14,789,402	1,998	6,112	0.0001	0.0004	0.327	0.0004	6,055	0.330
40-44	18,255,067	13,870	10,037	0.0008	0.0005	1.382	0.0005	9,943	1.395
45-49	19,408,839	20,372	14,486	0.0010	0.0007	1.406	0.0007	14,312	1.423
50-54	23,146,670	37,874	25,928	0.0016	0.0011	1.461	0.0011	25,483	1.486
55-59	25,333,318	52,035	45,367	0.0021	0.0018	1.147	0.0018	44,729	1.163
60-64	23,082,402	65,456	62,815	0.0028	0.0027	1.042	0.0027	62,421	1.049
65+	12,458,172	55,513	58,726	0.0045	0.0047	0.945	0.0047	58,322	0.952
Total	153,754,165	252,746	227,415	0.0016	0.0015	1.111		225,143	1.123

State Healthy Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	9,161,777	79,980	32,787	0.0087	0.0036	2.439	0.0036	32,659	2.449
55-59	57,438,065	504,860	300,497	0.0088	0.0052	1.680	0.0052	299,276	1.687
60-64	179,926,770	1,873,172	1,375,545	0.0104	0.0076	1.362	0.0076	1,371,048	1.366
65-69	494,347,790	6,374,291	5,592,513	0.0129	0.0113	1.140	0.0113	5,572,977	1.144
70-74	687,943,787	13,160,066	12,508,367	0.0191	0.0182	1.052	0.0181	12,428,358	1.059
75-79	616,359,228	19,172,620	19,217,886	0.0311	0.0312	0.998	0.0310	19,078,268	1.005
80-84	392,066,540	21,850,799	21,830,883	0.0557	0.0557	1.001	0.0554	21,705,072	1.007
85-89	199,406,208	22,451,308	19,777,907	0.1126	0.0992	1.135	0.0988	19,698,353	1.140
90-94	71,966,509	13,325,289	11,768,355	0.1852	0.1635	1.132	0.1631	11,737,079	1.135
95-99	16,344,467	4,806,520	3,972,235	0.2941	0.2430	1.210	0.2426	3,965,291	1.212
100+	1,174,354	657,452	385,522	0.5598	0.3283	1.705	0.3281	385,293	1.706
Total	2,726,135,494	104,256,357	96,762,496	0.0382	0.0355	1.077		96,273,674	1.083

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	8,812,653	9,726	25,154	0.0011	0.0029	0.387	0.0028	24,714	0.394
55-59	70,651,962	474,289	267,207	0.0067	0.0038	1.775	0.0037	263,691	1.799
60-64	278,196,481	2,080,566	1,482,557	0.0075	0.0053	1.403	0.0053	1,474,169	1.411
65-69	711,299,834	5,946,265	5,789,343	0.0084	0.0081	1.027	0.0081	5,752,495	1.034
70-74	765,434,349	11,772,611	10,364,447	0.0154	0.0135	1.136	0.0134	10,268,754	1.146
75-79	500,697,681	13,060,547	11,923,737	0.0261	0.0238	1.095	0.0236	11,818,328	1.105
80-84	263,246,686	12,451,519	11,652,332	0.0473	0.0443	1.069	0.0439	11,564,337	1.077
85-89	132,464,130	10,787,874	10,938,679	0.0814	0.0826	0.986	0.0821	10,880,514	0.991
90-94	53,290,888	7,562,018	7,796,303	0.1419	0.1463	0.970	0.1457	7,765,410	0.974
95-99	12,302,528	3,112,781	2,794,885	0.2530	0.2272	1.114	0.2263	2,784,553	1.118
100+	2,519,825	734,895	832,535	0.2916	0.3304	0.883	0.3296	830,651	0.885
Total	2,798,917,018	67,993,092	63,867,177	0.0243	0.0228	1.065		63,427,614	1.072

State Disabled Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	1	1	0	1.0000	0.0000	0.000	0.0000	0	0.000
25-29	16	1	0	0.0625	0.0050	12.500	0.0044	0	14.286
30-34	29,622	5	190	0.0002	0.0064	0.026	0.0063	187	0.027
35-39	26,085	7	234	0.0003	0.0090	0.030	0.0090	234	0.030
40-44	20,027	4	245	0.0002	0.0122	0.016	0.0123	246	0.016
45-49	452,551	2,090	7,473	0.0046	0.0165	0.280	0.0166	7,494	0.279
50-54	2,051,465	29,271	42,076	0.0143	0.0205	0.696	0.0204	41,938	0.698
55-59	5,842,573	174,692	148,422	0.0299	0.0254	1.177	0.0253	147,809	1.182
60-64	12,590,504	320,282	399,634	0.0254	0.0317	0.801	0.0316	398,292	0.804
65-69	17,529,219	1,025,187	673,800	0.0585	0.0384	1.522	0.0383	671,551	1.527
70-74	21,234,342	1,247,279	1,043,485	0.0587	0.0491	1.195	0.0488	1,036,906	1.203
75-79	17,980,657	1,484,636	1,209,916	0.0826	0.0673	1.227	0.0668	1,201,080	1.236
80-84	12,021,075	1,532,003	1,218,561	0.1274	0.1014	1.257	0.1008	1,211,711	1.264
85-89	7,725,396	1,143,308	1,175,754	0.1480	0.1522	0.972	0.1516	1,171,086	0.976
90-94	1,678,926	317,651	361,386	0.1892	0.2152	0.879	0.2147	360,394	0.881
95-99	240,165	90,048	68,605	0.3749	0.2857	1.313	0.2851	68,462	1.315
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	99,422,625	7,366,465	6,349,781	0.0741	0.0639	1.160		6,317,390	1.166

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	17	2	0	0.1176	0.0035	33.333	0.0035	0	33.333
30-34	10,321	3	61	0.0003	0.0059	0.049	0.0058	60	0.050
35-39	17,637	6	135	0.0003	0.0076	0.044	0.0076	134	0.045
40-44	120,637	11	1,292	0.0001	0.0107	0.009	0.0106	1,280	0.009
45-49	385,708	1,731	5,453	0.0045	0.0141	0.317	0.0140	5,388	0.321
50-54	1,945,973	12,505	33,848	0.0064	0.0174	0.369	0.0171	33,274	0.376
55-59	5,987,314	122,488	123,393	0.0205	0.0206	0.993	0.0203	121,754	1.006
60-64	14,230,858	240,962	330,179	0.0169	0.0232	0.730	0.0231	328,232	0.734
65-69	22,097,164	827,101	604,968	0.0374	0.0274	1.367	0.0272	601,236	1.376
70-74	27,536,755	1,051,038	1,018,393	0.0382	0.0370	1.032	0.0366	1,009,082	1.042
75-79	22,614,453	1,456,335	1,261,026	0.0644	0.0558	1.155	0.0553	1,250,043	1.165
80-84	13,939,506	1,173,752	1,223,395	0.0842	0.0878	0.959	0.0871	1,214,172	0.967
85-89	6,297,155	802,622	814,712	0.1275	0.1294	0.985	0.1287	810,339	0.990
90-94	2,438,373	694,717	446,344	0.2849	0.1830	1.556	0.1823	444,582	1.563
95-99	793,588	227,592	203,117	0.2868	0.2559	1.120	0.2550	202,336	1.125
100+	130,763	32,115	46,607	0.2456	0.3564	0.689	0.3556	46,496	0.691
Total	118,546,221	6,642,979	6,112,924	0.0560	0.0516	1.087		6,068,408	1.095

State Contingent Survivor Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	53,240	0	1	0.0000	0.0000	0.013	0.0000	1	0.013
20-24	17,579	0	7	0.0000	0.0004	0.000	0.0004	7	0.000
25-29	20,273	0	9	0.0000	0.0005	0.000	0.0005	9	0.000
30-34	333,445	0	204	0.0000	0.0006	0.000	0.0006	201	0.000
35-39	249,547	0	191	0.0000	0.0008	0.000	0.0008	190	0.000
40-44	214,351	0	211	0.0000	0.0010	0.000	0.0010	212	0.000
45-49	251,833	0	1,650	0.0000	0.0066	0.000	0.0066	1,659	0.000
50-54	700,815	0	5,568	0.0000	0.0079	0.000	0.0079	5,551	0.000
55-59	1,505,822	26,117	15,031	0.0173	0.0100	1.738	0.0099	14,969	1.745
60-64	3,722,525	16,083	48,647	0.0043	0.0131	0.331	0.0130	48,488	0.332
65-69	7,032,448	117,436	126,244	0.0167	0.0180	0.930	0.0179	125,810	0.933
70-74	7,615,248	204,243	203,046	0.0268	0.0267	1.006	0.0265	201,758	1.012
75-79	7,016,206	390,003	288,060	0.0556	0.0411	1.354	0.0408	285,942	1.364
80-84	3,791,534	314,205	256,747	0.0829	0.0677	1.224	0.0673	255,285	1.231
85-89	2,304,961	206,946	253,268	0.0898	0.1099	0.817	0.1094	252,249	0.820
90-94	1,195,140	128,496	211,334	0.1075	0.1768	0.608	0.1764	210,767	0.610
95-99	116,921	16,549	30,693	0.1415	0.2625	0.539	0.2620	30,634	0.540
100+	15,098	0	5,384	0.0000	0.3566	0.000	0.3564	5,381	0.000
Total	36,156,987	1,420,079	1,446,296	0.0393	0.0400	0.982		1,439,112	0.987

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	17,173	0	1	0.0000	0.0000	0.000	0.0000	1	0.000
20-24	17,653	0	2	0.0000	0.0001	0.000	0.0001	2	0.000
25-29	10,215	0	2	0.0000	0.0001	0.000	0.0001	1	0.000
30-34	168,971	1,768	47	0.0105	0.0003	38.023	0.0003	46	38.562
35-39	269,640	13,986	103	0.0519	0.0004	136.001	0.0004	102	137.269
40-44	515,457	0	270	0.0000	0.0005	0.000	0.0005	267	0.000
45-49	950,232	262	2,883	0.0003	0.0030	0.091	0.0030	2,849	0.092
50-54	3,217,091	11,042	13,089	0.0034	0.0041	0.844	0.0040	12,864	0.858
55-59	7,007,110	102,524	41,587	0.0146	0.0059	2.465	0.0059	41,014	2.500
60-64	16,561,931	262,954	135,342	0.0159	0.0082	1.943	0.0081	134,542	1.954
65-69	31,121,225	368,279	346,510	0.0118	0.0111	1.063	0.0111	344,331	1.070
70-74	48,622,001	822,941	815,111	0.0169	0.0168	1.010	0.0166	807,627	1.019
75-79	60,259,846	1,884,357	1,633,499	0.0313	0.0271	1.154	0.0269	1,619,231	1.164
80-84	51,275,039	2,374,710	2,405,005	0.0463	0.0469	0.987	0.0466	2,386,941	0.995
85-89	40,034,104	3,467,606	3,420,937	0.0866	0.0855	1.014	0.0850	3,403,211	1.019
90-94	25,149,878	3,825,905	3,679,172	0.1521	0.1463	1.040	0.1457	3,664,719	1.044
95-99	8,448,886	2,032,791	1,899,268	0.2406	0.2248	1.070	0.2240	1,892,184	1.074
100+	1,117,700	471,818	373,590	0.4221	0.3342	1.263	0.3335	372,782	1.266
Total	294,764,153	15,640,944	14,766,416	0.0531	0.0501	1.059		14,682,714	1.065

Teachers Pre-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	6,749	0	3	0.0000	0.0004	0.000	0.0004	3	0.000
20-24	935,919	0	231	0.0000	0.0002	0.000	0.0002	226	0.000
25-29	4,822,451	1,856	1,203	0.0004	0.0002	1.543	0.0002	1,179	1.574
30-34	8,788,178	2,560	3,304	0.0003	0.0004	0.775	0.0004	3,257	0.786
35-39	13,145,238	7,177	6,570	0.0005	0.0005	1.092	0.0005	6,546	1.096
40-44	17,352,431	12,455	11,058	0.0007	0.0006	1.126	0.0006	11,118	1.120
45-49	18,526,868	23,056	16,808	0.0012	0.0009	1.372	0.0009	16,883	1.366
50-54	20,502,706	39,179	28,864	0.0019	0.0014	1.357	0.0014	28,777	1.361
55-59	15,022,121	35,599	33,364	0.0024	0.0022	1.067	0.0022	33,224	1.071
60-64	9,960,090	38,162	35,765	0.0038	0.0036	1.067	0.0036	35,646	1.071
65+	4,513,114	27,798	29,172	0.0062	0.0065	0.953	0.0064	29,045	0.957
Total	113,575,865	187,842	166,342	0.0017	0.0015	1.129		165,903	1.132

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	25,367	0	4	0.0000	0.0001	0.000	0.0001	4	0.000
20-24	4,629,101	199	488	0.0000	0.0001	0.408	0.0001	479	0.415
25-29	22,249,451	6,541	2,885	0.0003	0.0001	2.267	0.0001	2,829	2.312
30-34	34,234,377	6,385	7,289	0.0002	0.0002	0.876	0.0002	7,179	0.889
35-39	46,411,440	15,554	13,869	0.0003	0.0003	1.122	0.0003	13,738	1.132
40-44	57,710,747	33,355	23,006	0.0006	0.0004	1.450	0.0004	22,791	1.464
45-49	63,017,299	41,267	35,289	0.0007	0.0006	1.169	0.0006	34,866	1.184
50-54	72,249,788	50,305	60,430	0.0007	0.0008	0.832	0.0008	59,395	0.847
55-59	56,404,118	59,086	72,797	0.0010	0.0013	0.812	0.0013	71,749	0.824
60-64	38,335,228	66,017	75,399	0.0017	0.0020	0.876	0.0020	74,918	0.881
65+	14,752,095	50,189	53,940	0.0034	0.0037	0.930	0.0036	53,571	0.937
Total	410,019,011	328,899	345,395	0.0008	0.0008	0.952		341,518	0.963

Teachers Healthy Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	9,575,469	2,310	17,674	0.0002	0.0018	0.131	0.0018	17,599	0.131
55-59	76,310,286	248,045	238,476	0.0033	0.0031	1.040	0.0031	237,502	1.044
60-64	182,830,512	670,194	942,563	0.0037	0.0052	0.711	0.0051	939,484	0.713
65-69	419,374,732	3,799,392	3,596,408	0.0091	0.0086	1.056	0.0085	3,583,804	1.060
70-74	587,588,585	9,166,674	8,861,400	0.0156	0.0151	1.034	0.0150	8,804,625	1.041
75-79	500,389,199	14,576,107	13,681,732	0.0291	0.0273	1.065	0.0271	13,581,563	1.073
80-84	253,353,942	13,607,701	12,975,210	0.0537	0.0512	1.049	0.0509	12,899,942	1.055
85-89	132,016,367	14,036,941	12,855,056	0.1063	0.0974	1.092	0.0970	12,803,781	1.096
90-94	42,838,008	8,206,528	7,122,205	0.1916	0.1663	1.152	0.1658	7,103,022	1.155
95-99	10,111,958	3,172,405	2,621,957	0.3137	0.2593	1.210	0.2588	2,617,368	1.212
100+	693,662	307,309	241,742	0.4430	0.3485	1.271	0.3483	241,615	1.272
Total	2,215,082,719	67,793,606	63,154,423	0.0306	0.0285	1.073		62,830,304	1.079

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	33,748,362	115,444	33,122	0.0034	0.0010	3.485	0.0010	32,524	3.549
55-59	265,762,232	826,983	685,265	0.0031	0.0026	1.207	0.0025	676,029	1.223
60-64	765,677,127	2,942,059	2,875,188	0.0038	0.0038	1.023	0.0037	2,858,695	1.029
65-69	1,754,003,798	10,774,860	9,817,408	0.0061	0.0056	1.098	0.0056	9,755,281	1.105
70-74	2,150,179,978	21,080,866	20,765,368	0.0098	0.0097	1.015	0.0096	20,573,847	1.025
75-79	1,482,636,503	29,504,614	27,099,689	0.0199	0.0183	1.089	0.0181	26,860,515	1.098
80-84	753,092,419	29,567,508	26,997,368	0.0393	0.0358	1.095	0.0356	26,792,695	1.104
85-89	354,817,784	28,723,085	24,472,370	0.0810	0.0690	1.174	0.0686	24,342,966	1.180
90-94	156,865,231	23,353,464	19,884,885	0.1489	0.1268	1.174	0.1263	19,806,413	1.179
95-99	40,818,745	9,643,539	8,568,010	0.2363	0.2099	1.126	0.2091	8,535,976	1.130
100+	7,713,059	2,662,161	2,481,267	0.3451	0.3217	1.073	0.3210	2,475,905	1.075
Total	7,765,315,239	159,194,583	143,679,940	0.0205	0.0185	1.108		142,710,847	1.116

Teachers Disabled Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	4	0	0	0.0000	0.0050	0.000	0.0050	0	0.000
30-34	47,582	0	290	0.0000	0.0061	0.000	0.0060	286	0.000
35-39	108,979	0	857	0.0000	0.0079	0.000	0.0078	854	0.000
40-44	1,035,782	0	10,271	0.0000	0.0099	0.000	0.0100	10,329	0.000
45-49	1,907,748	127,906	25,901	0.0670	0.0136	4.938	0.0136	26,009	4.918
50-54	3,274,737	102,299	62,565	0.0312	0.0191	1.635	0.0190	62,380	1.640
55-59	4,519,707	16,650	113,754	0.0037	0.0252	0.146	0.0251	113,282	0.147
60-64	9,377,220	225,655	288,920	0.0241	0.0308	0.781	0.0307	287,956	0.784
65-69	13,946,593	242,772	510,424	0.0174	0.0366	0.476	0.0365	508,687	0.477
70-74	18,832,394	765,858	846,155	0.0407	0.0449	0.905	0.0446	840,850	0.911
75-79	15,043,638	563,855	899,558	0.0375	0.0598	0.627	0.0594	892,947	0.631
80-84	8,217,182	795,201	708,380	0.0968	0.0862	1.123	0.0857	704,255	1.129
85-89	3,000,701	426,788	385,756	0.1422	0.1286	1.106	0.1280	384,182	1.111
90-94	978,599	306,830	195,177	0.3135	0.1994	1.572	0.1989	194,676	1.576
95-99	249,159	106,413	67,058	0.4271	0.2691	1.587	0.2687	66,938	1.590
100+	14,799	14,799	5,473	1.0000	0.3698	2.704	0.3697	5,471	2.705
Total	80,554,823	3,695,025	4,120,540	0.0459	0.0512	0.897		4,099,104	0.901

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	3	0	0	0.0000	0.0033	0.000	0.0033	0	0.000
30-34	109,581	2	538	0.0000	0.0049	0.004	0.0048	530	0.004
35-39	861,331	52,609	5,852	0.0611	0.0068	8.989	0.0067	5,799	9.072
40-44	3,481,567	90,633	31,436	0.0260	0.0090	2.883	0.0089	31,139	2.911
45-49	6,790,466	158,350	87,337	0.0233	0.0129	1.813	0.0127	86,271	1.835
50-54	15,832,862	329,096	271,460	0.0208	0.0171	1.212	0.0169	266,795	1.234
55-59	27,669,595	876,193	581,072	0.0317	0.0210	1.508	0.0207	572,974	1.529
60-64	45,152,102	915,679	1,041,365	0.0203	0.0231	0.879	0.0229	1,035,046	0.885
65-69	62,037,099	1,709,784	1,591,169	0.0276	0.0256	1.075	0.0255	1,581,409	1.081
70-74	68,457,481	2,413,062	2,252,979	0.0352	0.0329	1.071	0.0326	2,232,426	1.081
75-79	50,330,283	2,532,623	2,379,672	0.0503	0.0473	1.064	0.0469	2,358,678	1.074
80-84	23,136,397	1,876,555	1,693,045	0.0811	0.0732	1.108	0.0726	1,680,104	1.117
85-89	10,345,843	1,244,696	1,195,946	0.1203	0.1156	1.041	0.1150	1,189,679	1.046
90-94	4,394,433	833,798	715,730	0.1897	0.1629	1.165	0.1622	712,901	1.170
95-99	1,273,391	223,857	296,575	0.1758	0.2329	0.755	0.2321	295,492	0.758
100+	492,637	132,899	174,473	0.2698	0.3542	0.762	0.3534	174,112	0.763
Total	320,365,071	13,389,835	12,318,649	0.0418	0.0385	1.087		12,223,355	1.095

Teachers Contingent Survivor Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	245,489	33,949	31	0.1383	0.0001	1095.831	0.0001	30	1116.004
20-24	259,282	0	65	0.0000	0.0002	0.000	0.0002	63	0.000
25-29	316,673	0	72	0.0000	0.0002	0.000	0.0002	70	0.000
30-34	323,248	1,310	107	0.0041	0.0003	12.220	0.0003	106	12.407
35-39	402,282	0	188	0.0000	0.0005	0.000	0.0005	188	0.000
40-44	1,001,381	0	588	0.0000	0.0006	0.000	0.0006	592	0.000
45-49	1,756,994	12,075	10,435	0.0069	0.0059	1.157	0.0060	10,483	1.152
50-54	2,954,285	21,186	21,354	0.0072	0.0072	0.992	0.0072	21,287	0.995
55-59	6,310,763	79,112	57,031	0.0125	0.0090	1.387	0.0090	56,797	1.393
60-64	8,605,389	93,183	101,666	0.0108	0.0118	0.917	0.0118	101,332	0.920
65-69	15,209,211	139,407	251,451	0.0092	0.0165	0.554	0.0165	250,569	0.556
70-74	20,004,574	516,080	482,108	0.0258	0.0241	1.070	0.0239	479,049	1.077
75-79	17,383,135	579,015	651,323	0.0333	0.0375	0.889	0.0372	646,534	0.896
80-84	8,940,891	536,138	535,263	0.0600	0.0599	1.002	0.0595	532,144	1.008
85-89	4,290,520	433,362	428,184	0.1010	0.0998	1.012	0.0994	426,464	1.016
90-94	2,287,639	406,767	375,940	0.1778	0.1643	1.082	0.1639	374,952	1.085
95-99	521,335	163,442	122,343	0.3135	0.2347	1.336	0.2342	122,102	1.339
100+	32,157	16,274	10,461	0.5061	0.3253	1.556	0.3252	10,457	1.556
Total	90,845,246	3,031,299	3,048,609	0.0334	0.0336	0.994		3,033,222	0.999

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	57,514	14,177	4	0.2465	0.0001	3171.517	0.0001	4	3236.685
20-24	83,522	0	9	0.0000	0.0001	0.000	0.0001	9	0.000
25-29	373,360	0	47	0.0000	0.0001	0.000	0.0001	46	0.000
30-34	321,432	0	67	0.0000	0.0002	0.000	0.0002	66	0.000
35-39	679,373	15,271	207	0.0225	0.0003	73.928	0.0003	205	74.614
40-44	691,964	0	274	0.0000	0.0004	0.000	0.0004	272	0.000
45-49	1,708,901	0	4,683	0.0000	0.0027	0.000	0.0027	4,627	0.000
50-54	3,649,044	59,154	13,372	0.0162	0.0037	4.424	0.0036	13,140	4.502
55-59	5,168,366	49,318	27,595	0.0095	0.0053	1.787	0.0053	27,205	1.813
60-64	8,793,932	114,489	65,695	0.0130	0.0075	1.743	0.0074	65,311	1.753
65-69	16,868,532	175,089	171,000	0.0104	0.0101	1.024	0.0101	169,919	1.030
70-74	24,353,627	475,140	370,510	0.0195	0.0152	1.282	0.0151	367,109	1.294
75-79	25,811,189	752,721	635,778	0.0292	0.0246	1.184	0.0244	630,245	1.194
80-84	21,150,223	1,483,686	891,080	0.0701	0.0421	1.665	0.0418	884,348	1.678
85-89	15,410,507	1,589,757	1,213,040	0.1032	0.0787	1.311	0.0783	1,206,834	1.317
90-94	8,584,816	1,151,635	1,149,092	0.1341	0.1339	1.002	0.1333	1,144,579	1.006
95-99	3,012,137	777,584	612,938	0.2582	0.2035	1.269	0.2027	610,633	1.273
100+	485,343	60,096	151,775	0.1238	0.3127	0.396	0.3120	151,446	0.397
Total	137,203,783	6,718,119	5,307,166	0.0490	0.0387	1.266		5,275,997	1.273

VaLORS Pre-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	78,619	0	31	0.0000	0.0004	0.000	0.0004	30	0.000
20-24	1,463,536	2,418	595	0.0017	0.0004	4.064	0.0004	583	4.148
25-29	2,429,307	3,824	1,099	0.0016	0.0005	3.481	0.0004	1,077	3.552
30-34	2,589,243	2,361	1,410	0.0009	0.0005	1.674	0.0005	1,389	1.700
35-39	2,373,330	1,616	1,509	0.0007	0.0006	1.071	0.0006	1,503	1.075
40-44	2,185,520	3,312	1,592	0.0015	0.0007	2.081	0.0007	1,600	2.070
45-49	2,738,137	10,862	2,483	0.0040	0.0009	4.375	0.0009	2,494	4.356
50-54	2,283,488	5,974	2,870	0.0026	0.0013	2.082	0.0013	2,862	2.087
55-59	1,623,194	2,913	3,176	0.0018	0.0020	0.917	0.0019	3,163	0.921
60-64	929,447	7,870	2,778	0.0085	0.0030	2.832	0.0030	2,769	2.842
65+	377,420	1,971	1,542	0.0052	0.0041	1.278	0.0041	1,537	1.282
Total	19,071,240	43,122	19,086	0.0023	0.0010	2.259		19,008	2.269

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	37,302	0	7	0.0000	0.0002	0.000	0.0002	7	0.000
20-24	785,106	0	182	0.0000	0.0002	0.000	0.0002	179	0.000
25-29	1,524,591	1,754	499	0.0012	0.0003	3.514	0.0003	489	3.583
30-34	1,619,999	0	749	0.0000	0.0005	0.000	0.0005	738	0.000
35-39	1,284,580	0	764	0.0000	0.0006	0.000	0.0006	757	0.000
40-44	1,255,210	877	888	0.0007	0.0007	0.989	0.0007	879	0.998
45-49	1,321,369	0	1,150	0.0000	0.0009	0.000	0.0009	1,136	0.000
50-54	1,145,772	1,068	1,353	0.0009	0.0012	0.789	0.0012	1,330	0.803
55-59	945,083	755	1,616	0.0008	0.0017	0.467	0.0017	1,592	0.474
60-64	426,704	821	970	0.0019	0.0023	0.847	0.0023	964	0.852
65+	115,637	0	367	0.0000	0.0032	0.000	0.0032	365	0.000
Total	10,461,353	5,275	8,546	0.0005	0.0008	0.617		8,437	0.625

VaLORS Healthy Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	20,621,740	108,144	53,145	0.0052	0.0026	2.035	0.0026	52,955	2.042
55-59	43,492,710	238,425	184,111	0.0055	0.0042	1.295	0.0042	183,353	1.300
60-64	54,078,743	534,841	394,473	0.0099	0.0073	1.356	0.0073	393,173	1.360
65-69	67,135,283	952,291	814,304	0.0142	0.0121	1.169	0.0121	811,539	1.173
70-74	56,026,838	1,459,187	1,145,136	0.0260	0.0204	1.274	0.0203	1,137,888	1.282
75-79	32,201,350	1,442,758	1,143,013	0.0448	0.0355	1.262	0.0352	1,134,544	1.272
80-84	11,543,501	963,779	731,673	0.0835	0.0634	1.317	0.0630	727,350	1.325
85-89	2,643,483	216,354	297,428	0.0818	0.1125	0.727	0.1120	296,190	0.730
90-94	231,125	53,201	44,366	0.2302	0.1920	1.199	0.1914	44,244	1.202
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	287,974,774	5,968,980	4,807,649	0.0207	0.0167	1.242		4,781,237	1.248

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	7,811,557	9,134	22,227	0.0012	0.0028	0.411	0.0028	21,837	0.418
55-59	15,770,275	104,284	79,080	0.0066	0.0050	1.319	0.0049	77,988	1.337
60-64	23,825,999	167,882	198,411	0.0070	0.0083	0.846	0.0083	197,207	0.851
65-69	25,083,323	307,832	332,893	0.0123	0.0133	0.925	0.0132	330,823	0.931
70-74	15,803,913	189,052	340,063	0.0120	0.0215	0.556	0.0213	336,892	0.561
75-79	6,626,065	96,502	247,722	0.0146	0.0374	0.390	0.0371	245,505	0.393
80-84	2,479,764	73,450	167,117	0.0296	0.0674	0.440	0.0669	165,841	0.443
85-89	471,270	58,895	49,458	0.1250	0.1049	1.191	0.1043	49,155	1.198
90-94	17,202	8,653	3,771	0.5031	0.2192	2.294	0.2184	3,757	2.303
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	97,889,368	1,015,684	1,440,742	0.0104	0.0147	0.705		1,429,005	0.711

VaLORS Disabled Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	17	0	0	0.0000	0.0035	0.000	0.0035	0	0.000
30-34	43	0	0	0.0000	0.0044	0.000	0.0042	0	0.000
35-39	56	5	0	0.0893	0.0055	16.129	0.0055	0	16.129
40-44	113,061	0	777	0.0000	0.0069	0.000	0.0069	781	0.000
45-49	729,931	169	6,642	0.0002	0.0091	0.025	0.0091	6,666	0.025
50-54	2,138,457	80,127	28,354	0.0375	0.0133	2.826	0.0132	28,268	2.835
55-59	2,050,646	100,363	39,436	0.0489	0.0192	2.545	0.0192	39,273	2.555
60-64	2,167,188	19,291	51,759	0.0089	0.0239	0.373	0.0238	51,585	0.374
65-69	2,162,054	142,851	58,693	0.0661	0.0271	2.434	0.0271	58,501	2.442
70-74	1,060,830	25,918	34,523	0.0244	0.0325	0.751	0.0323	34,307	0.755
75-79	362,105	43,730	15,229	0.1208	0.0421	2.872	0.0417	15,116	2.893
80-84	165,373	20,627	10,188	0.1247	0.0616	2.025	0.0613	10,133	2.036
85-89	86,433	13,375	7,577	0.1547	0.0877	1.765	0.0873	7,546	1.773
90-94	14,776	0	1,686	0.0000	0.1141	0.000	0.1137	1,680	0.000
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	11,050,970	446,456	254,863	0.0404	0.0231	1.752		253,855	1.759

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	12	1	0	0.0833	0.0017	50.000	0.0017	0	50.000
30-34	30	1	0	0.0333	0.0027	12.500	0.0027	0	12.500
35-39	70	1	0	0.0143	0.0041	3.448	0.0041	0	3.448
40-44	64,680	5	377	0.0001	0.0058	0.013	0.0058	373	0.013
45-49	137,568	3	1,167	0.0000	0.0085	0.003	0.0084	1,154	0.003
50-54	826,897	13,213	10,434	0.0160	0.0126	1.266	0.0124	10,258	1.288
55-59	1,672,232	57,730	26,150	0.0345	0.0156	2.208	0.0154	25,760	2.241
60-64	799,538	5,257	14,019	0.0066	0.0175	0.375	0.0174	13,933	0.377
65-69	645,418	15,599	11,955	0.0242	0.0185	1.305	0.0184	11,883	1.313
70-74	390,940	0	8,724	0.0000	0.0223	0.000	0.0221	8,644	0.000
75-79	367,631	23,680	11,131	0.0644	0.0303	2.127	0.0300	11,032	2.146
80-84	72,760	0	3,644	0.0000	0.0501	0.000	0.0497	3,618	0.000
85-89	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
90-94	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	4,977,775	115,490	87,602	0.0232	0.0176	1.318		86,656	1.333

