



Virginia Retirement System

Quadrennial Actuarial Audit of June 30, 2025 Actuarial Valuations

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Commonwealth of Virginia
Joint Legislative Audit and Review Commission
919 E. Main St., Suite 2101
Richmond, Virginia 23219

Re: Quadrennial Actuarial Audit of June 30, 2025 Valuations
Virginia Retirement System

Dear Members of the Commission:

Milliman was engaged by the Joint Legislative Audit and Review Commission (JLARC) to prepare the enclosed report that presents the findings from our quadrennial actuarial audit of the June 30, 2025 actuarial valuations of the Virginia Retirement System (VRS) prepared by the system's retained actuary, Gabriel, Roeder, Smith and Company (GRS). An overview of our major recommendations is included in the Summary of the Findings section of the report. More detailed commentary on our review process is included in the latter sections. While some issues are discussed at greater length than others, this report is intended to provide a complete and independent third-party review of VRS and its operations from an actuarial perspective within the scope of the actuarial audit. All comments and recommendations are intended to be constructive. Our purpose was to identify areas of possible improvement in the system, its operation and/or the actuarial procedures.

Valuation reports are only an estimate of the VRS financial condition as of a single date. It can neither predict the plan's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of plan benefits, only the timing of plan contributions. Future actuarial measurements may differ significantly from the current measurements presented in this analysis due to actual plan experience deviating from the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as potential additional contribution requirements due to changes in the plan's funded status), and changes in plan provisions, actuarial assumptions, and applicable law. An assessment of the potential range and cost effect of such differences is beyond the scope of this analysis.

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

Our replication of valuation results for selected samples was developed using models intended for valuations that use standard actuarial techniques. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice. When reviewing the long-term investment

return assumption discussed in Section 6, we relied upon a model developed by Milliman colleagues who are credentialed investment professionals with expertise in capital market modeling.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Code of Professional Conduct, amplifying Opinions, and supporting Recommendations of the American Academy of Actuaries.

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

Milliman's work product was prepared exclusively for the JLARC for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning the Commission's operations and uses data which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third-party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the VRS. We are not aware of any relationship that would impair the objectivity of our work.

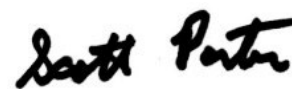
We would like to express our appreciation to both GRS and VRS staff for their assistance in supplying the data and information on which this report is based.

We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,



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1. Summary of the Findings

Purpose and Scope of the Actuarial Audit

The purpose of this actuarial audit is to provide an opinion regarding the reasonableness and accuracy of the actuarial assumptions, actuarial cost methods, valuation results, and contribution rates based on the June 30, 2025 actuarial valuations for the Virginia Retirement System (VRS). Specifically, this actuarial audit included the following plans prepared for VRS by the retained actuary for VRS:

- VRS State Pension Plans, covering the following divisions:
 - State Employees
 - Teachers
 - State Police (SPORS)
 - Judges (JRS)
 - Virginia Law Officers (VaLORS)
- Six selected political subdivisions participating in VRS:
 - Accomack County
 - Town of Big Stone Gap
 - Town of Herndon
 - Town of Middletown
 - Northern Neck Soil and Water Conservation District
 - City of Virginia Beach
- Group Life Insurance Program (GLI)
- Health Insurance Credit Program (HIC)
- Line of Duty Act Program (LODA)
- Virginia Sickness and Disability Program (VSDP)
- Virginia Local Disability Program (VLDP)

The actuarial audit focuses on the following areas:

- Determine if the retained actuary's valuation procedures are technically sound and based on generally accepted actuarial standards.
- Determine if the methodology used by the retained actuary to validate and "normalize" census data is technically sound and based on generally accepted actuarial standards.
- Determine if the retained actuary's determinations of demographic and economic actuarial assumptions are reasonable and are based on generally accepted actuarial standards.
- Determine if the actuarial cost method and actuarial asset valuation method used by the retained actuary are reasonable, including whether different methods may be more appropriate.
- Determine if the retained actuary's valuations results can be verified, including:
 - verification that appropriate mathematical calculations are being made accurately;
 - verification that plan liabilities (for sample members) and assets, including funded ratios, are being appropriately valued and determined;
 - verification of the development of contribution rates in accordance with the system's funding policies; and
- Benchmarking VRS to peer statewide retirement systems.

Actuarial Audit Conclusion

Based on our review of the census data, experience study, liability replications for selected cases, and the actuarial valuation reports, we believe the June 30, 2025 actuarial valuations for VRS are reasonable, based on reasonable assumptions and methods, and the reports generally comply with the Actuarial Standards of Practice.

Additional Commentary

The retained actuary has generally complied with Actuarial Standards of Practice in studying plan experience, selecting actuarial assumptions, determining liabilities and contribution rates based on VRS policies, and presenting their results in their valuation reports. Based on our limited sample size for liability replications, we believe the valuation results are reasonable. We believe the actuarial methods and policies selected by VRS are reasonable and generally follow recommended methods for plans of this size and complexity as the unfunded actuarial accrued liability (UAAL) is expected to decline each year and be fully amortized within a reasonable period of time.

VRS is a large and complex retirement system. The reader should recognize that many of the issues that we reviewed and which we will discuss in this report are subject to opinion and professional preference. No two actuaries (or actuarial firms) are likely to use precisely the same methods and assumptions (and, therefore, arrive at precisely the same conclusions) when presented with the exact same problem and set of historical facts. In completing our review, we have attempted to focus on those aspects of the system that could be meaningfully enhanced or where an alternative approach might be beneficial.

The following table provides a high-level summary of recommendations in the actuarial audit. These items are categorized into items based on their impact on the plan liabilities and contribution rates, that would: 1) potentially have a notable impact, 2) have a relatively minor impact, and 3) have no financial impact. Determining the actual impact of any of these items is outside the scope of our assignment. For each of these items, additional detail is included in the Summary of Findings section.

<i>Potentially Have a Notable Impact</i>	
<i>Item</i>	<i>Comment</i>
One-Year COLA Delay	Reflect timing delay for the fact that the COLA is delayed until July 1 st following one full calendar year after unreduced retirement, which would reduce plan liabilities and contribution rates.
Mortality Improvement	Review historical weighting of using 75% of the mortality improvement scale, which if increased to 100% would result in higher plan liabilities and contribution rates.
Include IBNR	Include a liability for incurred-but-not-report (IBNR) disability claims in VSDP and VLDP valuations, which would increase plan liabilities and contribution rates for these plans.

<i>Would Have a Relatively Minor Impact</i>	
<i>Item</i>	<i>Comment</i>
Contribution Timing Lag	Reflect 12-month timing lag between the actuarial valuation date and the contribution effective date, which would reduce the expected size of the new amortization bases established each year, to align the calculation of the contribution rates with the actual timing of the contribution dollars.
Even-Year Amortization Bases	Ensure amortization bases established in even-year valuations (informational valuations) address that first year payment will not be reflected until the following odd-year rate setting valuations. This will reduce the expected size of the new amortization bases established each year and align the calculation of the contribution rates with the actual timing of the contribution dollars.
Contingent Survivor Mortality	For beneficiaries, apply the contingent survivor mortality table only after the death of the retiree and use the healthy postretirement mortality table prior to death, which would increase plan liabilities and contribution rates.
COLA Delay for Early Retirements	Reflect timing delay for the fact that the COLA is delayed until member reaches unreduced retirement age which would reduce plan liabilities and contribution rates.
COLA Assumption	In the development of the COLA assumption, analyze the assumption for future COLAs to determine if adjustments are warranted to account for instances when the COLA rate would not equal the rate of inflation, which would reduce plan liabilities and contribution rates.

No Financial Impact	
<i>Item</i>	<i>Comment</i>
Teachers Hired after Valuation Date	Disclose the procedure to include teachers hired after the valuation date through September 1 in the actuarial valuation and provide rationale.
Hazardous Duty Supplement	Disclose that VaLORS members with State service can receive the supplement until Social Security Retirement Age instead of age 65.
Amortization Period	Adopt a formal definition for the disclosure of the amortization period in the executive summary of each valuation report to reflect the time until the UAAL is anticipated to be eliminated.
Actuarial Gain / Loss	Calculate the actuarial gain or loss to include differences in actual contribution dollars versus those received such that the calculated amount equals the gain or loss amortization base.

In addition, we offer various observations and recommendations in setting specific demographic and economic assumptions where we do not know if the impact would result in higher or lower plan liabilities and contribution rates. These items are noted in the respective sections on actuarial assumptions.

We offer the following observations and recommendations that we believe would further enhance the communication and actuarial contribution rate setting for VRS going forward. This summary is structured in the same format as the body of the report. Please refer to the report sections for a more detailed discussion of the items.

Membership Data

We performed tests on both the raw data supplied by VRS staff and the processed data used by the retained actuary in the valuations. Based on this review, we believe the individual member data used is appropriate and complete. Summaries are shown in Exhibits 2-1 through 2-4.

The discussion in Section 2 includes four data-related topics for the retained actuary and VRS to consider for review for future valuations. Of most note:

- The retained actuary included approximately 1,000 Teachers hired between July 1, 2025 and September 1, 2025 in the June 30, 2025 actuarial valuation. As most teachers retire effective July 1 with new hires occurring during the summer and prior to the start of the school year, we believe this approach is reasonable. We recommend that the retained actuary clearly articulate this procedure in the actuarial valuation report and include the rationale.
- The hazardous duty supplement ceases at age 65 for Virginia Law Officers and at Social Security Retirement Age for State Police and Political Subdivisions. We noted that the hazardous duty supplement end date was consistent with Social Security Retirement Ages for about 400 Virginia Law Officer “retiree elsewhere” records. VRS has indicated that VaLORS members with State service can receive the supplement until Social Security Retirement Age. We recommend that this provision be clarified in future actuarial valuation reports.

Actuarial Value of Assets

We have reviewed the calculation of the actuarial value of assets used in the June 30, 2025 actuarial valuations for VRS. We found the calculations to be reasonable and the methodology to be appropriate and in compliance with Actuarial Standards of Practice.

Actuarial Liabilities

We independently calculated the normal cost and actuarial liabilities for an individual sample set of participants. Our findings show a high level of consistency between our independent results and the samples provided by the retained actuary, which should provide some general assurance that the results of the actuarial valuations reasonably reflect the aggregate liabilities of VRS based on the assumptions and methods used by the retained actuary, although a full replication would provide the greatest assurance.

The discussion in Section 4 includes topics for the retained actuary to consider in the valuation program. Of most note:

- For Plans 1, 2 and Hybrid, the cost-of-living increase (COLA) is deferred until the July 1 after one full calendar year after the member reaches unreduced retirement age. During our liability replications, the retained actuary indicated that the June 30, 2025 pension plan actuarial valuations incorporated a simplifying assumption that all COLAs are assumed to commence one year after retirement and, thus, the deferral is not explicitly valued. We recommend that the retained actuary enhance the actuarial valuation program to incorporate the applicable COLA deferral period for members that are assumed to retire with an early, reduced retirement benefit.

Funding

We have reviewed the calculations of the Actuarially Determined Contributions (ADC) for VRS and the related results of the actuarial valuation to ensure consistency with the VRS Funding Policy. Additionally, we evaluated the application of the Actuarial Cost Method.

We found the methodologies and the calculations to be reasonable. The following discussion includes recommendations on ways to improve the overall calculation and communication of the actuarial valuation results.

- We recommend the retained actuary adopt a formal definition of “amortization period” for purposes of the VRS actuarial valuations that reflects the time until the UAAL is anticipated to be eliminated. This amortization period should be reported for each plan in the actuarial valuation reports.
- We recommend the retained actuary consider enhancing the ADC and UAAL amortization contribution calculation process to address the 12-month timing lag between the actuarial valuation date and the contribution effective date.
- We recommend modifying the calculation of the amortization payments for the even-year amortization bases to incorporate the fact that the first-year amortization payment will not be incorporated into the ADC until the subsequent actuarial valuation.
- We recommend that the retained actuary include the differences in the contribution dollars as a reason for the actuarial gain / loss for the year such that the total actuarial gain / loss reported equals the amortization base established.

Actuarial Assumptions (Economic)

We reviewed the economic assumptions used in the June 30, 2025 actuarial valuations and found them to be reasonable, including the investment return assumption. The economic assumptions used were adopted based on the retained actuary's 2025 Actuarial Experience Study for the period ending June 30, 2024.

The following discussion includes our recommendations and considerations for future analyses:

- We recommend that the retained actuary review its procedures for analyzing the assumption for future COLAs and determine if adjustments to the assumptions are warranted to account for instances when the COLA rate would not equal the rate of inflation.
- We recommend the retained actuary account for the timing delay in the valuation program for the fact that the COLA begins on the July 1 after one full calendar year from a member's unreduced retirement date.

Actuarial Assumptions (Demographic)

We completed a high-level review of the demographic assumptions that were adopted based on the retained actuary's 2025 Actuarial Experience Study for the period ending June 30, 2024. Based on this review, we believe the demographic assumptions used in the valuation are reasonable. We have the following recommendations for future actuarial studies:

- In the next actuarial experience study, we recommend that a healthy post-retirement mortality table be incorporated for beneficiaries while the retiree is alive and use the contingent survivor mortality table only upon death of the retiree.
- We recommend that the historical 75% weighting of the mortality improvement scale be reviewed during the next experience study to determine whether there are specific reasons why VRS experience should lag general expectations.
- We recommend the retained actuary consider the following in developing the retirement assumptions as part of the next experience study:
 - Review experience for SPORS and VaLORS based on members eligible for the Temporary Supplement versus not eligible for the Temporary Supplement.
 - Review rates of unreduced retirement for Plan 2 and Hybrid Plan members for consistency with rates of unreduced retirement for Plan 1 members.
- We recommend the retained actuary consider the following in developing the rate of disability assumptions as part of the next experience study:
 - Ensure that any delay in reporting of approved disability benefits is accounted for in the experience study.
 - Review if members eligible for normal retirement should be excluded from the analysis.
- We recommend that the retained actuary closely monitor the termination experience among members with 20 or more years of service as there were significant deviations between the actual experience and the termination rate assumptions across all groups and make adjustments as needed.
- We recommend that the VSDP and VLDP valuations include a liability for incurred-but-not-reported (IBNR) or pending disability claims as of the valuation date. These are claims attributable to a prior period rather than to the upcoming year. Given the six-month benefit waiting period, roughly half of the claims that occurred in the prior year are either pending payment or not yet reported as of the valuation date. These claims are generally accounted for in the IBNR reserve, which is not included in the VSDP and VLDP valuations.

- We recommend the retained actuary consider reviewing disability claim termination rate experience using more granular groupings for duration of disability, especially around the change in definition after 30 months of claim.

Reports

The retained actuary's report generally complies with the applicable Actuarial Standards of Practice. The discussion in Section 8 of this actuarial audit report includes recommended improvements for the next valuation that will enhance the overall communication and disclosure in the actuarial valuation report. These are all improvements to the reporting and would not impact the results of the actuarial valuation.

2. Membership Data

Actuarial Audit Conclusion

We performed tests on both the raw data supplied by the VRS staff and the processed data used by the retained actuary in the valuation. Based on this review, we feel the individual member data used is appropriate and complete.

Comments

Overall, the data process appears to be thorough and accurate. We would add the following comments:

- **Raw Data:** We were provided with the same data that was given by the VRS staff to the retained actuary for use in the actuarial valuation.
- **Completeness:** The data contained all the necessary fields to perform the actuarial valuation.
- **Quality:** Although we did not audit the data at the source, we performed some independent checks to confirm the overall reasonableness of the data. We compared the total retiree and beneficiary benefit amounts on the plans' data with the actual benefit payments made, as reported in the VRS financial statements. We also compared the total active member compensation on the plans' data with the estimated active payroll for the prior year. Based on this analysis, we found the data to be reasonable.
- **Parallel Data Processing:** We performed independent edits on the raw data and then compared our results with the valuation data used by the retained actuary. We found our results to be consistent.

Our results did not match exactly; however, this is understandable since the retained actuary has more extensive data-editing procedures. Overall, each data key component matched within an acceptable level, and we believe the individual member data used by the retained actuary was appropriate for valuation purposes.

A summary of the pension plan census data in aggregate is shown in Exhibit 2-1. The "Milliman" column reflects the plans' data after adjustments by Milliman. The "Retained Actuary" column reflects the actual data used in the retained actuary's valuation.

In our opinion, there was a very close match between the data provided by VRS and the valuation data used by the retained actuary.

**Exhibit 2-1
 VRS Member Statistics as of June 30, 2025**

	Retained Actuary	Milliman	Ratio of Retained Actuary / Milliman
Active			
Total number	376,123	375,561	100.1%
Average age	45.5	45.5	100.0%
Average employer type service	10.0	10.0	100.0%
Average total service	10.8	10.8	100.0%
Covered Payroll (in thousands)	26,181,680	26,226,298	99.8%
Members with Deferred Benefits			
Inactive, Vested	78,792	78,596	100.2%
Long Term Disability	2,756	2,749	100.3%
Inactive, active elsewhere in VRS	66,204	66,664	99.3%
Annuitants			
Total number	290,865	290,899	100.0%
Average age	72.7	72.7	100.0%
Annual Benefits (in thousands)	6,770,501	6,888,855	98.3%

Parallel Data Processing Detail

VRS provided Milliman with files as of June 30, 2025 that contained the current active members, current annuitants (service retirees, beneficiaries, and disability annuitants), and members due a future benefit. In addition to the files that VRS provided to Milliman, the retained actuary provided Milliman the processed data files containing the final data used in the retained actuary’s actuarial valuation. The retained actuary provided an Excel file with all members included in the actuarial valuation. The retained actuary also provided a description of the files provided and a key to the codes used on the files.

We compared the data in the VRS files to those used by the retained actuary on an aggregate level by comparing the plan statistics shown in the valuation with those we derived from the original data files provided by VRS.

During our review, we determined that the retained actuary included approximately 1,000 teachers hired after July 1, 2025 and before September 1, 2025 in the June 30, 2025 valuation active member data. It is not typical to include active employees hired after the valuation date. However, this approach may be reasonable due to the unique nature of when teachers typically retire (end of June) and new teachers are hired (by September 1st). If it is standard practice for VRS to include teachers hired through September 1st, we recommend that the retained actuary clearly articulate this procedure in the actuarial valuation report and include the rationale.

The following exhibit shows the comparison of the active member statistics for each pension plan as of June 30, 2025. We found the data to be generally consistent between the two sets of files.

Exhibit 2-2
VRS Active Member Statistics as of June 30, 2025

System	Number	Annual Compensation (In Thousands)	Average				
			Compensation	Age	Employer Type Service	Total Service	Entry Age on Employer Type Service
Retained Actuary							
State Employees	81,274	\$6,275,603	\$77,215	46.9	10.1	11.0	36.8
Teachers	160,949	11,150,977	69,283	45.3	11.4	11.7	33.9
State Police	1,902	182,726	96,071	40.7	13.8	15.0	26.9
Judicial	473	98,645	208,551	57.3	8.8	14.4	48.5
Virginia Law Officers	7,459	432,703	58,011	39.6	7.3	8.3	32.3
Political Subdivisions	<u>124,066</u>	<u>8,041,026</u>	64,812	45.4	8.3	9.6	37.1
Total	376,123	26,181,680	69,609	45.5	10.0	10.8	35.5
Milliman							
State Employees	81,337	\$6,279,914	\$77,209	46.9	10.1	11.0	36.8
Teachers	160,115	11,115,911	69,425	45.3	11.4	11.7	33.9
State Police	1,906	182,966	95,995	40.7	13.8	15.0	26.9
Judicial	473	98,645	208,551	57.3	8.8	14.4	48.5
Virginia Law Officers	7,473	433,398	57,995	39.6	7.3	8.3	32.3
Political Subdivisions	<u>124,257</u>	<u>8,115,464</u>	65,312	45.4	8.3	9.6	37.1
Total	375,561	26,226,298	69,832	45.5	10.0	10.8	35.5
Ratio of Retained Actuary / Milliman							
State Employees	99.9%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%
Teachers	100.5%	100.3%	99.8%	100.0%	100.0%	100.0%	100.0%
State Police	99.8%	99.9%	100.1%	100.0%	100.0%	100.0%	100.0%
Judicial	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Virginia Law Officers	99.8%	99.8%	100.0%	100.0%	100.0%	100.0%	100.0%
Political Subdivisions	99.8%	99.1%	99.2%	100.0%	100.0%	100.0%	100.0%
Total	100.1%	99.8%	99.7%	100.0%	100.0%	100.0%	100.0%

The following exhibit shows the comparison of the members due deferred benefits statistics by system for the pension valuation. As VRS does not provide accrued benefit information for inactive members, the retained actuary estimates the annual benefits based on the other information provided. We found the data to be generally consistent between the two sets of files.

Exhibit 2-3
VRS Members due Deferred Benefits Statistics as of June 30, 2025

System	Retained Actuary			Milliman			Ratio of Retained Actuary / Milliman		
	Number	Average Age	Average Service	Number	Average Age	Average Service	Number	Average Age	Average Service
State Employees:									
Inactive, Vested	16,517	52.00	8.49	16,822	52.00	8.45	98.2%	100.0%	100.5%
Long Term Disability	2,085	56.19	15.27	2,080	56.11	15.23	100.2%	100.1%	100.3%
Inactive, active elsewhere in VRS	10,301	48.14	4.31	10,401	48.18	4.32	99.0%	99.9%	99.8%
Teachers:									
Inactive, Vested	35,471	48.93	9.25	35,269	48.88	9.23	100.6%	100.1%	100.2%
Long Term Disability	62	51.53	5.35	63	51.66	5.41	98.4%	99.7%	98.9%
Inactive, active elsewhere in VRS	7,689	48.44	5.82	7,790	48.39	5.81	98.7%	100.1%	100.2%
State Police:									
Inactive, Vested	211	45.24	9.39	212	45.05	9.32	99.5%	100.4%	100.8%
Long Term Disability	32	48.13	12.43	32	48.09	12.43	100.0%	100.1%	100.0%
Inactive, active elsewhere in VRS	269	42.18	4.53	270	42.19	4.53	99.6%	100.0%	100.0%
Judicial:									
Inactive, Vested	12	65.07	11.11	12	65.03	11.11	100.0%	100.1%	100.0%
Long Term Disability	0	n/a	n/a	0	n/a	n/a	100.0%	n/a	n/a
Inactive, active elsewhere in VRS	2	56.58	8.58	2	56.54	8.58	100.0%	100.1%	100.0%
Virginia Law Officers:									
Inactive, Vested	1,666	46.65	6.54	1,653	46.63	6.51	100.8%	100.0%	100.5%
Long Term Disability	432	50.90	8.92	431	50.81	8.85	100.2%	100.2%	100.8%
Inactive, active elsewhere in VRS	4,394	43.05	4.27	4,418	43.02	4.28	99.5%	100.1%	99.8%
Political Subdivisions:									
Inactive, Vested	24,915	50.99	6.85	24,628	50.94	6.83	101.2%	100.1%	100.3%
Long Term Disability	145	56.07	4.31	143	56.00	4.32	101.4%	100.1%	99.8%
Inactive, active elsewhere in VRS	43,549	46.52	4.15	43,783	46.50	4.16	99.5%	100.0%	99.8%
Total:									
Inactive, Vested	78,792	50.17	8.27	78,596	50.14	8.25	100.2%	100.1%	100.2%
Long Term Disability	2,756	55.15	13.44	2,749	55.08	13.40	100.3%	100.1%	100.3%
Inactive, active elsewhere in VRS	66,204	46.75	4.38	66,664	46.74	4.39	99.3%	100.0%	99.8%

The following exhibit shows the comparison of the annuitant member statistics by system for the pension valuation. We found the data to be generally consistent between the two sets of files.

Exhibit 2-4
VRS Annuitant Member Statistics as of June 30, 2025

Type of Retirement	State Employees	Teachers	State Police	Judicial	Virginia Law Officers	Political Subdivisions	Total
Retained Actuary							
Service:							
Number	65,748	106,529	1,412	476	6,753	78,494	259,412
Annual Benefits	\$1,596,454	\$2,919,986	\$70,530	\$47,661	\$153,270	\$1,401,386	\$6,189,287
Average Age	74.14	73.82	69.53	77.24	66.86	71.27	72.93
Disability:							
Number	2,523	4,042	169	1	244	7,651	14,630
Annual Benefits	\$50,387	\$107,263	\$7,156	\$138	\$4,326	\$148,684	\$317,954
Average Age	73.08	69.73	68.96	59.46	62.91	66.89	68.69
Survivors:							
Number	5,767	4,009	301	136	468	6,142	16,823
Annual Benefits	\$101,090	\$69,970	\$7,299	\$7,782	\$4,929	\$72,190	\$263,260
Average Age	75.71	72.61	72.76	78.85	65.84	70.97	72.94
Total:							
Number	74,038	114,580	1,882	613	7,465	92,287	290,865
Annual Benefits	\$1,747,931	\$3,097,219	\$84,985	\$55,581	\$162,525	\$1,622,260	\$6,770,501
Average Age	74.23	73.63	70.00	77.57	66.67	70.89	72.72
Milliman							
Service:							
Number	65,782	106,528	1,412	476	6,753	78,510	259,461
Annual Benefits	\$1,641,629	\$2,974,990	\$70,808	\$48,149	\$155,101	\$1,416,501	\$6,307,178
Average Age	74.09	73.78	69.49	77.20	66.82	71.23	72.89
Disability:							
Number	2,523	4,041	169	1	244	7,634	14,612
Annual Benefits	\$50,368	\$107,273	\$7,155	\$138	\$4,327	\$148,687	\$317,948
Average Age	73.04	69.69	68.91	59.42	62.87	66.89	68.68
Survivors:							
Number	5,770	4,009	301	136	466	6,144	16,826
Annual Benefits	\$101,149	\$70,107	\$7,303	\$7,942	\$4,946	\$72,282	\$263,729
Average Age	75.67	72.58	72.72	78.81	65.99	70.92	72.90
Total:							
Number	74,075	114,578	1,882	613	7,463	92,288	290,899
Annual Benefits	\$1,793,146	\$3,152,370	\$85,266	\$56,229	\$164,374	\$1,637,470	\$6,888,855
Average Age	74.18	73.59	69.95	77.53	66.64	70.85	72.68
Ratio of Retained Actuary / Milliman							
Service:							
Number	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Annual Benefits	97.2%	98.2%	99.6%	99.0%	98.8%	98.9%	98.1%
Average Age	100.1%	100.1%	100.1%	100.1%	100.1%	100.1%	100.1%
Disability:							
Number	100.0%	100.0%	100.0%	100.0%	100.0%	100.2%	100.1%
Annual Benefits	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Average Age	100.1%	100.1%	100.1%	100.1%	100.1%	100.0%	100.0%
Survivors:							
Number	99.9%	100.0%	100.0%	100.0%	100.4%	100.0%	100.0%
Annual Benefits	99.9%	99.8%	99.9%	98.0%	99.7%	99.9%	99.8%
Average Age	100.1%	100.0%	100.1%	100.1%	99.8%	100.1%	100.0%
Total:							
Number	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Annual Benefits	97.5%	98.3%	99.7%	98.8%	98.9%	99.1%	98.3%
Average Age	100.1%	100.0%	100.1%	100.1%	100.0%	100.1%	100.1%

Our independent edits on the raw data provided by VRS resulted in data statistics consistent with those provided by the retained actuary.

Section Summary

We observed four data-related topics for the retained actuary and VRS to consider for review for future valuations. We believe these recommendations would have a relatively minor impact on plan liabilities and contribution rates.

- As indicated above, the retained actuary included approximately 1,000 Teachers hired between July 1, 2025 and September 1, 2025 in the June 30, 2025 actuarial valuation. As most teachers retire effective July 1 with new hires occurring during the summer and prior to the start of the school year, we believe this approach is reasonable; albeit, not a common approach. We recommend that the retained actuary clearly articulate this procedure in the actuarial valuation report and include the rationale.
- For one of the active State Police test lives, the retained actuary indicated that the potential future disability benefits for the member did not reflect enrollment in the VSDP plan because the member terminated after the valuation date. Therefore, disability benefits valued in the State Police pension plan reflected immediate retirement upon becoming disabled. The retained actuary indicated that this was a conservative approach and only impacted a few members. We acknowledge that this member was included in the active data for the VSDP valuation. We recommend that a member's enrollment as of June 30, 2025 be reflected consistently among the valuations or disclose this approach in the valuation report.
- The hazardous duty supplement ceases at age 65 for Virginia Law Officers and at Social Security Retirement Age for State Police and Political Subdivisions. We noted that the hazardous duty supplement end date was consistent with Social Security Retirement Ages for about 400 Virginia Law Officer "retiree elsewhere" records. VRS has indicated that VaLORS members with State service can receive the supplement until Social Security Retirement Age. We recommend that this provision be clarified in future actuarial valuation reports.

3. Actuarial Value of Assets

Actuarial Audit Conclusion

We have reviewed the calculation of the actuarial value of assets (AVA) used in the June 30, 2025 actuarial valuations of VRS. We found the calculations to be reasonable and the methodology to be appropriate and in compliance with actuarial standards of practice.

Comments

The market value of assets can experience significant short-term swings, which can cause large fluctuations in the development of the contributions necessary to eliminate a system's Unfunded Actuarial Accrued Liability (UAAL). Thus, many systems use an asset valuation method which dampens these short-term volatilities to achieve more stability in the employer contribution. A good asset valuation method places value on a retirement system's assets which are related to the current market value, but which will also produce a smoother pattern of costs.

ASOP No. 44, *Selection and Use of Asset Valuation Methods for Pension Valuations*, provides a framework for the determination of the actuarial value of assets (AVA), emphasizing that the method should: (1) bear a reasonable relationship to the market value of assets (MVA), (2) recognize investment gains and losses over an appropriate time period, and (3) avoid systematic bias that would overstate or understate the AVA in comparison to MVA.

The June 30, 2025 actuarial valuations determined the actuarial value of assets by recognizing the difference between each year's expected return on the MVA with the actual return on the MVA over a five-year period at the rate of 20% per year. In addition, the resulting AVA incorporates two "corridors". These corridors ensure that the AVA cannot be less than 80%, nor more than 120%, of the MVA.

The Conference of Consulting Actuaries (CCA) Public Plans Committee published a whitepaper on model actuarial funding policies which include guidelines for asset smoothing. In our opinion, the method used for VRS of smoothing over five years with a 20% corridor falls in the "Model Practice" category under these guidelines.

Section Summary

We recommend including the applicable 80/120% corridors in the development of the Actuarial Value of Assets in future pension plan actuarial valuation reports. The corridors do not apply for this actuarial valuation but presenting the corridors can provide important information for the readers of the actuarial valuation reports. This recommendation will have no impact on plan liabilities nor contribution rates for VRS.

4. Actuarial Liabilities

Actuarial Audit Conclusion

One purpose of this actuarial audit is to verify a sample of the benefits and liabilities calculated by the retained actuary for the June 30, 2025 actuarial valuations. Included in the information provided to us by the retained actuary were the individual liability amounts for 107 participants (46 active participants and 61 annuitants and members with deferred benefits) that participated in one, or more, of these VRS programs: the State Pension Plans, one of the political subdivisions, GLI, HIC, VSDP, and/or VLDP.

We prepared an independent replication of the liabilities for these 107 participants based on the plan provisions, the valuation assumptions, and actuarial cost method. Summaries of the liability replications are provided in this section with additional detail for the pension plan replications included in the attached Appendix.

We found the methodologies and the calculations to be reasonable. The following discussion includes recommendations on ways to better align the liabilities with the plan provisions and potentially improve consistency between the plans.

Replication Process

We independently calculated the liabilities for the sample of participants based on the following:

Data: We used the same data used by the retained actuary in its valuation. As discussed in Section 2, we confirmed that this data was consistent with the data provided by the VRS staff.

Actuarial Assumptions: We used the assumptions disclosed in the June 30, 2025 actuarial valuation reports. This information was provided to us electronically by the retained actuary. We confirmed the assumptions were consistent with those adopted based on the recent experience study report.

Actuarial Methods: We used the actuarial methods disclosed in the June 30, 2025 actuarial valuation reports. This was supplemented by discussions between the retained actuary and Milliman on the technical application of these methods.

Plan Provisions: We obtained this information from the VRS website and the relevant law.

Our findings show a high level of consistency between our independent results and the valuation, which should provide assurance that the results of the valuation reasonably reflect the aggregate liabilities of VRS based on the assumptions and methods used by the retained actuary, although a full replication would provide the greatest assurance.

Comments

A comparison of the pension valuation liabilities for the 46 active members and 61 annuitants and members with deferred benefits provided by the retained actuary is shown below. We believe the liability calculations are reasonable.

Exhibit 4-1: Pension Sample Life Liability Comparison

Comparison of 46 Active Pension Sample Lives			
	Retained Actuary	Milliman	Ratio
Present Value of Future Benefits	\$18,457,701	\$18,489,319	99.8%
Actuarial Accrued Liability	12,975,474	12,992,035	99.9%
Total Normal Cost	638,563	638,055	100.1%
Comparison of 61 Annuitant and Members with Deferred Benefits Pension Sample Lives			
	Retained Actuary	Milliman	Ratio
Annuitants and Members with Deferred Benefits	19,867,474	19,877,126	100.0%

A comparison of the liabilities for the Group Life Insurance Program (GLI) included in the OPEB valuation for the 43 active members and 30 annuitants and members with deferred benefits provided by the retained actuary is shown below. We believe the liability calculations are reasonable.

Exhibit 4-2: Group Life Insurance Program Sample Life Liability Comparison

Comparison of 43 Active GLI Sample Lives			
	Retained Actuary	Milliman	Ratio
Present Value of Future Benefits	\$458,886	\$457,418	100.3%
Actuarial Accrued Liability	341,301	339,544	100.5%
Total Normal Cost	16,841	17,121	98.4%
Comparison of 30 Annuitant and Members with Deferred Benefits GLI Sample Lives			
	Retained Actuary	Milliman	Ratio
Annuitants and Members with Deferred Benefits	659,249	657,679	100.2%

A comparison of the liabilities for the Health Insurance Credit Program (HIC) included in the OPEB valuation for the 40 active members and 45 annuitants and members with deferred benefits provided by the retained actuary is shown below. We believe the liability calculations are reasonable.

Exhibit 4-3: Health Insurance Credit Program Sample Life Liability Comparison

Comparison of 40 Active HIC Sample Lives			
	Retained Actuary	Milliman	Ratio
Present Value of Future Benefits	\$259,945	\$253,510	102.5%
Actuarial Accrued Liability	191,817	187,135	102.5%
Total Normal Cost	9,406	9,136	103.0%
Comparison of 45 Annuitant and Members with Deferred Benefits HIC Sample Lives			
	Retained Actuary	Milliman	Ratio
Annuitants and Members with Deferred Benefits	320,577	321,602	99.7%

A comparison of the liabilities for the Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP) included in the OPEB valuation for the 10 active members and 6 disabled and ported members provided by the retained actuary is shown below. We believe the liability calculations are reasonable.