VaLORS Contingent Survivor Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	26,615	4,461	5	0.1676	0.0002	836.916	0.0002	5	852.918
20-24	1,795	321	1	0.1786	0.0005	390.878	0.0004	1	400.650
25-29	626	0	0	0.0000	0.0005	0.000	0.0005	0	0.000
30-34	14,624	0	10	0.0000	0.0007	0.000	0.0007	10	0.000
35-39	16,406	0	13	0.0000	0.0008	0.000	0.0008	13	0.000
40-44	31,028	0	77	0.0000	0.0025	0.000	0.0025	77	0.000
45-49	21,699	0	164	0.0000	0.0075	0.000	0.0076	164	0.000
50-54	99,622	2,411	835	0.0242	0.0084	2.887	0.0084	833	2.895
55-59	39,562	0	398	0.0000	0.0100	0.000	0.0100	396	0.000
60-64	26,420	0	387	0.0000	0.0146	0.000	0.0146	385	0.000
65-69	99,303	4,560	2,045	0.0459	0.0206	2.230	0.0205	2,038	2.237
70-74	62,010	9,411	2,021	0.1518	0.0326	4.655	0.0324	2,009	4.685
75-79	114,382	0	5,388	0.0000	0.0471	0.000	0.0467	5,347	0.000
80-84	64,317	830	6,196	0.0129	0.0963	0.134	0.0959	6,167	0.135
85-89	114,365	15,173	13,888	0.1327	0.1214	1.093	0.1209	13,827	1.097
90-94	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	732,774	37,166	31,427	0.0507	0.0429	1.183		31,271	1.188

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	1,919	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	920	0	0	0.0000	0.0002	0.000	0.0002	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	25,953	0	13	0.0000	0.0005	0.000	0.0005	13	0.000
35-39	86,070	0	55	0.0000	0.0006	0.000	0.0006	54	0.000
40-44	276,434	0	548	0.0000	0.0020	0.000	0.0020	542	0.000
45-49	427,845	0	1,403	0.0000	0.0033	0.000	0.0032	1,386	0.000
50-54	604,301	8,835	2,776	0.0146	0.0046	3.183	0.0045	2,728	3.239
55-59	1,522,787	20,288	10,232	0.0133	0.0067	1.983	0.0066	10,089	2.011
60-64	2,037,320	45,798	19,335	0.0225	0.0095	2.369	0.0094	19,220	2.383
65-69	2,539,660	23,808	32,720	0.0094	0.0129	0.728	0.0128	32,518	0.732
70-74	2,638,759	55,352	52,475	0.0210	0.0199	1.055	0.0197	51,990	1.065
75-79	1,944,817	73,798	62,692	0.0379	0.0322	1.177	0.0319	62,128	1.188
80-84	1,019,849	130,244	57,032	0.1277	0.0559	2.284	0.0555	56,586	2.302
85-89	255,225	29,499	27,149	0.1156	0.1064	1.087	0.1058	27,004	1.092
90-94	66,116	0	11,941	0.0000	0.1806	0.000	0.1799	11,893	0.000
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	13,447,976	387,622	278,371	0.0288	0.0207	1.392		276,153	1.404

SPORS Pre-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	303,711	0	123	0.0000	0.0004	0.000	0.0004	121	0.000
25-29	1,017,890	990	460	0.0010	0.0005	2.154	0.0004	450	2.198
30-34	1,345,331	0	736	0.0000	0.0005	0.000	0.0005	725	0.000
35-39	1,385,197	1,782	884	0.0013	0.0006	2.015	0.0006	881	2.023
40-44	1,529,479	2,593	1,114	0.0017	0.0007	2.328	0.0007	1,120	2.315
45-49	1,589,576	1,393	1,442	0.0009	0.0009	0.966	0.0009	1,448	0.962
50-54	1,591,909	1,697	2,003	0.0011	0.0013	0.847	0.0013	1,998	0.850
55-59	1,075,920	1,509	2,072	0.0014	0.0019	0.728	0.0019	2,063	0.732
60-64	587,796	3,814	1,734	0.0065	0.0029	2.200	0.0029	1,728	2.208
65+	137,893	0	611	0.0000	0.0044	0.000	0.0044	609	0.000
Total	10,564,702	13,779	11,179	0.0013	0.0011	1.233		11,144	1.237

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	58,053	0	14	0.0000	0.0002	0.000	0.0002	14	0.000
25-29	108,570	0	34	0.0000	0.0003	0.000	0.0003	34	0.000
30-34	93,336	0	44	0.0000	0.0005	0.000	0.0005	43	0.000
35-39	84,309	0	51	0.0000	0.0006	0.000	0.0006	50	0.000
40-44	118,747	0	84	0.0000	0.0007	0.000	0.0007	84	0.000
45-49	140,568	1,773	121	0.0126	0.0009	14.620	0.0009	120	14.799
50-54	73,299	0	86	0.0000	0.0012	0.000	0.0012	84	0.000
55-59	60,759	0	101	0.0000	0.0017	0.000	0.0016	99	0.000
60-64	20,162	0	48	0.0000	0.0024	0.000	0.0023	47	0.000
65+	9,021	0	29	0.0000	0.0033	0.000	0.0032	29	0.000
Total	766,825	1,773	613	0.0023	0.0008	2.895		605	2.932

SPORS Healthy Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	6,947,569	15,460	18,272	0.0022	0.0026	0.846	0.0026	18,204	0.849
55-59	22,622,515	34,029	96,520	0.0015	0.0043	0.353	0.0042	96,124	0.354
60-64	28,813,212	66,728	211,325	0.0023	0.0073	0.316	0.0073	210,629	0.317
65-69	36,776,899	281,475	443,351	0.0077	0.0121	0.635	0.0120	441,861	0.637
70-74	39,746,899	811,884	827,879	0.0204	0.0208	0.981	0.0207	822,596	0.987
75-79	34,695,274	1,080,560	1,254,213	0.0311	0.0361	0.862	0.0359	1,245,060	0.868
80-84	18,552,426	1,240,034	1,206,353	0.0668	0.0650	1.028	0.0646	1,199,368	1.034
85-89	7,685,534	819,940	885,318	0.1067	0.1152	0.926	0.1147	881,723	0.930
90-94	3,326,838	442,176	645,114	0.1329	0.1939	0.685	0.1934	643,402	0.687
95-99	608,975	111,497	163,174	0.1831	0.2679	0.683	0.2674	162,866	0.685
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	199,776,142	4,903,782	5,751,519	0.0245	0.0288	0.853		5,721,830	0.857

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	364,516	0	1,077	0.0000	0.0030	0.000	0.0029	1,059	0.000
55-59	1,374,128	0	6,751	0.0000	0.0049	0.000	0.0048	6,652	0.000
60-64	1,435,312	0	12,273	0.0000	0.0086	0.000	0.0085	12,203	0.000
65-69	930,591	62,128	12,250	0.0668	0.0132	5.072	0.0131	12,173	5.104
70-74	159,591	0	2,952	0.0000	0.0185	0.000	0.0183	2,923	0.000
75-79	8,300	0	288	0.0000	0.0347	0.000	0.0344	285	0.000
80-84	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
85-89	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
90-94	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	4,272,438	62,128	35,590	0.0145	0.0083	1.746		35,294	1.760

SPORS Disabled Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	1	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	3	0	0	0.0000	0.0033	0.000	0.0033	0	0.000
35-39	16	0	0	0.0000	0.0056	0.000	0.0056	0	0.000
40-44	20	0	0	0.0000	0.0065	0.000	0.0065	0	0.000
45-49	113,552	0	1,027	0.0000	0.0090	0.000	0.0091	1,030	0.000
50-54	1,177,131	0	16,275	0.0000	0.0138	0.000	0.0138	16,217	0.000
55-59	4,245,873	0	82,409	0.0000	0.0194	0.000	0.0193	82,073	0.000
60-64	3,497,780	0	83,035	0.0000	0.0237	0.000	0.0237	82,760	0.000
65-69	6,849,499	251,457	188,155	0.0367	0.0275	1.336	0.0274	187,501	1.341
70-74	5,721,438	99,909	186,064	0.0175	0.0325	0.537	0.0323	184,915	0.540
75-79	3,181,716	246,679	136,541	0.0775	0.0429	1.807	0.0426	135,547	1.820
80-84	1,222,119	86,640	73,446	0.0709	0.0601	1.180	0.0597	73,018	1.187
85-89	889,349	103,346	76,300	0.1162	0.0858	1.354	0.0854	75,983	1.360
90-94	128,345	16,389	16,998	0.1277	0.1324	0.964	0.1321	16,954	0.967
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	27,026,843	804,419	860,249	0.0298	0.0318	0.935		856,000	0.940

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
35-39	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
40-44	7	0	0	0.0000	0.0057	0.000	0.0057	0	0.000
45-49	1	0	0	0.0000	0.0100	0.000	0.0100	0	0.000
50-54	108,043	0	1,456	0.0000	0.0135	0.000	0.0133	1,432	0.000
55-59	232,866	0	3,588	0.0000	0.0154	0.000	0.0152	3,531	0.000
60-64	236,056	0	4,167	0.0000	0.0177	0.000	0.0176	4,145	0.000
65-69	405,591	0	7,489	0.0000	0.0185	0.000	0.0183	7,443	0.000
70-74	315	0	6	0.0000	0.0201	0.000	0.0199	6	0.000
75-79	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
80-84	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
85-89	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
90-94	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	982,878	0	16,706	0.0000	0.0170	0.000		16,557	0.000

SPORS Contingent Survivor Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
35-39	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
40-44	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
45-49	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
50-54	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
55-59	204,991	0	2,119	0.0000	0.0103	0.000	0.0103	2,111	0.000
60-64	8,755	0	132	0.0000	0.0151	0.000	0.0150	132	0.000
65-69	70,398	0	1,502	0.0000	0.0213	0.000	0.0213	1,497	0.000
70-74	9,753	0	260	0.0000	0.0267	0.000	0.0265	259	0.000
75-79	31,336	0	1,727	0.0000	0.0551	0.000	0.0547	1,715	0.000
80-84	11,291	11,291	745	1.0000	0.0660	15.156	0.0655	740	15.267
85-89	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
90-94	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	336,525	11,291	6,486	0.0336	0.0193	1.741		6,453	1.750

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	5,154	0	3	0.0000	0.0005	0.000	0.0005	3	0.000
35-39	99,717	0	64	0.0000	0.0006	0.000	0.0006	63	0.000
40-44	167,408	0	271	0.0000	0.0016	0.000	0.0016	269	0.000
45-49	170,763	0	566	0.0000	0.0033	0.000	0.0033	559	0.000
50-54	786,352	13,640	3,692	0.0173	0.0047	3.694	0.0046	3,627	3.760
55-59	1,241,635	49,107	8,356	0.0396	0.0067	5.877	0.0066	8,239	5.961
60-64	1,561,591	0	14,831	0.0000	0.0095	0.000	0.0094	14,743	0.000
65-69	2,404,908	43,003	31,282	0.0179	0.0130	1.375	0.0129	31,091	1.383
70-74	3,631,869	7,351	72,928	0.0020	0.0201	0.101	0.0199	72,252	0.102
75-79	3,778,992	15,120	127,344	0.0040	0.0337	0.119	0.0334	126,222	0.120
80-84	3,318,815	160,667	206,546	0.0484	0.0622	0.778	0.0618	205,061	0.784
85-89	3,021,759	144,471	308,888	0.0478	0.1022	0.468	0.1017	307,183	0.470
90-94	1,147,964	157,454	199,738	0.1372	0.1740	0.788	0.1733	198,941	0.791
95-99	269,010	38,672	71,614	0.1438	0.2662	0.540	0.2652	71,349	0.542
100+	78,767	27,832	32,763	0.3533	0.4160	0.849	0.4152	32,701	0.851
Total	21,684,706	657,318	1,078,888	0.0303	0.0498	0.609		1,072,304	0.613

JRS Pre-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
35-39	28,000	0	23	0.0000	0.0008	0.000	0.0008	23	0.000
40-44	146,175	0	155	0.0000	0.0011	0.000	0.0011	156	0.000
45-49	287,653	0	406	0.0000	0.0014	0.000	0.0014	407	0.000
50-54	893,198	0	1,775	0.0000	0.0020	0.000	0.0020	1,770	0.000
55-59	1,145,724	0	3,415	0.0000	0.0030	0.000	0.0030	3,400	0.000
60-64	1,624,915	0	7,381	0.0000	0.0045	0.000	0.0045	7,357	0.000
65+	2,804,139	7,473	18,889	0.0027	0.0067	0.396	0.0067	18,809	0.397
Total	6,929,804	7,473	32,044	0.0011	0.0046	0.233		31,922	0.234

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
35-39	20,859	0	7	0.0000	0.0004	0.000	0.0004	7	0.000
40-44	185,204	0	88	0.0000	0.0005	0.000	0.0005	87	0.000
45-49	257,173	0	167	0.0000	0.0007	0.000	0.0006	165	0.000
50-54	420,125	0	404	0.0000	0.0010	0.000	0.0009	397	0.000
55-59	611,396	0	947	0.0000	0.0015	0.000	0.0015	934	0.000
60-64	769,576	0	1,768	0.0000	0.0023	0.000	0.0023	1,757	0.000
65+	626,253	0	2,206	0.0000	0.0035	0.000	0.0035	2,191	0.000
Total	2,890,586	0	5,587	0.0000	0.0019	0.000		5,539	0.000

JRS Healthy Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
55-59	442,682	0	1,811	0.0000	0.0041	0.000	0.0041	1,804	0.000
60-64	2,283,118	63,337	14,738	0.0277	0.0065	4.298	0.0064	14,687	4.312
65-69	10,673,396	109,466	96,210	0.0103	0.0090	1.138	0.0090	95,866	1.142
70-74	31,531,453	103,478	450,813	0.0033	0.0143	0.230	0.0142	447,882	0.231
75-79	42,793,760	1,743,753	1,008,426	0.0407	0.0236	1.729	0.0234	1,001,121	1.742
80-84	22,542,275	835,397	933,569	0.0371	0.0414	0.895	0.0412	928,114	0.900
85-89	13,892,935	1,357,697	1,075,864	0.0977	0.0774	1.262	0.0771	1,071,647	1.267
90-94	5,525,535	598,544	732,269	0.1083	0.1325	0.817	0.1322	730,372	0.820
95-99	2,477,259	594,422	484,405	0.2400	0.1955	1.227	0.1952	483,527	1.229
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	132,162,413	5,406,095	4,798,105	0.0409	0.0363	1.127		4,775,020	1.132

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	79,245	0	185	0.0000	0.0023	0.000	0.0023	182	0.000
55-59	311,633	0	904	0.0000	0.0029	0.000	0.0029	892	0.000
60-64	3,898,758	0	15,049	0.0000	0.0039	0.000	0.0038	14,964	0.000
65-69	8,364,933	0	47,187	0.0000	0.0056	0.000	0.0056	46,890	0.000
70-74	8,691,742	0	80,061	0.0000	0.0092	0.000	0.0091	79,321	0.000
75-79	4,964,047	0	78,286	0.0000	0.0158	0.000	0.0156	77,572	0.000
80-84	2,182,276	0	65,589	0.0000	0.0301	0.000	0.0298	65,094	0.000
85-89	732,734	0	43,859	0.0000	0.0599	0.000	0.0596	43,646	0.000
90-94	212,215	96,754	17,680	0.4559	0.0833	5.473	0.0829	17,601	5.497
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	29,437,584	96,754	348,801	0.0033	0.0118	0.277		346,161	0.280

JRS Disabled Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
35-39	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
40-44	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
45-49	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
50-54	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
55-59	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
60-64	94,326	47,860	2,552	0.5074	0.0271	18.753	0.0270	2,545	18.808
65-69	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
70-74	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
75-79	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
80-84	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
85-89	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
90-94	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	94,326	47,860	2,552	0.5074	0.0271	18.753		2,545	18.808

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
35-39	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
40-44	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
45-49	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
50-54	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
55-59	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
60-64	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
65-69	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
70-74	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
75-79	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
80-84	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
85-89	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
90-94	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	0	0	0	0.0000	0.0000	0.000		0	0.000

JRS Contingent Survivor Mortality Experience

Age	Males Benefits Weighted						Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected			
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
35-39	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
40-44	18,763	0	14	0.0000	0.0008	0.000	0.0008	14	0.000
45-49	20,639	0	18	0.0000	0.0009	0.000	0.0009	18	0.000
50-54	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
55-59	28,504	16,945	121	0.5945	0.0042	140.328	0.0042	120	140.876
60-64	70,615	0	413	0.0000	0.0058	0.000	0.0058	411	0.000
65-69	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
70-74	175,866	0	2,810	0.0000	0.0160	0.000	0.0159	2,792	0.000
75-79	188,347	0	3,722	0.0000	0.0198	0.000	0.0196	3,691	0.000
80-84	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
85-89	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
90-94	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
95-99	10,159	0	1,785	0.0000	0.1757	0.000	0.1753	1,781	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	512,894	16,945	8,884	0.0330	0.0173	1.907		8,829	1.919

Age	Females Benefits Weighted						Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected			
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
35-39	38,224	0	12	0.0000	0.0003	0.000	0.0003	12	0.000
40-44	121,072	0	42	0.0000	0.0003	0.000	0.0003	42	0.000
45-49	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
50-54	58,114	0	133	0.0000	0.0023	0.000	0.0023	131	0.000
55-59	541,557	0	1,579	0.0000	0.0029	0.000	0.0029	1,559	0.000
60-64	1,409,965	0	5,386	0.0000	0.0038	0.000	0.0038	5,354	0.000
65-69	2,337,188	0	13,066	0.0000	0.0056	0.000	0.0056	12,983	0.000
70-74	1,280,872	0	12,322	0.0000	0.0096	0.000	0.0095	12,209	0.000
75-79	4,845,282	62,766	83,787	0.0130	0.0173	0.749	0.0171	83,065	0.756
80-84	5,637,739	332,337	180,995	0.0589	0.0321	1.836	0.0319	179,689	1.850
85-89	5,549,664	413,149	313,692	0.0744	0.0565	1.317	0.0562	312,051	1.324
90-94	2,850,738	545,071	285,723	0.1912	0.1002	1.908	0.0998	284,590	1.915
95-99	964,903	421,740	163,557	0.4371	0.1695	2.579	0.1689	162,993	2.587
100+	438,712	82,812	105,272	0.1888	0.2400	0.787	0.2394	105,037	0.788
Total	26,074,030	1,857,874	1,165,566	0.0713	0.0447	1.594		1,159,713	1.602

Metro Non-Hazardous Duty Pre-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	68,697	0	26	0.0000	0.0004	0.000	0.0004	25	0.000
20-24	1,232,993	0	399	0.0000	0.0003	0.000	0.0003	391	0.000
25-29	3,246,451	1,899	1,385	0.0006	0.0004	1.371	0.0004	1,358	1.399
30-34	5,585,985	2,002	3,357	0.0004	0.0006	0.596	0.0006	3,309	0.605
35-39	7,332,281	601	5,939	0.0001	0.0008	0.101	0.0008	5,916	0.102
40-44	8,396,655	8,078	8,725	0.0010	0.0010	0.926	0.0010	8,771	0.921
45-49	9,072,480	2,886	12,568	0.0003	0.0014	0.230	0.0014	12,621	0.229
50-54	11,848,011	25,975	23,198	0.0022	0.0020	1.120	0.0020	23,128	1.123
55-59	12,631,425	12,585	37,805	0.0010	0.0030	0.333	0.0030	37,648	0.334
60-64	11,553,927	26,772	51,019	0.0023	0.0044	0.525	0.0044	50,849	0.527
65+	6,896,374	24,820	51,279	0.0036	0.0074	0.484	0.0074	51,048	0.486
Total	77,865,277	105,619	195,699	0.0014	0.0025	0.540		195,062	0.541

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	20,100	0	3	0.0000	0.0001	0.000	0.0001	2	0.000
20-24	997,082	493	121	0.0005	0.0001	4.066	0.0001	119	4.140
25-29	4,316,804	0	853	0.0000	0.0002	0.000	0.0002	837	0.000
30-34	7,205,581	1,025	2,302	0.0001	0.0003	0.445	0.0003	2,267	0.452
35-39	9,081,865	0	4,273	0.0000	0.0005	0.000	0.0005	4,233	0.000
40-44	10,214,514	1,844	6,427	0.0002	0.0006	0.287	0.0006	6,367	0.290
45-49	11,816,602	2,594	10,008	0.0002	0.0008	0.259	0.0008	9,889	0.262
50-54	14,494,317	8,708	18,464	0.0006	0.0013	0.472	0.0013	18,150	0.480
55-59	14,782,872	12,216	30,142	0.0008	0.0020	0.405	0.0020	29,715	0.411
60-64	12,027,418	24,422	37,716	0.0020	0.0031	0.648	0.0031	37,478	0.652
65+	5,961,150	7,278	34,088	0.0012	0.0057	0.214	0.0057	33,850	0.215
Total	90,918,304	58,578	144,396	0.0006	0.0016	0.406		142,906	0.410

Metro Non-Hazardous Duty Healthy Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	7,999,530	696,797	31,639	0.0871	0.0040	22.023	0.0039	31,515	22.110
55-59	53,658,955	2,456,012	305,783	0.0458	0.0057	8.032	0.0057	304,535	8.065
60-64	136,873,622	3,028,384	1,161,213	0.0221	0.0085	2.608	0.0085	1,157,425	2.616
65-69	251,509,046	5,457,790	3,288,496	0.0217	0.0131	1.660	0.0130	3,277,233	1.665
70-74	239,638,592	6,334,384	5,084,095	0.0264	0.0212	1.246	0.0211	5,051,839	1.254
75-79	156,094,097	5,690,777	5,734,311	0.0365	0.0367	0.992	0.0365	5,692,153	1.000
80-84	66,826,990	4,401,280	4,404,773	0.0659	0.0659	0.999	0.0655	4,379,093	1.005
85-89	30,816,731	3,844,795	3,580,024	0.1248	0.1162	1.074	0.1157	3,565,602	1.078
90-94	11,324,228	2,656,548	2,101,258	0.2346	0.1856	1.264	0.1851	2,095,689	1.268
95-99	2,262,275	680,811	597,224	0.3009	0.2640	1.140	0.2635	596,136	1.142
100+	85,737	50,277	29,711	0.5864	0.3465	1.692	0.3463	29,692	1.693
Total	957,089,802	35,297,856	26,318,527	0.0369	0.0275	1.341		26,180,911	1.348

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	6,222,570	171,318	16,110	0.0275	0.0026	10.634	0.0025	15,831	10.822
55-59	43,396,472	975,495	149,714	0.0225	0.0034	6.516	0.0034	147,704	6.604
60-64	129,798,361	1,332,877	656,681	0.0103	0.0051	2.030	0.0050	652,947	2.041
65-69	257,225,917	2,348,672	1,999,066	0.0091	0.0078	1.175	0.0077	1,986,441	1.182
70-74	239,320,734	3,493,819	3,126,662	0.0146	0.0131	1.117	0.0129	3,097,742	1.128
75-79	152,381,769	4,328,270	3,533,155	0.0284	0.0232	1.225	0.0230	3,502,031	1.236
80-84	76,929,062	3,929,984	3,287,830	0.0511	0.0427	1.195	0.0424	3,262,768	1.204
85-89	32,795,483	3,027,051	2,646,782	0.0923	0.0807	1.144	0.0803	2,632,705	1.150
90-94	11,946,436	1,756,818	1,681,386	0.1471	0.1407	1.045	0.1402	1,674,748	1.049
95-99	3,752,587	828,724	787,326	0.2208	0.2098	1.053	0.2090	784,334	1.057
100+	719,216	226,189	225,065	0.3145	0.3129	1.005	0.3123	224,590	1.007
Total	954,488,607	22,419,215	18,109,776	0.0235	0.0190	1.238		17,981,841	1.247

Metro Non-Hazardous Duty Disabled Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	97,348	39,962	670	0.4105	0.0069	59.651	0.0068	660	60.519
35-39	241,975	27,334	2,292	0.1130	0.0095	11.925	0.0094	2,283	11.971
40-44	785,740	94,993	10,004	0.1209	0.0127	9.495	0.0128	10,056	9.446
45-49	3,885,068	277,971	70,317	0.0715	0.0181	3.953	0.0182	70,553	3.940
50-54	7,467,230	592,549	167,397	0.0794	0.0224	3.540	0.0223	166,875	3.551
55-59	14,708,320	617,102	409,439	0.0420	0.0278	1.507	0.0277	407,746	1.513
60-64	23,714,334	1,050,320	826,049	0.0443	0.0348	1.271	0.0347	823,303	1.276
65-69	24,893,057	1,209,146	1,051,760	0.0486	0.0423	1.150	0.0421	1,048,278	1.153
70-74	21,407,555	1,668,899	1,146,806	0.0780	0.0536	1.455	0.0532	1,139,612	1.464
75-79	12,999,011	1,250,438	966,581	0.0962	0.0744	1.294	0.0738	959,576	1.303
80-84	7,457,830	927,580	813,853	0.1244	0.1091	1.140	0.1085	809,127	1.146
85-89	4,115,022	759,578	690,389	0.1846	0.1678	1.100	0.1671	687,666	1.105
90-94	843,688	154,101	200,486	0.1827	0.2376	0.769	0.2370	199,935	0.771
95-99	203,068	32,913	68,735	0.1621	0.3385	0.479	0.3379	68,619	0.480
100+	20,749	20,749	8,472	1.0000	0.4083	2.449	0.4079	8,464	2.451
Total	122,839,994	8,723,633	6,433,250	0.0710	0.0524	1.356		6,402,753	1.362

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	4	0	0	0.0000	0.0025	0.000	0.0025	0	0.000
30-34	40,632	0	225	0.0000	0.0055	0.000	0.0055	222	0.000
35-39	114,519	0	891	0.0000	0.0078	0.000	0.0077	883	0.000
40-44	664,884	82,154	7,377	0.1236	0.0111	11.137	0.0110	7,307	11.243
45-49	2,450,213	55,158	36,993	0.0225	0.0151	1.491	0.0149	36,547	1.509
50-54	5,906,148	183,034	107,713	0.0310	0.0182	1.699	0.0179	105,887	1.729
55-59	11,712,531	464,281	257,421	0.0396	0.0220	1.804	0.0217	253,859	1.829
60-64	19,382,781	665,894	474,914	0.0344	0.0245	1.402	0.0244	472,009	1.411
65-69	21,520,926	918,630	606,097	0.0427	0.0282	1.516	0.0280	602,425	1.525
70-74	15,932,962	519,389	596,945	0.0326	0.0375	0.870	0.0371	591,456	0.878
75-79	11,195,121	818,440	628,077	0.0731	0.0561	1.303	0.0556	622,600	1.315
80-84	6,484,569	686,185	572,802	0.1058	0.0883	1.198	0.0877	568,472	1.207
85-89	1,996,766	339,258	258,405	0.1699	0.1294	1.313	0.1287	256,961	1.320
90-94	561,047	92,310	107,123	0.1645	0.1909	0.862	0.1902	106,704	0.865
95-99	251,686	92,717	64,881	0.3684	0.2578	1.429	0.2568	64,626	1.435
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	98,214,791	4,917,451	3,719,863	0.0501	0.0379	1.322		3,689,956	1.333

Metro Contingent Survivor Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	106,256	24,489	14	0.2305	0.0001	1739.300	0.0001	14	1773.306
20-24	3,109	0	1	0.0000	0.0003	0.000	0.0003	1	0.000
25-29	30,416	0	11	0.0000	0.0004	0.000	0.0004	11	0.000
30-34	143,385	0	79	0.0000	0.0006	0.000	0.0005	78	0.000
35-39	116,878	0	83	0.0000	0.0007	0.000	0.0007	83	0.000
40-44	85,038	0	76	0.0000	0.0009	0.000	0.0009	77	0.000
45-49	356,598	3,723	2,129	0.0104	0.0060	1.749	0.0060	2,138	1.741
50-54	787,640	41,716	5,732	0.0530	0.0073	7.277	0.0073	5,713	7.302
55-59	1,392,896	18,994	12,648	0.0136	0.0091	1.502	0.0090	12,596	1.508
60-64	2,500,893	8,129	29,290	0.0033	0.0117	0.278	0.0117	29,193	0.278
65-69	3,289,540	57,985	53,726	0.0176	0.0163	1.079	0.0163	53,542	1.083
70-74	2,725,374	102,525	66,148	0.0376	0.0243	1.550	0.0241	65,730	1.560
75-79	2,985,144	106,985	112,729	0.0358	0.0378	0.949	0.0375	111,905	0.956
80-84	1,835,917	179,589	105,882	0.0978	0.0577	1.696	0.0573	105,247	1.706
85-89	572,587	98,879	56,338	0.1727	0.0984	1.755	0.0980	56,113	1.762
90-94	140,985	81,199	21,712	0.5759	0.1540	3.740	0.1536	21,652	3.750
95-99	2,606	0	592	0.0000	0.2271	0.000	0.2266	590	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	17,075,262	724,212	467,191	0.0424	0.0274	1.550		464,683	1.559

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	15,554	8,320	0	0.5349	0.0000	0.000	0.0000	0	0.000
20-24	5,124	0	1	0.0000	0.0001	0.000	0.0001	1	0.000
25-29	136,597	0	20	0.0000	0.0001	0.000	0.0001	19	0.000
30-34	209,665	10,887	49	0.0519	0.0002	219.994	0.0002	49	223.333
35-39	263,085	0	93	0.0000	0.0004	0.000	0.0003	92	0.000
40-44	833,903	0	399	0.0000	0.0005	0.000	0.0005	395	0.000
45-49	1,898,632	921	5,244	0.0005	0.0028	0.176	0.0027	5,180	0.178
50-54	6,217,686	15,469	22,986	0.0025	0.0037	0.673	0.0036	22,589	0.685
55-59	11,505,264	139,454	61,834	0.0121	0.0054	2.255	0.0053	60,972	2.287
60-64	18,091,556	179,225	133,300	0.0099	0.0074	1.345	0.0073	132,490	1.353
65-69	21,862,301	514,844	219,466	0.0235	0.0100	2.346	0.0100	218,094	2.361
70-74	22,250,225	586,092	333,560	0.0263	0.0150	1.757	0.0149	330,479	1.773
75-79	19,715,984	734,307	482,596	0.0372	0.0245	1.522	0.0243	478,378	1.535
80-84	14,267,587	825,864	599,174	0.0579	0.0420	1.378	0.0417	594,619	1.389
85-89	9,055,122	750,816	707,445	0.0829	0.0781	1.061	0.0777	703,802	1.067
90-94	4,321,551	620,261	563,311	0.1435	0.1303	1.101	0.1298	561,084	1.105
95-99	1,356,998	494,901	273,058	0.3647	0.2012	1.812	0.2005	272,035	1.819
100+	260,490	119,409	78,471	0.4584	0.3012	1.522	0.3006	78,301	1.525
Total	132,267,323	5,000,770	3,481,006	0.0378	0.0263	1.437		3,458,578	1.446

Non-Metro Non-Hazardous Duty Pre-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	68,828	0	26	0.0000	0.0004	0.000	0.0004	25	0.000
20-24	996,752	408	322	0.0004	0.0003	1.268	0.0003	316	1.294
25-29	2,037,148	1,275	861	0.0006	0.0004	1.481	0.0004	844	1.511
30-34	2,879,006	670	1,723	0.0002	0.0006	0.389	0.0006	1,698	0.395
35-39	3,521,285	2,326	2,854	0.0007	0.0008	0.815	0.0008	2,843	0.818
40-44	4,189,905	1,213	4,360	0.0003	0.0010	0.278	0.0010	4,383	0.277
45-49	4,838,847	3,581	6,697	0.0007	0.0014	0.535	0.0014	6,726	0.532
50-54	5,936,410	7,500	11,617	0.0013	0.0020	0.646	0.0020	11,582	0.648
55-59	6,492,387	8,665	19,382	0.0013	0.0030	0.447	0.0030	19,301	0.449
60-64	5,683,907	17,618	25,154	0.0031	0.0044	0.700	0.0044	25,070	0.703
65+	3,631,199	22,249	27,987	0.0061	0.0077	0.795	0.0077	27,856	0.799
Total	40,275,675	65,505	100,982	0.0016	0.0025	0.649		100,644	0.651

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	35,908	0	5	0.0000	0.0001	0.000	0.0001	4	0.000
20-24	1,071,916	0	129	0.0000	0.0001	0.000	0.0001	127	0.000
25-29	2,895,418	0	563	0.0000	0.0002	0.000	0.0002	552	0.000
30-34	4,040,444	948	1,289	0.0002	0.0003	0.735	0.0003	1,269	0.747
35-39	4,952,286	1,275	2,332	0.0003	0.0005	0.546	0.0005	2,310	0.552
40-44	5,858,806	1,199	3,678	0.0002	0.0006	0.326	0.0006	3,644	0.329
45-49	6,192,244	4,625	5,249	0.0007	0.0008	0.881	0.0008	5,186	0.892
50-54	7,975,311	3,161	10,167	0.0004	0.0013	0.311	0.0013	9,994	0.316
55-59	8,268,652	7,448	16,893	0.0009	0.0020	0.441	0.0020	16,655	0.447
60-64	7,060,000	10,826	22,204	0.0015	0.0031	0.488	0.0031	22,065	0.491
65+	3,885,253	4,760	24,160	0.0012	0.0062	0.197	0.0062	23,985	0.198
Total	52,236,239	34,240	86,669	0.0007	0.0017	0.395		85,792	0.399

Non-Metro Non-Hazardous Duty Healthy Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	3,435,266	214,606	13,624	0.0625	0.0040	15.752	0.0040	13,570	15.815
55-59	21,156,299	694,376	120,329	0.0328	0.0057	5.771	0.0057	119,839	5.794
60-64	53,148,889	1,450,921	453,392	0.0273	0.0085	3.200	0.0085	451,926	3.211
65-69	116,213,341	2,296,635	1,535,711	0.0198	0.0132	1.495	0.0132	1,530,376	1.501
70-74	130,084,639	3,024,846	2,769,991	0.0233	0.0213	1.092	0.0212	2,752,358	1.099
75-79	79,705,525	3,798,839	2,929,591	0.0477	0.0368	1.297	0.0365	2,908,120	1.306
80-84	39,080,606	3,099,454	2,580,679	0.0793	0.0660	1.201	0.0657	2,565,677	1.208
85-89	19,305,367	3,038,259	2,275,261	0.1574	0.1179	1.335	0.1174	2,266,229	1.341
90-94	6,768,885	1,578,660	1,251,655	0.2332	0.1849	1.261	0.1844	1,248,326	1.265
95-99	1,800,751	318,697	484,094	0.1770	0.2688	0.658	0.2684	483,258	0.659
100+	65,021	65,021	22,927	1.0000	0.3526	2.836	0.3525	22,919	2.837
Total	470,764,590	19,580,313	14,437,254	0.0416	0.0307	1.356		14,362,599	1.363

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	2,944,924	27,888	7,589	0.0095	0.0026	3.675	0.0025	7,455	3.741
55-59	17,487,935	340,672	60,302	0.0195	0.0034	5.649	0.0034	59,489	5.727
60-64	63,483,428	691,837	320,747	0.0109	0.0051	2.157	0.0050	318,921	2.169
65-69	134,237,414	1,358,788	1,049,648	0.0101	0.0078	1.295	0.0078	1,042,970	1.303
70-74	134,166,208	2,530,033	1,757,552	0.0189	0.0131	1.440	0.0130	1,741,334	1.453
75-79	93,880,948	2,476,928	2,184,201	0.0264	0.0233	1.134	0.0231	2,164,981	1.144
80-84	51,034,453	2,414,431	2,196,453	0.0473	0.0430	1.099	0.0427	2,179,812	1.108
85-89	23,052,846	1,968,369	1,850,207	0.0854	0.0803	1.064	0.0798	1,840,302	1.070
90-94	8,158,782	1,353,598	1,142,775	0.1659	0.1401	1.184	0.1395	1,138,272	1.189
95-99	2,109,246	740,684	442,375	0.3512	0.2097	1.674	0.2090	440,731	1.681
100+	281,367	94,239	93,716	0.3349	0.3331	1.006	0.3324	93,529	1.008
Total	530,837,552	13,997,468	11,105,565	0.0264	0.0209	1.260		11,027,796	1.269

Non-Metro Non-Hazardous Duty Disabled Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	27,009	0	199	0.0000	0.0074	0.000	0.0073	196	0.000
35-39	164,543	0	1,630	0.0000	0.0099	0.000	0.0099	1,626	0.000
40-44	489,917	14,066	6,410	0.0287	0.0131	2.194	0.0132	6,444	2.183
45-49	1,760,682	75,954	30,895	0.0431	0.0175	2.458	0.0176	31,031	2.448
50-54	3,574,079	86,656	80,678	0.0242	0.0226	1.074	0.0225	80,406	1.078
55-59	9,206,961	373,501	257,455	0.0406	0.0280	1.451	0.0278	256,402	1.457
60-64	12,713,254	595,451	442,165	0.0468	0.0348	1.347	0.0347	440,685	1.351
65-69	15,034,444	633,358	635,797	0.0421	0.0423	0.996	0.0421	633,682	0.999
70-74	13,482,374	984,125	720,619	0.0730	0.0534	1.366	0.0531	716,097	1.374
75-79	9,445,545	941,975	704,290	0.0997	0.0746	1.337	0.0740	699,173	1.347
80-84	4,493,143	567,382	491,009	0.1263	0.1093	1.156	0.1086	488,168	1.162
85-89	1,899,827	412,528	317,318	0.2171	0.1670	1.300	0.1664	316,058	1.305
90-94	432,817	156,134	98,405	0.3607	0.2274	1.587	0.2267	98,120	1.591
95-99	6,847	6,847	2,080	1.0000	0.3037	3.293	0.3031	2,076	3.299
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	72,731,442	4,847,978	3,788,948	0.0667	0.0521	1.280		3,770,164	1.286

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	1	1	0	1.0000	0.0000	0.000	0.0000	0	0.000
30-34	3	0	0	0.0000	0.0067	0.000	0.0067	0	0.000
35-39	19,244	0	163	0.0000	0.0085	0.000	0.0084	162	0.000
40-44	173,360	1	1,912	0.0000	0.0110	0.001	0.0109	1,895	0.001
45-49	1,206,663	41,465	18,058	0.0344	0.0150	2.296	0.0148	17,839	2.324
50-54	1,974,876	10,629	36,433	0.0054	0.0184	0.292	0.0181	35,805	0.297
55-59	5,342,931	121,764	117,447	0.0228	0.0220	1.037	0.0217	115,816	1.051
60-64	9,801,544	352,914	240,711	0.0360	0.0246	1.466	0.0244	239,267	1.475
65-69	11,334,113	269,381	320,242	0.0238	0.0283	0.841	0.0281	318,282	0.846
70-74	10,141,586	364,658	382,934	0.0360	0.0378	0.952	0.0374	379,433	0.961
75-79	7,219,460	366,253	402,517	0.0507	0.0558	0.910	0.0553	398,975	0.918
80-84	4,134,113	313,071	363,829	0.0757	0.0880	0.860	0.0873	361,068	0.867
85-89	1,637,747	199,168	219,056	0.1216	0.1338	0.909	0.1330	217,897	0.914
90-94	453,488	124,957	81,818	0.2755	0.1804	1.527	0.1797	81,480	1.534
95-99	23,753	8,142	6,973	0.3428	0.2936	1.168	0.2926	6,951	1.171
100+	3,908	3,908	1,353	1.0000	0.3462	2.888	0.3452	1,349	2.897
Total	53,466,790	2,176,314	2,193,446	0.0407	0.0410	0.992		2,176,218	1.000

Non-Metro Contingent Survivor Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	62,556	15,403	2	0.2462	0.0000	8903.514	0.0000	2	9060.635
20-24	32,149	0	11	0.0000	0.0004	0.000	0.0003	11	0.000
25-29	57,519	0	22	0.0000	0.0004	0.000	0.0004	22	0.000
30-34	155,158	7,207	83	0.0465	0.0005	87.013	0.0005	82	88.325
35-39	94,944	0	65	0.0000	0.0007	0.000	0.0007	65	0.000
40-44	33,443	0	31	0.0000	0.0009	0.000	0.0009	31	0.000
45-49	127,367	0	751	0.0000	0.0059	0.000	0.0059	756	0.000
50-54	178,820	0	1,265	0.0000	0.0071	0.000	0.0071	1,262	0.000
55-59	496,325	20,178	4,554	0.0407	0.0092	4.431	0.0091	4,536	4.449
60-64	1,281,364	1,358	15,187	0.0011	0.0119	0.089	0.0118	15,137	0.090
65-69	1,575,577	20,890	25,176	0.0133	0.0160	0.830	0.0159	25,094	0.833
70-74	1,619,892	33,677	39,739	0.0208	0.0245	0.847	0.0244	39,485	0.853
75-79	1,488,083	59,241	55,169	0.0398	0.0371	1.074	0.0368	54,760	1.082
80-84	625,128	24,732	36,515	0.0396	0.0584	0.677	0.0581	36,297	0.681
85-89	413,180	77,715	40,414	0.1881	0.0978	1.923	0.0974	40,250	1.931
90-94	101,945	44,204	16,183	0.4336	0.1587	2.731	0.1583	16,140	2.739
95-99	109,579	28,334	26,942	0.2586	0.2459	1.052	0.2455	26,897	1.053
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	8,453,028	332,939	262,111	0.0394	0.0310	1.270		260,826	1.276

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	36,091	0	4	0.0000	0.0001	0.000	0.0001	4	0.000
25-29	110,689	0	15	0.0000	0.0001	0.000	0.0001	15	0.000
30-34	200,369	0	50	0.0000	0.0003	0.000	0.0002	50	0.000
35-39	211,233	2,218	69	0.0105	0.0003	32.248	0.0003	68	32.560
40-44	613,072	11,542	292	0.0188	0.0005	39.583	0.0005	289	39.956
45-49	1,641,657	11,953	4,490	0.0073	0.0027	2.662	0.0027	4,436	2.694
50-54	2,667,496	13,168	9,791	0.0049	0.0037	1.345	0.0036	9,622	1.369
55-59	4,332,592	41,077	23,231	0.0095	0.0054	1.768	0.0053	22,906	1.793
60-64	7,408,311	126,398	55,162	0.0171	0.0074	2.291	0.0074	54,837	2.305
65-69	10,311,056	111,848	102,977	0.0108	0.0100	1.086	0.0099	102,338	1.093
70-74	9,517,379	243,615	143,866	0.0256	0.0151	1.693	0.0150	142,543	1.709
75-79	11,094,304	507,726	272,312	0.0458	0.0245	1.865	0.0243	269,925	1.881
80-84	8,057,068	567,581	346,526	0.0704	0.0430	1.638	0.0427	343,935	1.650
85-89	5,978,729	600,562	459,373	0.1004	0.0768	1.307	0.0764	456,955	1.314
90-94	2,548,422	563,722	336,455	0.2212	0.1320	1.675	0.1315	335,134	1.682
95-99	727,909	169,191	146,995	0.2324	0.2019	1.151	0.2012	146,435	1.155
100+	196,922	98,939	61,879	0.5024	0.3142	1.599	0.3136	61,753	1.602
Total	65,653,302	3,069,538	1,963,486	0.0468	0.0299	1.563		1,951,244	1.573

Metro Hazardous Duty Pre-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	90,733	0	36	0.0000	0.0004	0.000	0.0004	35	0.000
20-24	2,712,598	988	1,102	0.0004	0.0004	0.896	0.0004	1,080	0.915
25-29	7,345,062	711	3,335	0.0001	0.0005	0.213	0.0004	3,269	0.218
30-34	9,288,815	0	5,080	0.0000	0.0005	0.000	0.0005	5,005	0.000
35-39	10,075,635	735	6,416	0.0001	0.0006	0.114	0.0006	6,391	0.115
40-44	9,531,885	1,872	6,945	0.0002	0.0007	0.270	0.0007	6,983	0.268
45-49	9,943,382	2,308	9,016	0.0002	0.0009	0.256	0.0009	9,056	0.255
50-54	9,213,659	1,990	11,556	0.0002	0.0013	0.172	0.0013	11,524	0.173
55-59	4,668,685	5,896	8,955	0.0013	0.0019	0.658	0.0019	8,917	0.661
60-64	1,977,365	0	5,903	0.0000	0.0030	0.000	0.0030	5,883	0.000
65+	480,420	2,886	2,043	0.0060	0.0043	1.413	0.0042	2,036	1.417
Total	65,328,239	17,386	60,387	0.0003	0.0009	0.288		60,179	0.289

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	9,615	0	2	0.0000	0.0002	0.000	0.0002	2	0.000
20-24	739,696	0	175	0.0000	0.0002	0.000	0.0002	172	0.000
25-29	1,892,383	0	621	0.0000	0.0003	0.000	0.0003	609	0.000
30-34	2,056,410	0	949	0.0000	0.0005	0.000	0.0005	935	0.000
35-39	1,820,499	0	1,085	0.0000	0.0006	0.000	0.0006	1,074	0.000
40-44	1,659,999	0	1,173	0.0000	0.0007	0.000	0.0007	1,162	0.000
45-49	1,572,434	0	1,359	0.0000	0.0009	0.000	0.0009	1,342	0.000
50-54	1,412,540	0	1,680	0.0000	0.0012	0.000	0.0012	1,651	0.000
55-59	754,507	0	1,265	0.0000	0.0017	0.000	0.0017	1,246	0.000
60-64	241,716	0	547	0.0000	0.0023	0.000	0.0022	544	0.000
65+	65,569	0	188	0.0000	0.0029	0.000	0.0029	187	0.000
Total	12,225,367	0	9,044	0.0000	0.0007	0.000		8,925	0.000

Metro Hazardous Duty Healthy Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	65,851,187	411,044	171,345	0.0062	0.0026	2.399	0.0026	170,721	2.408
55-59	145,517,561	1,039,085	610,988	0.0071	0.0042	1.701	0.0042	608,459	1.708
60-64	161,950,708	1,514,524	1,171,647	0.0094	0.0072	1.293	0.0072	1,167,802	1.297
65-69	156,202,157	2,040,204	1,879,702	0.0131	0.0120	1.085	0.0120	1,873,392	1.089
70-74	109,919,255	2,573,602	2,221,540	0.0234	0.0202	1.158	0.0201	2,207,473	1.166
75-79	52,345,974	1,844,843	1,858,345	0.0352	0.0355	0.993	0.0352	1,844,603	1.000
80-84	24,880,770	1,371,687	1,604,272	0.0551	0.0645	0.855	0.0641	1,594,905	0.860
85-89	6,307,750	570,975	700,877	0.0905	0.1111	0.815	0.1106	697,924	0.818
90-94	570,155	52,541	101,084	0.0922	0.1773	0.520	0.1768	100,779	0.521
95-99	18,696	0	5,018	0.0000	0.2684	0.000	0.2679	5,009	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	723,564,213	11,418,505	10,324,819	0.0158	0.0143	1.106		10,271,067	1.112

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	10,263,567	76,885	29,492	0.0075	0.0029	2.607	0.0028	28,970	2.654
55-59	23,027,355	189,232	116,542	0.0082	0.0051	1.624	0.0050	114,946	1.646
60-64	22,094,431	186,186	180,453	0.0084	0.0082	1.032	0.0081	179,314	1.038
65-69	14,570,161	189,362	188,477	0.0130	0.0129	1.005	0.0129	187,332	1.011
70-74	6,841,291	44,686	147,163	0.0065	0.0215	0.304	0.0213	145,789	0.307
75-79	3,747,048	49,665	143,216	0.0133	0.0382	0.347	0.0379	141,947	0.350
80-84	1,426,370	30,898	91,117	0.0217	0.0639	0.339	0.0634	90,395	0.342
85-89	445,288	61,186	52,098	0.1374	0.1170	1.174	0.1164	51,826	1.181
90-94	205,197	0	40,015	0.0000	0.1950	0.000	0.1942	39,855	0.000
95-99	32,907	0	8,073	0.0000	0.2453	0.000	0.2442	8,036	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	82,653,615	828,100	996,645	0.0100	0.0121	0.831		988,410	0.838

Metro Hazardous Duty Disabled Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	79,192	0	279	0.0000	0.0035	0.000	0.0035	273	0.000
30-34	313,846	15,465	1,398	0.0493	0.0045	11.065	0.0044	1,378	11.219
35-39	1,594,849	0	8,833	0.0000	0.0055	0.000	0.0055	8,811	0.000
40-44	2,783,417	57,503	18,532	0.0207	0.0067	3.103	0.0067	18,637	3.085
45-49	7,432,962	213,792	66,987	0.0288	0.0090	3.192	0.0090	67,231	3.180
50-54	15,189,566	317,697	203,920	0.0209	0.0134	1.558	0.0134	203,286	1.563
55-59	18,124,437	429,150	350,601	0.0237	0.0193	1.224	0.0193	349,153	1.229
60-64	21,517,709	374,729	510,730	0.0174	0.0237	0.734	0.0237	509,035	0.736
65-69	22,710,788	656,208	622,090	0.0289	0.0274	1.055	0.0273	619,978	1.058
70-74	18,873,880	525,656	621,137	0.0279	0.0329	0.846	0.0327	617,259	0.852
75-79	10,989,948	658,019	463,405	0.0599	0.0422	1.420	0.0419	459,967	1.431
80-84	4,034,487	359,605	236,057	0.0891	0.0585	1.523	0.0582	234,646	1.533
85-89	1,218,397	160,552	104,443	0.1318	0.0857	1.537	0.0854	104,001	1.544
90-94	269,882	52,978	38,103	0.1963	0.1412	1.390	0.1408	38,012	1.394
95-99	164,322	0	29,649	0.0000	0.1804	0.000	0.1800	29,584	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	125,297,683	3,821,352	3,276,163	0.0305	0.0261	1.166		3,261,253	1.172

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	39,389	0	76	0.0000	0.0019	0.000	0.0019	75	0.000
30-34	300,061	25,843	885	0.0861	0.0029	29.198	0.0029	872	29.621
35-39	1,484,837	34,377	6,244	0.0232	0.0042	5.506	0.0042	6,186	5.557
40-44	3,194,917	44,495	17,756	0.0139	0.0056	2.506	0.0055	17,587	2.530
45-49	3,475,648	106,789	27,872	0.0307	0.0080	3.831	0.0079	27,532	3.879
50-54	4,362,473	162,754	52,120	0.0373	0.0119	3.123	0.0117	51,223	3.177
55-59	4,971,516	13,638	78,878	0.0027	0.0159	0.173	0.0156	77,785	0.175
60-64	5,570,746	65,052	97,219	0.0117	0.0175	0.669	0.0173	96,561	0.674
65-69	2,829,030	57,798	52,357	0.0204	0.0185	1.104	0.0184	52,037	1.111
70-74	1,000,520	48,003	22,580	0.0480	0.0226	2.126	0.0224	22,371	2.146
75-79	994,627	106,872	30,573	0.1074	0.0307	3.496	0.0305	30,305	3.526
80-84	191,817	0	9,071	0.0000	0.0473	0.000	0.0469	9,001	0.000
85-89	101,756	0	7,305	0.0000	0.0718	0.000	0.0714	7,265	0.000
90-94	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	28,517,337	665,620	402,935	0.0233	0.0141	1.652		398,802	1.669

Non-Metro Hazardous Duty Pre-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	79,414	0	31	0.0000	0.0004	0.000	0.0004	31	0.000
20-24	2,200,569	0	894	0.0000	0.0004	0.000	0.0004	876	0.000
25-29	4,812,876	0	2,172	0.0000	0.0005	0.000	0.0004	2,128	0.000
30-34	5,281,408	0	2,887	0.0000	0.0005	0.000	0.0005	2,844	0.000
35-39	4,997,380	637	3,180	0.0001	0.0006	0.200	0.0006	3,167	0.201
40-44	4,408,471	0	3,210	0.0000	0.0007	0.000	0.0007	3,227	0.000
45-49	4,950,739	861	4,491	0.0002	0.0009	0.192	0.0009	4,511	0.191
50-54	3,976,064	2,011	4,986	0.0005	0.0013	0.403	0.0013	4,972	0.404
55-59	2,201,826	864	4,267	0.0004	0.0019	0.202	0.0019	4,249	0.203
60-64	1,122,123	0	3,328	0.0000	0.0030	0.000	0.0030	3,317	0.000
65+	362,932	0	1,550	0.0000	0.0043	0.000	0.0043	1,545	0.000
Total	34,393,800	4,373	30,997	0.0001	0.0009	0.141		30,868	0.142

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	26,993	0	5	0.0000	0.0002	0.000	0.0002	5	0.000
20-24	585,819	0	136	0.0000	0.0002	0.000	0.0002	134	0.000
25-29	1,063,960	0	348	0.0000	0.0003	0.000	0.0003	341	0.000
30-34	1,006,941	0	465	0.0000	0.0005	0.000	0.0005	458	0.000
35-39	788,581	0	468	0.0000	0.0006	0.000	0.0006	464	0.000
40-44	793,696	0	561	0.0000	0.0007	0.000	0.0007	556	0.000
45-49	729,911	0	631	0.0000	0.0009	0.000	0.0009	623	0.000
50-54	620,399	0	731	0.0000	0.0012	0.000	0.0012	719	0.000
55-59	400,704	0	680	0.0000	0.0017	0.000	0.0017	669	0.000
60-64	199,616	0	454	0.0000	0.0023	0.000	0.0023	451	0.000
65+	39,337	0	124	0.0000	0.0032	0.000	0.0031	123	0.000
Total	6,255,958	0	4,604	0.0000	0.0007	0.000		4,544	0.000

Non-Metro Hazardous Duty Healthy Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	30,416,560	114,351	77,743	0.0038	0.0026	1.471	0.0025	77,472	1.476
55-59	54,138,706	468,763	228,535	0.0087	0.0042	2.051	0.0042	227,591	2.060
60-64	70,082,450	813,092	509,415	0.0116	0.0073	1.596	0.0072	507,747	1.601
65-69	62,105,927	1,399,238	749,428	0.0225	0.0121	1.867	0.0120	746,900	1.873
70-74	50,387,551	1,167,504	1,023,289	0.0232	0.0203	1.141	0.0202	1,016,810	1.148
75-79	26,515,459	1,030,346	938,367	0.0389	0.0354	1.098	0.0351	931,418	1.106
80-84	11,861,734	848,523	772,693	0.0715	0.0651	1.098	0.0648	768,225	1.105
85-89	4,513,689	510,671	515,304	0.1131	0.1142	0.991	0.1137	513,186	0.995
90-94	603,516	70,094	108,998	0.1161	0.1806	0.643	0.1801	108,684	0.645
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	310,625,592	6,422,582	4,923,771	0.0207	0.0159	1.304		4,898,033	1.311

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<55	3,847,268	18,824	10,907	0.0049	0.0028	1.726	0.0028	10,714	1.757
55-59	6,733,808	38,110	33,256	0.0057	0.0049	1.146	0.0049	32,784	1.162
60-64	8,824,614	94,500	74,321	0.0107	0.0084	1.272	0.0084	73,880	1.279
65-69	8,071,340	152,246	106,508	0.0189	0.0132	1.429	0.0131	105,841	1.438
70-74	3,853,633	99,907	83,727	0.0259	0.0217	1.193	0.0215	82,950	1.204
75-79	2,008,632	28,731	75,156	0.0143	0.0374	0.382	0.0371	74,484	0.386
80-84	978,672	41,617	64,506	0.0425	0.0659	0.645	0.0654	64,009	0.650
85-89	235,212	0	26,224	0.0000	0.1115	0.000	0.1109	26,074	0.000
90-94	52,004	7,737	9,015	0.1488	0.1734	0.858	0.1726	8,978	0.862
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	34,605,184	481,671	483,619	0.0139	0.0140	0.996		479,713	1.004

Non-Metro Hazardous Duty Disabled Post-Retirement Mortality Experience

Males Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	43,756	0	147	0.0000	0.0033	0.000	0.0033	144	0.000
30-34	54,534	0	259	0.0000	0.0047	0.000	0.0047	256	0.000
35-39	932,556	22,574	5,221	0.0242	0.0056	4.324	0.0056	5,211	4.332
40-44	1,847,438	30,196	12,212	0.0163	0.0066	2.473	0.0066	12,281	2.459
45-49	3,348,979	202,768	29,478	0.0605	0.0088	6.879	0.0088	29,604	6.849
50-54	5,379,901	214,602	71,920	0.0399	0.0134	2.984	0.0133	71,701	2.993
55-59	5,810,539	258,592	113,021	0.0445	0.0195	2.288	0.0194	112,557	2.297
60-64	5,502,573	146,865	130,162	0.0267	0.0237	1.128	0.0236	129,728	1.132
65-69	5,866,494	232,002	159,312	0.0395	0.0272	1.456	0.0271	158,789	1.461
70-74	4,193,744	105,857	139,676	0.0252	0.0333	0.758	0.0331	138,798	0.763
75-79	2,957,126	141,571	123,814	0.0479	0.0419	1.143	0.0416	122,884	1.152
80-84	1,064,245	0	61,142	0.0000	0.0575	0.000	0.0571	60,764	0.000
85-89	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
90-94	35,809	18,014	4,285	0.5031	0.1197	4.203	0.1193	4,274	4.215
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	37,037,695	1,373,042	850,648	0.0371	0.0230	1.614		846,990	1.621

Females Benefits Weighted									
Age	Exposed	Actual Deaths	Expected Deaths	Actual Rates	Expected Rates	Ratio: Actual over Expected	Proposed Rates	Expected Deaths Under Proposed Rates	Ratio: Actual over Expected Under Proposed Rates
<20	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
20-24	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
25-29	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
30-34	175,033	0	527	0.0000	0.0030	0.000	0.0030	520	0.000
35-39	192,401	0	802	0.0000	0.0042	0.000	0.0041	794	0.000
40-44	758,377	0	4,202	0.0000	0.0055	0.000	0.0055	4,162	0.000
45-49	1,129,476	26,344	8,878	0.0233	0.0079	2.967	0.0078	8,771	3.003
50-54	1,734,033	24,401	20,969	0.0141	0.0121	1.164	0.0119	20,604	1.184
55-59	1,801,662	20,056	28,564	0.0111	0.0159	0.702	0.0156	28,163	0.712
60-64	750,622	12,283	13,080	0.0164	0.0174	0.939	0.0173	12,989	0.946
65-69	944,666	20,945	17,572	0.0222	0.0186	1.192	0.0185	17,463	1.199
70-74	433,291	0	9,313	0.0000	0.0215	0.000	0.0213	9,225	0.000
75-79	37,271	0	1,252	0.0000	0.0336	0.000	0.0333	1,242	0.000
80-84	83,029	17,695	4,000	0.2131	0.0482	4.424	0.0478	3,970	4.457
85-89	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
90-94	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
95-99	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
100+	0	0	0	0.0000	0.0000	0.000	0.0000	0	0.000
Total	8,039,861	121,725	109,159	0.0151	0.0136	1.115		107,904	1.128

State and Non-Hazardous Duty Political Subdivisions Salary Experience – Males & Females

Total Salary Increases							
Service	Exposed	Prior Year Salaries	Actual Salaries	Expected Salaries	Actual Increase	Expected Increase	Ratio: Actual over Expected
0	35,081	\$ 1,717,058	\$ 1,866,596	\$ 1,808,920	1.09	1.05	1.03
1	46,624	2,189,428	2,389,552	2,306,562	1.09	1.05	1.04
2	37,211	1,790,542	1,957,256	1,886,336	1.09	1.05	1.04
3	33,599	1,686,611	1,840,978	1,766,723	1.09	1.05	1.04
4	31,480	1,625,462	1,771,278	1,697,796	1.09	1.04	1.04
5	27,849	1,485,669	1,615,574	1,551,781	1.09	1.04	1.04
6	25,020	1,374,745	1,491,418	1,435,921	1.08	1.04	1.04
7	22,594	1,273,902	1,380,843	1,329,317	1.08	1.04	1.04
8	20,641	1,192,832	1,290,440	1,243,527	1.08	1.04	1.04
9	18,899	1,113,798	1,205,476	1,158,350	1.08	1.04	1.04
10	16,474	986,533	1,068,346	1,025,993	1.08	1.04	1.04
11	14,589	891,560	963,832	924,101	1.08	1.04	1.04
12	14,179	861,855	927,948	893,313	1.08	1.04	1.04
13	14,662	884,221	952,209	916,494	1.08	1.04	1.04
14	15,643	957,918	1,030,723	992,883	1.08	1.04	1.04
15	16,355	1,016,828	1,094,958	1,053,942	1.08	1.04	1.04
16	15,627	986,206	1,062,309	1,022,202	1.08	1.04	1.04
17	13,832	887,095	954,565	919,473	1.08	1.04	1.04
18	12,342	797,402	856,714	826,507	1.07	1.04	1.04
19	11,356	742,162	795,139	769,250	1.07	1.04	1.03
20+	110,380	7,864,076	8,401,891	8,139,318	1.07	1.03	1.03
Total	554,437	\$ 32,325,903	\$ 34,918,045	\$ 33,668,709	1.08	1.04	1.04

Teacher Salary Experience – Males & Females

Total Salary Increases							
Service	Exposed	Prior Year Salaries	Actual Salaries	Expected Salaries	Actual Increase	Expected Increase	Ratio: Actual over Expected
0	21,503	\$ 899,038	\$ 975,050	\$ 952,531	1.08	1.06	1.02
1	37,292	1,673,880	1,813,042	1,773,476	1.08	1.06	1.02
2	31,463	1,482,968	1,594,526	1,569,721	1.08	1.06	1.02
3	28,987	1,419,056	1,520,859	1,502,070	1.07	1.06	1.01
4	28,104	1,419,860	1,519,828	1,497,243	1.07	1.05	1.02
5	26,390	1,380,820	1,477,244	1,456,075	1.07	1.05	1.01
6	24,371	1,318,437	1,411,966	1,390,292	1.07	1.05	1.02
7	22,441	1,259,603	1,346,966	1,326,992	1.07	1.05	1.02
8	20,636	1,195,265	1,277,491	1,259,211	1.07	1.05	1.01
9	19,202	1,140,380	1,218,972	1,201,390	1.07	1.05	1.01
10	17,326	1,055,580	1,128,901	1,106,775	1.07	1.05	1.02
11	16,029	991,023	1,059,752	1,039,087	1.07	1.05	1.02
12	16,149	1,002,434	1,069,687	1,051,053	1.07	1.05	1.02
13	16,496	1,028,163	1,094,603	1,077,000	1.06	1.05	1.02
14	17,744	1,118,385	1,190,571	1,171,508	1.06	1.05	1.02
15	18,910	1,216,795	1,297,171	1,273,376	1.07	1.05	1.02
16	18,680	1,225,220	1,305,896	1,282,193	1.07	1.05	1.02
17	17,555	1,177,941	1,257,029	1,231,538	1.07	1.05	1.02
18	16,447	1,126,033	1,199,390	1,176,141	1.07	1.04	1.02
19	15,170	1,048,110	1,115,244	1,094,751	1.06	1.04	1.02
20+	111,297	8,265,180	8,772,092	8,554,462	1.06	1.04	1.03
Total	542,192	\$ 32,444,171	\$ 34,646,280	\$ 33,986,885	1.07	1.05	1.02

SPORS, VaLORS and Hazardous Duty Political Subdivisions Salary Experience – Males & Females

Total Salary Increases							
Service	Exposed	Prior Year Salaries	Actual Salaries	Expected Salaries	Actual Increase	Expected Increase	Ratio: Actual over Expected
0	6,001	\$ 267,112	\$ 294,240	\$ 279,799	1.10	1.05	1.05
1	9,118	428,903	469,784	449,277	1.10	1.05	1.05
2	7,939	382,438	417,297	400,603	1.09	1.05	1.04
3	7,277	359,940	393,522	377,037	1.09	1.05	1.04
4	6,813	348,285	381,264	364,829	1.09	1.05	1.05
5	5,956	315,571	345,405	330,245	1.09	1.05	1.05
6	5,360	290,361	318,743	303,137	1.10	1.04	1.05
7	4,928	274,822	301,174	286,914	1.10	1.04	1.05
8	4,345	248,940	273,421	259,892	1.10	1.04	1.05
9	4,240	248,534	272,285	259,470	1.10	1.04	1.05
10	3,789	229,565	251,350	238,748	1.09	1.04	1.05
11	3,354	207,609	226,779	215,913	1.09	1.04	1.05
12	3,574	222,909	242,345	231,824	1.09	1.04	1.05
13	3,734	231,490	252,340	240,748	1.09	1.04	1.05
14	3,977	254,179	278,469	264,346	1.10	1.04	1.05
15	4,294	284,577	310,611	295,960	1.09	1.04	1.05
16	4,265	291,420	317,427	303,077	1.09	1.04	1.05
17	3,905	275,235	301,332	286,245	1.09	1.04	1.05
18	3,709	268,735	292,117	279,485	1.09	1.04	1.05
19	3,283	245,619	267,816	255,445	1.09	1.04	1.05
20+	21,502	1,803,330	1,959,855	1,866,447	1.09	1.04	1.05
Total	121,363	\$ 7,479,574	\$ 8,167,576	\$ 7,789,441	1.09	1.04	1.05

JRS Salary Experience – Males & Females

Total Salary Increases							
Service	Exposed	Prior Year Salaries	Actual Salaries	Expected Salaries	Actual Increase	Expected Increase	Ratio: Actual over Expected
0	72	\$ 12,475,943	\$ 13,146,819	\$ 12,974,981	1.05	1.04	1.01
1	153	26,419,007	27,800,024	27,475,767	1.05	1.04	1.01
2	130	22,826,856	24,073,334	23,739,930	1.05	1.04	1.01
3	113	20,232,685	21,406,015	21,041,993	1.06	1.04	1.02
4	112	20,416,917	21,388,950	21,233,594	1.05	1.04	1.01
5	97	16,696,317	17,661,195	17,364,170	1.06	1.04	1.02
6	107	18,777,161	19,800,045	19,528,247	1.05	1.04	1.01
7	118	21,162,312	22,409,894	22,008,804	1.06	1.04	1.02
8	133	24,240,389	25,400,376	25,210,005	1.05	1.04	1.01
9	86	15,631,117	16,446,764	16,256,362	1.05	1.04	1.01
10	65	12,265,900	12,971,263	12,756,536	1.06	1.04	1.02
11	50	9,389,179	9,861,620	9,764,746	1.05	1.04	1.01
12	32	5,731,463	6,037,400	5,960,722	1.05	1.04	1.01
13	38	6,786,020	7,163,182	7,057,461	1.06	1.04	1.01
14	45	8,157,981	8,601,967	8,484,300	1.05	1.04	1.01
15	44	8,050,488	8,473,322	8,372,508	1.05	1.04	1.01
16	43	7,836,867	8,233,286	8,150,342	1.05	1.04	1.01
17	36	6,665,630	6,998,491	6,932,255	1.05	1.04	1.01
18	30	5,478,843	5,748,834	5,697,997	1.05	1.04	1.01
19	33	6,066,295	6,381,618	6,308,947	1.05	1.04	1.01
20+	182	33,703,329	35,405,805	35,051,462	1.05	1.04	1.01
Total	1,719	\$ 309,010,699	\$ 325,410,204	\$ 321,371,129	1.05	1.04	1.01

APPENDIX A

VIRGINIA RETIREMENT SYSTEM – APPENDIX TO THE JUNE 30, 2025 ANNUAL ACTUARIAL VALUATION REPORTS

Virginia Retirement System (VRS) – Appendix to the June 30, 2025 Annual Actuarial Valuation Reports

Plan Benefits, Assumptions and Methods
Applicable To:

1. Pension
2. Group Life Insurance
3. Health Insurance Credit
4. Virginia Sickness and Disability Program
5. Virginia Local Disability Program
6. Line of Duty Act Fund



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Introduction

Under the umbrella of the Virginia Retirement System, Pension, Other Postemployment, and Line of Duty Benefits are provided to hundreds of thousands of plan members. This Appendix provides descriptions of actuarial assumptions, serving as a companion to the following actuarial valuations:

- Line of Duty Act Fund
- Virginia Retirement System – Political Subdivisions (individual valuations)
- Virginia Retirement System – State, Teachers, VaLORS, SPORS, JRS
- Virginia Retirement System – Other Postemployment Benefits (Group Life Insurance, Health Insurance Credit Program, Virginia Local Disability Program, Virginia State Disability Program)
- Virginia Retirement System – Other Postemployment Benefits – Political Subdivisions (Health Insurance Credit Program)

An actuarial valuation is the mathematical model that estimates plan liabilities and employer contribution requirements for purposes of funding the plans and for determining plan costs for Governmental Accounting Standards Board (GASB) purposes. This model is updated annually to adjust the liabilities and contribution requirements for changes in member census and plan features and to reflect actual plan experience in the process.