Exhibit 4-4: Virginia Sickness and Disability Program and Virginia Local Disability Program Sample Life Liability Comparison

Comparison of 10 Active VSDP/VDLP Sample Lives			
	Retained Actuary	Milliman	Ratio
Active Life Liability	\$53,954	\$53,457	99.1%
Comparison of 6 Disabled and Ported Member VSDP/VDLP Sample Lives			
	Retained Actuary	Milliman	Ratio
Disabled and Ported Members	\$252,567	\$251,085	99.4%

Section Summary

We recommend that the retained actuary review the following items:

Recommendation that could potentially have a notable impact on plan liabilities and contribution rates

- In the Actuarial Assumptions Economic section, we discuss the timing of the COLA for retirees not subject to early retirement that would impact the actuarial valuation results. Please refer to that section for more information.

Recommendations that would have a relatively minor impact on plan liabilities and contribution rates

- For Plans 1, 2 and Hybrid, the cost-of-living increase (COLA) is deferred until the July 1 after one full calendar year after the member reaches unreduced retirement age. As a result, members that are assumed to retire with an early, reduced pension benefit would have their COLA deferred for multiple years.

During our liability replications, the retained actuary indicated that the June 30, 2025 pension plan actuarial valuations incorporated a simplifying assumption that all COLAs are assumed to commence one year after retirement and thus, the deferral is not explicitly valued. This would impact current retirees who retired with a reduced pension and are not eligible to receive a COLA for multiple years as well as active members assumed to retire with an early reduced pension.

We recommend that the retained actuary enhance the actuarial valuation program to incorporate the applicable COLA deferral period for members that are assumed to retire with an early, reduced retirement benefit. Due to the relatively low assumed rates for early retirement, we do not anticipate that this change will have a significant impact on the actuarial valuation results.

- It is our understanding that death benefits payable to survivors of members who are receiving disability benefits from VSDP or VLDP would be consistent with the death benefits payable to survivors of active members. We believe the retained actuary is only valuing a refund of contributions for members in this situation. We recommend the actuary review its valuation program to include this liability. As there is a very small contingency of this incidence occurring, we do not anticipate this change having a significant impact on the actuarial valuation results.
- The primary payroll amount utilized for each individual member in the actuarial valuation is the member's rate of pay on the valuation date. The retained actuary incorporates salary increases anticipated to occur during the valuation year in determining final average compensation for purposes of determining retirement and other annuity benefits payable from VRS through the use of the "trapezoidal rule" pay averaging methodology. We believe this is a reasonable approach. However, we recommend that the retained actuary review their valuation systems to identify whether a similar adjustment is made for the anticipated employee contributions to be made during the year and associated refunds. We believe this would have a very small impact on the valuation results but recommend the retained actuary review its valuation program for consistency.
- During the review process, the retained actuary confirmed that service is rounded differently in the valuation model between the statewide retirement systems and the political subdivisions. We recommend that the same procedure be used for the political subdivisions as the statewide retirement systems or disclose this different approach in the valuation report for the political subdivisions.

Recommendation that would have no impact on plan liabilities nor contribution rates

- For Teachers, the retained actuary assumes that members terminate or retire at the beginning of the valuation year (i.e. beginning of year decrements). For the other systems, the retained actuary assumes the members terminate or retire in the middle of the valuation year (mid-year decrements). In our review of the June 30, 2025 valuation data, it appears that the majority of retirements as of July 1, 2025 are reflected in the retiree data and not in the active data. Furthermore, as noted in the Data Section of this report, actives hired after June 30, 2025 are included in the active data. We recommend that the retained actuary review to determine if beginning of year decrements is the most reasonable approach for Teachers based on the data included in the valuation.

5. Funding

Actuarial Audit Conclusion

We have reviewed the calculations of the Actuarially Determined Contributions (ADC) for VRS and the related results of the actuarial valuation in accordance with the VRS Funding Policy. Additionally, we have also evaluated the application of the Actuarial Cost Method.

We found the methodologies and the calculations to be reasonable. The following discussion includes recommendations on ways to improve the overall calculation and communication of the actuarial valuation results.

Actuarial Standard of Practice (ASOP) No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, provides the primary guidance to actuaries when performing actuarial services with respect to determining periodic costs and calculating actuarially determined contributions for defined benefit pension plans.

VRS Funding Policy

The VRS Board most recently updated the VRS Funding Policy on June 18, 2025. Key aspects of the VRS Funding Policy include:

Funding Policy Objectives

1. Ensure funding of plans is based on actuarially determined contributions;
2. Build funding discipline into the policy to ensure promised benefits can be paid;
3. Maintain intergenerational equity so the cost of employee benefits is paid by the generation of individuals who receive services;
4. Make employer costs a consistent percentage of payroll; and
5. Require clear reporting to show how and when plans will be adequately funded.

Actuarially determined contributions are calculated as of the valuation date and become effective for employers in the subsequent fiscal year (resulting in a 12-month delay between the actuarial valuation date and the contribution effective date).

Funding Requirement and Policy Components

The actuarially determined contributions for VRS consist of a Normal Cost payment and an amortization payment on the Unfunded Actuarial Accrued Liability (UAAL). These amounts are determined based on the following components:

1. Actuarial Cost Method
2. Asset Valuation Method
3. Amortization Method

Overall, we believe this is a well-constructed Funding Policy. Each component is discussed separately below.

Actuarial Cost Method

The June 30, 2025 actuarial valuations for VRS prepared by the retained actuary use the Entry Age Actuarial Cost Method. This actuarial cost method aligns with the guidance in the VRS Funding Policy. We agree that it is appropriate for valuing the costs and liabilities of VRS, for both pension and OPEB, and is the cost method that we usually recommend. Further, the normal cost for each member is calculated based on the prospective benefit formula for that member (referred to as the replacement life method).

Purpose of a Cost Method: The purpose of any cost method is to allocate the cost of future benefits to specific time periods. Most public plans follow one of a group of generally accepted funding methods, which allocate the

cost over the members' working years. In this way, benefits are financed during the time in which services are provided.

Most Common Public Plan Cost Method (Entry Age): The most common cost method used by public plans is the Entry Age Actuarial Cost Method. The focus of the Entry Age Actuarial Cost Method is the level allocation of costs over the member's working lifetime. For a public plan, this means current taxpayers pay their fair share of the benefits of the public employees who are currently providing services. Current taxpayers are not expected to pay for services received by a past generation, nor are they expected to pay for the services that will be received by a future generation. The cost method does not anticipate increases or decreases in allocated costs.

The 2019 Public Fund Survey from the National Association of State Retirement Administrators shows that about 90% of the retirement systems surveyed are using the Entry Age Actuarial Cost Method.

For GASB Statement Nos. 67, 68, 74 and 75, the Entry Age Actuarial Cost Method is the only permissible cost method for financial reporting purposes.

Blending of Normal Cost Rate: In the most recent valuation and experience study reports, the retained actuary notes the calculation of the Normal Cost was adjusted to reflect a *blending* of normal cost rates. For plans with Hybrid members, the new methodology determines the Normal Cost rate for Plan 1 and 2 members separately from Hybrid members. The blended Normal Cost rate then equals a weighted average of these two normal cost rates based on the projected payroll for the fiscal year following the valuation year, providing a greater weight to the Normal Cost rate for Hybrid Plan members. This new methodology reflects the closed nature of Plans 1 and Plan 2 and that new members will enter the lower-cost hybrid plan in the following year. The retained actuary provided us with a memo during this actuarial audit providing additional detail on the blending procedure. Based on the additional information we received during the actuarial audit, we believe this new procedure is reasonable for the VRS plans in this situation.

Conclusion: We believe that the use of the Entry Age Actuarial Cost Method is reasonable. Further, we believe the retained actuary's application of the Entry Age Actuarial Cost Method, including the blending of normal cost rates, is reasonable.

Asset Valuation Method

As discussed in Section 3 of this report, we believe the asset valuation method used for the June 30, 2025 actuarial valuations is reasonable, and falls within the "Model Practice" category guidelines described in the CCA Public Plans Committee whitepaper.

Amortization Method

The amortization method in the VRS Funding Policy attempts to strike a balance between controlling contribution volatility and ensuring a fair allocation of costs among generations.

Notable provisions of the Amortization Method for the pension and OPEB plans include:

- Effective with the June 30, 2023 valuation, the VRS Funding Policy was revised to amortize the UAAL over a 20-year period (with the exception of any unamortized bases established prior to 2023 with a remaining amortization period of less than 10 years).
- Unexpected changes in the UAAL in subsequent years (or "layers") will be amortized over 20 years.
- Increases in UAAL resulting from plan amendments will be amortized over 10 years.
- Effective July 1, 2025, plans will not recognize a surplus credit in the contribution calculation until the plan reaches a funded status of 120% on an actuarial value of assets basis. When applicable, the surplus will be amortized over a 20-year rolling period.

- Amortization schedules will be established on a “level percent of pay” payment basis.

Conclusion: In general, we consider the amortization methods incorporated in the funding policy to be reasonable and appropriate. The closed, layered level percent of payroll approach with the periods noted above align with the “Model Practice” guidelines described in the CCA Public Plans Committee whitepaper.

Actuarially Determined Contribution

We reviewed the calculation of the Actuarially Determined Contributions (ADC) resulting from the June 30, 2025 actuarial valuations and believe they were determined in accordance with the VRS Funding Policy and the statutory requirements. We believe the actuarial methods and policies selected by VRS are reasonable and generally follow recommended methods for plans of this size and complexity. Additionally, the unfunded actuarial accrued liability (UAAL) is expected to decline each year and be fully amortized within a reasonable period of time

Amortization Period

The retained actuary reports an “amortization period” with the valuation results for each plan in the “Results Summary” exhibits. The period shown by the retained actuary simply identifies the range of years remaining on the amortization bases for each plan. This reporting does not provide any additional insights into the time until their UAAL is expected to be eliminated.

The retained actuary does not define “amortization period” in their reporting for the June 30, 2025 actuarial valuations. One reasonable definition in this context: the “amortization period” is the number of years until the UAAL is **first** expected to be eliminated. This approach to the definition of amortization period would align well with the VRS Funding Policy from at least two perspectives:

- The fifth policy objective (noted above) requires “clear reporting to show how and when plans will be adequately funded”, and
- The Funding Target section indicates that VRS sets the target funding level for all ongoing employers at 100% of its accrued liabilities valued on an ongoing basis.

As further guidance, recent revisions to ASOP No. 4 address this concept of amortization period:

3.19 IMPLICATIONS OF CONTRIBUTION ALLOCATION PROCEDURE OR FUNDING POLICY

When performing a funding valuation, the actuary should do the following:

- (c) estimate the period over which the unfunded actuarial accrued liability, if any, is expected to be fully amortized;*

Based on the stated amortization schedule for each plan, the number of years until the UAAL is first expected to be eliminated can be calculated (“proposed definition”). For most of the VRS plans, the amortization period under this proposed definition is 18 years, which is the remaining period for the initial amortization base established equal to the June 30, 2023 UAAL for each plan. This initial amortization base in the largest charge/loss base for most plans so the contributions towards this amortization base will dictate when most plans will be expected to eliminate the UAAL. However, there are certain plans where the number of years until the UAAL is first expected to be eliminated is different than 18 years. This can occur when the amortization bases established after 2023 are large relative to the initial amortization base established in 2023. For example, the initial UAAL for the Accomack County pension plan was \$1.8 million in 2023 and this same plan established a new “gain” (or negative) amortization base of \$3.3 million in 2025. Other examples are plans that are already fully funded so the time to eliminate the UAAL is zero years.

In these instances, in particular, this proposed definition of amortization period can provide important insights into the expected changes in the UAAL over time. A comparison of the amortization periods presented by the retained actuary to the amortization periods under the proposed definition is shown in the tables below.

<u>Pension Plan</u>	<u>Amortization Period</u> <u>Reported</u>	<u>Amortization Period</u> <u>Proposed Definition</u>
State Employees	18-20 years	18 years
Teachers	18-20 years	18 years
State Police	18-20 years	18 years
Judicial	18-20 years	18 years
VaLORS	18-20 years	18 years
Political Sub – Accomack County	18-20 years	15 years
Political Sub – Town of Middletown	18-20 years	0 years (fully funded)
Political Sub – Northern Neck Soil and Water Conservation District	5-20 years	20 years
Political Sub – City of Virginia Beach	18-20 years	18 years
Political Sub – Town of Herndon	18-20 years	18 years
Political Sub – Town of Big Stone Gap	18-20 years	18 years

<u>OPEB Plan</u>	<u>Amortization Period</u> <u>Reported</u>	<u>Amortization Period</u> <u>Proposed Definition</u>
GLI	18-20 years	18 years
HIC – State Employees	18-20 years	18 years
HIC – Teachers	18-20 years	18 years
HIC – Constitutional Officers	18-20 years	18 years
HIC – Social Service Employees	18-20 years	18 years
HIC – Registrars	18-20 years	18 years
HIC – Political Sub – Accomack County	18-20 years	17 years
HIC – Political Sub – Town of Middletown	18-20 years	0 years (fully funded)
HIC – Political Sub – Northern Neck Soil and Water Conservation District	7-20 years	20 years
VSDP	18-20 years	0 years (fully funded)
VLDP – Teachers	18-20 years	20 years

Conclusion: We recommend the retained actuary adopt a formal definition of “amortization period” to be the period until the current UAAL is expected to be eliminated and disclose this period in the executive summary of the VRS actuarial valuation reports.

Contribution Lag

Currently, the UAAL amortization schedules are designed to pay every dollar of the outstanding UAAL as of the actuarial valuation date. As previously noted, the new contribution rates go into effect 12 months after the valuation date.

This 12-month gap between the actuarial valuation date and the contribution effective date results in interest accruals on the new UAAL layer for 12 months until the effective date of the new contribution rates as well as growth in the contributory payroll. The current “timing adjustment factor” (which is a half-year of interest divided by a half-year of payroll growth) could be expanded to accumulate an additional year of interest and payroll growth

(for a new adjustment factor of 1.055106). Any difference in the contribution dollars collected with the determination of the UAAL amortization schedule will be incorporated into next year's amortization base as an actuarial "gain or loss". This payment timing gap could be addressed in the calculation of the UAAL amortization and the ADC, which would help reduce unexpected changes in the UAAL due to contributions different than expected.

It is important to note that recent revisions to ASOP No. 4 directly address the concept of the timing lag:

3.20 CONTRIBUTION LAG

When calculating an actuarially determined contribution, the actuary should consider reflecting the passage of time between the measurement date and the expected timing of actual contributions.

Conclusion: We recommend that the retained actuary consider enhancing the ADC and UAAL amortization contribution calculation process to address the 12-month timing lag between the actuarial valuation date and the contribution effective date. This recommendation would have a relatively minor impact on the magnitude of the contribution rates over time but it would reduce the expected size of the new amortization base established each year due to aligning the calculation of the contribution rates with the actual timing of the contribution dollars.

Amortization Bases Established in Off-Year "Informational" Valuations

Each odd-year actuarial valuation ("rate-setting valuation") is used to establish the ADC for two fiscal years (the fiscal year beginning 12 months after the valuation date and the fiscal year beginning 24 months after the valuation date). The intermediate even-year actuarial valuation is prepared and identified as "informational" since the developed contribution rates are not anticipated to be adopted.

As part of this "informational" even-year valuation, new amortization bases are established for all unexpected changes in the UAAL during the past year due to actuarial gains and losses. Further, these even-year amortization bases are established in a way that presumes the amortization payment will immediately impact the actual contribution rate. However, the amortization bases established with the even-year actuarial valuations will not be incorporated into the calculation of the ADC until the next rate-setting odd-year actuarial valuation.

This procedure results in a disconnect between the calculation of the ADC and the amortization payments scheduled when the even-year amortization bases are established. As noted in the prior section on Contribution Lag, these differences will be incorporated into the amortization base in the subsequent odd-year valuation as an actuarial gain or loss (effectively extending the amortization by an additional year).

Conclusion: During the next review of the VRS Funding Policy, we recommend modifying the calculation of the amortization payments for the even-year amortization bases to incorporate the fact that the first-year amortization payment will not be incorporated into the ADC until the subsequent actuarial valuation. This recommendation would have a relatively minor impact on the magnitude of the contribution rates over time but it would reduce the expected size of the new amortization base each year due to aligning the calculation of the contribution rates with the actual timing of the contribution dollars.

Development of Unfunded Accrued Liability Changes

In the valuation report, the retained actuary details the calculation of the unexpected changes in the UAAL (or, "actuarial gains and losses"). Specifically, the retained actuary compares the expected UAAL to the actual UAAL to determine the "actuarial gain or loss" for the year. The portion of this "actuarial gain or loss" attributable to assets and liabilities is then determined with any amount due to changes in plan provisions or assumptions specified separately.

However, this development of the actuarial gain / loss for the year does not match the amortization base established for the year. For example, the gain/loss amortization base established for State Employees in the

2025 valuation is \$766.1 million versus the amount of the actuarial gain / loss of \$748.6 million that was developed using the recursive formula.

The difference in the gain / loss calculations is due to the difference in the actual contribution dollars collected during the year versus that expected through the amortization base. This is partially due to the contribution lag and amortization bases established in off-year valuations as well as other differences between the dollars anticipated to be collected and the dollars actually collected.

We recommend that the retained actuary include the differences in the contribution dollars as a reason for the actuarial gain / loss for the year such that the total actuarial gain / loss reported equals the amortization base established.