Each annual actuarial valuation uses current membership and financial data. In addition, an actuarial valuation requires the use of a series of assumptions regarding uncertain future events. The assumptions and methods used in the June 30, 2025 Actuarial Valuations were adopted by the Retirement Board on April 16, 2025. The economic assumptions used in the valuations are a 6.75% investment rate of return and a 2.50% inflation assumption. The demographic assumptions used in the valuations are based on the results of a study of plan experience that covered the period from July 1, 2020 through June 30, 2024. All actuarial assumptions are estimates of future experience. The rationale for the assumptions is described in this Appendix as well as the most recent experience study report.

The current economic and demographic assumptions are reasonable for the purposes of the June 30, 2025 annual actuarial valuations.

The 2020-2024 experience study refined the calculation of Normal Cost to remove historical salaries and to adjust projected fiscal year payroll used to calculate the blended Normal Cost to reflect the closed nature of Plan 1 and Plan 2 for Plans with Hybrid members. The Board of Trustees updated the Funding Policy most recently on June 18, 2025. The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA) who meets the U.S. Qualification Standards to render the actuarial opinions in the valuation.

Details regarding actuarial assumptions and actuarial methodology follow this section.



Summary of Plan Provisions

The benefits summarized in this section are intended only as general information regarding the Virginia Retirement System as reflected in the valuation. They are not a substitute for the Code of Virginia or VRS administrative procedures. If any conflict occurs between the information in this summary and the Code of Virginia or VRS administrative procedures, the Code of Virginia and VRS administrative procedures govern.

Summary of Plan Provisions

Virginia Retirement System

Statute	Code of Virginia, Title 51.1, Pension, Benefits, and Retirement. Chapter 1, Virginia Retirement System §§ 51.1-100 through 51.1-169 Chapter 2, State Police Officers' Retirement System (SPORS) §§ 51.1-200 through 51.1-210 Chapter 2.1, Virginia Law Officers' Retirement System (VaLORS) §§ 51.1-211 through 51.1-221 Chapter 3, Judicial Retirement System (JRS) §§ 51.1-300 through 51.1-309
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Benefit Provisions applicable to all VRS pension plans unless otherwise specified

Employee	Any teacher, state employee, officer, or employee of a locality participating in the Retirement System. Covered employment is a full-time permanent, salaried position with an employer that participates in VRS. Some part-time permanent (typically more than 80% of the hours of comparable full-time permanent positions), salaried state positions are also covered.
Member	Any person included in the membership of the Retirement System
Plan 1	Members hired before July 1, 2010 with at least 60 months of creditable service as of January 1, 2013.
Plan 2	Members hired on or after July 1, 2010, or members hired prior to July 1, 2010 and not having at least 60 months of creditable service as of January 1, 2013. Judges appointed to an original term on or after July 1, 2026.
Hybrid	Members hired on or after January 1, 2014 (or Judges appointed to an original term on or after January 1, 2014 and prior to July 1, 2026) or by irrevocable participant election prior to April 30, 2014. There is no Hybrid Plan for members of SPORS, VaLORS, and certain optional retirement plans.
Creditable Service	Service as an employee rendered while a contributing member of the Retirement System (membership service). Service also includes prior service, certain purchased service or service credit for accumulated sick leave. § 51.1-142.2
Creditable Compensation	The full compensation payable annually to an employee working full time in a covered position.



Summary of Plan Provisions

Virginia Retirement System

Average Final Compensation (AFC)

Plan 1: The average annual creditable compensation of a member during the 36 highest consecutive months of creditable service.

Plan 2 and Hybrid: The average annual creditable compensation of a member during the 60 highest consecutive months of creditable service or during the entire period of creditable service if less than 60 months.

There are certain limitations based on increases in the last four years of employment. § 51.1-152

Forms of Payment Upon Retirement

Monthly benefits are payable for the life of the retiree. If the payments do not exceed the member's contributions plus interest, determined as of the date at retirement, the balance will be paid in a lump sum to the member's beneficiary. Optional forms of payment are available.

Member Contributions

Plan 1 and Plan 2: 5% of creditable compensation.

Hybrid: *Defined Benefit plan*: 4% of creditable compensation.

Defined Contribution plan: 1% of creditable compensation required.

Additional voluntary member contributions up to 4% of creditable compensation may be made. The employer makes a mandatory 1% contribution to the defined contribution component, and matches 50% of additional voluntary contributions, resulting in a total employer match of up to 2.5%.



Summary of Plan Provisions

State Employees

Normal Retirement

Plan 1

Eligibility: Age 65 with 5 or more years of creditable service.

Annual Benefit: 1.70% of average final compensation times years of creditable service.

Plan 2

Eligibility: Social Security Normal Retirement Age with 5 or more years of creditable service.

Annual Benefit: 1.70% of average final compensation times years of creditable service up to January 1, 2013 plus 1.65% of average final compensation times years of creditable service on or after January 1, 2013.

Hybrid

Eligibility: Social Security Normal Retirement Age with 5 or more years of creditable service.

Annual Benefit: 1.00% of average final compensation times years of creditable service.

Early Retirement

Plan 1

Eligibility: Age 50 with 10 or more years of creditable service, or age 55 with 5 or more years of creditable service.

Annual Benefit: Determined in the same manner as normal retirement benefit. A reduction applies if the member does not meet age 50 with 30 or more years of service at retirement.

Plan 2 and Hybrid

Eligibility: Age 60 with 5 or more years of creditable service.

Annual Benefit: Determined in the same manner as normal retirement benefit. A reduction applies if the member does not meet 30 or more years of service at retirement or if the member meets 30 or more years of service at retirement, but the sum of age at retirement plus creditable service at retirement is less than 90.



Summary of Plan Provisions

State Employees

Disability Retirement (Non-VSDP)

Eligibility: Permanently disabled state employees hired before January 1, 1999, who did not elect the Virginia Sickness and Disability Program (VSDP) and who are not covered by the Hybrid program.

Annual Benefit: For members with less than 5 years of service credit, the Minimum Guaranteed Benefit. A member who has 5 or more years of creditable service shall receive an annual retirement allowance during his lifetime and continued disability equal to the greater of the Minimum Guaranteed Benefit and 1.70 (1.65 for eligible Plan 2 members) percent of average final compensation multiplied by the lessor of (i) twice the amount of creditable service or (ii) the amount of creditable service the member would have completed at age 60. If a member has already attained age 60, the amount of creditable service at his date of retirement shall be used.

Minimum Guaranteed Benefit (Non-Work Related):

Not Eligible for Social Security Disability Benefits: 33-1/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Minimum Guaranteed Benefit (Work Related):

Not Eligible for Social Security Disability Benefits: 66-2/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Disability benefits commence immediately upon disability retirement and cease upon recovery or reemployment. Benefits are offset by Workers Compensation (if applicable). In addition, a refund of the member's contribution account is paid for a work-related disability.

Disability Retirement (VSDP)

Eligibility: Permanently disabled state employees who elected or are covered by the Virginia Sickness and Disability Program (VSDP) may receive a benefit payable from the VSDP plan until eligible for service retirement. A benefit payable commencing upon service retirement is payable from this plan.

Annual Benefit: An allowance equal to the normal retirement benefit based on creditable service including periods during which the employee received supplemental disability benefits for long-term disability from VSDP, and Average Final Compensation will reflect increases in the cost of living between date of disability and the date of retirement.



Summary of Plan Provisions

State Employees

Deferred Benefit

Eligibility: A member who terminates after 5 or more years of creditable service for which contributions have not been withdrawn.

Annual Benefit: Computed as regular retirement but based upon service and average final compensation at time of termination. Benefits may commence unreduced at age 65 (Social Security Normal Retirement Age for Plan 2 and Hybrid) or at age 50 with at least 30 years of service (age plus service greater than or equal 90 for Plan 2 and Hybrid). Reduced benefits may commence at or after age 55 (age 60 for Plan 2 and Hybrid) with more than 5 years of service or age 50 with at least 10 years of service.

Death Benefit: The beneficiary of a member who dies after leaving active service but before retiring is entitled to receive a lump sum distribution of the deceased member's contribution account.

Withdrawal (Refund) Benefit

Eligibility: A member who ceases to be an employee other than by death, retirement, or involuntary separation.

Benefit: Accumulated contributions with interest.

Death Benefit

Eligibility: Death while active or inactive, non-retired member.

Benefit: Upon the death of a non-vested member, a refund of the member's contributions and interest is paid. Upon the death of a vested member, if death occurs while in active service the qualifying survivor of the member is entitled to receive a benefit determined as though the member retired, elected the 100% Survivor Option, then died. If the member dies before reaching age 55 (age 60 for Plan 2 and Hybrid), the member is assumed to be 55 (age 60 for Plan 2 and Hybrid) for benefit calculation purposes. The qualifying survivor may elect to receive a refund of the contributions plus interest in lieu of the monthly benefit.

Work-Related Death Benefit: Upon death in service from a cause compensable under the Virginia Workers' Compensation Act, the qualifying survivor would receive 50% of AFC if beneficiary does not qualify for Social Security survivor benefits and 33 1/3% of AFC if beneficiary qualifies for Social Security survivor benefits. This benefit is reduced by Worker's Compensation. In addition, a refund of the member's contribution account is paid to the beneficiary.

Summary of Plan Provisions

State Employees

Cost-of-Living Increase

Plan 1: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 3% of the Consumer Price Index increase plus half of each percentage increase from 3% to 7%, with the maximum cost-of-living increase of 5%.

Plan 2 and Hybrid: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 2% increase of the Consumer Price Index plus half of each percent from 2% to 4%, with the maximum cost-of-living increase of 3%.

Plans 1, 2, and Hybrid: The COLA is deferred for one full calendar year after the member reaches unreduced retirement age. The deferred COLA does not apply to employees within 5 years of eligibility for unreduced retirement as of January 1, 2013 and to members who retire with 20 or more years of service.

Summary of Plan Provisions

Teachers

Normal Retirement

Plan 1

Eligibility: Age 65 with 5 or more years of creditable service.

Annual Benefit: 1.70% of average final compensation times years of creditable service.

Plan 2

Eligibility: Social Security Normal Retirement Age with 5 or more years of creditable service.

Annual Benefit: 1.70% of average final compensation times years of creditable service up to January 1, 2013 plus 1.65% of average final compensation times years of creditable service on or after January 1, 2013.

Hybrid

Eligibility: Social Security Normal Retirement Age with 5 or more years of creditable service.

Annual Benefit: 1.00% of average final compensation times years of creditable service.

Early Retirement

Plan 1

Eligibility: Age 50 with 10 or more years of creditable service, or age 55 with 5 or more years of creditable service.

Annual Benefit: Determined in the same manner as normal retirement benefit. A reduction applies if the member does not meet 30 or more years of service at retirement.

Plan 2 and Hybrid

Eligibility: Age 60 with 5 or more years of creditable service.

Annual Benefit: Determined in the same manner as normal retirement benefit. A reduction applies if the member does not meet 30 or more years of service at retirement or if the member meets 30 or more years of service at retirement, but the sum of age at retirement plus creditable service at retirement is less than 90.



Summary of Plan Provisions

Teachers

Disability Retirement (Plan 1 and Plan 2)

Eligibility: Permanently disabled members who are not covered by the Hybrid program, the Virginia Local Disability Program (VLDP), or a comparable program provided by the member's employer. A member is eligible from first day of employment.

Annual Benefit: For members with less than 5 years of service credit, the Minimum Guaranteed Benefit. A member who has 5 or more years of creditable service shall receive an annual retirement allowance during his lifetime and continued disability equal to the greater of the Minimum Guaranteed Benefit and 1.70 (1.65 for eligible Plan 2 members) percent of average final compensation multiplied by the lessor of (i) twice the amount of creditable service or (ii) the amount of creditable service the member would have completed at age 60. If a member has already attained age 60, the amount of creditable service at his date of retirement shall be used.

Minimum Guaranteed Benefit (Non-Work Related):

Not Eligible for Social Security Disability Benefits: 33-1/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Minimum Guaranteed Benefit (Work Related):

Not Eligible for Social Security Disability Benefits: 66-2/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Disability benefits commence immediately upon disability retirement and cease upon recovery or reemployment. Benefits are offset by Workers Compensation (if applicable). In addition, a refund of the member's contribution account is paid for a work-related disability.

Disability Retirement (Hybrid Plan Members - VLDP)

Eligibility: Permanently disabled employees who elected or are covered by the Virginia Local Disability Program (VLDP) may receive a benefit payable from the VLDP plan until eligible for service retirement. A benefit payable commencing upon service retirement is payable from this plan.

Annual Benefit: An allowance equal to the normal retirement benefit based on creditable service including periods during which the employee received supplemental disability benefits for long-term disability from VLDP, and Average Final Compensation will reflect increases in the cost of living between date of disability and date of retirement.



Summary of Plan Provisions

Teachers

Deferred Retirement

Eligibility: A member who terminates after 5 or more years of creditable service for which contributions have not been withdrawn.

Annual Benefit: Computed as regular retirement but based upon service and average final compensation at time of termination. Benefits may commence unreduced at age 65 (Social Security Normal Retirement Age for Plan 2 and Hybrid) or at age 50 with at least 30 years of service (age plus service greater than or equal 90 for Plan 2 and Hybrid). Reduced benefits may commence at or after age 55 (age 60 for Plan 2 and Hybrid) with more than 5 years of service or age 50 with at least 10 years of service.

Death Benefit: The beneficiary of a member who dies after leaving active service but before retiring is entitled to receive a lump sum distribution of the deceased member's contribution account.

Withdrawal (Refund) Benefit

Eligibility: A member who ceases to be an employee other than by death, retirement, or involuntary separation.

Benefit: Accumulated contributions with interest.

Death Benefit

Eligibility: Death while active or inactive, non-retired member.

Benefit: Upon the death of a non-vested member, a refund of the member's contributions and interest is paid. Upon the death of a vested member, if death occurs while in active service the qualifying survivor of the member is entitled to receive a benefit determined as though the member retired, elected the 100% Survivor Option, then died. If the member dies before reaching age 55 (age 60 for Plan 2 and Hybrid), the member is assumed to be 55 (age 60 for Plan 2 and Hybrid) for benefit calculation purposes. The qualifying survivor may elect to receive a refund of the contributions plus interest in lieu of the monthly benefit.

Work-Related Death Benefit: Upon death in service from a cause compensable under the Virginia Workers' Compensation Act, the qualifying survivor would receive 50% of AFC if beneficiary does not qualify for Social Security survivor benefits and 33 1/3% of AFC if beneficiary qualifies for Social Security survivor benefits. This benefit is reduced by Worker's Compensation. In addition, a refund of the member's contribution account is paid to the beneficiary.



Summary of Plan Provisions

Teachers

Cost-of-Living Increase

Plan 1: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 3% of the Consumer Price Index increase plus half of each percentage increase from 3% to 7%, with the maximum cost-of-living increase of 5%.

Plan 2 and Hybrid: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 2% increase of the Consumer Price Index plus half of each percent from 2% to 4%, with the maximum cost-of-living increase of 3%.

Plans 1, 2, and Hybrid: The COLA is deferred for one full calendar year after the member reaches unreduced retirement age. The deferred COLA does not apply to employees within 5 years of eligibility for unreduced retirement as of January 1, 2013 and to members who retire with 20 or more years of service.

Summary of Plan Provisions

State Police

Normal Retirement

Eligibility: Age 60 with 5 or more years of creditable service. The mandatory retirement age for police is age 70.

Annual Benefit: 1.85% of average final compensation times years of creditable service. Benefit multiplier of 1.70% of AFC times years of creditable service for retirements prior to July 1, 2007.

Temporary Supplement:

A member hired on or after July 1, 1974 who has 20 or more years of hazardous service at retirement or a member hired before July 1, 1974 who is vested under SPORS/VaLORS benefits shall receive an additional annual retirement allowance of \$17,856 payable from the date of retirement to their Social Security Normal Retirement Age. This amount is adjusted biennially based upon increases in Social Security benefits during the interim period.

Early Retirement

Eligibility: Age 50 with 5 or more years of creditable service.

Annual Benefit: Determined in the same manner as normal retirement benefit. A reduction applies if the member has less than 25 years of service at retirement.

Temporary Supplement:

A member hired on or after July 1, 1974 who has 20 or more years of hazardous service at retirement or a member hired before July 1, 1974 who is vested under SPORS/VaLORS benefits shall receive an additional annual retirement allowance of \$17,856 payable from the date of retirement to their Social Security Normal Retirement Age. This amount is adjusted biennially based upon increases in Social Security benefits during the interim period.

Summary of Plan Provisions

State Police

Disability Retirement (Non-VSDP)

Eligibility: A member hired prior to 1/1/1999 and who has declined VSDP coverage is eligible from the first day of employment.

Annual Benefit: For members with less than 5 years of service credit, the Minimum Guaranteed Benefit. A member who has 5 or more years of creditable service shall receive an annual retirement allowance during his lifetime and continued disability equal to the greater of the Minimum Guaranteed Benefit and 1.70 (1.65 for eligible Plan 2 members) percent of average final compensation multiplied by the lessor of (i) twice the amount of creditable service or (ii) the amount of creditable service the member would have completed at age 60. If a member has already attained age 60, the amount of creditable service at his date of retirement shall be used.

Minimum Guaranteed Benefit (Non-Work Related):

Not Eligible for Social Security Disability Benefits: 33-1/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Minimum Guaranteed Benefit (Work Related):

Not Eligible for Social Security Disability Benefits: 66-2/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Disability benefits commence immediately upon disability retirement and cease upon recovery or reemployment. Benefits are offset by Workers Compensation (if applicable). In addition, a refund of the member's contribution account is paid for a work-related disability.

Disability Retirement (VSDP)

Eligibility: Permanently disabled state employees who elected or are covered by the Virginia Sickness and Disability Program (VSDP) may receive a benefit payable from the VSDP plan until eligible for service retirement. A benefit payable commencing upon service retirement is payable from this plan.

Annual Benefit: An allowance equal to the normal retirement benefit based on creditable service including periods during which the employee received supplemental disability benefits for long-term disability from VSDP, and Average Final Compensation will reflect increases in the cost of living between date of disability and the date of retirement.



Summary of Plan Provisions

State Police

Deferred Retirement

Eligibility: A member who terminates after 5 or more years of creditable service for which contributions have not been withdrawn.

Annual Benefit: Computed as regular retirement but based upon service and average final compensation at time of termination. Benefits may commence unreduced at age 60 or at age 50 with at least 25 years of service. Reduced benefits may commence at or after age 50 with more than 5 years of service or age 50 with at least 10 years of service.

Death Benefit: The beneficiary of a member who dies after leaving active service but before retiring is entitled to receive a lump sum distribution of the deceased member's contribution account.

Withdrawal (Refund) Benefit

Eligibility: A member who ceases to be an employee other than by death, retirement, or involuntary separation.

Benefit: Accumulated contributions with interest.

Death Benefit

Eligibility: Death while active or inactive, non-retired member.

Benefit: Upon the death of a non-vested member, a refund of the member's contributions and interest is paid. Upon the death of a vested member, if death occurs while in active service the qualifying survivor of the member is entitled to receive a benefit determined as though the member retired, elected the 100% Survivor Option, then died. If the member dies before reaching age 50, the member is assumed to be age 50 for benefit calculation purposes. The qualifying survivor may elect to receive a refund of the contributions plus interest in lieu of the monthly benefit.

Work-Related Death Benefit: Upon death in service from a cause compensable under the Virginia Workers' Compensation Act, the qualifying survivor would receive 50% of AFC if beneficiary does not qualify for Social Security survivor benefits and 33 1/3% of AFC if beneficiary qualifies for Social Security survivor benefits. This benefit is reduced by Worker's Compensation. In addition, a refund of the member's contribution account is paid to the beneficiary.



Summary of Plan Provisions

State Police

Cost-of-Living Increase

Plan 1: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 3% of the Consumer Price Index increase plus half of each percentage increase from 3% to 7%, with the maximum cost-of-living increase of 5%.

Plan 2: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 2% increase of the Consumer Price Index plus half of each percent from 2% to 4%, with the maximum cost-of-living increase of 3%.

Summary of Plan Provisions

Judicial

Creditable Service

Appointed or elected prior to July 1, 2010: Judges receive creditable service multiplied by a weighting factor as follows:

Date Appointed or Elected to Original Term	Weighted Years of Service Factor
Before January 1, 1995	3.5
On or after January 1, 1995	2.5

Appointed or elected on and after July 1, 2010: Judges receive creditable service multiplied by an age-weighted weighting factor as follows:

Age at Appointment or Election to Original Term	Weighted Years of Service Factor
Less than 45 years old	1.5
At least 45 years old, less than 55	2.0
At least 55 years old	2.5

Weighted service is used for all purposes under this plan, including determining a member's vested status, determining whether a member is eligible for retirement, computing early retirement reductions, and computing the amount of the benefit.

Qualifying service under provisions of VRS, SPORS and VaLORS are included as creditable service under JRS. § 51.1-303 Service purchased shall not be considered in determining the actuarial equivalent for early retirement nor considered twice in determining disability allowances.

Normal Retirement

Eligibility: Age 65 with 5 or more years of creditable service. The mandatory retirement age for judges is age 73.

Annual Benefit: 1.70% of average final compensation (AFC) times years of service, not to exceed 78% of AFC. For members appointed or elected on or after January 1, 2013, the benefit multiplier is 1.65%. For members appointed or elected on or after January 1, 2014, the benefit multiplier is 1.00% for service rendered through July 1, 2026, and 1.65% for service rendered on or after July 1, 2026. For members appointed or elected on or after July 1, 2026, the benefit multiplier is 1.65%.



Summary of Plan Provisions

Judicial

Early Retirement

Eligibility: Age 55 with 5 or more years of creditable service.

Annual Benefit: Determined in the same manner as normal retirement benefit. A reduction applies if the member is less than age 60 or has less than 30 years of service at retirement.

Disability Retirement

Eligibility: A member is eligible from the first day of employment.

Annual Benefit: For members with less than 5 years of service credit, the Minimum Guaranteed Benefit. A member who has 5 or more years of creditable service shall receive an annual retirement allowance during his lifetime and continued disability equal to the greater of the Minimum Guaranteed Benefit and 1.70 (1.65 for eligible Plan 2 members, 1.00 for eligible Hybrid members – 1.65 on or after July 1, 2026) percent of average final compensation multiplied by the lessor of (i) twice the amount of creditable service or (ii) the amount of creditable service the member would have completed at age 60. If a member has already attained age 60, the amount of creditable service at his date of retirement shall be used.

Minimum Guaranteed Benefit (Non-Work Related):

Not Eligible for Social Security Disability Benefits: 33-1/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Minimum Guaranteed Benefit (Work Related):

Not Eligible for Social Security Disability Benefits: 66-2/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Disability benefits commence immediately upon disability retirement and cease upon recovery or reemployment. Benefits are offset by Workers Compensation (if applicable). In addition, a refund of the member's contribution account is paid for a work-related disability.

Deferred Retirement

Eligibility: A member who terminates after 5 or more years of creditable service for which contributions have not been withdrawn.

Annual Benefit: Computed as regular retirement but based upon service and average final compensation at time of termination. Benefits may commence unreduced at age 65 or at age 60 with at least 30 years of service. Reduced benefits may commence at or after age 55 if the member is not eligible for an unreduced benefit.

Death Benefit: The beneficiary of a member who dies after leaving active service but before retiring is entitled to receive a lump sum distribution of the deceased member's contribution account.



Summary of Plan Provisions

Judicial

Withdrawal (Refund) Benefit

Eligibility: A member who ceases to be an employee other than by death, retirement, or involuntary separation.

Benefit: Accumulated contributions with interest.

Death Benefit

Eligibility: Death while active or inactive, non-retired member.

Benefit: Upon the death of a non-vested member, a refund of the member's contributions and interest is paid. Upon the death of a vested member, if death occurs while in active service the qualifying survivor of the member is entitled to receive a benefit determined as though the member retired, elected the 100% Survivor Option, then died. If the member dies before reaching age 55, the member is assumed to be 55 for benefit calculation purposes. The qualifying survivor may elect to receive a refund of the contributions plus interest in lieu of the monthly benefit.

Work-related Benefit: Upon death in service from a cause compensable under the Virginia Workers' Compensation Act, the qualifying survivor would receive 50% of AFC if beneficiary does not qualify for Social Security survivor benefits and 33 1/3% of AFC if beneficiary qualifies for Social Security survivor benefits. This benefit is reduced by Worker's Compensation. In addition, a refund of the member's contribution account is paid to the beneficiary.

Cost-of-Living Increase

Plan 1: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 3% of the Consumer Price Index increase plus half of each percentage increase from 3% to 7%, with the maximum cost-of-living increase of 5%.

Plan 2 and Hybrid: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 2% increase of the Consumer Price Index plus half of each percent from 2% to 4%, with the maximum cost-of-living increase of 3%.

Plans 1, 2 and Hybrid: The COLA is deferred for one full calendar year after the member reaches unreduced retirement age. The deferred COLA does not apply to employees within 5 years of eligibility for unreduced retirement as of January 1, 2013 and to members who retire with 20 or more years of service.



Summary of Plan Provisions

Virginia Law Officers

Normal Retirement

Eligibility: Age 60 with 5 or more years of creditable service.

Annual Benefit: For all employees hired on or after July 1, 2001, the benefit is calculated as 2.00% of average final compensation (AFC) times years of creditable service.

Employees hired before July 1, 2001, must make a one-time election to receive benefits under (i) or (ii) below:

- (i) 1.70% of average final compensation (AFC) times years of creditable service plus the temporary supplement.
- (ii) 2.00% of average final compensation (AFC) times years of creditable service and no temporary supplement.

Temporary Supplement:

A member who is hired before July 1, 2001, and who was either (i) hired on or after July 1, 1974 who has 20 or more years of hazardous service at retirement or (ii) a member hired before July 1, 1974 who is vested under SPORS/VaLORS benefits shall be eligible to receive an additional annual retirement allowance of \$17,856 payable from the date of retirement to age 65. This amount is adjusted biennially based upon increases in Social Security benefits during the interim period. The eligible employee must have made a one-time election to receive this supplement.

Early Retirement

Eligibility: Age 50 with 5 or more years of creditable service.

Annual Benefit: Determined in the same manner as normal retirement benefit. A reduction applies if the member has less than 25 years of service at retirement.

Temporary Supplement:

A member who is hired before July 1, 2001, and who was either (i) hired on or after July 1, 1974 who has 20 or more years of hazardous service at retirement or (ii) a member hired before July 1, 1974 who is vested under SPORS/VaLORS benefits shall receive an additional annual retirement allowance of \$17,856 payable from the date of retirement to age 65. This amount is adjusted biennially based upon increases in Social Security benefits during the interim period.



Summary of Plan Provisions

Virginia Law Officers

Disability Retirement (Non-VSDP)

Eligibility: A member hired prior to 1/1/1999 and who has declined VSDP coverage is eligible from the first day of employment.

Annual Benefit: For members with less than 5 years of service credit, the Minimum Guaranteed Benefit. A member who has 5 or more years of creditable service shall receive an annual retirement allowance during his lifetime and continued disability equal to the greater of the Minimum Guaranteed Benefit and 1.70 (1.65 for eligible Plan 2 members) percent of average final compensation multiplied by the lessor of (i) twice the amount of creditable service or (ii) the amount of creditable service the member would have completed at age 60. If a member has already attained age 60, the amount of creditable service at his date of retirement shall be used.

Minimum Guaranteed Benefit (Non-Work Related):

Not Eligible for Social Security Disability Benefits: 33-1/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Minimum Guaranteed Benefit (Work Related):

Not Eligible for Social Security Disability Benefits: 66-2/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Disability benefits commence immediately upon disability retirement and cease upon recovery or reemployment. Benefits are offset by Workers Compensation (if applicable). In addition, a refund of the member's contribution account is paid for a work-related disability.

Disability Retirement (VSDP)

Eligibility: Permanently disabled state employees who elected or are covered by the Virginia Sickness and Disability Program (VSDP) may receive a benefit payable from the VSDP plan until eligible for service retirement. A benefit payable commencing upon service retirement is payable from this plan.

Annual Benefit: An allowance equal to the normal retirement benefit based on creditable service including periods during which the employee received supplemental disability benefits for long-term disability from VSDP, and Average Final Compensation will reflect increases in the cost of living between date of disability and date of retirement.



Summary of Plan Provisions

Virginia Law Officers

Deferred Retirement

Eligibility: A member who terminates after 5 or more years of creditable service for which contributions have not been withdrawn.

Annual Benefit: Computed as regular retirement but based upon service and average final compensation at time of termination. Benefits may commence unreduced at age 60 or at age 50 with at least 25 years of service. Reduced benefits may commence at or after age 50 if the member is not eligible for an unreduced benefit.

Death Benefit: The beneficiary of a member who dies after leaving active service but before retiring is entitled to receive a lump sum distribution of the deceased member's contribution account.

Withdrawal (Refund) Benefit

Eligibility: A member who ceases to be an employee other than by death, retirement, or involuntary separation.

Benefit: Accumulated contributions with interest.

Death Benefit

Eligibility: Death while active or inactive, non-retired member.

Benefit: Upon the death of a non-vested member, a refund of the member's contributions and interest is paid. Upon the death of a vested member, if death occurs while in active service the qualifying survivor of the member is entitled to receive a benefit determined as though the member retired, elected the 100% Survivor Option, then died. If the member dies before reaching age 50, the member is assumed to be 50 for benefit calculation purposes. The qualifying survivor may elect to receive a refund of the contributions plus interest in lieu of the monthly benefit.

Work-related Death Benefit: Upon death in service from a cause compensable under the Virginia Workers' Compensation Act, the qualifying survivor would receive 50% of AFC if beneficiary does not qualify for Social Security survivor benefits and 33 1/3% of AFC if beneficiary qualifies for Social Security survivor benefits. This benefit is reduced by Worker's Compensation.

Summary of Plan Provisions

Virginia Law Officers

Cost-of-Living Increase

Plan 1: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 3% of the Consumer Price Index increase plus half of each percentage increase from 3% to 7%, with the maximum cost-of-living increase of 5%.

Plan 2: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 2% increase of the Consumer Price Index plus half of each percent from 2% to 4%, with the maximum cost-of-living increase of 3%.

Summary of Plan Provisions

Participating Political Subdivisions – General

Normal Retirement

Plan 1

Eligibility: Age 65 with 5 or more years of creditable service.

Annual Benefit: 1.70% of average final compensation times years of creditable service.

Plan 2

Eligibility: Social Security Normal Retirement Age with 5 or more years of creditable service.

Annual Benefit: 1.70% of average final compensation times years of creditable service up to January 1, 2013 plus 1.65% of average final compensation times years of creditable service on or after January 1, 2013.

Hybrid

Eligibility: Social Security Normal Retirement Age with 5 or more years of creditable service.

Annual Benefit: 1.00% of average final compensation times years of creditable service.

Early Retirement

Plan 1

Eligibility: Age 50 with 10 or more years of creditable service, or age 55 with 5 or more years of creditable service.

Annual Benefit: Determined in the same manner as normal retirement benefit. A reduction applies if the member does not meet age 50 with 30 or more years of service at retirement.

Plan 2 and Hybrid

Eligibility: Age 60 with 5 or more years of creditable service or upon the sum of age and service being 90.

Annual Benefit: Determined in the same manner as normal retirement benefit. A reduction applies if the member does not meet 30 or more years of service at retirement or if the member meets 30 or more years of service at retirement, but the sum of age at retirement plus creditable service at retirement is less than 90.



Summary of Plan Provisions

Participating Political Subdivisions – General

Disability Retirement (Plan 1 and Plan 2)

Eligibility: Effective the first day of employment.

Annual Benefit: For members with less than 5 years of service credit, the Minimum Guaranteed Benefit. A member who has 5 or more years of creditable service shall receive an annual retirement allowance during his lifetime and continued disability equal to the greater of the Minimum Guaranteed Benefit and 1.70 (1.65 for eligible Plan 2 members) percent of average final compensation multiplied by the lessor of (i) twice the amount of creditable service or (ii) the amount of creditable service the member would have completed at age 60. If a member has already attained age 60, the amount of creditable service at his date of retirement shall be used.

Minimum Guaranteed Benefit (Non-Work Related):

Not Eligible for Social Security Disability Benefits: 33-1/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Minimum Guaranteed Benefit (Work Related):

Not Eligible for Social Security Disability Benefits: 66-2/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Disability benefits commence immediately upon disability retirement and cease upon recovery or reemployment. Benefits are offset by Workers Compensation (if applicable). In addition, a refund of the member's contribution account is paid for a work-related disability.

Disability Retirement (Hybrid Plan Members - VLDP)

Eligibility: Permanently disabled employees who elected or are covered by the Virginia Local Disability Program (VLDP) may receive a benefit payable from the VLDP plan until eligible for service retirement. A benefit payable commencing upon service retirement is payable from this plan.

Annual Benefit: An allowance equal to the normal retirement benefit based on creditable service including periods during which the employee received supplemental disability benefits for long-term disability from VLDP, and Average Final Compensation will reflect increases in the cost of living between date of disability and date of retirement.



Summary of Plan Provisions

Participating Political Subdivisions – General

Deferred Benefit

Eligibility: A member who terminates after 5 or more years of creditable service for which contributions have not been withdrawn.

Annual Benefit: Computed as regular retirement but based upon service and average final compensation at time of termination. Benefits may commence unreduced at age 65 (Social Security Normal Retirement Age for Plan 2 and Hybrid) or at age 50 with at least 30 years of service (age plus service greater than or equal 90 for Plan 2 and Hybrid). Reduced benefits may commence at or after age 55 (age 60 for Plan 2 and Hybrid) with more than 5 years of service or age 50 with at least 10 years of service.

Death Benefit: The beneficiary of a member who dies after leaving active service but before retiring is entitled to receive a lump sum distribution of the deceased member's contribution account.

Withdrawal (Refund) Benefit

Eligibility: A member who ceases to be an employee other than by death, retirement, or involuntary separation.

Benefit: Accumulated contributions with interest.

Death Benefit

Eligibility: Death while active or inactive, non-retired member.

Benefit: Upon the death of a non-vested member, a refund of the member's contributions and interest is paid. Upon the death of a vested member, if death occurs while in active service the qualifying survivor of the member is entitled to receive a benefit determined as though the member retired, elected the 100% Survivor Option, then died. If the member dies before reaching age 55 (age 60 for Plan 2 and Hybrid), the member is assumed to be 55 (age 60 for Plan 2 and Hybrid) for benefit calculation purposes. The qualifying survivor may elect to receive a refund of the contributions plus interest in lieu of the monthly benefit.

Summary of Plan Provisions

Participating Political Subdivisions – General

Death Benefit (Continued)

Work-Related Death Benefit: Upon death in service from a cause compensable under the Virginia Workers' Compensation Act, the qualifying survivor would receive 50% of AFC if beneficiary does not qualify for Social Security survivor benefits and 33 1/3% of AFC if beneficiary qualifies for Social Security survivor benefits. This benefit is reduced by Worker's Compensation. In addition, a refund of the member's contribution account is paid to the beneficiary.

Cost-of-Living Increase

Plan 1: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 3% of the Consumer Price Index increase plus half of each percentage increase from 3% to 7%, with the maximum cost-of-living increase of 5%.

Plan 2 and Hybrid: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 2% increase of the Consumer Price Index plus half of each percent from 2% to 4%, with the maximum cost-of-living increase of 3%.

Plans 1, 2, and Hybrid: The COLA is deferred for one full calendar year after the member reaches unreduced retirement age. The deferred COLA does not apply to employees within 5 years of eligibility for unreduced retirement as of January 1, 2013 and to members who retire with 20 or more years of service.

Summary of Plan Provisions

Participating Political Subdivisions – Enhanced Hazardous Duty

Normal Retirement

Eligibility: Age 60 with 5 or more years of creditable service. The mandatory retirement age for police is age 70.

Annual Benefit: Benefit multiplier as specified in the individual employer report times years of creditable service. Benefit multiplier of 1.70% of AFC times years of creditable service for retirements prior to July 1, 2007.

Temporary Supplement:

A member hired on or after July 1, 1974 who has 20 or more years of hazardous service at retirement or a member hired before July 1, 1974 who is vested shall receive an additional annual retirement allowance of \$17,856 payable from the date of retirement to their Social Security Normal Retirement Age. This amount is adjusted biennially based upon increases in Social Security benefits during the interim period.

Early Retirement

Eligibility: Age 50 with 5 or more years of creditable service.

Annual Benefit: Determined in the same manner as normal retirement benefit. A reduction applies if the member has less than 25 years of service at retirement.

Temporary Supplement:

A member hired on or after July 1, 1974 who has 20 or more years of hazardous service at retirement or a member hired before July 1, 1974 who is vested shall receive an additional annual retirement allowance of \$17,856 payable from the date of retirement to their Social Security Normal Retirement Age. This amount is adjusted biennially based upon increases in Social Security benefits during the interim period.

Disability Retirement (Non-VSDP)

Eligibility: Effective the first day of employment.

Annual Benefit: For members with less than 5 years of service credit, the Minimum Guaranteed Benefit. A member who has 5 or more years of creditable service shall receive an annual retirement allowance during his lifetime and continued disability equal to the greater of the Minimum Guaranteed Benefit and 1.70 (1.65 for eligible Plan 2 members) percent of average final compensation multiplied by the lessor of (i) twice the amount of creditable service or (ii) the amount of creditable service the member would have completed at age 60. If a member has already attained age 60, the amount of creditable service at his date of retirement shall be used.



Summary of Plan Provisions

Participating Political Subdivisions – Enhanced Hazardous Duty

Disability Retirement (Non-VSDP)

Minimum Guaranteed Benefit (Non-Work Related):

Not Eligible for Social Security Disability Benefits: 33-1/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Minimum Guaranteed Benefit (Work Related):

Not Eligible for Social Security Disability Benefits: 66-2/3% of AFC

Eligible for Social Security Disability Benefits: 50% of AFC

Disability benefits commence immediately upon disability retirement and cease upon recovery or reemployment. Benefits are offset by Workers Compensation (if applicable). In addition, a refund of the member's contribution account is paid for a work-related disability.

Deferred Retirement

Eligibility: A member who terminates after 5 or more years of creditable service for which contributions have not been withdrawn.

Annual Benefit: Computed as regular retirement but based upon service and average final compensation at time of termination. Benefits may commence unreduced at age 60 or at age 50 with at least 25 years of service. Reduced benefits may commence at or after age 50 if the member is not eligible for an unreduced benefit. For valuation purposes, it is assumed that this benefit will commence at age 60 with five years of service.

Death Benefit: The beneficiary of a member who dies after leaving active service but before retiring is entitled to receive a lump sum distribution of the deceased member's contribution account.

Withdrawal (Refund) Benefit

Eligibility: A member who ceases to be an employee other than by death, retirement, or involuntary separation.

Benefit: Accumulated contributions with interest.



Summary of Plan Provisions

Participating Political Subdivisions – Enhanced Hazardous Duty

Death Benefit

Eligibility: Death while active or inactive, non-retired member.

Benefit: Upon the death of a non-vested member, a refund of the member's contributions and interest is paid. Upon the death of a vested member, if death occurs while in active service the qualifying survivor of the member is entitled to receive a benefit determined as though the member retired, elected the 100% Survivor Option, then died. If the member dies before reaching age 50, the member is assumed to be age 50 for benefit calculation purposes. The qualifying survivor may elect to receive a refund of the contributions plus interest in lieu of the monthly benefit.

Work-Related Death Benefit: Upon death in service from a cause compensable under the Virginia Workers' Compensation Act, the qualifying survivor would receive 50% of AFC if beneficiary does not qualify for Social Security survivor benefits and 33 1/3% of AFC if beneficiary qualifies for Social Security survivor benefits. This benefit is reduced by Worker's Compensation. In addition, a refund of the member's contribution account is paid to the beneficiary.

Cost-of-Living Increase

Plan 1: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 3% of the Consumer Price Index increase plus half of each percentage increase from 3% to 7%, with the maximum cost-of-living increase of 5%.

Plan 2: Members qualify for cost-of-living increases on July 1 of the second calendar year after retirement. Automatic cost-of-living increases are calculated as the first 2% increase of the Consumer Price Index plus half of each percent from 2% to 4%, with the maximum cost-of-living increase of 3%.



Summary of Plan Provisions

Group Life Insurance Program (GLI)

Statute

Code of Virginia, Title 51.1, Pensions, Benefits, and Retirement, Chapter 5. Group Insurance Program, §§ 51.1-500 to §51.1-514.

Eligibility Requirements

The following persons are eligible to participate in the group insurance program:

1. Teachers
2. State Employees
3. Members of the State Police Officers' Retirement System
4. Members of the Judicial Retirement System
5. Members of the Virginia Law Officers' Retirement System
6. Regular full-time employees of a political subdivision participating in the Virginia Retirement System, subject to Board approval
7. Regular full-time employees of a local school board who participate in the retirement system of a local government which provides group life insurance
8. Certain employees of teaching hospitals, other than the University of Virginia Medical Center
9. Certain employees of the Virginia Port Authority

No person shall have more than one coverage under the group insurance program.

Political subdivisions may request coverage for eligible employees, but shall not participate in this group insurance program while other group life insurance is in effect.

§§ 51.1-502 through 51.1-504

Summary of Plan Provisions

Group Life Insurance Program (GLI)

Group Insurance Benefits

Each employee shall be eligible for an amount of group life insurance of twice the amount of annual salary. If annual salary is not an even multiple of \$1,000, the annual salary is rounded up to the next \$1,000, without regard for the date of qualification for a retirement allowance.

The amount of life insurance for an employee who retires under normal retirement for service on an immediate retirement allowance or on postponed receipt of allowance shall be the amount of active life insurance described in the preceding paragraph. The life insurance amount is reduced by 25% on the January 1 following the first full year from the date the employee is separated from service and each January 1 thereafter to a minimum of 25% of the initial insurance amount. The amount of life insurance for an employee who retires for disability on an immediate retirement allowance shall be the amount of active life insurance described in the preceding paragraph. The life insurance amount is reduced 25% on the January 1 following the first full year from the date the employee attains his normal retirement date and each January 1 thereafter to a minimum of 25% of the initial insurance amount.

The amount of life insurance for an employee who is retired for disability on an immediate retirement allowance who has also attained age 55 shall have an insurance amount reduced as described above with the reduction beginning the January 1 following the first full year from the date the employee elects a service retirement allowance. § 51.1-505

The initial minimum benefit shall not be less than \$8,000 for employees with 30 years of creditable service. This amount is indexed each year in accordance with post-retirement supplement increases calculated for employees hired on or after July 1, 2010. Effective June 30, 2025, the indexed benefit minimum is \$9,768.

Any employee who was denied membership because of having attained age 60 at the time of being employed or reemployed and who has five or more years of service immediately prior to separation from service shall retain the life insurance coverage as though retiring immediately.

Any employee who has 20 years of creditable service at any time shall have insurance based on twice the highest annual salary.



Summary of Plan Provisions

Group Life Insurance Program (GLI)

Group Insurance Benefits (Continued)

Accidental Death and Dismemberment – Each employee shall be eligible for an amount of group accidental death and dismemberment insurance of twice the amount of annual salary. If annual salary is not an even multiple of \$1,000, the annual salary is rounded up to the next \$1,000. Accidental death and dismemberment insurance ceases upon separation from service or retirement and is not reflected in this valuation. § 51.1-505 through 51.1-505.01

Optional Life Insurance – The Board shall make available optional life, accidental death, and dismemberment insurance in incremental amounts not to exceed a maximum amount set by the Board. Optional life insurance benefits are not reflected in this valuation. § 51.1-512

Optional Life Insurance for Spouse and Minor Dependents – The Board shall make available optional life, accidental death, and dismemberment insurance on the employee's spouse and minor dependents. Optional life insurance benefits are not reflected in this valuation. § 51.1-512.1

Funding

Each insured employee shall contribute an amount determined by the Board not to exceed the rate of \$0.70 per month for each \$1,000 of annual salary. Employers may assume employee contributions in whole or in part. Employees retired for service or disability shall not be required to contribute to the cost of their life insurance. §51.1-506

Employers, other than the Commonwealth, shall pay the percentage of premiums or charges not paid for by employee contributions. Employees paid from special funds shall have their employer contributions paid from such funds. §51.1-508

Administrative Procedures

The Board of Trustees of the Virginia Retirement System is authorized to purchase group insurance policies to insure eligible members. §51.1-501



Summary of Plan Provisions

Health Insurance Credit Program (HIC)

Statute Code of Virginia, Title 51.1, Pensions, Benefits, and Retirement, Chapter 14. Health Insurance Credits for Certain Retirees, §§51.1-1400 to 51.1-1405.

Eligibility Requirements **Retired State Employees** – The Commonwealth shall provide a credit toward the cost of health insurance coverage for any former state employees who retired under the Virginia Retirement System, State Police Officers' Retirement System, Judicial Retirement System, Virginia Law Officers' Retirement System, or any retirement system authorized; including, certain employees of institutions of higher education, teaching hospitals, the University of Virginia Medical Center, the Virginia Port Authority, the defined contribution plan, the Virginia Outdoors Foundation, or hybrid retirement program, and who (i) rendered at least 15 years of total creditable service under the Retirement System or (ii) 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. A state retiree shall be eligible to participate in the retiree health benefits program. Additionally, those whose retirement was for disability, a participant receiving long-term disability, and select members who defer retirement, are also eligible. §51.1-1400

Retired Teachers – A teacher retired under the Virginia Retirement System, including the hybrid retirement program, who rendered at least 15 years of total creditable service under the System or plan shall receive a health insurance credit. Additionally, those whose retirement was for disability, a participant receiving long-term disability, and select members who defer retirement, are also eligible. §51.1-1401

Retired Local Government Employees – Retired local government employees, whose localities have elected to participate in the Virginia Retirement System, including the hybrid retirement program, who rendered at least 15 years of total creditable service under the System shall receive a health insurance credit. Additionally, those whose retirement was for disability, a participant receiving long-term disability, and select members who defer retirement, are also eligible. §51.1-1402

Summary of Plan Provisions

Health Insurance Credit Program (HIC)

Eligibility Requirements (Continued)

Retired School Division Employees Other than Teachers – Employees of a local school division who are not teachers who retired under the Virginia Retirement System, including the hybrid retirement program who rendered at least 15 years of total creditable service under the System shall receive a health insurance credit. Additionally, those whose retirement was for disability, a participant receiving long-term disability, and select members who defer retirement, are also eligible. §51.1-1402.1

Retired Constitutional Officers, Employees of Constitutional Officers, General Registrars, Employees of General Registrars, and Local Social Service Employees – A local officer, general registrar, employee of a general registrar, or an employee of a local social services board, retired under the Virginia Retirement System, including the hybrid retirement program, who rendered at least 15 years of total creditable service under the System or plan shall receive a health insurance credit. Additionally, those whose retirement was for disability, a participant receiving long-term disability, and select members who defer retirement, are also eligible. §51.1-1403

Health Insurance Credit¹

State Employees – The amount of each monthly health insurance credit shall be \$4.25 per year of creditable service credited to any retired state employee participating in the state retiree health benefits program or an alternative personal health insurance plan, not to exceed the health insurance premium for retiree-only coverage.

Any former member receiving long-term disability or disability retirement shall receive a maximum monthly credit which is the greater of \$120 or \$4.25 per year of creditable service at the time of disability retirement or eligibility for long-term disability.

Any employee who rendered at least 15 years of total creditable service as a state employee and after terminating was employed by a local government that does not elect to provide a health insurance credit under §51.1-1401 or §51.1-1402 shall be eligible for a credit based upon the amount of state service or service as a teacher, whichever is greater.

¹ Due to working across multiple employers, a participant may be subject to different health insurance credit accruals and monthly maximums than described above.



Summary of Plan Provisions

Health Insurance Credit Program (HIC)

Health Insurance Credit¹
(Continued)

The Virginia Commonwealth University Health System Authority shall pay the cost of coverage for those who retired under the Virginia Retirement System or other authorized system, were employed by the Authority prior to July 1, 1998, and were not subsequently rehired on or after July 1, 1998, and served no less than 15 years of creditable service as regularly employed full-time employees of such Authority or the Commonwealth. §51.1-1400

Teachers – The amount of each monthly health insurance credit shall be \$4 per year of creditable service credited applied to reduce the retired member's health insurance premium cost.

Any former member receiving long-term disability or disability retirement shall receive a health insurance credit of \$4 multiplied by the smaller of twice the amount of creditable service or the amount of creditable service he or she would have completed at age 60 if the individual had remained in service until that age.

Any employee who rendered at least 15 year of total creditable service as a teacher and after terminating was employed by a local government that does not elect to provide a health insurance credit under §51.1-1402 shall be eligible for a credit based upon the amount of state service or service as a teacher, whichever is greater. §51.1-1401

Local Government Employees – The amount of each monthly health insurance credit shall be \$1.50 per year of creditable service credited, not to exceed a maximum monthly credit of \$45, applied to reduce the retired member's health insurance premium cost, provided the retiree's employer elects to participate in the credit program.

Any former member receiving long-term disability or disability retirement shall receive a monthly credit of \$45.

The amount of credit received shall be the lessor of the amount of credit described above or the amount of premium paid for the personal health insurance policy.

¹ Due to working across multiple employers, a participant may be subject to different health insurance credit accruals and monthly maximums than described above.

Summary of Plan Provisions

Health Insurance Credit Program (HIC)

Health Insurance Credit¹ Any employee who terminates after meeting the 15 years of total creditable service requirement, and subsequently retires shall be entitled to receive this credit upon retirement. §51.1-1402
(Continued)

School Division Employees Other than Teachers – The amount of each monthly health insurance credit shall be \$1.50 per year of creditable service credited, applied to reduce the retired member's health insurance premium cost. In addition, localities may elect to provide an additional credit of \$1 per month per year of creditable service.

Any former member receiving long-term disability or disability retirement shall receive a health insurance credit of \$1.50 multiplied by the smaller of twice the amount of creditable service or the amount of creditable service he or she would have completed at age 60 if the individual had remained in service until that age.

The amount of credit received shall be the lessor of the amount of credit described above or the amount of premium paid for the personal health insurance policy.

Any employee who terminates after receiving five or more years of creditable service, meets the 15 years of total creditable service requirement, and subsequently retires shall be entitled to receive this credit upon retirement. §51.1-1402.1

Retired Constitutional Officers, Employees of Constitutional Officers, General Registrars, Employees of General Registrars, and Local Social Service Employees – The amount of each monthly health insurance credit shall be borne by the Commonwealth, and is described in a separate report. The amount of each monthly health insurance credit shall be \$1.50 per year of creditable service credited, not to exceed a maximum of \$45, (for retired constitutional officers the amount of each monthly health insurance credit shall be \$1.75 per year of creditable service not to exceed a maximum of \$52.50) applied to reduce the retired member's health insurance premium cost. In addition, localities may elect to provide an additional credit of \$1 per month per year of creditable service, not to exceed a maximum monthly credit of \$30. The cost of this additional \$1 credit shall be borne by the locality.

Any former member receiving long-term disability or disability retirement shall receive a monthly credit of \$45 (\$52.50 for retired constitutional officers).

¹ Due to working across multiple employers, a participant may be subject to different health insurance credit accruals and monthly maximums than described above.

Summary of Plan Provisions

Health Insurance Credit Program (HIC)

**Health Insurance Credit¹
(Continued)** Any employee who terminates after receiving five or more years of creditable service and subsequently retires shall be entitled to receive this credit upon retirement. §51.1-1403

¹ Due to working across multiple employers, a participant may be subject to different health insurance credit accruals and monthly maximums than described above.

**Administrative
Procedures** The Virginia Retirement System shall actuarially determine the amount necessary to fund all credits through employer contributions. The costs associated with the administration of the health insurance credit shall be recovered from the Health Insurance Credit trust fund. §§51.1-1400 to 51.1-1403

**Participation in State
Retiree Health Benefits
Program** Certain retired state employees are eligible to participate in the retiree health benefits program for retired state employees. This valuation does not reflect any benefits or implicit subsidies associated with that program. §51.1-1405

Summary of Plan Provisions

Virginia Sickness and Disability Program (VSDP)

Statute Code of Virginia, Title 51.1, Pension, Benefits, and Retirement. Chapter 11, §§ 51.1-1100 through 51.1-1140.

Eligibility Requirements **Eligible Employee** – Eligible employee means:

- (i) A state employee who is a member of the retirement system, including the hybrid retirement program
- (ii) A state police officer
- (iii) A member of the Capitol Police Force, campus police officer appointed, conservation police officer in the Department of Wildlife Resources, special agent of the Virginia Alcoholic Beverage Control Authority, law-enforcement officer employed by the Virginia Marine Resources Commission, correctional officer including correctional officers employed at a juvenile correction facility, any parole officer, and any commercial vehicle enforcement officer employed by the Department of State Police
- (iv) A qualifying part-time employee

Any person participating in an optional retirement plan, certain employees of teaching hospitals, employees of the Virginia Port Authority, and eligible defined contribution plan members shall not be considered eligible employees. Select employees of the University of Virginia Medical Center shall not be considered eligible employees unless the University of Virginia Board of Visitors purchases such insurance policies from the Virginia Retirement System. § 51.1-1100

Participation in the Program – All eligible employees commencing employment or who are reemployed on or after January 1, 1999 shall participate in the program except those employed by an institution of higher education in a faculty position performing teaching, research or administrative duties. All eligible employees not participating in the program prior to October 1, 2002 shall participate in the program effective January 10, 2003, unless such employee elects not to participate in writing before January 1, 2003. If an institute of higher education has established its own sickness and disability program, an eligible employee shall participate in that program.

Summary of Plan Provisions

Virginia Sickness and Disability Program (VSDP)

Eligibility Requirements (Continued)

No participating employee commencing employment or who are reemployed on or after July 1, 2009 shall receive non-work-related benefits until completing one continuous year of employment. § 51.1-1103

Participants of the VSDP program are automatically covered under the VSDP Long Term Care Plan.

Benefits

Sickness and Disability Program – The Board shall develop, implement, and administer sick-leave, short-term disability, and long-term disability programs.

The VRS Board may self-insure long-term disability benefits. This valuation does not include sick-leave or short-term disability. § 51.1-1101

Long-term disability benefits shall provide income replacement of 60% (80% for catastrophic disability) of creditable compensation upon the expiration of short-term disability benefits. Creditable compensation excludes salary increases awarded during disability and are increased annually by the Board. An employee's disability credits shall be used to extend the period of income replacement of 100% of creditable compensation. Long-term disability shall only be paid during total disability or partial disability. To be eligible for benefits, the employee must apply for Social Security disability benefits. An employee who is approved for disability benefits within five years of normal retirement shall be eligible for five years of disability benefits before being required to retire under service retirement. Members in receipt of long-term disability for greater than one year receive a COLA increase on their VSDP benefit.
§§ 51.1-1112, 1123, 1131

Disability benefits shall be offset by:

- (1) During the first 12 months of disability an amount equal to the employee's wage and salary from any employment times the creditable compensation replacement percentage;
- (2) After the first 12 months of disability, an amount equal to 70% of the employee's wages and salary from any employment;
- (3) Disability payments from the Social Security Administration, local government disability benefits, federal or civil service disability benefits, or other similar government disability program benefits;
- (4) Benefits from any other group insurance contract provided by the Commonwealth for the purpose of providing income replacement;



Summary of Plan Provisions

Virginia Sickness and Disability Program (VSDP)

Benefits
(Continued)

- (5) Benefits paid under any compulsory benefits law; and
- (6) A settlement in lieu of periodic payments for disability, if applicable. § 51.1-1114, 1125

Disability benefits shall cease upon the first to occur:

- (1) The end of the period of disability coverage;
- (2) The death of the participating employee;
- (3) The participating employee's normal retirement date or age 65 if not a member of the retirement system; and
- (4) Service retirement. § 51.1-1117, 1127

Survivor benefits shall be payable to the extent provided under death before retirement from the retirement system. § 51.1-1118, 1129

The Board is authorized to develop, implement and administer a long-term care insurance program for participating employees that includes, among other elements, provisions under which a person may purchase continuing coverage if he or she ceases to be a participating employee. §51.1-1135.2

No person shall have more than one coverage under a disability benefit program. § 51.1-1136

Long-Term Care (LTC) Plan - The VSDP Long-Term Care Plan assists with the cost of:

- Care in a nursing home or hospice facility
- Assisted living facility care
- Community-based care
- Home healthcare services
- Informal care-giving
- Alternative or transitional care

Summary of Plan Provisions

Virginia Sickness and Disability Program (VSDP)

Benefits (Continued)

Participants may be eligible for LTC benefits if, in addition to satisfying a 90 calendar-day waiting period, a licensed healthcare professional certifies that the participant:

- Is unable to perform at least two of six activities of daily living; or
- Has a severe cognitive impairment requiring substantial supervision.

The maximum daily benefit amount is \$96 with a lifetime maximum of \$70,080.

Administrative Procedures

For an insurance product, the accounting shall include (i) the amounts of premiums actually accrued under the policy during the policy year, (ii) the total amount of all claim charges incurred during the policy year, and (iii) the amount of fees accrued under the policy during the year plus the total amount of all claim charges incurred during the policy year.

For a self-insured product, the accounting shall include the total amount of all claim charges incurred during the product year, the total amount of third-party administrator expenses, and the total amount of other charges for administrative services. § 51.1-1139

State agencies shall pay to the Board contributions amounts to provide such funds as required to obtain and maintain long-term disability insurance and the long-term care insurance program. § 51.1-1140

Summary of Plan Provisions

Virginia Local Disability Program (VLDP)

Statute	Code of Virginia, Title 51.1, Pension, Benefits, and Retirement. Chapter 11.1, §§ 51.1-1150 through 51.1-1183.
Eligibility Requirements	Eligible Employee – Eligible employee means any person who is not eligible for VSDP and is participating in the hybrid retirement program for Teachers and Political Subdivisions. § 51.1-1150 Participation in the Program – All eligible employees shall become participants in this program unless the employer has elected in writing on or before January 1, 2014 to establish and maintain comparable disability coverage. No participating employee commencing employment shall receive benefits until completing one continuous year of employment. § 51.1-1153 Participants of the VLDP program are automatically covered under the VLDP Long Term Care Plan.
Benefits	Sickness and Disability Program – The Board shall develop, implement, and administer sick-leave, short-term disability, and long-term disability programs. The VRS Board may self-insure long-term disability benefits. This valuation does not include sick-leave or short-term disability. § 51.1-1151 Long-term disability benefits shall provide income replacement of 60% (80% for catastrophic disability) of creditable compensation upon the expiration of short-term disability benefits. Creditable compensation excludes salary increases awarded during disability. An employee's disability credits shall be used to extend the period of income replacement of 100% of creditable compensation. Long-term disability shall only be paid during total disability or partial disability. To be eligible for benefits, the employee must apply for Social Security disability benefits. An employee who is approved for disability benefits (i) at age 60 through 64 shall be eligible for five years of disability benefits, (ii) at age 65 through 68 shall be eligible for disability benefits to age 70, and (iii) at age 69 or older shall be eligible for disability benefits for one year. §§ 51.1-1157, 1161, 1171

Summary of Plan Provisions

Virginia Local Disability Program (VLDP)

Benefits **(Continued)**

Disability benefits shall be offset by:

- (1) During the first 12 months of disability an amount equal to the employee's wage and salary from any employment times the creditable compensation replacement percentage;
- (2) After the first 12 months of disability, an amount equal to 70% of the employee's wages and salary from any employment;
- (3) Disability payments from the Social Security Administration, local government disability benefits, federal or civil service disability benefits, or other similar government disability program benefits;
- (4) Benefits from any other group insurance contract provided by the Commonwealth for the purpose of providing income replacement; and
- (5) Benefits paid under any compulsory benefits law. § 51.1-1159, 1167

Disability benefits shall cease upon the first to occur:

- (1) The death of the participating employee;
- (2) The participating employee's normal retirement date or age 65 if not a member of the retirement system; and
- (3) Service retirement. § 51.1- 1161, 1169

The Board is authorized to develop, implement and administer a long-term care insurance program for participating employees that includes, among other elements, provisions under which a person may purchase continuing coverage if he or she ceases to be a participating employee. §51.1-1178.

No person shall have more than one coverage under a disability benefit program. § 51.1-1179

Long-Term Care (LTC) Plan - The VLDP Long-Term Care Plan assists with the cost of:

- Care in a nursing home or hospice facility
- Assisted living facility care
- Community-based care
- Home healthcare services
- Informal care-giving
- Alternative or transitional care



Summary of Plan Provisions

Virginia Local Disability Program (VLDP)

Benefits (Continued)

Participants may be eligible for LTC benefits if, in addition to satisfying a 90 calendar-day waiting period, a licensed healthcare professional certifies that the participant:

- Is unable to perform at least two of six activities of daily living; or
- Has a severe cognitive impairment requiring substantial supervision.

The maximum daily benefit amount is \$96 with a lifetime maximum of \$70,080.

Administrative Procedures

For an insurance product, the accounting shall include (i) the amounts of premiums actually accrued under the policy during the policy year, (ii) the total amount of all claim charges incurred during the policy year, and (iii) the amount of fees accrued under the policy during the year plus the total amount of all claim charges incurred during the policy year.