Approach to Funding Disability Plans

The valuation report for other post-employment benefits (OPEBs) as of June 30, 2025 states that the valuation “does not include actuarial information needed to satisfy reporting requirements under Governmental Accounting Standards Board Statements No. 74 or No. 75, which is provided under separate cover.” The report then includes a valuation of both active and disabled life reserves (i.e., the calculated valuation liability for the plans) for the VDSP and VLDP using an approach consistent with the management and accounting for pension-related benefits, where retirement benefits for each member are generally accounted for with contributions to the plan during the member’s working lifetime. Unlike pension and most OPEB benefits, however, disability benefits end, rather than begin, at the member’s retirement age. Therefore, the funding mechanisms for these plans differ from those for pension plans. For group disability benefits where coverage is provided by the employer and the present value of benefits for disabled lives is fully funded, plan contributions in a given year are designed to cover any disabilities that are incurred in that year. Active life reserves, which account for future disabilities incurred after the valuation date, are not typically reflected in a funding valuation because future contributions are designed to fully cover the cost of these future disabilities. The active life reserve (i.e., “actuarial accrued liability” in the OPEB report) is therefore calculated solely to fulfill requirements under GASB Statements 74 and/or 75. Group disability plans in both the public and private sector, whether insured or self-funded, do not typically hold active life reserves outside of GASB 74 and/or 75 accounting requirements. We therefore recommend adding additional discussion regarding the retained actuary’s best estimate of the true outstanding liability and funded status for the VSDP and VLDP.

We acknowledge that this is a new perspective for managing and funding the VSDP and VLDP. Further, VRS and the retained actuary may need to take additional time to review and consider our recommendations. We will be happy to make our team available, following the completion of the actuarial audit, to discuss these perspectives further to ensure the most appropriate disability plan funding.

The actuarial audit included a review of the Line of Duty Act Program (LODA) funding policy. We did not have any further comments specific to LODA funding policy.

Section Summary

We found the methodologies and the calculations to be reasonable. The following discussion includes recommendations on ways to improve the overall calculation and communication of the actuarial valuation results.

Recommendations that would have a relatively minor impact on contribution rates

- We recommend the retained actuary consider enhancing the ADC and UAAL amortization contribution calculation process to address the 12-month timing lag between the actuarial valuation date and the contribution effective date.

- We recommend modifying the calculation of the amortization payments for the even-year amortization bases to incorporate the fact that the first-year amortization payment will not be incorporated into the ADC until the subsequent actuarial valuation.

Recommendations that would have no impact on plan liabilities nor contribution rates

- We recommend the retained actuary adopt a formal definition of “amortization period” to be the period when the current UAAL is expected to be eliminated and disclose this period in the executive summary of the VRS actuarial valuation reports.
- We recommend that the retained actuary include the differences in the contribution dollars as a reason for the actuarial gain / loss for the year such that the total actuarial gain / loss reported equals the amortization base established.

Finally, we recommend that the retained actuary review our comments related to funding the VDSP/VDLP and explore enhancements to the funding of these benefits in the future.

6. Actuarial Assumptions (Economic)

Actuarial Audit Conclusion

The purpose of the actuarial valuation is to analyze the resources needed to meet the current and future obligations of VRS. To provide the best estimate of the long-term funded status of these plans, the actuarial valuation should be predicated on methods and assumptions that will estimate the future obligations of the plans in a reasonable manner.

An actuarial valuation uses various methods and two different types of assumptions: economic and demographic. Economic assumptions are related to the general economy and its long-term impact on VRS, or to the operation of the plans themselves. Demographic assumptions are based on the emergence of the specific experience of plan members. This section of the report will focus on economic assumptions. The next section will address the demographic assumptions.

We reviewed the economic assumptions used in the June 30, 2025 actuarial valuations and found them to be reasonable. The economic assumptions used were adopted based on the retained actuary's 2025 Actuarial Experience Study for the period ending June 30, 2024. Our comments and recommendations are noted in the discussion below.

Actuarial Standard of Practice No. 27: Selection of Economic Assumptions

The Actuarial Standards Board has adopted Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*. This standard provides guidance to actuaries giving advice on selecting economic assumptions for measuring obligations under defined benefit plans, such as VRS.

As the future is unknown, the actuary uses professional judgment to estimate possible future economic outcomes. These estimates are based on a mixture of past experience, future expectations, and professional judgment. The actuary should consider a number of factors, including the purpose and nature of the measurement, and appropriate recent and long-term historical economic data. ASOP No. 27 explicitly advises the actuary not to give undue weight to recent experience.

Each economic assumption should individually satisfy this Standard. Furthermore, with respect to any particular valuation, each economic assumption should be consistent with every other economic assumption over the measurement period.

After completing the selection process, the actuary should review the set of economic assumptions for consistency. This may entail the actuary using the same inflation component in each of the economic assumptions selected.

An actuary's estimate with respect to a particular measurement of pension obligations may change from time to time due to changing conditions or emerging plan experiences. Even if assumptions are not changed, we believe that the actuary should be satisfied that each of the economic assumptions selected for a particular measurement complies with ASOP No. 27, unless that assumption has been prescribed by someone with the authority to do so.

Inflation

Use in the Valuation: Inflation, as referred to here, means price inflation. The inflation assumption has an indirect impact on the results of the actuarial valuation through the development of the assumptions for investment return and wage growth.

There is expected to be a long-term relationship between inflation and the investment return assumption. The basic principle is that the investors demand a "real return" – the excess of actual investment returns over inflation. If inflation rates are expected to be high, investors will demand expected investment returns that are also high

enough to exceed expected inflation, while lower inflation rates will result in lower demanded expected investment returns, at least in the long run.

Forecasts of Inflation: The retained actuary discusses various sources of inflation data including historical rates, short-term projections provided by the Congressional Budget Office, and various Federal Reserve Banks and long-term projections used by Social Security. Based on this information, the retained actuary recommended maintaining an inflation assumption of 2.50%.

Peer System Comparison: Although assumptions should not be set based on what other systems are doing, it is informative to see how VRS compares.

According to the National Association of State Retirement Administrators (NASRA) Public Fund Survey (a survey of approximately 130 large municipal and statewide systems), the average inflation assumption for statewide systems has been steadily declining. In the June 2025 NASRA Issue Brief, the average inflation assumption was 2.53%.

Conclusion: We believe that the 2.50% assumption selected in the 2025 Experience Study was reasonable, and that it continued to be a reasonable assumption for the June 30, 2025 actuarial valuations of VRS.

General Wage Inflation

Use in the Valuation: Estimates of future salaries are based on two types of assumptions. Rates of increase in the general wage level of the membership are directly related to inflation, while individual salary increases due to promotion and longevity (referred to as the merit scale) occur even in the absence of inflation. This section will address the general wage inflation assumption (inflation plus productivity increases). The merit, promotion, and longevity increase assumption is discussed in Section 7 of this report (demographic assumptions).

As with inflation, historical measures for general wage inflation can vary widely. The retained actuary discusses annual increases using statistics from the Social Security Administration on the National Average Wage and how it has differed with inflation. Based on this information, the retained actuary recommended maintaining a real wage inflation assumption of 1.00% for a total general wage inflation assumption of 3.50%.

Forecasts for Future Wage Growth: Wage inflation has been projected by the Office of the Chief Actuary of the Social Security Administration. In the 2025 Trustees Report, the long-term ultimate annual increase in the National Average Wage was estimated to be 1.14% higher than the Social Security intermediate ultimate inflation assumption of 2.40% per year.

Conclusion: We believe that the 3.50% assumption selected in the 2025 Experience Study was reasonable, and that it continued to be a reasonable assumption for the June 30, 2025 actuarial valuations of VRS.

Payroll Increase Assumption

Use in the Valuation: Payroll is projected to grow in the development of the years to fund the Unfunded Actuarial Accrued Liability. If actual payroll growth is smaller than expected, actual contribution dollars paid into the system would be less than the dollars expected to pay down the unfunded liability. Further, the amortization rates would not remain level and increase in future years.

Current Assumption: The current payroll increase assumption is equal to 3.00%. The retained actuary reviewed growth in the active membership and payroll growth for a 12-year period from 2012 - 2024. They recommended retaining the 3.00% assumption for all groups except for VaLORS. For VaLORS, the retained actuary recommended a decrease in the assumption to 2.50% to reflect decreases in the active population that have occurred. The active count in 2024 is over 20% lower than the active count from 12 years ago.

In maintaining the 3.00% assumption, the retained actuary noted that the 12-year average was higher than this assumption for all of the groups. However, the actual experience being higher was likely driven by higher inflation years 2022 – 2024. If these years are excluded, State employees and Teachers would have payroll growth below 2.5% per year.

Conclusion: For most actuarial valuations, our general approach is for the payroll increase assumption to be consistent with the general wage increase assumption, generally assuming a level active membership count in the future. However, mature plans may still experience payroll growth less than the general wage increase assumption as retiring members are replaced by new hires with lower salaries such that the overall payroll growth is less than the general wage inflation assumption.

While we believe the 3.00% assumption selected in the 2025 Experience Study is reasonable, we recommend that this experience continued to be monitored to ensure that amortization rates do remain level as percentage of payroll.

Post-retirement Benefit Increase/Cost-of-Living Adjustment (COLA) Assumption

Use in the Valuation: The assumption regarding future post-retirement benefit increases affects the projected benefits to be paid to current and future retirees. It is developed reflecting both the adopted inflation assumption and the statutory benefit provisions policy for when and how such benefits will be granted. While the COLA assumption is correlated to the assumption on future inflation, it differs due to the statutory benefit provisions that limit the COLA granted in high inflationary environments.

Current Benefits Provision: For Plan 1 members, the COLA equals 100% of the CPI-U up to the first 3% plus half of any additional increase up to 7% for a maximum COLA rate of 5% granted in any one year. For Plan 2 and Hybrid members, the COLA equals 100% of the CPI-U up to the first 2% plus half of any additional increase up to 4% for a maximum COLA rate of 3% granted in any one year. The COLA is updated each July 1 and may not be below 0% in years of no inflation or deflation.

Current Assumption: The current COLA assumption is set by taking the inflation assumption of 2.50% and applying the COLA provisions noted above. The resulting COLA assumption is 2.50% for Plan 1 members and 2.25% for Plan 2 / Hybrid members.

The inflation assumption of 2.50% is the expected average rate of actual inflation that will vary year by year in the future. It is expected that some years will be higher than the assumption and some years will be lower. This is similar to the expectation for the investment return assumption. In the years when the inflation rate is higher than the assumption, the actual COLA granted may be less than the inflation rate in that year since only 100% of the first 3% and 2% is granted for Tier 1 and Tier 2 / Hybrid, respectively. If the inflation assumption of 2.50% represents the expected average of these varying future inflation rates, then the average COLA granted would be expected to be less than the resulting average inflation rate. This difference would be greater for Plan 2 and Hybrid members. Based on a forward-looking stochastic analysis, Milliman estimates that the average actual COLA granted would be about 15 basis points and 45 basis points less than the current inflation assumption for Plan 1 and Plan 2 / Hybrid members, respectively. The current COLA assumption is zero basis points and 25 basis points less than the current inflation assumption, which is conservative relative to Milliman's analysis. In the 2025 Experience Study report, the retained actuary does not note any specific assessment of the current COLA assumption.

Conclusion: We recommend that the retained actuary review its procedures for analyzing the assumption for future COLAs and determine if adjustments to the assumptions are warranted to account for instances when the

COLA rate would not equal the rate of inflation. We recommend future experience studies incorporate a specific section on selecting an assumption for future COLAs that reflect the benefit provisions and the assumed rate of inflation.

COLA Timing: In addition to the rate of COLAs provided, we also reviewed the timing of when these COLAs are assumed to be provided in the valuation process. For members who qualify for a COLA, the COLA begins on the July 1 after one full calendar year from their unreduced retirement date. Therefore, any member who retires from July 1 to the following January 1 would first receive a COLA beginning on July 1, 18-to-24 months following commencement. Similarly, any member who retires February 1 to June 30 would first receive a COLA beginning July 1, 25-to-29 months following commencement. This is illustrated in the following table:

Month of Retirement	First COLA	COLA Deferral
July, YYYY	July, YYYY+2	24 months
August, YYYY	July, YYYY+2	23 months
September, YYYY	July, YYYY+2	22 months
October, YYYY	July, YYYY+2	21 months
November, YYYY	July, YYYY+2	20 months
December, YYYY	July, YYYY+2	19 months
January, YYYY+1	July, YYYY+2	18 months
February, YYYY+1	July, YYYY+3	29 months
March, YYYY+1	July, YYYY+3	28 months
April, YYYY+1	July, YYYY+3	27 months
May, YYYY+1	July, YYYY+3	26 months
June, YYYY+1	July, YYYY+3	25 months
	Average	23.5 months

For example, a member that retires on January 1, 2026 will receive their first COLA on July 1, 2027 (18 months later). Additionally, a member that retires on February 1, 2026 will receive their first COLA on July 1, 2028 (29 months later).

Based on our liability replication work, it is our understanding that the valuation program used by the retained actuary assumes the COLA will commence in the valuation year following retirement. Specifically, a retirement-eligible active member assumed to retire during the first 12 months following the valuation date (or “year 1” of the valuation program from July 1, 2025 through June 30, 2026) would have their first COLA apply to the benefits assumed to be paid during the second year following the valuation date (or “year 2” of the valuation program from July 1, 2026 through June 30, 2027). We believe this overestimates the number of months the COLA will be paid by a minimum of 6 months and potentially up to 24 months for certain members.

It should be noted that, once a member is retired, the retirement date and the exact COLA commencement date should be known. In these cases, we believe the actual COLA commencement date should be used in the actuarial valuation.

Conclusion on COLA Timing: We recommend that the retained actuary review its valuation program to incorporate the most appropriate timing of the COLA consistent with the COLA provisions. Incorporating this recommendation into the actuarial valuation would reduce plan liabilities and contribution rates for all employers.

Investment Return (Discount Rate)

Use in the Valuation: The investment return assumption is one of the primary determinants in the calculation of the expected cost of VRS benefits, providing a discount of the estimated future benefit payments to reflect the time value of money. This assumption has a direct impact on the calculations of actuarial accrued liabilities, normal cost rate, and member and employer contribution rates.

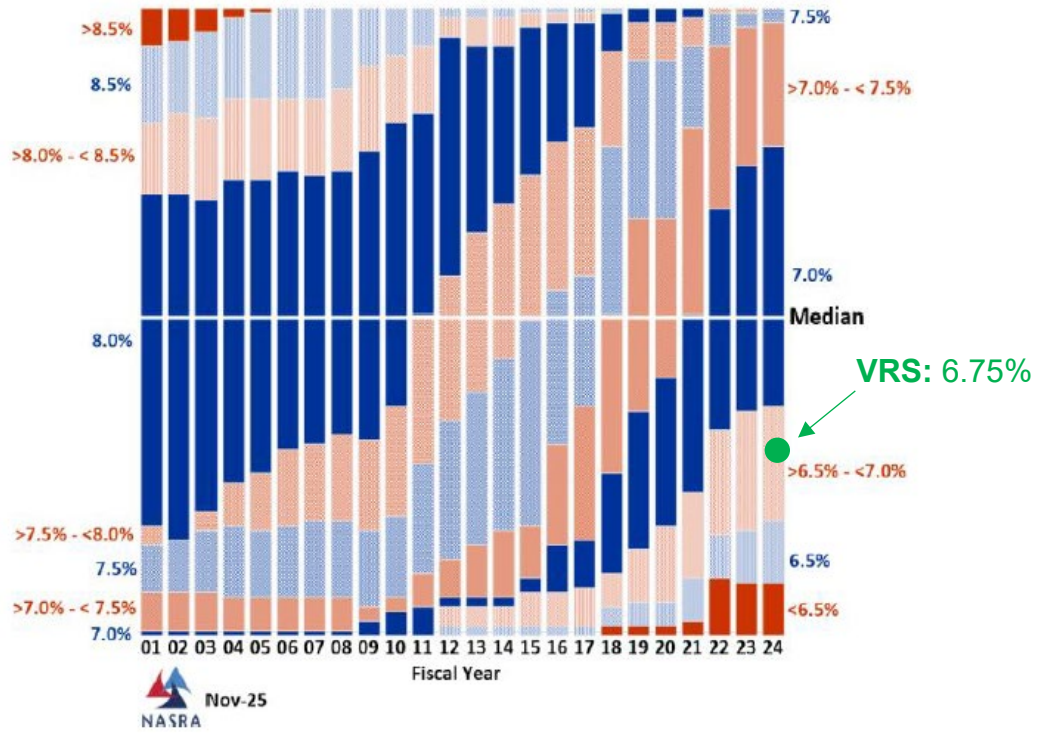
The discount rate is the rate used to discount future benefit payments into an actuarial present value. The traditional actuarial approach used for public sector funding sets the discount rate equal to the expected investment return. Under current standards set by the GASB, the “discount rate” should reflect the long-term expected rate of return on pension fund investments to the extent that the pension fund’s assets are expected to be sufficient to pay benefits.

The analysis regarding the net investment return assumption in the most recent experience study included discussion of two components: (1) inflation of 2.50%, and (2) a real rate of return equal to 4.25%, for a total nominal investment return of 6.75%. This approach of splitting the net return into separate pieces is called the “building block” method.

Long-term Expected Investment Return: To develop an analytical basis for assessing the investment return assumption, the retained actuary included an expected median geometric return over a forward-looking 20-year time period based on capital market outlooks developed by their investment consultants.