For a self-insured product, the accounting shall include the total amount of all claim charges incurred during the product year, the total amount of third-party administrator expenses, and the total amount of other charges for administrative services. § 51.1-1182

Employers of participating employees shall pay to the Board contributions amounts to provide such funds as required to obtain and maintain long-term disability insurance and the long-term care insurance program. § 51.1-1183

Actuarial Assumptions

To calculate VRS contribution requirements, plan accounting costs, and reporting requirements, assumptions are made about future events that could affect the amount and timing of expected benefits to be paid and the assets to be accumulated. The economic and demographic assumptions include:

- An investment return assumption that is used to discount liabilities and project expected earnings on plan assets.
- A mortality assumption projecting the number of members expected to die before retirement and the duration of benefit payments after retirement.
- Assumed retirement rates projecting when members are expected to retire and commence receiving retirement benefits.
- A set of withdrawal and disability rates to estimate the number of members expected to leave the work force before retirement.
- Assumed rates of pay increase to project expected member compensation in future years.

The actuarial assumptions currently used are summarized below and on the following pages. The actuarial assumptions used for the VRS valuations, including the assumed rate of investment return, are reasonable for purposes of the measurement. **Beginning with the June 30, 2025 valuations, the following assumptions have been updated in accordance with the July 1, 2020-June 30, 2024 experience study:**

Mortality rates based upon the Pub-2010 Amount-Weighted tables, in conjunction with 75% of the MP-2021 Projection Scale;

Retirement, Termination, Disability, and Salary Increase rates;

OPEB Administrative Expenses: for GLI, HIC, VSDP, and VLDP; **GLI “Life Insurance Only” load**

All HIC assumptions except for Percentage of Maximum Benefit Received and estimate for ORP and UVA Deferred Vested Members

Long-term Disability: Offsets for Active Members; Disabled Members Average Percentage of Full Benefit Paid if in Receipt of Offsets, Rates of Termination of Benefits Due to Death or Recovery, Porting Rates, and Porting Premiums.

Assumptions that Apply to All VRS Plans

Interest Rate: Funding plan benefits involves the accumulation of assets to pay benefits in the future. The net rate of investment earnings on assets is a significant factor in determining the contributions required to support the ultimate cost of benefits. For the 2025 actuarial valuations, the long-term investment return is assumed to be 6.75% annually, net of administrative and investment expenses.

Inflation: The long-term annual rate of price inflation is 2.5% annually.

Payroll Growth: The number of active members is projected to remain constant, and the total payroll is projected to increase 3.00% annually, except in the VaLORS pension plan which uses a 2.5% assumption.

Administrative Expenses: Anticipated noninvestment expenses are based on actual prior year experience, for GLI, HIC, VSDP, and VLDP a floor of 0.01% is applied beginning with the June 30, 2025 valuations.



Mortality Assumptions by Group

The mortality rates are based upon the Pub-2010 Amount-Weighted tables, in conjunction with 75% of the MP-2021 Projection Scale on a fully generational basis, with adjustments for each plan. **Pre-Retirement, Post-Retirement, Post-Disablement, and Beneficiary & Survivor** tables follow – note that base rates are shown, and mortality improvement is anticipated as projected with a modified MP-2021 Improvement Scale.

Pre-Retirement Mortality Rate Adjustments

Plan	Job Classification	% of Male Table	% of Female Table	Male Set Forward/(Back)	Female Set Forward/(Back)	Service-Related Deaths
State	General	100%	100%	None	2 years	25%
Teachers	Teachers	110%	100%	None	None	5%
VaLORS	Safety	95%	105%	None	2 years	35%
SPORS	Safety	95%	105%	None	2 years	85%
Judicial	General	100%	100%	2 years	none	5%
Locals – Metro, Non-Hazardous Duty	General	100%	105%	2 years	3 years	20%
Locals – Non-Metro, Non-Hazardous Duty	General	100%	105%	2 years	3 years	15%
Locals – Metro, Hazardous Duty	Safety	95%	105%	None	2 years	70%
Locals – Non-Metro, Hazardous Duty	Safety	95%	105%	None	2 years	45%

Pre-Retirement Base Mortality Rates

Attained Age	State		Teachers		VaLORS		SPORS		JRS		Political Subdivisions			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Hazardous Duty		Non-Hazardous Duty	
											Male	Female	Male	Female
20	0.000370	0.000110	0.000374	0.000130	0.000390	0.000179	0.000390	0.000179	0.000330	0.000130	0.000390	0.000179	0.000330	0.000105
25	0.000280	0.000110	0.000176	0.000090	0.000352	0.000231	0.000352	0.000231	0.000310	0.000090	0.000352	0.000231	0.000310	0.000126
30	0.000360	0.000180	0.000242	0.000140	0.000390	0.000315	0.000390	0.000315	0.000400	0.000150	0.000390	0.000315	0.000400	0.000200
35	0.000470	0.000280	0.000330	0.000200	0.000447	0.000431	0.000447	0.000431	0.000530	0.000230	0.000447	0.000431	0.000530	0.000315
40	0.000660	0.000430	0.000462	0.000310	0.000561	0.000588	0.000561	0.000588	0.000770	0.000360	0.000561	0.000588	0.000770	0.000494
45	0.000980	0.000660	0.000737	0.000480	0.000779	0.000798	0.000779	0.000798	0.001160	0.000560	0.000779	0.000798	0.001160	0.000746
50	0.001490	0.000970	0.001221	0.000730	0.001140	0.001082	0.001140	0.001082	0.001750	0.000830	0.001140	0.001082	0.001750	0.001103
55	0.002190	0.001440	0.001892	0.001070	0.001663	0.001470	0.001663	0.001470	0.002550	0.001230	0.001663	0.001470	0.002550	0.001638
60	0.003190	0.002220	0.002904	0.001610	0.002508	0.001995	0.002508	0.001995	0.003710	0.001860	0.002508	0.001995	0.003710	0.002562
65	0.004680	0.003620	0.004785	0.002700	0.003895	0.003150	0.003895	0.003150	0.005480	0.002960	0.003895	0.003150	0.005480	0.004200
70	0.007030	0.005980	0.007799	0.004850	0.007277	0.006279	0.007277	0.006279	0.008370	0.004890	0.007277	0.006279	0.008370	0.006941
75	0.010960	0.009860	0.011847	0.009210	0.013604	0.012485	0.013604	0.012485	0.013150	0.008080	0.013604	0.012485	0.013150	0.011445
80	0.017300	0.0142760	0.023430	0.018260	0.025413	0.021765	0.025413	0.021765	0.060520	0.013300	0.025413	0.021765	0.060520	0.050757



Mortality Assumptions by Group

Healthy Post-Retirement Mortality Rate Adjustments

Plan	Job Classification	% of Male Table	% of Female Table	Male Set Forward/(Back)	Female Set Forward/(Back)
State	General	100%	110%	None	None
Teachers	Teachers	100%	105%	1 year	None
VaLORS	Safety	110%	105%	None	3 years
SPORS	Safety	110%	105%	None	3 years
Judicial	General	95%	95%	(2 years)	(2 years)
Locals – Metro, Non-Hazardous Duty	General	95%	95%	2 years	1 year
Locals – Non-Metro, Non-Hazardous Duty	General	95%	95%	2 years	1 year
Locals – Metro, Hazardous Duty	Safety	110%	105%	None	3 years
Locals – Non-Metro, Hazardous Duty	Safety	110%	105%	None	3 years

Healthy Post-Retirement Base Mortality Rates

Attained Age	State		Teachers		VaLORS		SPORS		JRS		Political Subdivisions			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Hazardous Duty		Non-Hazardous Duty	
											Male	Female	Male	Female
20	0.000370	0.000143	0.000300	0.000137	0.000451	0.000189	0.000451	0.000189	0.000342	0.000124	0.000451	0.000189	0.000314	0.000114
25	0.000280	0.000099	0.000170	0.000095	0.000407	0.000252	0.000407	0.000252	0.000295	0.000095	0.000407	0.000252	0.000295	0.000095
30	0.000360	0.000165	0.000240	0.000147	0.000451	0.000336	0.000451	0.000336	0.000314	0.000114	0.000451	0.000336	0.000380	0.000152
35	0.000470	0.000253	0.000320	0.000210	0.000517	0.000452	0.000517	0.000452	0.000399	0.000181	0.000517	0.000452	0.000504	0.000238
40	0.000660	0.000396	0.000460	0.000326	0.000649	0.000620	0.000649	0.000620	0.000542	0.000285	0.000649	0.000620	0.000732	0.000380
45	0.000980	0.000616	0.000740	0.000504	0.001342	0.001260	0.001342	0.001260	0.000789	0.000447	0.001342	0.001260	0.001102	0.000580
50	0.002980	0.002442	0.001220	0.000767	0.002112	0.002174	0.002112	0.002174	0.001207	0.000675	0.002112	0.002174	0.003287	0.002214
55	0.004310	0.003146	0.002450	0.002027	0.003366	0.003759	0.003366	0.003759	0.003534	0.002461	0.003366	0.003759	0.004722	0.002860
60	0.006150	0.004224	0.003930	0.003014	0.005588	0.006489	0.005588	0.006489	0.005064	0.003192	0.005588	0.006489	0.006774	0.003952
65	0.009130	0.006743	0.006620	0.004683	0.009691	0.011214	0.009691	0.011214	0.007315	0.004750	0.009691	0.011214	0.010526	0.006479
70	0.015260	0.011693	0.012140	0.008085	0.017248	0.019362	0.017248	0.019362	0.011676	0.008066	0.017248	0.019362	0.018088	0.011315
75	0.026710	0.020713	0.023120	0.015341	0.031086	0.033443	0.031086	0.033443	0.020226	0.014222	0.031086	0.033443	0.031930	0.020055
80	0.047740	0.036960	0.043630	0.029589	0.056133	0.057740	0.056133	0.057740	0.035863	0.025251	0.056133	0.057740	0.057494	0.035977
85	0.085910	0.068255	0.081980	0.056553	0.100485	0.099708	0.100485	0.099708	0.064705	0.045923	0.100485	0.099708	0.101964	0.066890
90	0.146720	0.126357	0.148590	0.105935	0.174460	0.167150	0.174460	0.167150	0.113497	0.085937	0.174460	0.167150	0.168578	0.121914

Mortality Assumptions by Group

Disabled Post-Retirement Mortality Rate Adjustments

Plan	Job Classification	% of Male Disabled Table	% of Female Disabled Table	Male Set Forward/(Back)	Female Set Forward/(Back)
State	General	100%	100%	3 years	3 years
Teachers	Teachers	110%	110%	None	None
VaLORS	General	95%	90%	(3 years)	(3 years)
SPORS	General	95%	90%	(3 years)	(3 years)
Judicial	General	100%	100%	None	None
Locals – Metro, Non-Hazardous Duty	General	110%	110%	3 years	2 years
Locals – Non-Metro, Non-Hazardous Duty	General	110%	110%	3 years	2 years
Locals – Metro, Hazardous Duty	General	95%	90%	(3 years)	(3 years)
Locals – Non-Metro, Hazardous Duty	General	95%	90%	(3 years)	(3 years)

Disabled Post-Retirement Base Mortality Rates

Attained Age	State		Teachers		VaLORS		SPORS		JRS		Political Subdivisions			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Hazardous Duty		Non-Hazardous Duty	
											Male	Female	Male	Female
20	0.003160	0.001760	0.004532	0.002563	0.000295	0.000108	0.000295	0.000108	0.004120	0.002330	0.000295	0.000108	0.003476	0.002134
25	0.003210	0.002150	0.003058	0.001804	0.003344	0.001746	0.003344	0.001746	0.002780	0.001640	0.003344	0.001746	0.003531	0.002156
30	0.004110	0.003360	0.003894	0.002827	0.002907	0.001764	0.002907	0.001764	0.003540	0.002570	0.002907	0.001764	0.004521	0.003377
35	0.005550	0.005240	0.005038	0.004411	0.003715	0.002763	0.003715	0.002763	0.004580	0.004010	0.003715	0.002763	0.006105	0.005269
40	0.008340	0.008250	0.007095	0.006919	0.004921	0.004311	0.004921	0.004311	0.006450	0.006290	0.004921	0.004311	0.009174	0.008294
45	0.013420	0.012670	0.011077	0.010835	0.007249	0.006786	0.007249	0.006786	0.010070	0.009850	0.007249	0.006786	0.014762	0.012837
50	0.019210	0.016400	0.017655	0.016313	0.011600	0.010503	0.011600	0.010503	0.016050	0.014830	0.011600	0.010503	0.021131	0.017457
55	0.023550	0.018740	0.023254	0.019162	0.017271	0.014283	0.017271	0.014283	0.021140	0.017420	0.017271	0.014283	0.025905	0.020163
60	0.027850	0.021100	0.027533	0.021516	0.021660	0.016497	0.021660	0.016497	0.025030	0.019560	0.021660	0.016497	0.030635	0.022561
65	0.035240	0.025690	0.033484	0.024816	0.025432	0.018459	0.025432	0.018459	0.030440	0.022560	0.025432	0.018459	0.038764	0.026950
70	0.045990	0.034640	0.042911	0.031482	0.031854	0.022050	0.031854	0.022050	0.039010	0.028620	0.031854	0.022050	0.050589	0.035629
75	0.063470	0.050750	0.057112	0.044033	0.041268	0.029151	0.041268	0.029151	0.051920	0.040030	0.041268	0.029151	0.069817	0.051458
80	0.092590	0.078110	0.080828	0.066077	0.056250	0.042102	0.056250	0.042102	0.073480	0.060070	0.056250	0.042102	0.101849	0.078650
85	0.136030	0.118780	0.118965	0.102641	0.081368	0.064350	0.081368	0.064350	0.108150	0.093310	0.081368	0.064350	0.149633	0.121154
90	0.205880	0.167400	0.178783	0.150315	0.119748	0.099126	0.119748	0.099126	0.162530	0.136650	0.119748	0.099126	0.226468	0.171985



Mortality Assumptions by Group

Beneficiary & Survivor Mortality Rate Adjustments

Plan	Job Classification	% of Male Contingent Table	% of Female Contingent Table	Male Set Forward/(Back)	Female Set Forward/(Back)
State	General	110%	110%	None	None
Teachers	Teachers	100%	100%	None	None
VaLORS	Safety	110%	110%	2 years	2 years
SPORS	Safety	110%	110%	2 years	2 years
Judicial	General	100%	100%	None	None
Locals – Metro, Non-Hazardous Duty	General	100%	100%	None	None
Locals – Non-Metro, Non-Hazardous Duty	General	100%	100%	None	None
Locals – Metro, Hazardous Duty	Safety	110%	110%	2 years	2 years
Locals – Non-Metro, Hazardous Duty	Safety	110%	110%	2 years	2 years

Beneficiary & Survivor Post-Retirement Base Mortality Rates

Attained Age	State		Teachers		VaLORS		SPORS		JRS		Political Subdivisions			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Hazardous Duty		Non-Hazardous Duty	
20	0.000407	0.000143	0.000340	0.000130	0.000440	0.000187	0.000440	0.000187	0.000370	0.000130	0.000440	0.000187	0.000370	0.000130
25	0.000308	0.000099	0.000160	0.000090	0.000429	0.000242	0.000429	0.000242	0.000280	0.000090	0.000429	0.000242	0.000280	0.000090
30	0.000396	0.000165	0.000220	0.000140	0.000473	0.000330	0.000473	0.000330	0.000360	0.000150	0.000473	0.000330	0.000360	0.000150
35	0.000517	0.000253	0.000300	0.000200	0.000550	0.000451	0.000550	0.000451	0.000470	0.000230	0.000550	0.000451	0.000470	0.000230
40	0.000726	0.000396	0.000420	0.000310	0.000737	0.000616	0.000737	0.000616	0.000660	0.000360	0.000737	0.000616	0.000660	0.000360
45	0.006039	0.002882	0.005490	0.002620	0.006556	0.003124	0.006556	0.003124	0.005490	0.002620	0.006556	0.003124	0.005490	0.002620
50	0.007711	0.003520	0.007010	0.003200	0.008217	0.004026	0.008217	0.004026	0.007010	0.003200	0.008217	0.004026	0.007010	0.003200
55	0.009064	0.004906	0.008240	0.004460	0.009757	0.005588	0.009757	0.005588	0.008240	0.004460	0.009757	0.005588	0.008240	0.004460
60	0.011132	0.006842	0.010120	0.006220	0.012430	0.007887	0.012430	0.007887	0.010120	0.006220	0.012430	0.007887	0.010120	0.006220
65	0.015224	0.009889	0.013840	0.008990	0.017908	0.011583	0.017908	0.011583	0.013840	0.008990	0.017908	0.011583	0.013840	0.008990
70	0.023419	0.014883	0.021290	0.013530	0.028182	0.017809	0.028182	0.017809	0.021290	0.013530	0.028182	0.017809	0.021290	0.013530
75	0.037202	0.023661	0.033820	0.021510	0.044660	0.028809	0.044660	0.028809	0.033820	0.021510	0.044660	0.028809	0.033820	0.021510
80	0.058960	0.039303	0.053600	0.035730	0.071478	0.049005	0.071478	0.049005	0.053600	0.035730	0.071478	0.049005	0.053600	0.035730
85	0.096173	0.069476	0.087430	0.063160	0.117315	0.088330	0.117315	0.088330	0.087430	0.063160	0.117315	0.088330	0.087430	0.063160
90	0.158598	0.124619	0.144180	0.113290	0.193105	0.153472	0.193105	0.153472	0.144180	0.113290	0.193105	0.153472	0.144180	0.113290

State Employees

Retirement Rates

Plan 1 Members

Attained Age	State - Plan 1							
	Male				Female			
	Years of Service				Years of Service			
	0-4	5-9	10-29	30+	0-4	5-9	10-29	30+
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.030	0.160	0.000	0.000	0.040	0.070
51	0.000	0.000	0.030	0.080	0.000	0.000	0.030	0.070
52	0.000	0.000	0.030	0.090	0.000	0.000	0.030	0.070
53	0.000	0.000	0.030	0.080	0.000	0.000	0.030	0.090
54	0.000	0.000	0.030	0.090	0.000	0.000	0.030	0.080
55	0.000	0.030	0.030	0.090	0.000	0.040	0.040	0.070
56	0.000	0.040	0.040	0.080	0.000	0.040	0.040	0.080
57	0.000	0.040	0.040	0.090	0.000	0.040	0.040	0.090
58	0.000	0.040	0.040	0.090	0.000	0.040	0.040	0.090
59	0.000	0.040	0.040	0.090	0.000	0.050	0.050	0.090
60	0.000	0.050	0.050	0.100	0.000	0.060	0.060	0.120
61	0.000	0.070	0.070	0.150	0.000	0.080	0.080	0.150
62	0.000	0.110	0.110	0.190	0.000	0.120	0.120	0.190
63	0.000	0.090	0.090	0.170	0.000	0.110	0.110	0.170
64	0.000	0.140	0.140	0.180	0.000	0.160	0.160	0.190
65	0.000	0.250	0.250	0.250	0.000	0.290	0.290	0.290
66	0.000	0.260	0.260	0.260	0.000	0.310	0.310	0.310
67	0.000	0.230	0.230	0.230	0.000	0.260	0.260	0.260
68	0.000	0.220	0.220	0.220	0.000	0.250	0.250	0.250
69	0.000	0.210	0.210	0.210	0.000	0.270	0.270	0.270
70	0.000	0.220	0.220	0.220	0.000	0.280	0.280	0.280
71	0.000	0.210	0.210	0.210	0.000	0.250	0.250	0.250
72	0.000	0.210	0.210	0.210	0.000	0.230	0.230	0.230
73	0.000	0.210	0.210	0.210	0.000	0.240	0.240	0.240
74	0.000	0.210	0.210	0.210	0.000	0.240	0.240	0.240
75	0.000	0.230	0.230	0.230	0.000	0.260	0.260	0.260
76	0.000	0.200	0.200	0.200	0.000	0.250	0.250	0.250
77	0.000	0.200	0.200	0.200	0.000	0.220	0.220	0.220
78	0.000	0.210	0.210	0.210	0.000	0.240	0.240	0.240
79	0.000	0.250	0.250	0.250	0.000	0.240	0.240	0.240
80+	0.000	1.000	1.000	1.000	0.000	1.000	1.000	1.000

State Employees

Retirement Rates

Plan 2 and Hybrid Members – Male

Attained Age	State - Plan 2/Hybrid - Male																	
	Years of Service																	
	0-4	5	6-25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
60	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
61	0.000	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070
62	0.000	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
63	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
64	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
65	0.000	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
66	0.000	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210
67	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
68	0.000	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210
69	0.000	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
70	0.000	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210
71	0.000	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190
72	0.000	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
73	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
74	0.000	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
75	0.000	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
76	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
77	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
78	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
79	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
80+	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

State Employees

Retirement Rates

Plan 2 and Hybrid Members – Female

Attained Age	State - Plan 2/Hybrid - Female																	
	Years of Service																	
	0-4	5	6-25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
60	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
61	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
62	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
63	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
64	0.000	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110
65	0.000	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190
66	0.000	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210
67	0.000	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210
68	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
69	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
70	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
71	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
72	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
73	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
74	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
75	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
76	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
77	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
78	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
79	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
80+	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

State Employees

Termination Rates

Male & Female

State Termination Rates		
Years of Service	Male	Female
0	0.18600	0.21200
1	0.15100	0.17400
2	0.12400	0.14500
3	0.10400	0.12000
4	0.09700	0.10700
5	0.08700	0.09600
6	0.07800	0.08700
7	0.07100	0.08000
8	0.06400	0.07200
9	0.05500	0.06400
10	0.04600	0.05900
11	0.04600	0.05600
12	0.04100	0.05500
13	0.03900	0.05000
14	0.03900	0.04800
15	0.03800	0.04600
16	0.03500	0.04000
17	0.03400	0.04000
18	0.03100	0.03800
19	0.03100	0.03800
20+	0.03100	0.03800

State Employees

Disability Rates

Attained Age	State	
	Male	Female
20	0.000351	0.000281
25	0.000645	0.000850
30	0.000815	0.001793
35	0.001159	0.002390
40	0.001908	0.003006
45	0.003085	0.004032
50	0.004470	0.005345
55	0.005657	0.006304
60	0.006209	0.006251
65	0.005917	0.005552
70	0.005151	0.007148

Note that 25% of disability cases are assumed to be service related.

Salary Increase Rates

Note that the rates below include wage inflation of 3.5% per year.

Years of Service	State
0	5.85%
1	5.85%
2	5.85%
3	5.25%
4	4.95%
5	4.95%
6	4.95%
7	4.85%
8	4.75%
9	4.50%
10	4.50%
11-19	4.15%
20+	3.50%

Teachers

Retirement Rates

Plan 1 – Male & Female

Attained Age	Teachers - Plan 1							
	Male				Female			
	Years of Service				Years of Service			
	0-4	5-9	10-29	30+	0-4	5-9	10-29	30+
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.020	0.110	0.000	0.000	0.030	0.180
51	0.000	0.000	0.030	0.100	0.000	0.000	0.030	0.100
52	0.000	0.000	0.040	0.140	0.000	0.000	0.040	0.130
53	0.000	0.000	0.040	0.130	0.000	0.000	0.040	0.130
54	0.000	0.000	0.050	0.140	0.000	0.000	0.050	0.140
55	0.000	0.060	0.060	0.170	0.000	0.060	0.060	0.180
56	0.000	0.060	0.060	0.170	0.000	0.060	0.060	0.170
57	0.000	0.060	0.060	0.170	0.000	0.060	0.060	0.170
58	0.000	0.060	0.060	0.170	0.000	0.060	0.060	0.170
59	0.000	0.080	0.080	0.170	0.000	0.080	0.080	0.180
60	0.000	0.080	0.080	0.170	0.000	0.090	0.090	0.210
61	0.000	0.120	0.120	0.240	0.000	0.120	0.120	0.250
62	0.000	0.140	0.140	0.280	0.000	0.150	0.150	0.290
63	0.000	0.150	0.150	0.260	0.000	0.150	0.150	0.270
64	0.000	0.180	0.180	0.270	0.000	0.230	0.230	0.300
65	0.000	0.310	0.310	0.310	0.000	0.360	0.360	0.360
66	0.000	0.340	0.340	0.340	0.000	0.390	0.390	0.390
67	0.000	0.330	0.330	0.330	0.000	0.320	0.320	0.320
68	0.000	0.290	0.290	0.290	0.000	0.310	0.310	0.310
69	0.000	0.310	0.310	0.310	0.000	0.330	0.330	0.330
70	0.000	0.300	0.300	0.300	0.000	0.310	0.310	0.310
71	0.000	0.300	0.300	0.300	0.000	0.280	0.280	0.280
72	0.000	0.260	0.260	0.260	0.000	0.260	0.260	0.260
73	0.000	0.240	0.240	0.240	0.000	0.270	0.270	0.270
74	0.000	0.230	0.230	0.230	0.000	0.260	0.260	0.260
75	0.000	0.250	0.250	0.250	0.000	0.270	0.270	0.270
76	0.000	0.230	0.230	0.230	0.000	0.260	0.260	0.260
77	0.000	0.230	0.230	0.230	0.000	0.270	0.270	0.270
78	0.000	0.220	0.220	0.220	0.000	0.270	0.270	0.270
79	0.000	0.230	0.230	0.230	0.000	0.270	0.270	0.270
80+	0.000	1.000	1.000	1.000	0.000	1.000	1.000	1.000

Teachers

Retirement Rates

Plan 2 and Hybrid Members – Male

Attained Age	Teachers - Plan 2/Hybrid - Male																		
	Years of Service																		
	0-4	5	6-24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
60	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
61	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
62	0.000	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130
63	0.000	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130
64	0.000	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130
65	0.000	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270
66	0.000	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300
67	0.000	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230
68	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
69	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
70	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
71	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
72	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
73	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
74	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
75	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
76	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
77	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
78	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
79	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
80+	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Teachers

Retirement Rates

Plan 2 and Hybrid Members – Female

Attained Age	Teachers - Plan 2/Hybrid - Female																		
	Years of Service																		
	0-4	5	6-24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
60	0.000	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
61	0.000	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110
62	0.000	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130
63	0.000	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130
64	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
65	0.000	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280
66	0.000	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280	0.280
67	0.000	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
68	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
69	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
70	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
71	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
72	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
73	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
74	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
75	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
76	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
77	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
78	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
79	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
80+	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Teachers

Termination Rates

Male & Female

Teacher Termination Rates		
Years of Service	Male	Female
0	0.18800	0.17400
1	0.15700	0.15000
2	0.13500	0.13600
3	0.11600	0.12100
4	0.10300	0.11000
5	0.09000	0.09800
6	0.08100	0.08900
7	0.07100	0.08100
8	0.06200	0.07300
9	0.05500	0.06300
10	0.03900	0.04500
11	0.03500	0.04100
12	0.03500	0.04000
13	0.03300	0.03800
14	0.03300	0.03600
15	0.03100	0.03400
16	0.02800	0.03300
17	0.02700	0.03100
18	0.02600	0.02900
19	0.02400	0.02800
20+	0.02400	0.02400

Teachers

Disability Rates

Attained Age	Teachers	
	Male	Female
20	0.000003	0.000001
25	0.000003	0.000010
30	0.000032	0.000036
35	0.000068	0.000088
40	0.000163	0.000216
45	0.000363	0.000356
50	0.000722	0.000724
55	0.001222	0.001134
60	0.001698	0.001494
65	0.001887	0.001579
70	0.001887	0.001579

Note that 5% of disability cases are assumed to be service related. For VLDP purposes, disability rates are scaled by a factor of 2.4 and 2.5 for males and females, respectively.

Salary Increase Rates

Note that the rates below include wage inflation of 3.5% per year.

Years of Service	Teachers
0	6.45%
1	6.45%
2	6.35%
3	6.35%
4	5.95%
5	5.95%
6	5.95%
7	5.85%
8	5.85%
9	5.85%
10	5.35%
11	5.35%
12	5.35%
13	5.25%
14	5.25%
15	5.15%
16	5.15%
17	5.05%
18	4.95%
19	4.95%
20+	3.50%

State Police

Retirement Rates

Male & Female

Attained Age	SPORS		
	Years of Service		
	0-4	5-24	25+
<=49	0.000	0.000	
50	0.000	0.110	0.110
51	0.000	0.040	0.090
52	0.000	0.040	0.100
53	0.000	0.030	0.100
54	0.000	0.030	0.100
55	0.000	0.060	0.170
56	0.000	0.060	0.140
57	0.000	0.050	0.130
58	0.000	0.090	0.120
59	0.000	0.080	0.120
60	0.000	0.150	0.150
61	0.000	0.130	0.130
62	0.000	0.180	0.180
63	0.000	0.280	0.280
64	0.000	0.290	0.290
65	0.000	0.430	0.430
66	0.000	0.440	0.440
67	0.000	0.420	0.420
68	0.000	0.410	0.410
69	0.000	0.500	0.500
70+	0.000	1.000	1.000

State Police

Termination Rates

Male & Female

SPORS	
Years of Service	Rate
0	0.10400
1	0.06300
2	0.06100
3	0.06100
4	0.06000
5	0.05500
6	0.05500
7	0.03500
8	0.03500
9	0.02500
10	0.02100
11	0.02100
12	0.02100
13	0.02000
14	0.01800
15	0.01600
16	0.01600
17	0.01500
18	0.01500
19	0.01500
20+	0.01500

State Police

Disability Rates

Male & Female

Attained Age	SPORS
	Rate
20	0.001744
25	0.001744
30	0.001744
35	0.001744
40	0.001744
45	0.002098
50	0.004326
55	0.006927
60	0.008070
65	0.009968
70	0.012312

Note that 85% of disability cases are assumed to be service related.

Salary Increase Rates

Note that the rates below include wage inflation of 3.5% per year.

Years of Service	SPORS
0	5.25%
1	5.25%
2	5.25%
3	5.25%
4	5.25%
5	5.15%
6	4.90%
7	4.90%
8	4.90%
9	4.90%
10	4.50%
11-19	4.50%
20+	3.50%

Virginia Law Officers

Retirement Rates

Male & Female

Attained Age	VaLORS					
	Male			Female		
	Years of Service			Years of Service		
	0-4	5-24	25+	0-4	5-24	25+
<=49	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.150	0.440	0.000	0.160	0.380
51	0.000	0.090	0.290	0.000	0.100	0.240
52	0.000	0.090	0.310	0.000	0.110	0.230
53	0.000	0.090	0.270	0.000	0.080	0.250
54	0.000	0.100	0.250	0.000	0.100	0.310
55	0.000	0.080	0.250	0.000	0.090	0.280
56	0.000	0.090	0.240	0.000	0.100	0.270
57	0.000	0.100	0.240	0.000	0.130	0.260
58	0.000	0.100	0.230	0.000	0.110	0.260
59	0.000	0.120	0.230	0.000	0.130	0.260
60	0.000	0.180	0.180	0.000	0.220	0.220
61	0.000	0.190	0.190	0.000	0.220	0.220
62	0.000	0.300	0.300	0.000	0.290	0.290
63	0.000	0.230	0.230	0.000	0.220	0.220
64	0.000	0.230	0.230	0.000	0.250	0.250
65	0.000	0.290	0.290	0.000	0.470	0.470
66	0.000	0.290	0.290	0.000	0.300	0.300
67	0.000	0.270	0.270	0.000	0.270	0.270
68	0.000	0.270	0.270	0.000	0.290	0.290
69	0.000	0.310	0.310	0.000	0.370	0.370
70+	0.000	1.000	1.000	0.000	1.000	1.000

Virginia Law Officers

Termination Rates

VaLORS Termination Rates		
Years of Service	Male	Female
0	0.34400	0.41800
1	0.26200	0.31700
2	0.21300	0.25600
3	0.18500	0.21800
4	0.17300	0.20300
5	0.17300	0.20000
6	0.14900	0.18200
7	0.13700	0.15800
8	0.12100	0.15500
9	0.10200	0.11900
10	0.07300	0.10000
11	0.07300	0.07900
12	0.07000	0.07200
13	0.06400	0.07200
14	0.06200	0.07200
15	0.05700	0.06400
16	0.05400	0.06400
17	0.05100	0.05600
18	0.04300	0.05400
19	0.04300	0.05400
20+	0.04300	0.05400

Virginia Law Officers

Disability Rates

Attained Age	VaLORS	
	Male	Female
20	0.001426	0.003798
25	0.003218	0.004070
30	0.005842	0.004616
35	0.007195	0.005384
40	0.007929	0.007009
45	0.009130	0.009670
50	0.011649	0.012750
55	0.015013	0.015942
60	0.017821	0.020307
65	0.019159	0.027052
70	0.019200	0.038496

Note that 35% of disability cases are assumed to be service related.

Salary Increase Rates

Note that the rates below include wage inflation of 3.5% per year.

Years of Service	VaLORS
0	5.25%
1	5.25%
2	5.25%
3	5.25%
4	5.25%
5	5.15%
6	4.90%
7	4.90%
8	4.90%
9	4.90%
10	4.50%
11-19	4.50%
20+	3.50%

Judicial

Retirement Rates

Male & Female

Attained Age	JRS Rate
<=59	0.000
60	0.080
61	0.080
62	0.080
63	0.080
64	0.100
65	0.100
66	0.100
67	0.130
68	0.130
69	0.130
70	0.200
71	0.200
72	0.300
73+	1.000

Disability and Termination Rates

There are no assumed rates of disability nor of withdrawal prior to service retirement for causes other than death or retirement.

Salary Increase Rates

Salary increase rates are 4.0% per year.

Locals: Metro, Non-Hazardous Duty

Retirement Rates

Plan 1 - Male

Attained Age	Metro Non-Hazardous Duty Plan 1 - Male			
	Years of Service			
	0-4	5-9	10-29	30+
<=49	0.000	0.000	0.000	0.000
50	0.000	0.000	0.060	0.150
51	0.000	0.000	0.040	0.090
52	0.000	0.000	0.050	0.090
53	0.000	0.000	0.050	0.100
54	0.000	0.000	0.040	0.110
55	0.000	0.050	0.050	0.110
56	0.000	0.050	0.050	0.110
57	0.000	0.050	0.050	0.110
58	0.000	0.050	0.050	0.110
59	0.000	0.050	0.050	0.120
60	0.000	0.060	0.060	0.130
61	0.000	0.090	0.090	0.160
62	0.000	0.130	0.130	0.220
63	0.000	0.110	0.110	0.200
64	0.000	0.160	0.160	0.220
65	0.000	0.270	0.270	0.270
66	0.000	0.320	0.320	0.320
67	0.000	0.240	0.240	0.240
68	0.000	0.220	0.220	0.220
69	0.000	0.220	0.220	0.220
70	0.000	0.230	0.230	0.230
71	0.000	0.220	0.220	0.220
72	0.000	0.230	0.230	0.230
73	0.000	0.220	0.220	0.220
74	0.000	0.190	0.190	0.190
75	0.000	0.220	0.220	0.220
76	0.000	0.230	0.230	0.230
77	0.000	0.210	0.210	0.210
78	0.000	0.230	0.230	0.230
79	0.000	0.250	0.250	0.250
80+	0.000	1.000	1.000	1.000

Locals: Metro, Non-Hazardous Duty

Retirement Rates

Plan 1 - Female

Attained Age	Metro Non-Hazardous Duty Plan 1 - Female			
	Years of Service			
	0-4	5-9	10-29	30+
<=49	0.000	0.000	0.000	0.000
50	0.000	0.000	0.050	0.120
51	0.000	0.000	0.040	0.090
52	0.000	0.000	0.050	0.090
53	0.000	0.000	0.050	0.120
54	0.000	0.000	0.060	0.120
55	0.000	0.060	0.060	0.140
56	0.000	0.050	0.050	0.140
57	0.000	0.060	0.060	0.140
58	0.000	0.050	0.050	0.130
59	0.000	0.060	0.060	0.140
60	0.000	0.070	0.070	0.140
61	0.000	0.080	0.080	0.170
62	0.000	0.130	0.130	0.220
63	0.000	0.130	0.130	0.190
64	0.000	0.170	0.170	0.240
65	0.000	0.280	0.280	0.280
66	0.000	0.300	0.300	0.300
67	0.000	0.250	0.250	0.250
68	0.000	0.240	0.240	0.240
69	0.000	0.240	0.240	0.240
70	0.000	0.250	0.250	0.250
71	0.000	0.220	0.220	0.220
72	0.000	0.230	0.230	0.230
73	0.000	0.260	0.260	0.260
74	0.000	0.210	0.210	0.210
75	0.000	0.230	0.230	0.230
76	0.000	0.230	0.230	0.230
77	0.000	0.220	0.220	0.220
78	0.000	0.220	0.220	0.220
79	0.000	0.230	0.230	0.230
80+	0.000	1.000	1.000	1.000

Locals: Metro, Non-Hazardous Duty

Retirement Rates

Plan 2 and Hybrid Male

Attained Age	Political Subdivisions - Metro - Non-Hazardous Duty - Plan 2/Hybrid - Male																		
	Years of Service																		
	0-4	5	6-24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
60	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
61	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
62	0.000	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120
63	0.000	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120
64	0.000	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140
65	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
66	0.000	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
67	0.000	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
68	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
69	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
70	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
71	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
72	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
73	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
74	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
75	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
76	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
77	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
78	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
79	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
80+	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000



Locals: Metro, Non-Hazardous Duty

Retirement Rates

Plan 2 and Hybrid Female

Attained Age	Political Subdivisions - Metro - Non-Hazardous Duty - Plan 2/Hybrid - Female																		
	Years of Service																		
	0-4	5	6-24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
60	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
61	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
62	0.000	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130
63	0.000	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120
64	0.000	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140
65	0.000	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210
66	0.000	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230	0.230
67	0.000	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190
68	0.000	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190
69	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
70	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
71	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
72	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
73	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
74	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
75	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
76	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
77	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
78	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
79	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
80+	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Locals: Metro, Non-Hazardous Duty

Termination Rates

Political Subdivisions		
Metro - Non-Hazardous Duty		
Years of Service	Male	Female
0	0.23800	0.24100
1	0.20200	0.20500
2	0.17300	0.17600
3	0.15000	0.15600
4	0.13800	0.14000
5	0.13400	0.13900
6	0.12300	0.13000
7	0.11500	0.12000
8	0.10500	0.11200
9	0.09400	0.09500
10	0.08200	0.07800
11	0.07800	0.07600
12	0.07700	0.07200
13	0.07400	0.07200
14	0.07400	0.06900
15	0.06800	0.06700
16	0.06700	0.06600
17	0.06400	0.06600
18	0.06400	0.06000
19	0.06400	0.05800
20+	0.05800	0.05500

Locals: Metro, Non-Hazardous Duty

Disability Rates

Attained Age	Political Subdivisions	
	Metro Non-Hazardous Duty	
	Male	Female
20	0.000022	0.000006
25	0.000022	0.000025
30	0.000032	0.000115
35	0.000224	0.000310
40	0.000626	0.000669
45	0.001132	0.001143
50	0.001726	0.001649
55	0.002657	0.002212
60	0.003636	0.002648
65	0.004241	0.002730
70	0.004599	0.002730

Note that 20% of disability cases are assumed to be service related. For VLDP purposes, disability rates are scaled by a factor of 2.0 and 2.4 for males and females, respectively.

Salary Increase Rates

Note that the rates below include wage inflation of 3.5% per year.

Years of Service	Political Subdivisions
	Non-Hazardous Duty
0	5.85%
1	5.85%
2	5.85%
3	5.25%
4	4.95%
5	4.95%
6	4.95%
7	4.85%
8	4.75%
9	4.50%
10	4.50%
11-19	4.15%
20+	3.50%

Locals: Non-Metro, Non-Hazardous Duty

Retirement Rates

Plan 1 - Male

Attained Age	Non-Metro Non-Hazardous Duty Plan 1 - Male			
	Years of Service			
	0-4	5-9	10-29	30+
<=49	0.000	0.000	0.000	0.000
50	0.000	0.000	0.060	0.140
51	0.000	0.000	0.050	0.070
52	0.000	0.000	0.060	0.100
53	0.000	0.000	0.060	0.130
54	0.000	0.000	0.050	0.110
55	0.000	0.060	0.060	0.110
56	0.000	0.060	0.060	0.110
57	0.000	0.050	0.050	0.100
58	0.000	0.060	0.060	0.110
59	0.000	0.060	0.060	0.100
60	0.000	0.060	0.060	0.130
61	0.000	0.090	0.090	0.170
62	0.000	0.140	0.140	0.220
63	0.000	0.150	0.150	0.210
64	0.000	0.170	0.170	0.210
65	0.000	0.300	0.300	0.300
66	0.000	0.320	0.320	0.320
67	0.000	0.230	0.230	0.230
68	0.000	0.230	0.230	0.230
69	0.000	0.220	0.220	0.220
70	0.000	0.240	0.240	0.240
71	0.000	0.220	0.220	0.220
72	0.000	0.220	0.220	0.220
73	0.000	0.200	0.200	0.200
74	0.000	0.190	0.190	0.190
75	0.000	0.230	0.230	0.230
76	0.000	0.230	0.230	0.230
77	0.000	0.230	0.230	0.230
78	0.000	0.220	0.220	0.220
79	0.000	0.200	0.200	0.200
80+	0.000	1.000	1.000	1.000

Locals: Non-Metro, Non-Hazardous Duty

Retirement Rates

Plan 1 – Female

Attained Age	Non-Metro Non-Hazardous Duty Plan 1 - Female			
	Years of Service			
	0-4	5-9	10-29	30+
<=49	0.000	0.000	0.000	0.000
50	0.000	0.000	0.050	0.110
51	0.000	0.000	0.060	0.090
52	0.000	0.000	0.050	0.090
53	0.000	0.000	0.060	0.090
54	0.000	0.000	0.060	0.120
55	0.000	0.060	0.060	0.110
56	0.000	0.060	0.060	0.090
57	0.000	0.060	0.060	0.110
58	0.000	0.060	0.060	0.100
59	0.000	0.060	0.060	0.130
60	0.000	0.070	0.070	0.120
61	0.000	0.100	0.100	0.170
62	0.000	0.140	0.140	0.200
63	0.000	0.130	0.130	0.200
64	0.000	0.160	0.160	0.230
65	0.000	0.290	0.290	0.290
66	0.000	0.290	0.290	0.290
67	0.000	0.230	0.230	0.230
68	0.000	0.230	0.230	0.230
69	0.000	0.220	0.220	0.220
70	0.000	0.220	0.220	0.220
71	0.000	0.180	0.180	0.180
72	0.000	0.170	0.170	0.170
73	0.000	0.220	0.220	0.220
74	0.000	0.210	0.210	0.210
75	0.000	0.220	0.220	0.220
76	0.000	0.200	0.200	0.200
77	0.000	0.190	0.190	0.190
78	0.000	0.190	0.190	0.190
79	0.000	0.250	0.250	0.250
80+	0.000	1.000	1.000	1.000

Locals: Non-Metro, Non-Hazardous Duty

Retirement Rates

Plan 2 and Hybrid Male

Attained Age	Political Subdivisions - Non-Metro - Non-Hazardous Duty - Plan 2/Hybrid - Male																		
	Years of Service																		
	0-4	5	6-24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
60	0.000	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080	0.080
61	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
62	0.000	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120
63	0.000	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120
64	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
65	0.000	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210	0.210
66	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
67	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
68	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
69	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
70	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
71	0.000	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160
72	0.000	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160
73	0.000	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160
74	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
75	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
76	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
77	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
78	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
79	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
80+	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000



Locals: Non-Metro, Non-Hazardous Duty

Retirement Rates

Plan 2 and Hybrid Female

Attained Age	Political Subdivisions - Non-Metro - Non-Hazardous Duty - Plan 2/Hybrid - Female																		
	Years of Service																		
	0-4	5	6-24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
<=49	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090
51	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090	0.090
52	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090	0.090	0.090
53	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090	0.090	0.090	0.090
54	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090	0.090	0.090	0.090	0.090
55	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090	0.090	0.090	0.090	0.090	0.090
56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
57	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
58	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
59	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
60	0.000	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
61	0.000	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
62	0.000	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120
63	0.000	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120	0.120
64	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
65	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
66	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
67	0.000	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170	0.170
68	0.000	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160	0.160
69	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
70	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
71	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
72	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
73	0.000	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
74	0.000	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
75	0.000	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
76	0.000	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
77	0.000	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
78	0.000	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
79	0.000	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
80+	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Locals: Non-Metro, Non-Hazardous Duty

Termination Rates

Political Subdivisions		
Non-Metro - Non-Hazardous Duty		
Years of Service	Male	Female
0	0.26700	0.26400
1	0.22400	0.22500
2	0.19000	0.19700
3	0.17000	0.17600
4	0.15500	0.15900
5	0.14600	0.15100
6	0.13600	0.14000
7	0.12400	0.12900
8	0.12000	0.11700
9	0.10600	0.10800
10	0.09400	0.09200
11	0.09100	0.09200
12	0.09100	0.08800
13	0.09000	0.08500
14	0.08700	0.08300
15	0.08200	0.07800
16	0.08100	0.07400
17	0.08000	0.07400
18	0.07700	0.07100
19	0.07700	0.07100
20+	0.07300	0.06700

Locals: Non-Metro, Non-Hazardous Duty

Disability Rates

Attained Age	Political Subdivisions	
	Non-Metro	
	Non-Hazardous Duty	
	Male	Female
20	0.000019	0.000004
25	0.000034	0.000004
30	0.000086	0.000004
35	0.000210	0.000096
40	0.000519	0.000232
45	0.001085	0.000508
50	0.001717	0.001096
55	0.002338	0.001932
60	0.002626	0.002561
65	0.002626	0.002623
70	0.002626	0.002623

Note that 15% of disability cases are assumed to be service related. For VLDP purposes, disability rates are scaled by a factor of 2.5 and 3.0 for males and females, respectively.

Salary Increase Rates

Note that the rates below include wage inflation of 3.5% per year.

Years of Service	Political Subdivisions
	Non-Hazardous Duty
0	5.85%
1	5.85%
2	5.85%
3	5.25%
4	4.95%
5	4.95%
6	4.95%
7	4.85%
8	4.75%
9	4.50%
10	4.50%
11-19	4.15%
20+	3.50%

Locals: Metro, Hazardous Duty

Retirement Rates

Attained Age	Political Subdivisions - Metro - Hazardous Duty					
	Male			Female		
	Years of Service			Years of Service		
	0-4	5-24	25+	0-4	5-24	25+
<=49	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.080	0.220	0.000	0.070	0.280
51	0.000	0.070	0.200	0.000	0.090	0.250
52	0.000	0.060	0.200	0.000	0.080	0.240
53	0.000	0.060	0.230	0.000	0.090	0.270
54	0.000	0.070	0.220	0.000	0.090	0.280
55	0.000	0.070	0.240	0.000	0.090	0.360
56	0.000	0.070	0.220	0.000	0.130	0.300
57	0.000	0.080	0.190	0.000	0.120	0.250
58	0.000	0.070	0.200	0.000	0.120	0.270
59	0.000	0.120	0.190	0.000	0.130	0.300
60	0.000	0.200	0.200	0.000	0.190	0.190
61	0.000	0.220	0.220	0.000	0.190	0.190
62	0.000	0.260	0.260	0.000	0.210	0.210
63	0.000	0.250	0.250	0.000	0.210	0.210
64	0.000	0.270	0.270	0.000	0.260	0.260
65	0.000	0.330	0.330	0.000	0.340	0.340
66	0.000	0.370	0.370	0.000	0.380	0.380
67	0.000	0.350	0.350	0.000	0.390	0.390
68	0.000	0.400	0.400	0.000	0.340	0.340
69	0.000	0.470	0.470	0.000	0.360	0.360
70+	0.000	1.000	1.000	0.000	1.000	1.000

Locals: Metro, Hazardous Duty

Termination Rates

Political Subdivisions		
Metro - Hazardous Duty		
Years of Service	Male	Female
0	0.11400	0.17500
1	0.09200	0.13800
2	0.08500	0.11100
3	0.07500	0.08900
4	0.06700	0.08400
5	0.05700	0.07800
6	0.05200	0.06300
7	0.04100	0.05600
8	0.03700	0.05600
9	0.03000	0.04200
10	0.02600	0.03900
11	0.02300	0.03900
12	0.01900	0.03700
13	0.01900	0.03500
14	0.01700	0.03200
15	0.01400	0.03000
16	0.01300	0.03000
17	0.01100	0.02400
18	0.01100	0.02400
19	0.01100	0.02400
20+	0.01100	0.02400

Disability Rates

Attained Age	Political Subdivisions	
	Metro Hazardous Duty	
	Male	Female
20	0.000075	0.000042
25	0.000088	0.000866
30	0.000209	0.001954
35	0.000531	0.002466
40	0.001067	0.002780
45	0.001620	0.003170
50	0.001999	0.003816
55	0.002627	0.004817
60	0.004222	0.006257
65	0.007146	0.008145
70	0.012338	0.010866

Note that 70% of disability cases are assumed to be service related.

Locals: Metro, Hazardous Duty

Salary Increase Rates

Note that the rates below include wage inflation of 3.5% per year.

Years of Service	Political Subdivisions
	Hazardous Duty
0	5.25%
1	5.25%
2	5.25%
3	5.25%
4	5.25%
5	5.15%
6	4.90%
7	4.90%
8	4.90%
9	4.90%
10	4.50%
11-19	4.50%
20+	3.50%

Locals: Non-Metro, Hazardous Duty

Retirement Rates

Attained Age	Political Subdivisions - Non-Metro - Hazardous Duty					
	Male			Female		
	Years of Service			Years of Service		
	0-4	5-24	25+	0-4	5-24	25+
<=49	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.100	0.290	0.000	0.080	0.300
51	0.000	0.090	0.200	0.000	0.090	0.180
52	0.000	0.080	0.190	0.000	0.080	0.240
53	0.000	0.080	0.210	0.000	0.090	0.260
54	0.000	0.080	0.210	0.000	0.090	0.240
55	0.000	0.080	0.220	0.000	0.090	0.330
56	0.000	0.080	0.210	0.000	0.110	0.300
57	0.000	0.080	0.200	0.000	0.120	0.250
58	0.000	0.090	0.180	0.000	0.130	0.310
59	0.000	0.140	0.220	0.000	0.120	0.170
60	0.000	0.190	0.190	0.000	0.200	0.200
61	0.000	0.220	0.220	0.000	0.230	0.230
62	0.000	0.270	0.270	0.000	0.230	0.230
63	0.000	0.250	0.250	0.000	0.230	0.230
64	0.000	0.260	0.260	0.000	0.260	0.260
65	0.000	0.270	0.270	0.000	0.350	0.350
66	0.000	0.420	0.420	0.000	0.450	0.450
67	0.000	0.430	0.430	0.000	0.400	0.400
68	0.000	0.440	0.440	0.000	0.430	0.430
69	0.000	0.490	0.490	0.000	0.300	0.300
70+	0.000	1.000	1.000	0.000	1.000	1.000

Locals: Non-Metro, Hazardous Duty

Termination Rates

Political Subdivisions		
Non-Metro - Hazardous Duty		
Years of Service	Male	Female
0	0.15900	0.24200
1	0.13200	0.18200
2	0.11700	0.13800
3	0.10300	0.12000
4	0.09700	0.10600
5	0.08200	0.10300
6	0.07900	0.09300
7	0.06300	0.09000
8	0.05600	0.09000
9	0.05300	0.08500
10	0.04100	0.05300
11	0.03700	0.05300
12	0.03500	0.05300
13	0.03500	0.05200
14	0.03100	0.05200
15	0.02900	0.03600
16	0.02700	0.03600
17	0.02600	0.03500
18	0.02500	0.03500
19	0.02500	0.03500
20+	0.02500	0.03500

Disability Rates

Attained Age	Political Subdivisions	
	Non-Metro	
	Hazardous Duty	
	Male	Female
20	0.000007	0.000023
25	0.000081	0.000302
30	0.000288	0.000706
35	0.000604	0.000851
40	0.001091	0.000903
45	0.001652	0.001099
50	0.002081	0.001857
55	0.002479	0.003740
60	0.002873	0.007223
65	0.003148	0.012359
70	0.003297	0.020289

Note that 45% of disability cases are assumed to be service related.

Locals: Non-Metro, Hazardous Duty

Salary Increase Rates

Note that the rates below include wage inflation of 3.5% per year.

Years of Service	Political Subdivisions
	Hazardous Duty
0	5.25%
1	5.25%
2	5.25%
3	5.25%
4	5.25%
5	5.15%
6	4.90%
7	4.90%
8	4.90%
9	4.90%
10	4.50%
11-19	4.50%
20+	3.50%

Assumptions by Plan

Pension

Interest on Member Contributions: 4% per annum.

Cost-of-Living Increases: 2.50% per year compounded annually for Plan 1 members receiving benefits or vested as of January 1, 2013 and 2.25% compounded annually for all other members. The temporary supplement for SPORS and VaLORS members is assumed to be adjusted biennially based on increases of 2.50% per annum compounded annually.

Percent Electing a Deferred Termination Benefit: Terminating members are assumed to elect a return of contributions or a deferred annuity, whichever is the most valuable benefit at the time of termination. Termination benefits are assumed to commence at normal retirement age.

Deferred Benefit Commencement: For valuation purposes, it is assumed that benefits will commence at Normal Retirement.

Assumed Payment Form: Modified cash refund annuity, in which the total benefit received by a member and his or her estate cannot be less than the total contributions made by the member while he or she was an active participant plus interest. For members in pay status, the modified cash refund was estimated to be in effect for two years after retirement for Judicial members and three years for all others.

Marriage Assumption: 100% of active employees are assumed to be married, with males two years older than females.

Service-Related Disability: The service-related disability benefits do not include an adjustment for Social Security or Worker's Compensation benefits.

Hazardous Duty Service: The valuations of SPORS, VaLORS and Locals (having Hazardous Duty benefits) assume that all VRS service is hazardous duty service for purposes of determining eligibility for the temporary supplement.

Disability Election: All active members hired on or after January 1, 1999 will enter the Virginia Sickness and Disability Program (VSDP) and will not be eligible to receive non-VSDP disability benefits. For members hired before January 1, 1999, we measure the liabilities based upon the member's actual election contained in the valuation data.

Salary Increase for Disabled Members: It is assumed members covered under VSDP receive a 3.50% annual increase in pay while disabled and this adjusted pay is used to determine benefits payable from the System.



Pension

Political Subdivisions

Employer Groups: Historically, employers were separated into “Top-10”/“Non-Top 10” groups which used separate valuation assumptions --Top 10 was based on six cities: Alexandria, Chesapeake, Hampton, Lynchburg, Portsmouth, VA Beach; and four counties: Chesterfield, Henrico, Loudoun, and Prince William. Non-Top 10 consists of all other Virginia municipalities.

Effective with the 2020-2024 experience study, Top-10 groups were expanded to include surrounding entities – for example, former top 10 Employer Virginia Beach is now in a “Metro” grouping that includes the Virginia Beach City School Board (formerly a very large non-Top 10 employer).

The Non-Metro group consists of all other political subdivisions not included in the Metro group.

A full listing of Metro/Non-Metro status is included in the Experience Study report.

Additional Funding Charge: The contribution rate needed, if necessary, to allow the local system to use the Investment Return Rate as its Single Equivalent Interest Rate (SEIR) – also known as the Single Discount Rate -- under GASB Statement No. 68. To determine the SEIR, the Plan Fiduciary Net Position (PFNP) must be projected into the future for as long as there are anticipated benefits payable under the plan’s provision applicable to the membership and beneficiaries of the system on the Measurement Date. If the PFNP is projected to not be depleted at any point in the future, the long term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR. If the PFNP is projected to be depleted, an Additional Funding Charge is developed to avoid depletion.

Plan Surcharge: The additional contribution rate applied to plans below 75% funded in order to maintain a total employer contribution at the same level as the previous rate setting actuarial valuation. Political subdivision plans identified as potentially “at-risk” may require an additional surcharge above the level necessary to maintain the level from the previous rate setting actuarial valuation.



Group Life Insurance Program

Minimum Benefit: Effective July 1, 2015, in no event will the death benefit be less than \$8,000 for members who retire with at least 30 years of creditable service. This minimum is indexed at the same rate as the post-retirement supplement for retirees hired on or after July 1, 2010. Beginning on the valuation date, this minimum is assumed to increase annually, effective July 1, by 2.25% (the same assumed annual increase percentage for any annual postretirement supplement for retirees, as calculated for employees hired on or after July 1, 2010).

“Life Insurance Only” Retirees: Select groups with eligible persons do not provide retiree census data. Valuation results include an estimate of retiree liability for such groups. The estimation assumptions follow:

The Life Only group includes an estimated retiree liability equal to 2.0% of the inactive accrued liability of non-Life Only groups.

The Optional Retirement Program (ORP) group includes an estimated retiree liability equal to 10% of the active ORP liability multiplied by the ratio of the average non-ORP/Life Only retiree accrued liability to the average non-ORP/Life Only active accrued liability.



Health Insurance Credit Program

Statewide Plans

Participation Rates: 94% of eligible future service retirees from active or deferred, status are assumed to utilize the benefit plan. Eligible future disabled benefit recipients from active status are assumed to utilize the benefit plan as follows:

System	Participation
State/JRS	92%
Teachers	84%
SPORS/VaLORS	63%

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

System	Percentage
State/JRS	5%
Teachers	13%
SPORS/VaLORS	9%

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

Annual Increase in Benefit for Those Not Receiving the Maximum Benefit: Benefit recipients assumed to utilize the benefit plan, but not receiving the maximum benefit for which they are eligible are assumed to continue their current/assumed utilization indefinitely.

Percentage of Future Eligible Deferred Vested Members Electing to Withdraw from VRS: 6% of eligible future deferred vested members are assumed to elect to withdraw from VRS.

Deferred Vested Deferral Period: Eligible deferred vested members are assumed to begin receiving benefits at the following ages, based on their last system of employment:

System	Age Initial Benefit Receipt
State/Teachers/JRS	
Plan 1	60
Plan 2 & Hybrid	62
SPORS/VaLORS	55

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



Health Insurance Credit Program

Political Subdivision & Special Coverage Groups

Participation Rates: 87% of eligible future service retirees from active or deferred, status are assumed to utilize the benefit plan. 54% of eligible future disabled benefit recipients are assumed to utilize the benefit.

Percentage Not Utilizing the Maximum Benefit: 4% of eligible future benefit recipients are assumed to utilize the benefit plan, but not receive the maximum benefit for which they are eligible.

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

Annual Increase in Benefit for Those Not Receiving Maximum Benefit: Benefit recipients assumed to utilize the benefit plan, but not receiving the maximum benefit for which they are eligible are assumed to continue their current/assumed utilization indefinitely.

Percentage of Future Eligible Deferred Vested Members Electing to Withdraw from VRS: 13% of eligible future deferred vested members are assumed to elect to withdraw from VRS.

Deferred Vested Deferral Period: Eligible deferred vested members are assumed to begin receiving benefits at the following ages, based on their last system of employment.

Political Subdivisions and Special Coverage Groups	Age Initial Benefit Receipt
General Employee Pension Benefit Coverage	
Plan 1	60
Plan 2 & Hybrid	62
Enhanced Hazardous Duty Pension Benefit Coverage	55

Health Insurance Credit Program

Political Subdivision & Special Coverage Groups (Concluded)

Employer Groups: Historically, employers were separated into “Top-10”/“Non-Top 10” groups which used separate valuation assumptions --Top 10 was based on six cities: Alexandria, Chesapeake, Hampton, Lynchburg, Portsmouth, VA Beach; and four counties: Chesterfield, Henrico, Loudoun, and Prince William. Non-Top 10 consists of all other Virginia municipalities.

Effective with the 2020-2024 experience study, Top-10 groups were expanded to include surrounding entities – for example, former top 10 Employer Virginia Beach is now in a “Metro” grouping that includes the Virginia Beach City School Board (formerly a very large non-Top 10 employer).

The Non-Metro group consists of all other political subdivisions not included in the Metro group.

A full listing of Metro/Non-Metro status is included in the Experience Study report.

Additional Funding Charge: The contribution rate needed, if necessary, to allow the local system to use the Investment Return Rate as its Single Equivalent Interest Rate (SEIR) – also known as the Single Discount Rate -- under GASB Statement No. 75. To determine the SEIR, the Plan Fiduciary Net Position (PFNP) must be projected into the future for as long as there are anticipated benefits payable under the plan’s provision applicable to the membership and beneficiaries of the system on the Measurement Date. If the PFNP is projected to not be depleted at any point in the future, the long term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR. If the PFNP is projected to be depleted, an Additional Funding Charge is developed to avoid depletion.

Plan Surcharge: The additional contribution rate applied to plans below 75% funded in order to maintain a total employer contribution at the same level as the previous rate setting actuarial valuation.



Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

Long-Term Disability Benefits

Cost-of-Living Increase:

VSDP (Plan 1): 2.50% per year, compounded annually.
VSDP (Plan 2/Hybrid): 2.25% per year, compounded annually.
VLDP: 0.00% per year.

Income Replacement for Future Disabled Members: 62% of member's pre-disability income.

Members with 1% Employer Contribution: 65% of Hybrid Plan members are assumed to meet the Social Security definition of Disability and become eligible to receive a one percent employer contribution to their defined contribution account.

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

Year of Long-Term Disability	Benefit Adjustment Factor
1	72%
2	61%
3	52%
4	49%
5	43%
6	39%
7	39%
8	40%
9	36%
10	43%
11	41%
12	46%
13	43%
14	44%
15+	50%

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

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

Year of Long-Term Disability	Percentage Receiving Offsets in the Next Year if Currently Not in Receipt	Average Percentage of Full Benefit Paid if in Receipt of Offsets
1	36%	26%
2	27%	25%
3	23%	25%
4	16%	26%
5	14%	27%
6	9%	26%
7	4%	25%
8+	0%	29%

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

Month of Disability	Male	Female
4 - 24	0.673	0.610
25 - 60	0.852	0.862
61 - 120	1.280	1.302
121 and over	1.481	1.576

Liability Assumed for Disabled Members in Waiting Period: The liability associated for those disabled and not yet eligible to receive benefits is implicitly modeled by applying the disability incidence rates to all current active records, as part of the regular valuation, including those records in a short-term disability status, in order to reflect the total expected disability benefit streams and associated liability.

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

Long-Term Care Benefits

Daily Benefit Amount: Assumed to be the maximum \$96 per day for service in a nursing home. The daily assumed benefit for home health care coverage is \$48.

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

Benefit Maximums: Lifetime maximum benefits in the valuation are capped at \$70,080, which reflects a two-year maximum coverage period based upon a \$96 per day indemnity benefit.

Morbidity: For actively employed and ported members, the following claim incidence rates are used.

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

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

Morbidity (continued): For actively employed members, the unadjusted claim incidence rates are adjusted by the following selection factors.

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

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

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

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



Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

Morbidity (concluded): Claim duration is based on the attained age at incidence, gender, and type of claim.

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

Disabled Life Reserve: The liability associated for those participants assumed to be in a current benefit period were developed based on completion factors from benefit start date for closed cases and applied to current members based on individual durations and payment levels.

Incurred But Not Reported Reserve: The liability associated for those participants with claims that have been incurred but not reported (IBNR), as of the valuation date, to the administrator was based upon an average of 3 months of actual benefit payments for the most recent year of experience.

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

Porting Rates: Porting rate assumptions are based upon experience over the first five years of the program, with substantial increases over the life of the program. Because actuarial experience (gains)/losses have fluctuated over the past several years, we made no modifications. Porting rates by age of entry and length of membership are provided in the following table.

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

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP)

Porting Premiums: While actively employed or receiving LTD benefits, a member receives coverage in the amount currently in place for the entire actively employed group. Upon termination of employment, a member has the option to port the amount of current coverage for the group by paying a premium.

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

Actuarial Funding Method

Actuarial Funding Method: The Board has adopted funding policies for the Virginia Retirement System to achieve the following major objectives:

- Develop level required contribution rates as a percentage of payroll;
- Finance benefits earned by present employees on a current basis;
- Accumulate assets to enhance members' benefit security;
- Produce investment earnings on accumulated assets to help meet future benefit costs;
- Estimate the long-term actuarial cost of proposed amendments to Plan provisions; and
- Assist in maintaining the VRS' long-term financial viability.

The basic funding objective is a level pattern of cost as a percentage of pay throughout each member's working lifetime.

The funding method used in the actuarial valuations – the entry age normal cost method – intends to: (i) meet this funding objective; and (ii) result in a relatively level long-term contribution requirement as a percentage of pay.

Under the entry age normal cost method, the total actuarially-determined contribution requirement is equal to the sum of the normal cost plus the payment required to fund the unfunded actuarial accrued liability over a period of years. Funding or amortizing the unfunded actuarial accrued liability includes a payment toward the liability (principal) plus a payment to reflect the time value of money (interest).