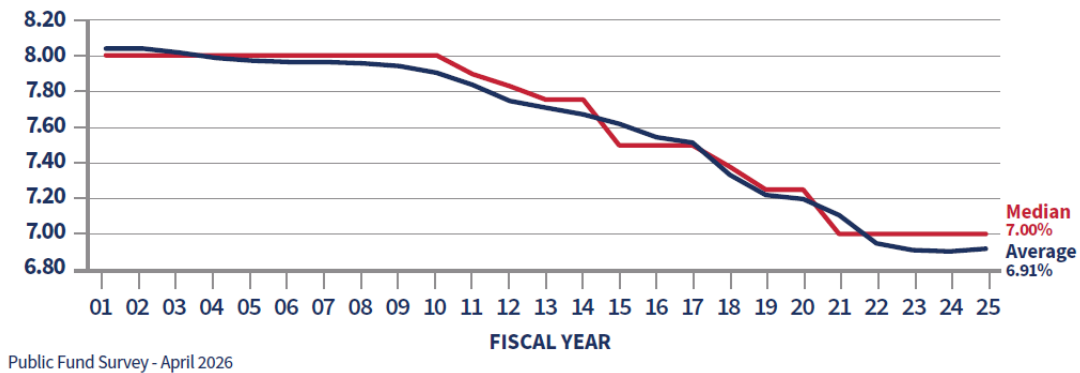
To provide some additional perspective on this assumption, the chart below shows the assumptions used by over 130 of the largest US public sector systems in a regularly updated survey published by the National Association of State Retirement Administrators (NASRA). As can be seen from the chart, the trend over time has been for systems to lower their investment return assumptions.

NASRA Public Fund Survey
 Change in Distribution of Nominal Public Pension
 Investment Return Assumptions, FY 01 to FY 24



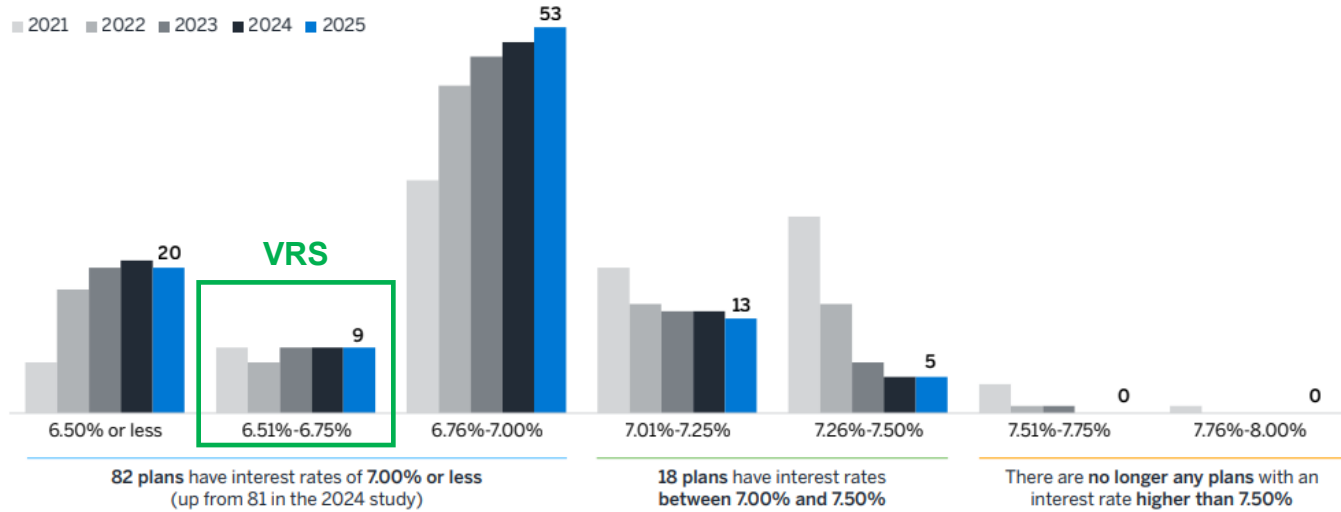
As shown in the chart below, based on information from NASRA’s Public Fund Survey, most large systems have worked through a decade-plus period of lowering return expectations to adjust to changing forward-looking expectations. The median assumption selected for these plans is 7.0% and has been since 2021.

NASRA Public Fund Survey
 Change in Average and Median Investment Return Assumption, FY 01 to FY 25



In addition, Milliman performs a study on the 100 largest public pension funds in the country ([2025 Public Pension Funding Study](#)). The following chart shows that 29 of the largest public pension funds have an assumption of no more than 6.75%.

FIGURE 17: PLAN-REPORTED FUNDING INTEREST RATE



Based on Milliman’s capital market assumption model as of a June 30, 2024 actuarial valuation date and the VRS asset allocation described in the Experience Study, we would expect a 30-year geometric assumed real return of 4.78%. Combined with the 2.50% inflation assumption, this would produce a nominal expected return of 7.28%. The adopted 6.75% assumption would be approximately the 42nd percentile for a 30-year geometric assumed return in this model, meaning that it is expected to achieve a compounded annual return of at least 6.75% 58% of the time. Over a 10-year period, the 50th percentile return is about 50 basis points lower, which would be very similar to the current 6.75% assumption.

The retained actuary’s Experience Study utilizes their internal Capital Market Assumptions Model (CMAM) comprising of capital market assumptions from twelve different investment firms with a 50th percentile return of 7.21% and a probability of achieving the 6.75% assumption 57% of the time over a 10-year return. We note that the retained actuary includes information at 10 years and 20 years but it is not clear in some instances if the returns noted are over 10-year or a 20-year horizon. We suggest that the retained actuary review and clarify their charts in future studies. In any case, these results are consistent with Milliman’s 30-year capital market expectations.

We note that the asset allocation as of July 1, 2025 approved by the Board of Trustees differed slightly than the allocation used in the Experience Study. Based on Milliman’s most recent capital market assumptions as of December 31, 2025 and reflecting these policy changes, the expected return with a 30-year horizon decreased 9 basis points to 7.19%.

Since the pandemic, inflation has generally been higher than in the recent past, which has led to higher capital market assumptions over the past few years. It is uncertain if capital market assumptions will decline if inflation begins to be more consistent with the long-term assumption. Considering short-term and long-term expectations, along with this uncertainty in capital market assumptions, we concur with the retained actuary’s recommendation to maintain the current assumption.

Conclusion: We believe the investment return assumption is reasonable and based on an appropriate analysis.

Administrative and Investment-Related Expenses: Since the trust fund pays investment and administrative expenses from plan assets, it is necessary to incorporate the expected expenses into the actuarial valuation. Plan expenses may be explicitly assumed as a direct increase to the annual normal cost or implicitly assumed by developing an investment return assumption as a net return after payment of plan expenses. The 2025 actuarial valuations include an implicit expense assumption for investment-related expenses and an explicit load to the normal cost for administrative expenses.

The forward-looking capital market assumptions and return forecasts developed by investment consulting firms generally reflect expected investment expenses. Their return estimates for core investments (i.e., fixed income, equities, and real estate) are generally based on anticipated returns produced by passive index funds that are net of investment-related fees. Investment return expectations for the alternative asset class such as private equity and hedge funds are also generally reported as net of investment expenses. Therefore, it is generally not necessary to make additional adjustments to the investment return assumption to account for investment-related expenses. This perspective also generally assumes that investment managers will generate enough alpha to at least cover the cost of the active management.

For administrative expenses, the retained actuary uses a load based on current year expenses.

We believe that these are appropriate methods for the actuarial valuation.

The actuarial audit included a review of the Line of Duty Act Program (LODA) economic assumptions. We did not have any further comments specific to the LODA economic assumptions.

Conclusion: We find the 6.75% total investment return assumption reasonable for the June 30, 2025 actuarial valuations.

Section Summary

We reviewed the economic assumptions used in the June 30, 2025 actuarial valuations and found them to be reasonable, including the investment return assumption. The economic assumptions used were adopted based on the retained actuary's 2025 Actuarial Experience Study for the period ending June 30, 2024.

Recommendation that could potentially have a notable impact on plan liabilities and contribution rates

- We recommend the retained actuary account for the timing delay in the valuation program for the fact that the COLA begins on the July 1 after one full calendar year from a member's unreduced retirement date.

Recommendation that would have a relatively minor impact on plan liabilities and contribution rates

- We recommend that the retained actuary review its procedures for analyzing the assumption for future COLAs and determine if adjustments to the assumptions are warranted to account for instances when the COLA rate would not equal the rate of inflation.

Recommendation that would have no impact on plan liabilities nor contribution rates

- We believe the payroll growth assumption of 3.00% selected in the 2025 Experience Study is reasonable. We recommend that this experience continue to be monitored to ensure that amortization rates do remain level as percentage of payroll.

7. Actuarial Assumptions (Demographic)

Actuarial Audit Conclusion

We completed a review of the demographic assumptions that were adopted based on the retained actuary's 2025 Actuarial Experience Study for the period ending June 30, 2024. Based on this review, we believe the demographic assumptions used in the valuations are reasonable. In this section, we provide recommendations to consider when setting the mortality assumption in future actuarial studies.

Note that we did not independently replicate the detailed analysis completed by the retained actuary as it was outside the scope of this actuarial audit.

Overview of Actuarial Experience Studies

Actuarial experience studies are studies of demographic experience involving a detailed comparison of actual and expected experience. If the actual experience differs significantly from the overall expected results, or if the actual pattern does not follow the expected pattern, new assumptions are considered. Recommended revisions normally are not an exact representation of the experience during the observation period. Judgment is required to predict future experience from past trends and current evidence, including a determination of the amount of weight to assign to the most recent experience.

In an experience study, the actuary first determines the number of actual occurrences (i.e., deaths, terminations, retirements, etc.) that occurred during the experience period. Then the actuary determines the number that were expected to occur, based on the current actuarial assumptions. A comparison of the "actual occurrences" to the "expected occurrences" can determine the appropriateness of a particular assumption and is generally referred to as a "headcount-weighted" experience analysis. Selecting an assumption based on a headcount-weighted analysis is consistent with determining the *expected number of occurrences* in the actuarial valuation.

An actuary can enhance the "headcount-weighted" analysis by considering an "amount-weighted" experience analysis. An amount-weighted analysis will generally use an amount that is relevant to the plan, such as benefits or liabilities, to "weight" the occurrences reviewed as part of the analysis. By weighting the data, the actuary gives more weight to members who have larger benefits (and thus have larger liabilities). Selecting an assumption based on an amount-weighted analysis is consistent with *minimizing actuarial gains and losses* associated with a particular assumption in the actuarial valuation.

We noted that the retained actuary used an "amount-weighted" approach when analyzing the mortality assumptions in the most recent experience study. Because this was the first study that used the amount-weighted basis rather than headcount-weighted, the retained actuary also provided a summary of the actual and expected deaths calculated on a headcount basis. We believe this additional detail provided helpful context to the assumption analysis. In the future, even if the actuary does not intend to show the full headcount analysis, it would be helpful to continue to provide some indication of the number of actual deaths for each category, as this enhances the reader's ability to judge the credibility of the underlying data.

We did not independently perform the detailed calculations of the actual and expected rates that the retained actuary did, but we reviewed the assumptions based on our experience with similar systems.

Please note that effective January 1, 2025, the Actuarial Standards Board adopted a revised Actuarial Standard of Practice (ASOP) that affected the citations relevant for pension plan valuations, but which left the substance of the guidance materially unchanged. After that date, an updated version of ASOP No. 27 now governs both economic and demographic assumption and the existing ASOP No. 35, which previously governed demographic assumptions, was eliminated. For purposes of the discussion in this report, we have continued to refer to the previous versions of ASOP No. 27 and No. 35, since those were the standards that applied as of the June 30, 2024 valuation date used in the experience study.

Actuarial Standard of Practice No. 35: Selection of Demographic Assumptions

Actuarial Standard of Practice No. 35 (ASOP No. 35), *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*, governs the selection of demographic and other noneconomic assumptions for measuring pension obligations. ASOP No. 35 states that the actuary should use professional judgment to estimate possible future outcomes based on past experience and future expectations, and select assumptions based upon application of that professional judgment. The actuary should select reasonable demographic assumptions in light of the particular characteristics of the defined benefit pension plan that is the subject of the measurement. A reasonable assumption is one that is expected to appropriately model the contingency being measured and is not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

Post-Retirement Mortality

Mortality rates are used to project the length of time benefits will be paid to current and future retirees and beneficiaries. The selection of a mortality assumption affects plan liabilities because the estimated value of retiree benefits depends on how long the benefit payments are expected to continue. There are clear differences in the mortality rates by gender, job categorization, non-annuitant versus annuitant, and non-disabled versus disabled retired members.

Base Mortality Tables: The Retirement Plans Experience Committee (RPEC) of the SOA issued the “Pub-2010” family of static base mortality tables in 2019. The ‘2010’ in the title refers to the central year of collected study data. These are the first tables published by the RPEC based solely on public sector experience. The RPEC created separate tables for public safety, teachers, and general employees. These tables are mapped to each of the VRS employee groups and plans as follows:

Plan	Healthy Retiree Classification	Disabled Retiree Classification	Plan	Healthy Retiree Classification	Disabled Retiree Classification
State	General	General	Locals Metro, Non-Hazardous Duty	General	General
Judicial	General	General	Locals Non-Metro, Non-Hazardous Duty	General	General
Teachers	Teachers	Teachers	Locals Metro, Hazardous Duty	Safety	General
VaLORS	Safety	General	Locals Non-Metro, Hazardous Duty	Safety	General
SPORS	Safety	General			

These tables were then adjusted to fit VRS experience for use in the actuarial valuations. For example, rates of mortality are multiplied by 95% for male judges to account for their longer life expectancy relative to State employees. These adjustments were determined in the experience study prior to the 2025 study. The retained actuary recommended retaining these adjustments, particularly due to the impact of the pandemic on experience during this experience study period. The retained actuary did include year by year graphs that showed how the mortality experience differed during each year of the study period by each group. While rates of mortality were generally lower in 2023 and 2024 than in 2021 and 2022, generally the mortality experience each year of the study period exceeded the assumption.

We concur with making no changes as it would be difficult to utilize experience during this period to recommend adjustments. We do note that the classification for disabled retiree mortality differs from the classification for healthy retiree mortality and suggest this be reviewed in the next experience study.

Survivor Mortality: The analysis of contingent survivor mortality experience reflects the experience of survivors where the member has previously died, and the survivor is now receiving payments. That is, it excludes

contingent beneficiaries where the retiree is receiving the payment and no pension benefit is currently being paid to the contingent beneficiary. We caution against using the experience of the in-payment survivors to set the assumption for the not-in-payment contingent beneficiaries, as studies have shown in-payment survivors have materially higher mortality rates than contingent beneficiaries of members who are still alive and receiving benefits. This is sometimes referred to as the “grieving widow effect.” The RPEC notes that the contingent survivor mortality rates were developed solely from the experience data for surviving beneficiaries after the death of the primary member.

In the next actuarial experience study, we recommend that a healthy post-retirement mortality table be incorporated for beneficiaries while the retiree is alive and use the contingent survivor mortality table only upon death of the retiree.

Mortality Improvement Scale: It is difficult to predict how much future mortality will improve compared to mortality today. The Society of Actuaries (SOA) has created very precise projections of mortality improvement in “MP” tables that are generally updated each year. The SOA’s calculations feature a two-dimensional assumption to allow for varying improvements by age and calendar year. The SOA created new tables in 2014 through 2021. The retained actuary recommended the latest version (MP-2021) in the experience study. Due to the pandemic, the SOA has not published any additional mortality improvement scales since 2021.

In the VRS actuarial valuations, a weighting of 75% has been applied to the applicable improvement scale. The retained actuary recommended maintaining this adjustment in light of the pandemic during the period studied in the 2025 Experience Study but notes that it will be reviewed with the next experience study. We recommend that the historical weighting be reviewed during the next experience study to determine whether there are specific reasons why VRS experience should lag general expectations.

Future Updates in Mortality: In May 2025, RPEC issued a “Pub-2016” family of static base mortality tables. The updated base mortality tables released with this study generally show a slightly shorter life expectancy for most retiree categories than the “Pub-2010” mortality tables, except for male safety members. These updated mortality tables will be available for the next experience study for VRS and an option for the retained actuary to consider. These tables were in draft form at the time of the Experience Study as noted by the retained actuary.

Conclusion: Overall, the base mortality and mortality improvement assumptions are reasonable. We recommend applying the Contingent Survivor tables only after death of the retiree and reviewing the classifications selected for post-retirement mortality applied to disabled members. Incorporating this recommendation into the actuarial valuation would have a relatively minor impact on plan liabilities and contribution rates. We also recommend that the historical 75% weighting for the mortality improvement scale be reviewed during the next experience study to determine whether there are specific reasons why VRS experience should lag general expectations. If the weighting is increased to 100%, it would result in higher plan liabilities and contribution rates.

Merit, Promotion, and Longevity Salary Increases

The individual salary increase assumptions due to merit (longevity and promotion) are intended to anticipate the salary increases in addition to the assumed increases due to general wage inflation. The retained actuary performed a review of total salary increases and noted that overall for each of the groups actual salary increases were higher than expected. Since inflation was higher during this 4-year period, it is not unexpected that salary increases were higher than expected during the study period. This was the opposite result of the experience during the prior experience study, which was during a period of low inflation. As such, they recommended an increase of 50 basis points (0.50%) for all non-judicial groups and no change to Judicial groups. For Judicial groups, no change was recommended since a reduction was applied in the prior experience study.

Conclusion: We concur that the recommendations are reasonable and the assumption be reviewed further at the next experience study.

Rates of Service Retirement

We reviewed the recommended rates of service retirement. The current assumptions vary by Plan (Plan 1 versus Plan II and Hybrid), type of retirement (normal versus unreduced versus early), age, and service for each membership category.

In its analysis, the retained actuary noted that they simplified some of the assumptions across service levels using a liability-weighted method for studying many of the demographic assumptions including retirement. While we believe this approach is reasonable, we offer the following recommendations for future analysis of the retirement rate assumptions:

1. For SPORS, an officer is eligible for the Temporary Supplement upon completion of 20 years of hazardous service. The supplement is payable from retirement until Social Security Retirement Age. A similar provision applies to VaLORS members as well, although the supplement only applies to those local officers hired before July 1, 2001. We would anticipate a higher rate of retirement for members eligible for the supplement versus not eligible for the supplement. We recommend reviewing experience for members eligible for the supplement separately than those not eligible.
2. There is currently no unreduced retirement experience for Plan 2 and Hybrid prior to normal retirement. Therefore, setting rates at these service categories is mostly a theoretical exercise. However, the rates of unreduced retirement are lower at the same age than the rates used for Plan 1 members. For example, the rate of retirement for a Plan 1 State employee age 62 with 30 or more years of service is 19% whereas it is 9% under Plan 2 / Hybrid. The report also did not provide any commentary on the development of these retirement rates. We recommend that the rates of retirement for Plan 2 and Hybrid members be reviewed for consistency with Plan 1 rates and note the rationale for any differences in future studies, especially in light of limited actual experience.
3. If experience is liability-weighted across service levels with varying early retirement reductions, the application of the weighted retirement rate may underestimate the resulting valuation liability. For example, consider two age 55-year-olds who retire with a reduced retirement – one with 25 years of service and one with 20 years of service. The early retirement reduction for the 25 years of service member is less resulting in a greater benefit and liability than the 20 years of service member, resulting in more weight being used for the 25 years of service member when developing the combined rate. Use of this combined rate for all members age 55 but less than 25 years of service may result in more members expected to retire with a greater early retirement reduction than experience would indicate.
4. Define the parameters of reduced and unreduced retirement by group and plan.
5. The experience study report provides a year-by-year graphical summary of the headcount-weighted experience compared to the current assumption for each group. We suggest the scale of these charts be the same to make it easier to identify where experience is less than or more than the assumption. We also suggest including similar charts under the proposed assumptions.
6. Due to the pandemic, the retained actuary noted that it weighted current experience during the period by 25% and the prior assumption by 75%. We generally believe the 25% weighting for retirement is appropriate.
 - a. For example, rates of retirement for Teachers were much higher than expected during 2021 and 2022 but then much lower than expected during 2023 and 2024.
 - b. For SPORS, rates of retirement were much higher in 2021 but generally consistent with the retirement assumption for the next three years. In this instance, we would have suggested that 2021 experience be excluded from the assumption development.
7. In some cases, we would recommend graduating experience, i.e. averaging experience over certain age bands, as age-by-age experience can vary from one experience period to another. For example, the Plan 1 Teacher female age 76 rate is 26% whereas the age 75 and ages 77 -79 rates are 27%. We recommend a review of certain rates for graduation be considered.

8. For judicial members, we noticed a significant deviation in actual experience versus that expected for ages below age 64. Very few retirements occurred at these ages versus that expected. We suggest a review of this experience to verify that the retirement parameters generating the expectations are consistent with the plan provisions.

Conclusion: Overall, the retirement rate assumptions appear reasonable for the groups covered by VRS. We recommend that rates of retirement for Plan 2 and Hybrid members be reviewed for consistency with Plan 1 members with similar characteristics. We believe the other recommendations will improve the next assumption setting process and potentially reduce unexpected changes in UAAL (i.e., actuarial gains and losses) in the future.

Rates of Disability Retirement

We reviewed the recommended rates of disability retirement. Due to the pandemic, the retained actuary noted that it weighted current experience during the period by 25% and the prior assumption by 75% for all assumptions except for rates of disability. For this assumption, a 50-50 weighting of experience was used as the retained actuary pointed out that a disability is not a voluntary behavior. The retained actuary also noted that there were far fewer disabilities than expected during the study period.

In studying rates of disability, we look for the following factors:

1. There is typically a multi-year delay in reporting actual disabilities as there is a process to become approved for disability benefits. This can result in a member originally classified as a termination or a reduced service retirement rather than a disability in the valuation following exit from active membership. We recommend that any future disablement be reflected in the year of exit in studying rates of disability.
2. The rates of disability do not necessarily measure an incidence of disability but rather a member who qualifies and elects a disability retirement benefit from the retirement plan or from VSDP / VLDP. This can result in lower rates of disability for members who can elect service retirement or if members are unable to elect a disability benefit due to age (VLDP only provides eligible members under the age of 70 with benefits). We recommend that future experience studies exclude periods where service retirement would provide a higher benefit.

The first factor may cause an increase in the incidence of disability whereas the second factor may cause a reduction in the incidence of disability.

Conclusion: We recommend adjustments to the rate setting process to potentially account for delays in the reporting of approved disability benefits or adjustments to members who would elect a service retirement benefit versus a disability benefit.

Rates of Termination (Refund and Vested Termination)

We reviewed the recommended rates of termination of employment. Due to the pandemic, the retained actuary noted that it weighted current experience during the period by 25% and the prior assumption by 75%. By using a liability-weighted method, this would indicate that rates of termination for Plan 1 members would be weighted higher than rates of termination for Plan 2 / Hybrid members, all else being equal. If experience among Hybrid members is higher, we recommend that separate rates be determined as that would be more indicative of experience for future new entrants, which would be helpful in long-term projections. However, since proposed rates of termination vary by service, we do not believe this would have a significant impact on results.

In our review, we noted that there were significant deviations between the proposed assumption (and the previous assumption) for members with at least 20 years of service as shown in the following table. If the actual to expected (A/E) ratio is below 1.0 as is the case for State Employees, Teachers, State Police, Metro Non-Hazardous and Non-Metro Non-Hazardous groups, then actual experience is much less than the assumption. If

actual termination rates are lower than the assumption, it would indicate a higher probability of members reaching retirement and subsidized retirement.

Actual to Expected (A/E) Ratios under Proposed Assumptions For Members with 20 or more Years of Service		
	Males	Females
State Employees	0.632	0.597
Teachers	0.810	0.849
State Police	0.607	0.607
Metro Non-Hazardous	0.588	0.698
Non-Metro Non-Hazardous	0.728	0.637
VaLORS	1.869	1.722
Metro Hazardous	4.059	2.738
Non-Metro Hazardous	2.680	2.330

If the actual to expected (A/E) ratio is above 1.0 as is the case for VaLORS, Metro Hazardous and Non-Metro Hazardous groups, then actual experience is much higher than the assumption. If actual termination rates are higher than the assumption, it would indicate a lower probability of members reaching retirement and subsidized retirement.

Conclusion: We recommend that the retained actuary closely monitor the experience for members with 20 or more years of service by group to confirm the assumption is reasonable or if an adjustment should be made.

Group Life Insurance: “Life Insurance Only” Retirees

As noted in the experience study report, there are certain groups that participate in the GLI but do not participate in other VRS programs. These groups are identified as “life insurance only” retirees. The current actuarial valuation incorporates a very high-level estimate of the liability for this group. Prior to the next experience study, we recommend that the retained actuary work with the GLI program administrator to determine whether detailed census data could be available to directly value the “life insurance only” retirees in future actuarial valuations.

Virginia Sickness and Disability Program (VSDP) and Virginia Local Disability Program (VLDP): General Commentary on the Experience Analysis

In the experience study report, the weighting of the study results for each cell is based on “how close it [is] to the valuation assumption”. This implies that experience consistent with assumptions is given more or less weight than experience that deviates materially from assumptions. This may not be an appropriate basis for weighting plan experience. Typical industry practice for experience analysis on disability plans establishes a level of credibility for a plan that is based on the number of claims and/or life years of exposure. This credibility factor is used to weight recent plan experience with estimated industry experience, as reflected in published morbidity tables and industrywide studies of disability experience. Additionally, it is difficult to determine from the retained actuary’s actuarial valuation and experience study reports whether the valuation assumptions developed from the experience studies are producing liability estimates that are sufficient to cover emerging plan experience. The actual-to-expected claim termination rate study described in the reports provides a limited view of plan experience. This type of study illustrates how many claims are terminating at each claim duration, but it does not account for key assumptions such as estimated benefit offsets and remaining benefit duration. To measure reserve adequacy for disability benefits, we recommend that the retained actuary consider a margin or runout analysis. Runout studies compare liabilities calculated at the beginning of a period to benefit payments made during the period, plus the remaining liability at the end of the period for any claims still open. The starting liability, less the present value of payments and the present value of the ending liability, is equal to the amount of margin that was present in the starting liability and released over the study period. A positive margin indicates that the

starting reserves were sufficient to cover emerging plan costs, while a negative margin indicates a shortfall. This type of analysis could help to produce assumptions and liability estimates that are sufficient to cover emerging plan experience and enhance the overall valuation process.

Incurred-But-Not-Reported (IBNR) Disabilities

The valuation report does not include a liability for incurred-but-not-reported (IBNR) or pending disability claims as of the valuation date. The actuarial report appendix explains that since existing short-term disability claims are included in the active member population, an IBNR liability is not needed for disabled lives. The active member population is used, along with claim incidence rates developed from VSDP/VLDP experience, to calculate liability for active lives, which is designed to cover the cost of claims incurred *after* the valuation date. The disability incidence rates applied to the population are annual incidence rates, so they model a single (upcoming) year of claim activity. The purpose of the IBNR reserve, however, is to account for claims that have already been incurred *prior to* the valuation date. These are claims attributable to a prior period rather than to the upcoming year. Given the six-month benefit waiting period, roughly half of the claims that occurred in the prior year are either pending payment or not yet reported. These claims are generally accounted for in the IBNR reserve, which is not included in the VSDP and VLDP valuations.

Conclusion: We recommend the retained actuary include an additional liability for IBNR disability claims. Applying this recommendation will increase plan liabilities and contribution rates for VSDP and VLDP.

Recovery from Disability

The actual-to-expected claim termination rate (CTR) study and resulting CTR adjustment factors are grouped for claim months 25 through 60. There may be dynamics within this grouping that are not being captured. For example, the definition of disability changes from an “own occupation” definition to an “any occupation” definition, which is a stricter definition, during claim. There tends to be a lot of claim termination activity around this change in definition, which applies beginning in claim month 31. The underlying industry table, the 2012 Group Long-term Disability Valuation Table (2012 GLTD Table), includes adjustments around the change in definition. These adjustments are significantly large, and represent average industry experience, making it important to understand how VSDP and VLDP experience compares to this industry average.

Additionally, the 2012 GLTD Table is the most recent valuation table for group disability benefits. The assumptions in this table vary by gross benefit amount, where the gross benefit is indexed to match the basis used in the development of the table. It seems that the retained actuary assumes this indexed benefit (which may be mislabeled as “initial maximum guaranteed benefit” in the valuation and experience study reports) is \$1,900 for all claims.

Conclusion: We recommend the retained actuary consider reviewing disability claim termination rate experience using more granular groupings for duration of disability, especially around the change in definition after 30 months of claim. The impact of this change in assumption is likely small.

The actuarial audit included a review of the Line of Duty Act Program (LODA) demographic assumptions. We did not have any further comments specific to the LODA demographic assumptions.

Section Summary

We completed a high-level review of the demographic assumptions that were adopted based on the retained actuary’s 2025 Actuarial Experience Study for the period ending June 30, 2024. Based on this review, we believe the demographic assumptions used in the valuation are reasonable. We have the following recommendations for future actuarial studies:

Recommendations that could potentially have a notable impact on plan liabilities and contribution rates

- We recommend the retained actuary include an additional liability for IBNR disability claims.
- We recommend that the historical 75% weighting for the mortality improvement scale be reviewed during the next experience study to determine whether there are specific reasons why VRS experience should lag general expectations.

Recommendations that would have a relatively minor impact on plan liabilities and contribution rates

- In the next actuarial experience study, we recommend that a healthy post-retirement mortality table be incorporated for beneficiaries while the retiree is alive and use the contingent survivor mortality table only upon death of the retiree.
- We recommend the retained actuary consider the following while developing the retirement assumptions as part of the next experience study:
 - Review experience for SPORS and VaLORS based on members eligible for the Temporary Supplement versus not eligible for the Temporary Supplement.
 - Review rates of unreduced retirement for Plan 2 and Hybrid Plan members for consistency with rates of unreduced retirement for Plan 1 members.
- We recommend the retained actuary consider the following while developing the disability assumptions as part of the next experience study:
 - Determine if there is a delay in approving disability benefits that is impacting the experience studied.
 - Review if members eligible for normal retirement should be excluded from the disability rate analysis as part of the next experience study
- We recommend that the retained actuary closely monitor the termination experience among members with 20 or more years of service as there were significant deviations between the actual experience and the termination rate assumptions across all groups and make adjustments as needed.
- We recommend the retained actuary consider reviewing disability claim termination rate experience using more granular groupings for duration of disability, especially around the change in definition after 30 months of claim.

8. Content of the Valuation Report

Actuarial Audit Conclusion

ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, ASOP No. 6, *Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Plan Costs or Contributions*, and ASOP No. 41, *Actuarial Communications*, provide guidance for measuring pension and OPEB obligations and communicating the results. These Standards list specific elements to be included, either directly or by references to prior communication, in pension actuarial communications. The retained actuary's reports meet the applicable Standards. We are recommending improvements for the next valuation that will enhance the overall communication and disclosure in the actuarial valuation report. These are all improvements to the reporting and would not impact the results of the valuation.

Comments

Following our review of the retained actuary's actuarial valuation reports for VRS, we have the following recommendations for future actuarial valuation reports. These recommendations will have no impact on plan liabilities nor contribution rates.

Pension and OPEB Valuation Reports: Executive Summary

The Actuarial Standards of Practice clearly state that the actuary should identify plan provisions and assumptions used in an actuarial measurement. The Executive Summary of the actuarial valuation reports refers to a hyperlink for a detailed summary of the plan provisions and assumptions used in the valuations. The use of a hyperlink for this important reliance is problematic for a number of reasons, that include:

- the link in a historical valuation report may not lead to the most appropriate appendix as the appendix is updated for subsequent valuations,
- the reader is required to read an electronic copy of the valuation report and also have internet access, and
- the VRS website could change the location of the files so that the hyperlink no longer works.

In fact, the links in the 2024 actuarial valuation reports are already broken.

We recommend that the retained actuary specifically identify, by title and date, the document that the actuarial valuation reports are relying on for the summary of plan provisions and actuarial assumptions and methods. Including the hyperlink, in addition to these detailed references, would likely provide a convenient way to reference the information.

Pension and OPEB Valuation Reports: Valuation Results

The valuation results sections of the actuarial valuation report clearly communicate important valuation results such as membership counts, asset amounts, liability amounts and funded status measurements. One result provided for each plan is the 'amortization period'. The term 'amortization period' can be defined in multiple ways; however, the retained actuary does not define this term in context of the VRS actuarial valuation reports. In Section 5 of this report, we outline one proposed definition of 'amortization period' for consideration by VRS and the retained actuary. For purposes of clear communication, in accordance with ASOP No. 4, we recommend that the retained actuary clearly define 'amortization period' as they intend to use it consistently throughout the actuarial communications.

The Amortization of Unfunded Accrued Liability table for each plan labels the amortization base established as of June 30, 2023 as "(Gain)/Loss" in the pension report and "Experience (Gain)/Loss" in the OPEB report. In each case, this amortization base is the entire UAAL at the time the VRS Funding Policy was updated. We believe it

would improve the communication of future actuarial valuation reports to identify the June 30, 2023 amortization bases to something similar to “Initial UAAL”.

The Unfunded Accrued Liability Changes table for each plan describes line C.2. as “gain/(loss) due to change in methods”. In order to improve the communication of future actuarial valuation reports, we recommend that the retained actuary update the description of line C.2. to be “gain/(loss) due to change in assumptions and methods”.

Pension and OPEB Valuation Reports: Definition of Payroll Amounts

The terms *Annual Covered Payroll* and *Valuation Payroll* are used throughout the actuarial valuation reports as part of the calculation of the Actuarially Determined Contribution, to present certain ratios as a percentage of payroll, and to present certain summaries of the data. It is our understanding for every group, except Teachers, that this payroll amount represents the beginning of year rate of pay for every active member on the valuation date. We recommend that the retained actuary clearly define all of the payroll amounts presented in the actuarial valuation results to improve the overall clarity of results.

Pension and OPEB Valuation Reports: Census Data

We recommend that the census data sections be expanded to include active member statistics (e.g. count, compensation, average age and service) by tier (e.g. Plan 1, Plan 2, Hybrid).

Report Appendix: Actuarial Funding Method

The Introduction section of the June 30, 2025 valuation appendix notes that the 2020-2024 experience study refined the calculation of Normal Cost to reflect the closed nature of Plan 1 and Plan 2 for Plans with Hybrid members. Further, the Actuarial Funding Method section of the June 30, 2025 valuation appendix describes how the normal cost is developed for actuarial valuation purposes. We recommend that the retained actuary include the development of the blended normal cost rate along with a brief discussion of the recent refinement in the blended normal cost calculation in the Actuarial Funding Method in future actuarial valuation reports so that the updated procedure is codified in the future.

Report Appendix: Summary of Plan Provisions

The description of the Early Retirement for the pension plans indicates that a reduction applies to the annual benefit in certain circumstances. We recommend expanding this description to note that the Statutes indicate that the Early Retirement reduction is intended to be an actuarial reduction and to provide the date or age from which the reduction applies. We also recommend that the retained actuary clarify eligibility for Early Retirement under the Rule of 90 for Plan 2 and Hybrid members of State, Teachers, and Political Subdivisions.

The description of the Disability Retirement (Non-VSDP/VLDP) benefit provides the Minimum Guaranteed Benefit (Non-Work Related) for those eligible for Social Security Disability benefits and those not eligible for Social Security Disability benefits. It is our understanding that the amount should be 50% of AFC for those not eligible for Social Security Disability benefits and 33-1/3% of AFC for those eligible for Social Security Disability benefits (the percentages are swapped). We recommend that the retained actuary confirm the correct amounts and update the actuarial valuation reports, as necessary.

Report Appendix: Actuarial Assumptions

We recommend that the description of the beneficiary and survivor mortality assumption be enhanced to make it explicitly clear that the Pub-2010 Contingent Survivor library of tables are the basis for the beneficiary and survivor mortality assumption.