Normal Cost: The cost of benefit rights accruing on the basis of current service. Technically, the normal cost rate is the level percentage-of-pay contribution required each year, with respect to each member, to accumulate over their projected working lifetime the reserves needed to meet the cost of earned benefits. The normal cost represents the ultimate cost of the plan, if the unfunded liability is paid up and the actual experience of the Program conforms to the assumptions. For purposes of Plan funding, the normal cost for each member is calculated based on the prospective benefit formula for that member (referred to as the replacement life method), with entry based upon benefit service (eligibility service if the participant is reported with a frozen benefit). For accounting purposes, the normal cost for each member is calculated as the level contribution over the member's entire career which is anticipated to accumulate to the value of benefits at the end of the career.

Actuarial Accrued Liability: The total actuarial present value of future benefits is computed using the valuation's actuarial assumptions. Subtracting the present value of future normal costs results in the actuarial accrued liability.

The total actuarial accrued liability essentially represents the amount that would have been accumulated as of a given valuation date, if:

- (i) Contributions sufficient to meet the normal costs of the plan had been made each year in the past;
- (ii) Benefit provisions had always been the same as current benefit provisions; and
- (iii) Actual past experience had always conformed to current actuarial assumptions. If assets equaled the total accrued liability, there would be no unfunded liability and future contribution requirements would consist solely of the calculated normal cost rates, absent other funding policy parameters.



Actuarial Funding Method

Amortization of Unfunded Actuarial Accrued Liability: The “legacy” Unfunded Actuarial Accrued Liability (“legacy UAAL”), equaling the unfunded actuarial accrued liability as of June 30, 2013, is amortized over a closed 30-year period beginning June 30, 2013. The amortization period of the legacy UAAL will decrease by one in each subsequent valuation until reaching 0 years. Actuarial gains and losses and other changes in the UAAL due to benefit and actuarial assumption and method changes for each valuation subsequent to the June 30, 2013 valuation are amortized over layered 20-year closed periods. The amortization of the UAAL assumes that payroll will increase by payroll growth (see below) annually and the amortization period will decrease by one year until reaching 0 years.

On October 19, 2023, the VRS Board adopted a change to the VRS Funding Policy Statement which generally reset the amortization period to 20 years for the total unfunded accrued liability as of June 30, 2023. Any political subdivision unfunded liabilities which were originally amortized over 10 years, associated with the implementation of coverage or enhancement of coverage, were not reset as part of the October 19, 2023 change. Subsequent valuation gains and losses will resume 20-year layering. See the Amortization Schedule in each report for additional detail.

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

Payroll growth assumption: For purposes of amortizing the unfunded actuarial accrued liability, a payroll growth assumption of 3.00% is used for all Plans except VaLORS which uses a 2.50% payroll growth assumption.

Surplus Funding Policy: Once the funded status on actuarial value of assets (AVA) basis exceeds 100% for Statewide Plans:

1. Continue normal cost contributions until funding reaches 120%,
2. Recognize the Unfunded Accrued Liability (UAL) credit when AVA funding exceeds 120%, and
3. Amortize such overfunding, over 100% funded, using a 20 year rolling period.

Valuation Assets: The actuarial value of assets are determined on the basis of a method that calculates expected investment income at the valuation rate of return and adds a portion of the difference between the expected investment income and actual investment income earned on a market value basis. The difference in investment income between expected return and market return is recognized over a 5-year period at the rate of 20% per year. The resulting actuarial value of assets cannot be less than 80% or more than 120% of the market value of assets.

For Political Subdivision plans, the actuarial value of assets is determined in aggregate for all plans, with a corresponding aggregate ratio of actuarial value to market value. The aggregate ratio is then applied to the market value of each Political Subdivision plan to determine the actuarial value of assets each individual Political Subdivision plan.

The valuation asset descriptions above are first applicable for Special Coverage Groups and Political Subdivisions providing HIC Benefits in the June 30, 2025 valuations.



APPENDIX B

LIST OF POLITICAL SUBDIVISION EMPLOYERS

List of Political Subdivision Metro Employers

Metro Political Subdivisions	
ALEXANDRIA CITY SCHOOL BOARD	GLOUCESTER COUNTY SCHOOL BOARD
ALEXANDRIA RED/HOUS AUTH	HAMPTON CITY SCHOOLS
ALEXANDRIA RENEW ENTERPRISES	HAMPTON NEWPORT NEWS COMMUNITY SERVICES BOARD
ARLINGTON PUBLIC SCHOOLS	HAMPTON RED/HOUS AUTHORITY
BEDFORD COUNTY	HAMPTON ROADS PLANNING DISTRICT COMMISSION
BEDFORD COUNTY SCHOOL BOARD	HAMPTON ROADS REGIONAL JAIL
BEDFORD PUBLIC LIBRARY	HAMPTON ROADS SANITATION DIST
BEDFORD REGIONAL WATER AUTHORITY	HAMPTON ROADS TRANSIT
BLACKSBURG-VPI SANITATION AUTHORITY	HAMPTON ROADS TRANSPORTATION ACCOUNTABILITY COMMISSION
BLUE RIDGE BEHAVIORAL HEALTHCARE	HAMPTON ROADS WORKFORCE COUNCIL
BOTETOURT COUNTY	HANOVER COUNTY
BOTETOURT COUNTY SCHOOLS	HANOVER COUNTY PUBLIC SCHOOLS
CAPITAL REGION AIRPORT COMM	HENRICO CO SCHOOL BOARD
CENTRAL VIRGINIA WASTE MANAGEMENT AUTHORITY	HENRICO COUNTY
CHESAPEAKE PUBLIC SCHOOLS	HENRICO SPORTS AND ENTERTAINMENT AUTHORITY
CHESAPEAKE RED/HOUS AUTH	HENRICOPOLIS SOIL AND WATER CONSERVATION DISTRICT
CHESTERFIELD CO SCHOOL BD	JAMES CITY COUNTY
CHESTERFIELD COUNTY	JAMES CITY SERVICE AUTHORITY
CHESTERFIELD COUNTY HEALTH CENTER COMMISSION	KING AND QUEEN COUNTY
CITY OF ALEXANDRIA	KING AND QUEEN COUNTY SCHOOL BOARD
CITY OF CHESAPEAKE	KING WILLIAM CO SCHOOL BOARD
CITY OF COLONIAL HEIGHTS	KING WILLIAM COUNTY
CITY OF FAIRFAX	LANCASTER COUNTY
CITY OF FALLS CHURCH	LANCASTER COUNTY PUBLIC SCHOOLS
CITY OF HAMPTON	LOUDOUN COUNTY
CITY OF LYNCHBURG	LOUDOUN COUNTY SANITATION AUTHORITY
CITY OF MANASSAS	LOUDOUN COUNTY SCHOOL BOARD
CITY OF MANASSAS PARK	MANASSAS CITY PUBLIC SCHOOLS
CITY OF NEWPORT NEWS	MANASSAS PARK CITY SCHOOLS
CITY OF NORFOLK	MATHEWS COUNTY
CITY OF POQUOSON	MATHEWS COUNTY SCHOOL BOARD
CITY OF PORTSMOUTH	MIDDLE PEN/NO NECK COMM SVCS_BOARD
CITY OF RICHMOND	MIDDLE PENINSULA JUVENILE DETENTION COMMISSION
CITY OF ROANOKE	MIDDLE PENINSULA PLANNING DISTRICT COMMISSION
CITY OF SALEM	MIDDLE PENINSULA REG SECURITY
CITY OF SALEM SCHOOLS	MIDDLESEX COUNTY
CITY OF SUFFOLK	MIDDLESEX COUNTY SCHOOL BOARD
CITY OF VIRGINIA BEACH	MONTGOMERY COUNTY
CITY OF WILLIAMSBURG	MONTGOMERY COUNTY SCHOOL BOARD
COLONIAL BEHAVIORAL HEALTH	MONTGOMERY REGIONAL SOLID WASTE AUTHORITY
COLONIAL HEIGHTS CITY SCHOOLS	NEW HORIZONS TECHNICAL CTR
CRAIG COUNTY	NEW RIVER VALLEY COMMUNITY SERVICES
CRAIG COUNTY SCHOOL BOARD	NEW RIVER VALLEY EMERGENCY COMMUNICATIONS REGIONAL AUTHORITY
ECONOMIC DEVELOPMENT AUTHORITY OF HENRICO CO, VA	NEW RIVER VALLEY JUV DET COMM
ESSEX COUNTY	NEWPORT NEWS PUBLIC SCHOOLS
ESSEX COUNTY PUBLIC SCHOOLS	NORFOLK AIRPORT AUTHORITY
GILES COUNTY	NORFOLK PUBLIC SCHOOLS
GILES COUNTY PUBLIC SERVICE AUTHORITY	NORFOLK RED/HOUS AUTH
GILES COUNTY SCHOOLS	NORTHERN NECK ESSEX CO HOME
GLOUCESTER COUNTY	NORTHERN NECK PLANNING DISTRICT COMMISSION

List of Political Subdivision Metro Employers

Metro Political Subdivisions	
NORTHERN NECK REG VOC CTR	TOWN OF HAYMARKET
NORTHERN NECK REGIONAL JAIL	TOWN OF HERNDON
NORTHERN NECK SOIL AND WATER CONSERVATION DISTRICT	TOWN OF KILMARNOCK
NORTHERN VIRGINIA HEALTH CARE CENTER	TOWN OF LEESBURG
NORTHERN VIRGINIA JUVENILE DETENTION CENTER	TOWN OF LOVETTSVILLE
NORTHERN VIRGINIA SOIL AND WATER CONSERVATION DISTRICT	TOWN OF MIDDLEBURG
NORTHERN VIRGINIA TRANSPORTATION AUTHORITY	TOWN OF MONTROSS
NORTHUMBERLAND CO SCHOOL BD	TOWN OF NARROWS
NORTHUMBERLAND COUNTY	TOWN OF OCCOQUAN
PAMUNKEY REGIONAL JAIL	TOWN OF PEARISBURG
PAMUNKEY REGIONAL LIBRARY	TOWN OF PEMBROKE
PEAK OF OTTER SOIL AND WATER CONSERVATION DISTRICT	TOWN OF PURCELLVILLE
PENINSULA AIRPORT COMMISSION	TOWN OF QUANTICO
PENINSULA PORTS AUTH OF VA	TOWN OF RICH CREEK
POQUOSON CITY PUBLIC SCHOOLS	TOWN OF ROUND HILL
PORTSMOUTH REDEVELOPMENT AND HOUSING AUTHORITY	TOWN OF TAPPAHANNOCK
PORTSMOUTH SCHOOL BOARD	TOWN OF TROUTVILLE
POTOMAC AND RAPPAHANNOCK TRANSPORTATION COMMISSION	TOWN OF URBANNA
POTOMAC RIVER FISHERIES COMM	TOWN OF VIENNA
PRINCE WILLIAM CO SCHOOL BD	TOWN OF VINTON
PRINCE WILLIAM COUNTY	TOWN OF WARSAW
PRINCE WILLIAM COUNTY SERVICE AUTHORITY	TOWN OF WEST POINT
PRINCE WILLIAM SOIL AND WATER CONSERVATION DISTRICT	TOWN OF WEST POINT SCHOOL BD
RICHMOND BEHAVIORAL HEALTH AUTHORITY	UPPER OCCOQUAN SEWAGE AUTH
RICHMOND COUNTY	VA BEACH CITY SCHOOL BOARD
RICHMOND COUNTY SCHOOL BOARD	VIRGINIA BIOTECHNOLOGY RESEARCH PARTNERSHIP AUTHORITY
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY	VIRGINIA DARE SOIL AND WATER CONSERVATION DISTRICT
RICHMOND PUBLIC SCHOOLS	VIRGINIA PENINSULA REGIONAL JAIL
RICHMOND REDEVELOPMENT AND HOUSING AUTHORITY	VIRGINIA PENINSULAS PUBLIC SERVICE AUTHORITY
RICHMOND REGIONAL PLANNING DISTRICT COMMISSION	VIRGINIA RESOURCES AUTHORITY
ROANOKE CITY SCHOOL BOARD	WASHINGTON METROPOLITAN AREA TRANSIT COMMISSION
ROANOKE COUNTY	WESTERN TIDEWATER COMM SVCS
ROANOKE COUNTY SCHOOL BOARD	WESTERN TIDEWATER REGIONAL JAIL
ROANOKE HIGHER EDUCATION AUTHORITY	WESTERN VIRGINIA REGIONAL JAIL AUTHORITY
ROANOKE REDEVELOPMENT AND HOUSING AUTHORITY	WESTERN VIRGINIA WATER AUTHORITY
SKYLINE SOIL AND WATER CONSERVATION DISTRICT	WESTMORELAND CO SCHOOL BD
SOUTHEASTERN PUBLIC SVC AUTH	WESTMORELAND COUNTY
SUFFOLK CITY SCHOOL BOARD	WILLIAMSBURG AREA TRANSIT AUTHORITY
SUFFOLK REDEVELOPMENT AND HOUSING AUTHORITY	WILLIAMSBURG-JAMES CITY CO SCH
THREE RIVERS SOIL AND WATER CONSERVATION DISTRICT	YORK COUNTY
TIDEWATER SOIL AND WATER CONSERVATION DISTRICT	YORK COUNTY SCHOOL BOARD
TIDEWATER YOUTH SERVICES COMMISSION	
TOWN OF ASHLAND	
TOWN OF BEDFORD	
TOWN OF BLACKSBURG	
TOWN OF BUCHANAN	
TOWN OF CHRISTIANSBURG	
TOWN OF COLONIAL BEACH	
TOWN OF DUMFRIES	
TOWN OF HAMILTON	

List of Political Subdivision Non-Metro Employers

Non Metro Political Subdivisions	
ACCOMACK COUNTY	CAMPBELL COUNTY SCHOOL BOARD
ACCOMACK COUNTY SCHOOL BOARD	CAROLINE COUNTY
ACCOMACK/NORTHAMPTON PLAN	CAROLINE COUNTY SCHOOL BOARD
ALBEMARLE CO SERVICE AUTH	CARROLL COUNTY
ALBEMARLE COUNTY	CARROLL COUNTY SCHOOL BOARD
ALBEMARLE COUNTY SCHOOLS	CASTLEWOOD WATER AND SEWAGE AUTHORITY
ALBEMARLE-CHARLOTTESVILLE REGIONAL JAIL	CENTRAL RAPPAHANNOCK REGIONAL LIBRARY
ALLEGHANY COUNTY	CENTRAL SHENANDOAH CRIMINAL JUSTICE TRAINING ACADEMY
ALLEGHANY HIGHLANDS COMM SVCS	CENTRAL VIRGINIA PLANNING DISTRICT COMMISSION
ALLEGHANY HIGHLANDS PUBLIC SCHOOLS	CENTRAL VIRGINIA REGIONAL JAIL
ALLEGHANY HIGHLANDS REGIONAL LIBRARY, INC.	CHARLES CITY CO SCHOOL BD
AMELIA COUNTY	CHARLES CITY COUNTY
AMELIA COUNTY SCHOOL BOARD	CHARLOTTE COUNTY
AMHERST COUNTY	CHARLOTTE COUNTY SCHOOL BOARD
AMHERST COUNTY SCHOOL BOARD	CHARLOTTESVILLE PUBLIC SCHOOLS
AMHERST COUNTY SERVICE AUTH	CHARLOTTESVILLE RED/HOUS AUTH
ANCHOR COMMISSION	CHARLOTTESVILLE-ALBEMARLE AIRPORT AUTHORITY
APPALACHIAN JUVENILE COMMISSION	CHESAPEAKE BRIDGE/TUNNEL
APPOMATTOX COUNTY	CITY OF BRISTOL
APPOMATTOX COUNTY SCHOOL BOARD	CITY OF BUENA VISTA
APPOMATTOX REGION GOVERNOR'S SCHOOL	CITY OF COVINGTON
APPOMATTOX REGIONAL LIBRARY	CITY OF DANVILLE
APPOMATTOX RIVER WATER AUTH	CITY OF EMPORIA
AUGUSTA COUNTY	CITY OF FRANKLIN
AUGUSTA COUNTY PUBLIC SERVICE AUTH	CITY OF FREDERICKSBURG
AUGUSTA COUNTY SCHOOL BOARD	CITY OF GALAX
BATH COUNTY	CITY OF HARRISONBURG
BATH COUNTY SCHOOL BOARD	CITY OF HOPEWELL
BIG SANDY SOIL AND WATER CONSERVATION DISTRICT	CITY OF LEXINGTON
BIG STONE GAP REDEVELOPMENT AND HOUSING AUTHORITY	CITY OF MARTINSVILLE
BIG WALKER SOIL AND WATER CONSERVATION DISTRICT	CITY OF NORTON
BLAND COUNTY	CITY OF PETERSBURG
BLAND COUNTY SCHOOL BOARD	CITY OF RADFORD
BLUE RIDGE JUVENILE DETENTION CENTER	CITY OF STAUNTON
BLUE RIDGE REGIONAL JAIL AUTHORITY	CITY OF WAYNESBORO
BLUE RIDGE RESOURCE AUTHORITY	CITY OF WINCHESTER
BREAKS INTERSTATE PARK COMMISSION	CLARKE COUNTY
BRISTOL CITY SCHOOL BD	CLARKE COUNTY SCHOOL BOARD
BRISTOL REDEVELOPMENT AND HOUSING AUTHORITY	CLINCH VALLEY SOIL AND WATER CONSERVATION DISTRICT
BRUNSWICK COUNTY	COEBURN-NORTON-WISE REGIONAL WATER TREATMENT AUTHORITY
BRUNSWICK COUNTY PUBLIC SCHOOLS	COLONIAL SOIL AND WATER CONSERVATION DISTRICT
BRUNSWICK INDUSTRIAL DEVELOPMENT AUTHORITY	COMMONWEALTH REGIONAL COUNCIL
BUCHANAN COUNTY	COVINGTON CITY SCHOOL BOARD
BUCHANAN COUNTY SCHOOL BOARD	CRATER CRIMINAL JUSTICE TRAINING ACADEMY
BUCKINGHAM COUNTY	CRATER JUV DET HOME COMM
BUCKINGHAM COUNTY SCHOOL BOARD	CULPEPER COUNTY
BUENA VISTA CITY SCHOOLS	CULPEPER COUNTY SCHOOL BOARD
BVU AUTHORITY	CULPEPER SOIL AND WATER CONSERVATION DISTRICT
CAMPBELL CO UTILITIES & SVCS	CUMBERLAND COUNTY
CAMPBELL COUNTY	CUMBERLAND COUNTY SCHOOL BOARD

List of Political Subdivision Non-Metro Employers

Non Metro Political Subdivisions	
CUMBERLAND MOUNTAIN COMM SVCS	HARRISONBURG ROCKINGHAM COMMUNITY SERVICES BOARD
CUMBERLAND PLATEAU REG HOUSING	HARRISONBURG-ROCKINGHAM REGIONAL SEWER AUTHORITY
DANIEL BOONE SOIL AND WATER CONSERVATION DISTRICT	HENRY COUNTY
DANVILLE CITY SCHOOLS	HENRY COUNTY PUBLIC SCHOOLS
DANVILLE RED/HOUS AUTH	HENRY COUNTY PUBLIC SERVICE AUTHORITY
DANVILLE-PITTSYLVANIA COMMUNITY SERVICES	HIGHLAND COUNTY
DICKENSON COUNTY	HIGHLAND COUNTY SCHOOL BOARD
DICKENSON COUNTY SCHOOL BOARD	HOLSTON RIVER SOIL AND WATER CONSERVATION DISTRICT
DINWIDDIE CO WATER AUTHORITY	HOPEWELL CITY SCHOOL BOARD
DINWIDDIE COUNTY	HOPEWELL RED/HOUS AUTH
DINWIDDIE COUNTY SCHOOL BOARD	HORIZON BEHAVIORAL HEALTH
DISTRICT 19 COMMUNITY SERVICES BOARD	INSTITUTE FOR ADVANCED LEARNING AND RESEARCH
EASTERN SHORE COMM SVCS BD	ISLE OF WIGHT COUNTY
EASTERN SHORE PUBLIC LIBRARY	ISLE OF WIGHT COUNTY SCHOOLS
EASTERN SHORE SOIL AND WATER CONSERVATION DISTRICT	JACKSON RIVER TECHNICAL CTR
EVERGREEN SOIL AND WATER CONSERVATION DISTRICT	JOHN MARSHALL SOIL AND WATER CONSERVATION DISTRICT
FAUQUIER COUNTY	KING GEORGE CO SCHOOL BOARD
FAUQUIER COUNTY SCHOOL BOARD	KING GEORGE COUNTY
FAUQUIER COUNTY WATER AND SANITATION AUTHORITY	LEE CO RED/ HOUSING AUTH
FERRUM WATER AND SEWAGE AUTHORITY	LEE COUNTY
FLOYD COUNTY	LEE COUNTY PUBLIC SERVICE AUTHORITY
FLOYD COUNTY SCHOOL BOARD	LEE COUNTY SCHOOL BOARD
FLUVANNA COUNTY	LENOWISCO PLANNING DIST COMM
FLUVANNA COUNTY PUBLIC SCHOOLS	LEXINGTON CITY SCHOOL BOARD
FRANKLIN CITY PUBLIC SCHOOLS	LONESOME PINE REGIONAL LIBRARY
FRANKLIN COUNTY	LONESOME PINE SOIL AND WATER CONSERVATION DISTRICT
FRANKLIN COUNTY PUBLIC SCHOOLS	LOUISA COUNTY
FRANKLIN RED/HOUS AUTH	LOUISA COUNTY PUBLIC SCHOOLS
FREDERICK CO SANITATION AUTH	LUNENBURG COUNTY
FREDERICK COUNTY	LUNENBURG COUNTY SCHOOL BOARD
FREDERICK COUNTY SCHOOL BOARD	LYNCHBURG PUBLIC SCHOOLS
FREDERICKSBURG CITY SCHOOLS	MADISON COUNTY
FREDERICKSBURG-STAFFORD PARK	MADISON COUNTY SCHOOL BOARD
GALAX CITY SCHOOLS	MARTINSVILLE CITY SCHOOLS
GOOCHLAND COUNTY	MASSANUTTEN REGIONAL LIBRARY
GOOCHLAND COUNTY SCHOOL BOARD	MAURY SERVICE AUTHORITY
GOOCHLAND POWHATAN COMM SVCS	MECKLENBURG CO SCHOOL BOARD
GRAYSON COUNTY	MECKLENBURG COUNTY
GRAYSON COUNTY SCHOOL BOARD	MEHERRIN REGIONAL LIBRARY
GREENE COUNTY	MEHERRIN RIVER REGIONAL JAIL AUTHORITY
GREENE COUNTY PUBLIC SCHOOLS	MIDDLE RIVER REGIONAL JAIL AUTHORITY
GREENSVILLE - EMPORIA SO SVCS	MONACAN SOIL AND WATER CONSERVATION DISTRICT
GREENSVILLE COUNTY	MOUNT ROGERS COMMUNITY SERVICES BOARD
GREENSVILLE COUNTY PUBLIC SCHOOLS	NELSON COUNTY
GREENSVILLE COUNTY WATER AND SEWER AUTHORITY	NELSON COUNTY PUBLIC SCHOOLS
HALIFAX COUNTY	NELSON COUNTY SERVICE AUTHORITY
HALIFAX COUNTY SCHOOL BOARD	NEW KENT COUNTY
HALIFAX SERVICE AUTHORITY	NEW KENT COUNTY SCHOOL BOARD
HANDLEY REGIONAL LIBRARY	NEW RIVER RESOURCE AUTHORITY
HARRISONBURG CITY SCHOOL BD	NEW RIVER SOIL AND WATER CONSERVATION DISTRICT

List of Political Subdivision Non-Metro Employers

Non-Metro Political Subdivisions	
NEW RIVER VALLEY REGIONAL COMMISSION	RIVANNA WATER AND SEWER AUTHORITY
NEW RIVER VALLEY REGIONAL JAIL	RIVERSIDE REGIONAL JAIL
NORTHAMPTON COUNTY	ROANOKE RIVER SERVICE AUTHORITY
NORTHAMPTON COUNTY SCHOOLS	ROBERT E. LEE SOIL AND WATER CONSERVATION DISTRICT
NORTHERN SHENANDOAH VALLEY REGIONAL COMMISSION	ROCKBRIDGE AREA COMM SVC BD
NORTHWESTERN COMM SVCS BD	ROCKBRIDGE AREA SOCIAL SERVICE DEPT
NORTON CITY SCHOOLS	ROCKBRIDGE CO PUBLIC SVC AUTH
NOTTOWAY COUNTY	ROCKBRIDGE CO SCHOOL BD
NOTTOWAY COUNTY SCHOOL BOARD	ROCKBRIDGE COUNTY
NRV REGIONAL WATER AUTHORITY	ROCKBRIDGE REGIONAL LIBRARY
ORANGE COUNTY	ROCKINGHAM CO SCHOOL BD
ORANGE COUNTY BROADBAND AUTHORITY	ROCKINGHAM COUNTY
ORANGE COUNTY PUBLIC SCHOOLS	RSW REGIONAL JAIL AUTHORITY
PAGE COUNTY	RUSSELL COUNTY
PAGE COUNTY PUBLIC SCHOOLS	RUSSELL COUNTY PSA
PATRICK COUNTY	RUSSELL COUNTY SCHOOL BOARD
PATRICK COUNTY SCHOOL BOARD	SCOTT COUNTY
PEANUT SOIL AND WATER CONSERVATION DISTRICT	SCOTT COUNTY PUBLIC SERVICE AUTHORITY
PEPPER'S FERRY REG WASTEWATER	SCOTT COUNTY REDEVELOPMENT AND HOUSING AUTHORITY
PETER FRANCISCO SOIL AND WATER CONSERVATION DISTRICT	SCOTT COUNTY SCHOOL BOARD
PETERSBURG CITY SCHOOLS	SCOTT COUNTY SOIL AND WATER CONSERVATION DISTRICT
PETERSBURG REDEVELOPMENT AND HOUSING AUTHORITY	SHENANDOAH COUNTY
PEUMANSEND CREEK REGIONAL JAIL AUTHORITY	SHENANDOAH COUNTY SCHOOL BOARD
PIEDMONT COMMUNITY SERVICES	SHENANDOAH VALLEY JUVENILE CENTER
PIEDMONT REGIONAL JAIL AUTHORITY	SHENANDOAH VALLEY REGIONAL AIRPORT COMMISSION
PIEDMONT REGIONAL JUVENILE DETENTION CENTER	SMYTH COUNTY
PITTSYLVANIA CO SCHOOL BD	SMYTH COUNTY SCHOOL BOARD
PITTSYLVANIA CO SVC AUTH	SOUTH CENTRAL WASTEWATER AUTHORITY
PITTSYLVANIA COUNTY	SOUTHAMPTON CO SCHOOL BD
PLANNING DIS ONE BEHAVIORAL HEALTH SVCS	SOUTHAMPTON COUNTY
POWHATAN COUNTY	SOUTHSIDE BEHAVIORAL HEALTH
POWHATAN COUNTY SCHOOL BOARD	SOUTHSIDE PLANNING DIST COMM
PRINCE EDWARD CO SCHOOL BD	SOUTHSIDE REG JUVENILE GROUP HOME
PRINCE EDWARD COUNTY	SOUTHSIDE REGIONAL JAIL
PRINCE GEORGE CO SCHOOL BD	SOUTHSIDE REGIONAL LIBRARY BD
PRINCE GEORGE COUNTY	SOUTHWEST REGIONAL RECREATION AUTHORITY
PULASKI COUNTY	SOUTHWEST VA REGIONAL JAIL
PULASKI COUNTY SCHOOL BOARD	SPOTSYLVANIA CO SCHOOL BD
RADFORD CITY SCHOOL BOARD	SPOTSYLVANIA COUNTY
RAPIDAN SERVICE AUTHORITY	STAFFORD COUNTY
RAPPAHANNOCK AREA COMM SVCS	STAFFORD COUNTY SCHOOL BOARD
RAPPAHANNOCK AREA YOUTH SERVICES AND GROUP HOME COMMISSION	STAUNTON CITY SCHOOLS
RAPPAHANNOCK CO SCHOOL BOARD	STAUNTON RED/HOUS AUTH
RAPPAHANNOCK COUNTY	SURRY COUNTY
RAPPAHANNOCK JUVENILE CENTER	SURRY COUNTY SCHOOLS
RAPPAHANNOCK RAPIDAN COMMUNITY SERVICES BOARD	SUSSEX COUNTY
RAPPAHANNOCK RAPIDAN REGIONAL COMMISSION	SUSSEX COUNTY SCHOOL BOARD
RAPPAHANNOCK REGIONAL JAIL	SUSSEX SERVICE AUTHORITY
REGION TEN COMMUNITY SERVICES BOARD	TAZEVELL COUNTY
RIVANNA SOLID WASTE AUTHORITY	TAZEVELL COUNTY SCHOOLS

List of Political Subdivision Non-Metro Employers

Non-Metro Political Subdivisions	
TAZEWELL SOIL AND WATER CONSERVATION DISTRICT	TOWN OF GRUNDY
THOMAS JEFFERSON PLANNING DISTRICT COMMISSION	TOWN OF HALIFAX
THOMAS JEFFERSON SOIL AND WATER CONSERVATION DISTRICT	TOWN OF HAYSI
TOWN OF ABINGDON	TOWN OF HILLSVILLE
TOWN OF ALBERTA	TOWN OF HURT
TOWN OF ALTAVISTA	TOWN OF INDEPENDENCE
TOWN OF AMHERST	TOWN OF IRON GATE
TOWN OF APPOMATTOX	TOWN OF JARRATT
TOWN OF BERRYVILLE	TOWN OF JONESVILLE
TOWN OF BIG STONE GAP	TOWN OF KENBRIDGE
TOWN OF BLACKSTONE	TOWN OF LA CROSSE
TOWN OF BLUEFIELD	TOWN OF LAWRENCEVILLE
TOWN OF BOWLING GREEN	TOWN OF LEBANON
TOWN OF BOYCE	TOWN OF LOUISA
TOWN OF BOYDTON	TOWN OF LURAY
TOWN OF BOYKINS	TOWN OF MADISON
TOWN OF BRIDGEWATER	TOWN OF MARION
TOWN OF BROADWAY	TOWN OF MCKENNEY
TOWN OF BRODNAX	TOWN OF MIDDLETOWN
TOWN OF BROOKNEAL	TOWN OF MINERAL
TOWN OF BURKEVILLE	TOWN OF MT JACKSON
TOWN OF CAPE CHARLES	TOWN OF NEW MARKET
TOWN OF CHASE CITY	TOWN OF ONANCOCK
TOWN OF CHATHAM	TOWN OF ONLEY
TOWN OF CHILHOWIE	TOWN OF ORANGE
TOWN OF CHINCOTEAGUE	TOWN OF PARKSLEY
TOWN OF CLARKSVILLE	TOWN OF PENNINGTON GAP
TOWN OF CLIFTON FORGE	TOWN OF POUND
TOWN OF COEBURN	TOWN OF PULASKI
TOWN OF COURTLAND	TOWN OF REMINGTON
TOWN OF CRAIGSVILLE	TOWN OF RICHLANDS
TOWN OF CREWE	TOWN OF ROCKY MOUNT
TOWN OF CULPEPER	TOWN OF RURAL RETREAT
TOWN OF DAMASCUS	TOWN OF SALTVILLE
TOWN OF DAYTON	TOWN OF SCOTTSVILLE
TOWN OF DILLWYN	TOWN OF SHENANDOAH
TOWN OF DUBLIN	TOWN OF SMITHFIELD
TOWN OF EASTVILLE	TOWN OF SOUTH BOSTON
TOWN OF EDINBURG	TOWN OF SOUTH HILL
TOWN OF ELKTON	TOWN OF ST. PAUL
TOWN OF EXMORE	TOWN OF STANLEY
TOWN OF FARMVILLE	TOWN OF STEPHENS CITY
TOWN OF FLOYD	TOWN OF STRASBURG
TOWN OF FRONT ROYAL	TOWN OF TAZEWELL
TOWN OF GATE CITY	TOWN OF TIMBERVILLE
TOWN OF GLADE SPRING	TOWN OF VICTORIA
TOWN OF GLASGOW	TOWN OF WAKEFIELD
TOWN OF GORDONSVILLE	TOWN OF WARRENTON
TOWN OF GRETNA	TOWN OF WAVERLY
TOWN OF GROTTOS	TOWN OF WEBER CITY