The valuation report indicates that deferred vested benefits are assumed to commence at Normal Retirement. We believe it would be more appropriate to state that terminated vested benefits are assumed to commence at

unreduced retirement age. We recommend that the retained actuary determine the most appropriate description and update the actuarial valuation report, as needed.

Definitions

We recommend that the current actuarial valuation reports and/or related appendices be expanded to include a section for “definitions”. The actuarial valuations for VRS result in very complex communications of results and a central location for definitions of complex terms for all of the plans could improve the overall communication of the actuarial valuation results.

A section of definitions would align well with Section 3.1.2, Clarity, of ASOP No. 4 which indicates: *The actuary should take appropriate steps to ensure that each actuarial communication is clear and uses language appropriate to the particular circumstances, taking into account the intended users.*

9. Benchmarking

This section will benchmark VRS relative to peer statewide retirement systems. The sources for the benchmarking are the National Association of State Retirement Administrators (NASRA) Public Fund Survey for FY2024 and Milliman’s 2025 Public Pension Funding Study (PPFS).

NASRA Public Fund Survey for FY2024

Published December 2025

The Public Fund Survey is an online compendium of key characteristics and trends affecting the nation’s largest public retirement systems. The FY2024 Survey included the following results for VRS (along with the applicable percentiles for VRS):

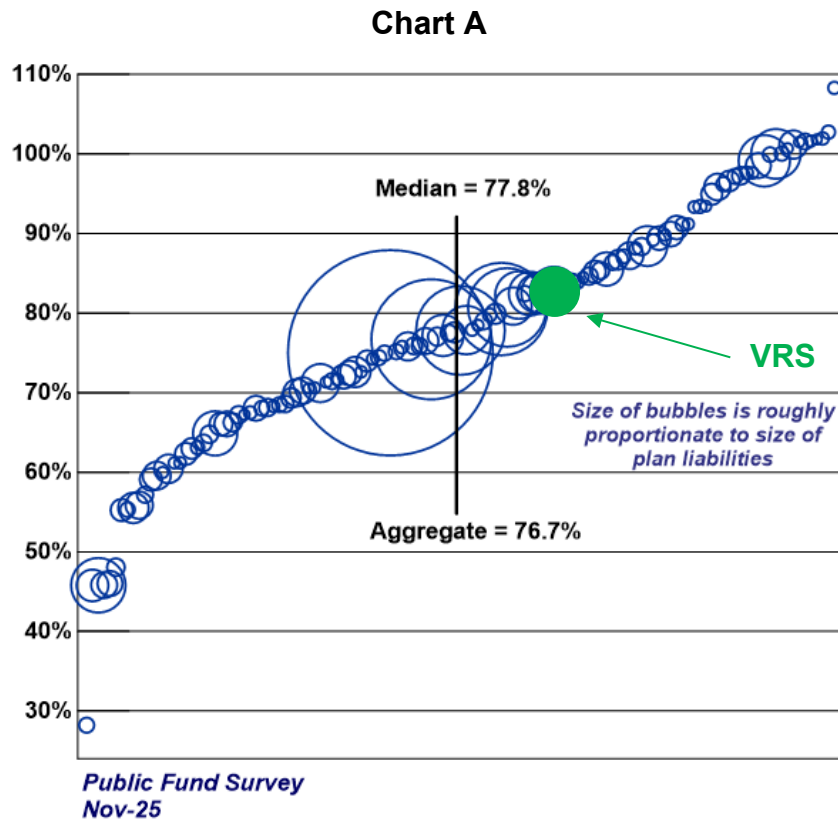
	VRS	VRS Percentile	NASRA FY 2024 Public Fund Survey		
			25 th Percentile	50 th Percentile	75 th Percentile
Number of Active Members	367,783	93%	30,574	76,014	183,389
Number of Annuitants	240,649	90%	31,062	69,750	143,218
Market Value of Assets	\$109.6 billion	91%	\$12.3 billion	\$24.0 billion	\$64.5 billion
Actuarial Value of Assets	\$106.7 billion	89%	\$12.0 billion	\$23.8 billion	\$62.4 billion
Funded Ratio	82.3%	62%	68.5%	77.5%	87.0%
Ratio of Actives to Annuitants	1.53	88%	1.04	1.21	1.35

The survey results are based on the responses of 101 large public pension funds, including approximately 15 stand-alone municipal retirement systems. VRS data is based on the aggregate VRS pension data (including SPORS, VaLORS, and JRS). It should be noted that multiple groups release similar benchmarking data and the plans included in each study can vary.

The percentile ranks in these categories indicate that VRS continues to be one of the largest pension funds in the US, as measured by membership, assets, and liabilities. Further, VRS is above average (in the 62nd percentile) in funded status (as measured by funded ratio on an actuarial value of assets basis).

It should be noted that funded status is one of many metrics used to show trends and develop future expectations about the health of a retirement plan. The funded status measure itself is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan’s benefit obligations or assessing the need for or the amount of future contributions since it does not reflect normal cost contributions, the timing of amortization payments, or future experience other than expected.

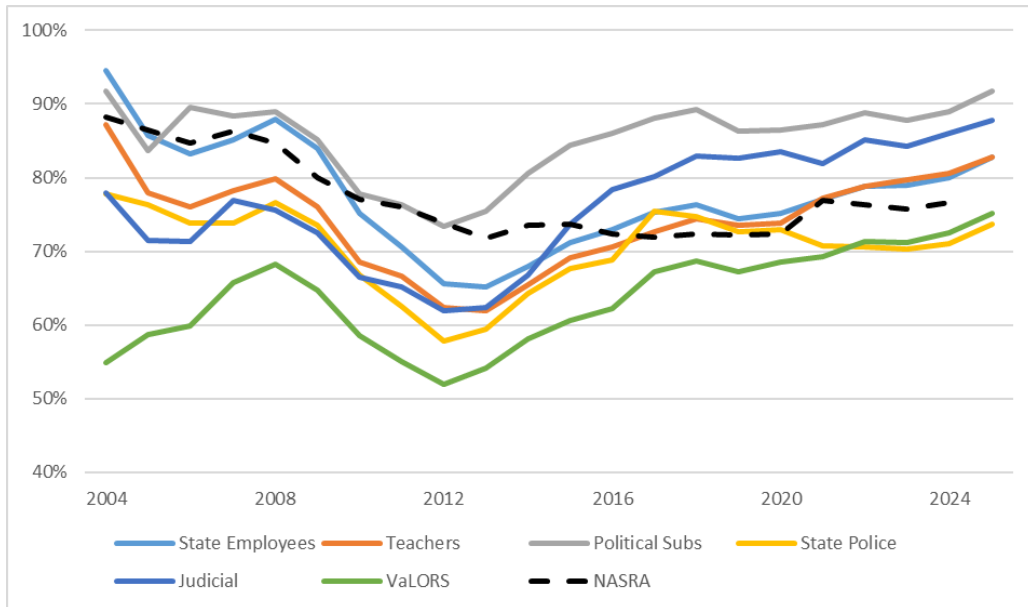
Chart A is from the NASRA FY2024 Public Plans Survey and illustrates the funded status and size of VRS relative to the other plans in the survey.



Similar to the prior chart, VRS falls in the upper-third of plans based on funded status. VRS data is based on the aggregate VRS pension data (including SPORS, VaLORS, and JRS).

Chart B tracks the funded status of the VRS pension plans over the past 20 years, along with the average funded status from the NASRA FY2024 Public Plans. The VRS pension programs have followed a very similar trend with the starting point and ending point as the NASRA survey over the last 20 years, in spite of a little larger dip in funded status around 2012.

Chart B



Milliman PPFS

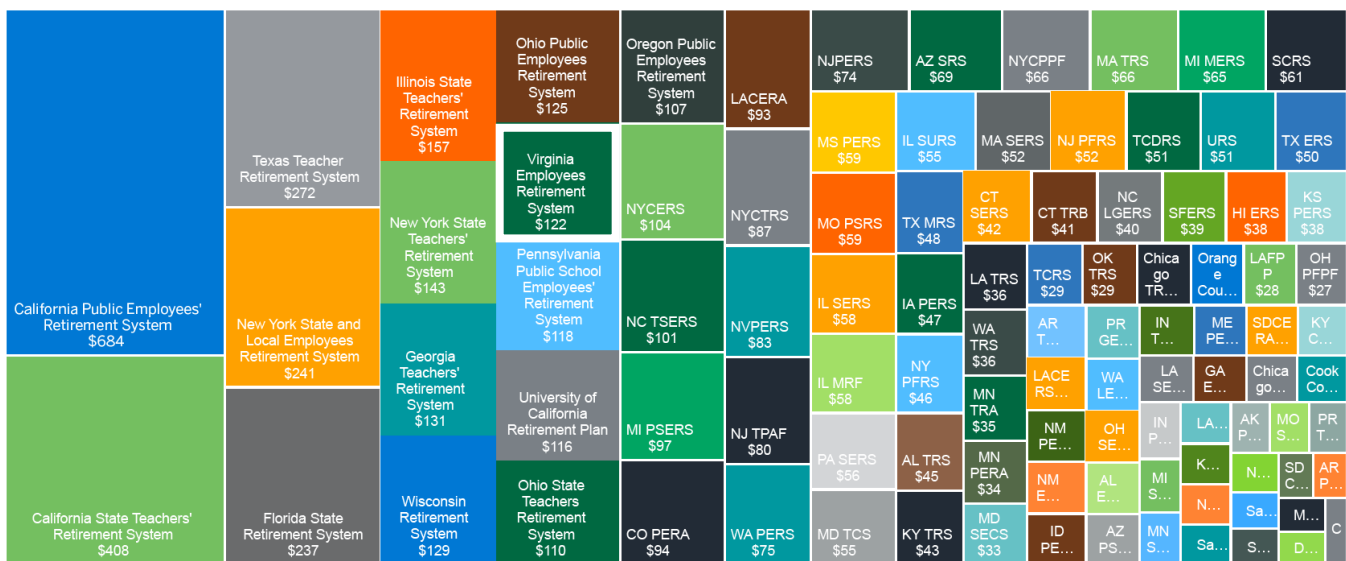
Published February 2026

The Milliman Public Pension Funding Study annually explores the funded status of the 100 largest U.S. public pension plans. The 2025 report is based on the most recently published fiscal-year-end reports available for each plan—June 30, 2024, is the measurement date for three-quarters of the plans in our 2025 study. VRS data is based on the aggregate VRS pension data (including SPORS, VaLORS, and JRS).

The following charts are based on the data collected as part of the most recent Study. It should be noted that these charts may not have been included in the final published report.

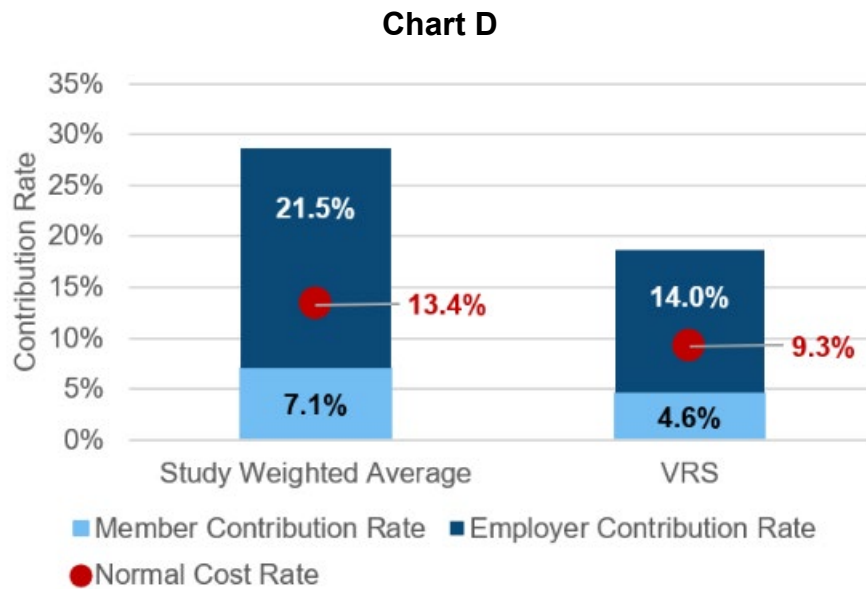
Chart C comes directly from the 2025 Milliman Study and illustrates the relative sizes of the Total Pension Liability (the plan liability reported for GASB accounting purposes) at their most recent measurement dates for the 100 plans in the Study.

Chart C



Amounts in \$billions

Chart D compares the total contribution rate (composed of the member contribution rate and the employer contribution rate) and normal cost rate (prior to reduction for member contributions) of the weighted average of the plans in the Study to the actual amounts for VRS.



The VRS data is based on the aggregate VRS pension data (including SPORS, VaLORS, and JRS). Many factors can impact the comparability of today's contribution rates; including historical contribution levels, actual investment performance relative to peers, and forward-looking assumptions.

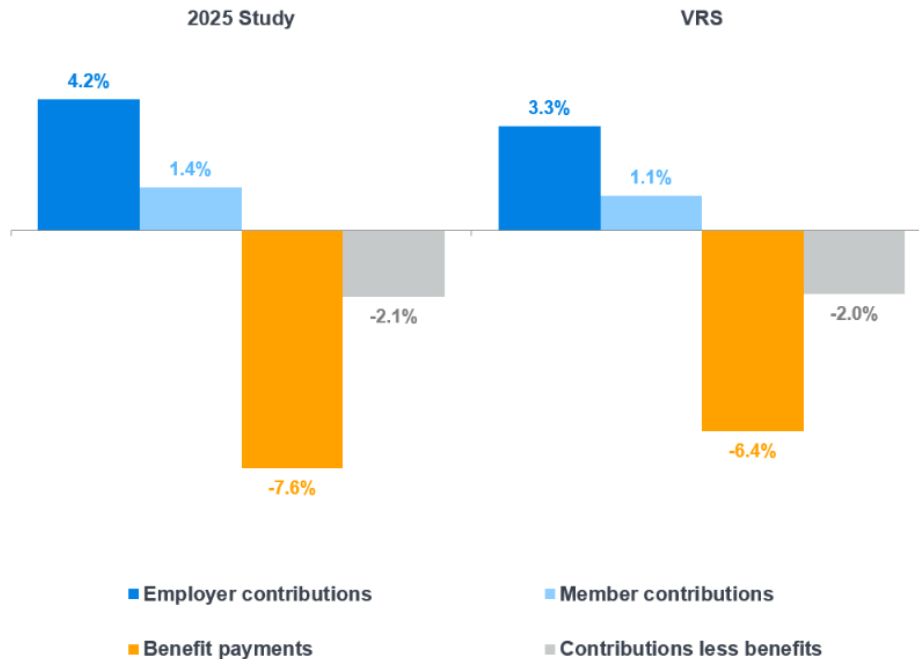
Chart E compares the actual 10-year returns to the actual 10-year standard deviation (volatility) of returns as seen in the following graph based on the 2025 Milliman Study. The upper-left quadrant, where VRS is charted, includes the pension funds with relatively higher returns and relatively lower volatility.

Chart E



Chart F presents the reported net cash outflow (contributions flowing into the plans minus benefits flowing out of the plans) as a percentage of the beginning-of-year assets based on the 2025 Milliman Study.

Chart F



Net cash outflow (contributions flowing into the plans minus benefits flowing out of the plans) is a feature of pre-funded pension plans. For most pre-funded plans, the shortfall in the net cashflow is covered by investment earnings. Most studies show that accumulated investment returns account for approximately 60% of all benefit payments paid by pre-funded pension plans.

APPENDIX: Summary of Liability Replications

The following table provides the 46 individual active pension test life liability replication comparisons.

System / Plan	Retained Actuary			Milliman			Ratio of Retained Actuary / Milliman		
	Present Value of Future Benefits	Actuarial Accrued Liability	Total Normal Cost	Present Value of Future Benefits	Actuarial Accrued Liability	Total Normal Cost	Present Value of Future Benefits	Actuarial Accrued Liability	Total Normal Cost
JRS - Hybrid	851,942	127,805	40,426	853,463	127,994	40,500	99.8%	99.9%	99.8%
JRS - Hybrid	719,382	0	29,934	721,184	0	30,009	99.8%	100.0%	99.7%
JRS - Plan 1	1,799,594	1,598,829	42,064	1,799,369	1,595,774	42,657	100.0%	100.2%	98.6%
JRS - Plan 1	1,825,868	1,268,260	63,048	1,826,765	1,267,203	63,269	100.0%	100.1%	99.7%
JRS - Plan 2	1,256,733	948,840	63,961	1,256,774	938,647	66,087	100.0%	101.1%	96.8%
Local - Hybrid	24,835	8,579	1,911	24,717	8,541	1,902	100.5%	100.4%	100.5%
Local - Hybrid	36,348	13,879	2,515	36,848	14,254	2,529	98.6%	97.4%	99.4%
Local - Hybrid	47,147	21,915	2,622	46,839	16,295	3,174	100.7%	134.5%	82.6%
Local - Plan 1	758,047	701,789	15,814	758,088	721,760	10,212	100.0%	97.2%	154.9%
Local - Plan 1	316,620	109,720	24,728	315,314	124,858	22,763	100.4%	87.9%	108.6%
Local - Plan 1	151,787	121,628	3,437	153,783	129,554	2,761	98.7%	93.9%	124.5%
SPORS - Plan 1	704,762	490,407	18,753	705,374	491,306	18,728	99.9%	99.8%	100.1%
SPORS - Plan 1	743,829	624,372	17,717	745,929	626,694	17,684	99.7%	99.6%	100.2%
SPORS - Plan 1	641,916	537,993	27,730	638,096	535,246	27,444	100.6%	100.5%	101.0%
SPORS - Plan 2	83,730	26,376	14,204	82,829	26,982	13,831	101.1%	97.8%	102.7%
State - Hybrid	51,670	20,874	2,682	50,901	21,060	2,599	101.5%	99.1%	103.2%
State - Hybrid	123,489	59,719	6,181	124,449	60,404	6,208	99.2%	98.9%	99.6%
State - Hybrid	61,031	41,375	3,957	61,200	41,475	3,971	99.7%	99.8%	99.6%
State - Hybrid	76,313	21,294	4,873	75,401	21,100	4,809	101.2%	100.9%	101.3%
State - Plan 1	864,992	732,737	13,979	865,968	731,416	14,221	99.9%	100.2%	98.3%
State - Plan 1	116,242	52,393	12,509	116,246	52,357	12,517	100.0%	100.1%	99.9%
State - Plan 1	230,683	138,654	10,594	230,230	142,240	10,129	100.2%	97.5%	104.6%
State - Plan 1	585,177	530,576	8,165	595,705	536,744	8,817	98.2%	98.9%	92.6%
State - Plan 1	629,734	578,847	11,941	636,148	579,139	13,378	99.0%	99.9%	89.3%
State - Plan 1	211,180	93,598	13,371	211,635	93,777	13,402	99.8%	99.8%	99.8%
State - Plan 1	180,588	55,707	18,312	180,957	55,761	18,358	99.8%	99.9%	99.7%
State - Plan 1	494,777	424,373	8,866	495,183	424,731	8,872	99.9%	99.9%	99.9%
State - Plan 2	343,532	227,041	10,241	341,609	226,809	10,093	100.6%	100.1%	101.5%
State - Plan 2	151,392	86,753	5,140	147,022	85,085	4,925	103.0%	102.0%	104.4%
Teachers - Hybrid	31,127	7,869	1,853	30,867	6,575	1,935	100.8%	119.7%	95.7%
Teachers - Hybrid	138,442	12,089	10,363	138,161	11,568	10,382	100.2%	104.5%	99.8%
Teachers - Hybrid	68,636	34,648	4,923	69,137	33,059	5,226	99.3%	104.8%	94.2%
Teachers - Hybrid	118,061	66,493	4,077	113,486	61,323	4,124	104.0%	108.4%	98.9%
Teachers - Plan 1	446,771	329,819	10,696	447,808	325,642	11,173	99.8%	101.3%	95.7%
Teachers - Plan 1	643,426	546,520	13,317	644,213	544,826	13,658	99.9%	100.3%	97.5%
Teachers - Plan 1	26,371	13,447	3,366	26,312	12,453	3,610	100.2%	108.0%	93.2%
Teachers - Plan 1	377,691	346,108	9,873	377,632	344,714	10,290	100.0%	100.4%	95.9%
Teachers - Plan 2	211,532	114,033	6,677	212,959	110,403	7,024	99.3%	103.3%	95.1%
Teachers - Plan 2	340,035	222,423	9,045	340,038	217,380	9,433	100.0%	102.3%	95.9%
Teachers - Plan 2	212,463	77,369	16,126	213,806	70,456	17,112	99.4%	109.8%	94.2%
VaLORS - Plan 1	654,983	617,834	6,462	668,539	631,439	6,453	98.0%	97.8%	100.1%
VaLORS - Plan 1	614,756	568,244	13,937	614,337	566,914	14,209	100.1%	100.2%	98.1%
VaLORS - Plan 2	52,428	18,606	4,795	52,675	18,698	4,817	99.5%	99.5%	99.6%
VaLORS - Plan 2	233,050	193,309	6,300	235,490	195,749	6,300	99.0%	98.8%	100.0%
VaLORS - Plan 2	86,238	34,004	7,053	87,465	34,581	7,141	98.6%	98.3%	98.8%
VaLORS - Plan 2	118,351	108,326	10,025	118,366	109,049	9,317	100.0%	99.3%	107.6%
Total	18,457,701	12,975,474	638,563	18,489,319	12,992,035	638,055	99.8%	99.9%	100.1%

We believe that our overall replication of the retained actuary's liability calculations for a sample of members was reasonable, as discussed in Section 4. Some individual replications may differ more than others due to differences in rounding and valuation system coding.

The following table provides the individual pension test life liability replication comparisons for 61 annuitants and members with deferred benefits.

System	Status	Present Value of Benefits		Ratio of Retained Actuary / Milliman
		Retained Actuary	Milliman	
JRS	Disability	1,976,608	1,976,588	100.0%
JRS	Service	240,165	240,165	100.0%
JRS	Service	991,397	991,387	100.0%
JRS	Non-Vested	8,469	8,469	100.0%
JRS	Service	1,265,878	1,265,878	100.0%
JRS	Surviving Spouse	1,029,858	1,029,858	100.0%
JRS	Vested	181,252	181,972	99.6%
JRS	Vested	1,524,661	1,524,661	100.0%
JRS	Inactive Active Elsewhere	51,952	52,272	99.4%
SPORS	Disability	365,747	365,738	100.0%
SPORS	Service	751,591	751,591	100.0%
SPORS	Service	410,067	410,067	100.0%
SPORS	Service	601,202	601,202	100.0%
SPORS	Non-Vested	15,576	15,576	100.0%
SPORS	Disability	333,109	334,894	99.5%
SPORS	Surviving Spouse	640,133	640,133	100.0%
SPORS	Vested	95,629	96,583	99.0%
SPORS	Vested	118,678	119,132	99.6%
SPORS	Inactive Active Elsewhere	36,861	37,101	99.4%
State	Service	448,659	448,659	100.0%
State	Service	362,843	362,843	100.0%
State	Service	162,342	162,335	100.0%
State	Non-Vested	4,287	4,287	100.0%
State	Disability	505,582	505,655	100.0%
State	Disability	339,875	339,875	100.0%
State	Service	38,703	38,592	100.3%
State	Service	73,987	73,788	100.3%
State	Service	27,979	27,977	100.0%
State	Surviving Spouse	55,022	55,022	100.0%
State	Surviving Spouse	284,353	284,353	100.0%
State	Surviving Spouse	379,544	379,601	100.0%

We believe that our overall replication of the retained actuary's liability calculations for a sample of members was reasonable, as discussed in Section 4. Some individual replications may differ more than others due to differences in rounding and valuation system coding.

System	Status	Present Value of Benefits		Ratio of Retained Actuary / Milliman
		Retained Actuary	Milliman	
State	Vested	9,293	9,326	99.6%
State	Vested	46,753	46,963	99.6%
State	Vested	20,002	20,367	98.2%
State	Inactive Active Elsewhere	24,194	24,194	100.0%
Teachers	Disability	1,271,309	1,272,354	99.9%
Teachers	Service	37,976	37,976	100.0%
Teachers	Service	40,347	40,347	100.0%
Teachers	Non-Vested	20,406	20,406	100.0%
Teachers	Disability	145,422	146,790	99.1%
Teachers	Service	106,469	106,469	100.0%
Teachers	Service	111,559	111,542	100.0%
Teachers	Service	55,604	55,551	100.1%
Teachers	Service	29,635	29,524	100.4%
Teachers	Surviving Spouse	536,272	536,272	100.0%
Teachers	Surviving Spouse	426,313	426,313	100.0%
Teachers	Surviving Spouse	322,023	322,023	100.0%
Teachers	Vested	35,643	36,050	98.9%
Teachers	Vested	87,552	88,147	99.3%
Teachers	Vested	27,056	27,389	98.8%
Teachers	Inactive Active Elsewhere	113,543	114,160	99.5%
VaLORS	Service	125,330	125,343	100.0%
VaLORS	Service	566,135	566,172	100.0%
VaLORS	Service	704,297	704,324	100.0%
VaLORS	Non-Vested	3,882	3,882	100.0%
VaLORS	Disability	238,669	238,886	99.9%
VaLORS	Disability	679,467	679,467	100.0%
VaLORS	Surviving Spouse	609,224	609,224	100.0%
VaLORS	Vested	20,331	20,410	99.6%
VaLORS	Vested	102,096	102,338	99.8%
VaLORS	Inactive Active Elsewhere	28,663	28,663	100.0%
Total		19,867,474	19,877,126	100.0%

We believe that our overall replication of the retained actuary's liability calculations for a sample of members was reasonable, as discussed in Section 4. Some individual replications may differ more than others due to differences in rounding and valuation system coding.



June 24, 2026

Ms. Kimberly Sarte
Associate Director, Ongoing Oversight and Fiscal Analysis
Joint Legislative Audit and Review Commission (JLARC)
919 East Main Street, Suite 2101
Richmond, Virginia 23219

Re: Quadrennial Actuarial Audit of the Virginia Retirement System (VRS)

Dear Ms. Sarte:

Earlier this year, JLARC retained Milliman, Inc. to review our June 30, 2025 actuarial valuations for the Virginia Retirement System (VRS). GRS is very supportive of the actuarial audit process - we have audited the work of other firms, and our work has been audited many times. Common purposes of an actuarial audit include double-checking the retained actuary's technical work to ensure that mathematical processes are being carried out correctly and appropriately. The actuarial audit process also provides a means for the Board to receive a different perspective on their particular situation from another experienced consulting firm.

The Milliman team, led by R. Ryan Falls and Scott Porter, have now completed the audit and have provided their report. The conclusions reached in their audit of the June 30, 2025 VRS valuations are broadly stated in the **Summary of the Findings** on page 2 of their report as follows:

“Actuarial Audit Conclusion

Based on our review of the census data, experience study, liability replications for selected cases, and the actuarial valuation reports, we believe the June 30, 2025 actuarial valuations for VRS are reasonable, based on reasonable assumptions and methods, and the reports generally comply with the Actuarial Standards of Practice.

Additional Commentary

The retained actuary has generally complied with Actuarial Standards of Practice in studying plan experience, selecting actuarial assumptions, determining liabilities and contribution rates based on VRS policies, and presenting their results in their valuation reports. Based on our limited sample size for liability replications, we believe the valuation results are reasonable. We believe the actuarial methods and policies selected by VRS are reasonable and generally follow recommended methods for plans of this size and complexity as the unfunded actuarial accrued liability (UAAL) is expected to decline each year and be fully amortized within a reasonable period of time.”

We are pleased that the auditor was able to validate our work and provide a “clean” audit. In addition, the auditor has made a number of suggestions and recommendations, which is customary and expected as part of the audit process. The recommendations are, for the most part, designed to help improve a process that has already been validated. They are not indicative of any type of substantive error or omission in the work product. We will consider those suggestions carefully during the coming actuarial work cycle(s).

Summary of Primary Recommendations and GRS Responses

For the sake of brevity, we highlight the most notable findings in this letter, note any finding that we disagree with, and include our responses in line with the suggestions. Note that *Italics* font below indicates a restatement of a recommendation from the reviewing actuary.

Milliman Commentary, report Page 2 “Potentially Have a Notable Impact”:

- *Reflect timing delay for the fact that the COLA is delayed until July 1st following one full calendar year after unreduced retirement.*

Milliman Commentary, report Page 3 “Would Have a Relatively Minor Impact”:

- *Reflect timing delay for the fact that the COLA is delayed until member reaches unreduced retirement age.*

GRS Response: We will review and refine the COLA delay treatment for existing Retirees in the 2026 valuation. Model refinements for Actives (future retirees) will be considered after review and discussion with VRS.

Milliman Commentary, report Page 2 “Potentially Have a Notable Impact”:

- *Review historical weighting of using 75% of the mortality improvement scale*

GRS Response: We will again investigate the mortality improvement scale weighting in the 2024-2028 experience study, and document results.

Milliman Commentary, report Page 2 “Potentially Have a Notable Impact”:

- *Include a liability for incurred-but-not-reported (IBNR) disability claims in VSDP and VLDP valuations.*

GRS Response: The approach to valuing this liability is listed in the Appendix as follows: “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.” GRS will investigate IBNR while exploring revisions to the approach to funding disability plans with VRS.



Milliman Commentary, report Page 3 “Would Have a Relatively Minor Impact”:

- *In the development of the COLA assumption, analyze the assumption for future COLAs to determine if adjustments are warranted to account for instances when the COLA rate would not equal the rate of inflation*

Milliman Commentary, report Page 28:

- *... we consider the current COLA assumption to be generally reasonable.*

GRS Response: The COLA assumption finding was discussed at length after receipt of the draft report and during the audit exit call. All parties -- GRS, VRS, and the auditing actuary -- agree that the inflation assumption of 2.5% is reasonable. The future COLA increase assumption is set by applying COLA plan provisions to the inflation assumption. GRS and VRS are comfortable with the current assumption for modeling future COLA increases, but will consider this recommendation in the 2024-2028 experience study.

Milliman Commentary, report Page 6

- *We recommend the retained actuary consider the following in developing the retirement assumptions as part of the next experience study:*
 - *Review experience for SPORS and VaLORS based on members eligible for the Temporary Supplement versus not eligible for the Temporary Supplement.*

GRS Response: There is not sufficiently credible experience in SPORS to set separate assumptions related to the Temporary Supplement. In the next experience study, we will consider separate assumptions for VALORS based on Temporary Supplement eligibility.

Milliman Commentary, report Page 17

- *The retained actuary incorporates salary increases anticipated to occur during the valuation year in determining final average compensation for purposes of determining retirement and other annuity benefits payable from VRS through the use of the “trapezoidal rule” pay averaging methodology. We believe this is a reasonable approach. However, we recommend that the retained actuary review their valuation systems to identify whether a similar adjustment is made for the anticipated employee contributions to be made during the year and associated refunds.*

GRS Response: A similar adjustment, trapezoidal rule, is not currently made for anticipated employee contributions during the year and associated refunds. The majority of plan liabilities are related to contingencies other than refund of contributions. The very small anticipated impact on valuation results, does not support further refinement to the valuation model.

Milliman Commentary, report Page 25

- *Finally, we recommend that the retained actuary review our comments related to funding the VDSP/VDLP and explore enhancements to the funding of these benefits in the future.*



GRS Response: GRS will explore revisions to the approach to funding disability plans with VRS.

Milliman Commentary, report Page 39

- *Prior to the next experience study, we recommend that the retained actuary work with the GLI program administrator to determine whether detailed census data could be available to directly value the “life insurance only” retirees in future actuarial valuations.*

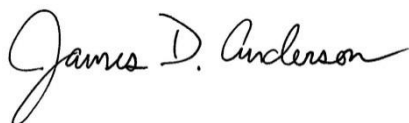
GRS Response: GRS agrees that it would be helpful to have additional data to potentially refine the assumption further. Efforts have been made, per VRS there is no practical way to obtain this data at this time. Our understanding is that VRS is investigating further to see if data enhancements can be made in the future.

As previously stated, we are pleased with the results of the audit, and, in particular, we are pleased that the auditing actuaries have successfully validated our 2025 valuation results. We appreciate the thorough work, professional demeanor, and helpful suggestions and recommendations that the auditing actuaries have made. We will continue to review these suggestions throughout the next work cycle and will implement those that are in the best interest of the Virginia Retirement System.

James D. Anderson and Rebecca L. Stouffer 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.

This communication shall not be construed to provide tax advice, legal advice or investment advice.

Sincerely,
Gabriel, Roeder, Smith & Company



James D. Anderson, FSA, EA, FCA, MAAA



Rebecca L. Stouffer, ASA, FCA, MAAA

JDA/RLS:rmn

cc: Patricia Bishop, VRS
Rory Badura, VRS
Sara Denson, VRS
R. Ryan Falls, Milliman
Scott Porter, Milliman





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Patricia S. Bishop
Director

June 25, 2026

Mr. Hal E. Greer
Director
Joint Legislative Audit and Review Commission
919 East Main Street, Suite 2101
Richmond, Virginia 23219

Dear Hal:

Thank you for the opportunity to review the exposure draft of the 2026 Quadrennial Actuarial Audit of the Virginia Retirement System ("VRS"). We appreciate the thorough approach and attention to detail that Milliman, Inc. exhibited during the audit process and the chance to discuss the report's findings in the meeting between our respective actuaries on June 18, 2026, during which the actuaries reached substantial agreement on the report's findings. Further, we appreciate the efforts of the JLARC staff in coordinating and overseeing this review.

We are pleased that Milliman found no material deficiencies and found the June 30, 2025 actuarial valuations for VRS to be reasonable and the work of Gabriel, Roeder, Smith & Company ("GRS") to be performed according to generally accepted actuarial standards and principles using reasonable assumptions and methods.

We generally concur with the report, although some of the findings and recommendations require additional context and clarification. The more detailed comments contained in the accompanying letter submitted by GRS regarding a number of items raised in the report document these clarifications.

The actuarial audit process is an important element in the governance of a plan and provides an opportunity to further refine the assumptions and methods being used to perform the annual valuations. It also provides an opportunity to enhance documentation in the reports which provides more clarity and transparency related to the valuation process. While this positive report helps demonstrate the commitment of our team and plan actuaries, we appreciate the opportunity for ongoing review and will consider the recommendations offered by Milliman in upcoming valuations or analysis as applicable.

Conclusion

We would again like to express our appreciation to the actuaries of Milliman and to the JLARC staff for the professional, courteous and cooperative manner in which this actuarial audit

Mr. Hal E. Greer
Page 2
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was conducted. Actuarial valuations and experience studies are critical in the rate setting process, including valuing and documenting the plan's assets and liabilities. Accordingly, VRS remains keenly focused on adhering to the highest standards of professional and actuarial practice as well as other industry best practices related to this essential duty. VRS and its actuaries from GRS concur with the report's conclusions and find the Quadrennial Audit conducted by JLARC and its actuary to be a valuable tool for validating and fine-tuning VRS' valuation and rate setting processes.

Sincerely,

A handwritten signature in cursive script, reading "Patricia S. Bishop".

Patricia S. Bishop
Director