

Virginia Retirement System

Annual Actuarial Valuation

June 30, 2024



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January 28, 2025

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

**Re: Virginia Retirement System Actuarial Valuation as of June 30, 2024
Actuarial Disclosures – State Pension Plans**

Dear Trustees:

The results of the June 30, 2024 Annual Actuarial Valuation of the Virginia Retirement System (VRS) are presented in this report. This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The purposes of the valuation are to measure each Statewide System's funding progress as of June 30, 2024 and to determine the informational employer contribution rates for the fiscal year ended June 30, 2026. In addition, this report provides select aggregated valuation results for the participating Political Subdivisions. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

The employer contribution rates in this report are determined using the actuarial assumptions and methods as adopted by the Board. This report includes risk metrics on pages 28 through 33 but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund the VRS. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

The findings in this report are based on data and other information through June 30, 2024. The valuation was based upon information furnished by the VRS, concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the VRS. For a summary of the benefit provisions used, please refer to the appendix available on the VRS [website](#).

Board of Trustees
Virginia Retirement System
January 28, 2025

Valuation results are developed through the use of multiple models.

Valuation liabilities were prepared using ProVal's valuation model, a software product of Winklevoss Technologies. We are relying on the ProVal model. We performed tests of the ProVal model with this assignment and made a reasonable attempt to understand the developer's intended purpose of, general operation of, major sensitivities and dependencies within, and key strengths and limitations of the ProVal model. In our professional judgment, the ProVal valuation model has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses.


Financial results were prepared using our financing model which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.


This report was prepared using assumptions adopted by the Board. All actuarial assumptions used in this report are reasonable for the purposes of this valuation. The combined effect of the assumptions is expected to have no significant bias (i.e., not significantly optimistic or pessimistic). All calculations, including all actuarial assumptions and methods used for funding purposes in the valuation follow the guidance and meet the parameters set by the applicable Actuarial Standards of Practice. For a full list of the assumptions and methods used, please refer to the appendix available on the VRS website.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the VRS as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Rebecca L. Stouffer, James D. Anderson, Richard C. Koch Jr., and Michael D. Kosciuk are Members of the American Academy of Actuaries. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

Respectfully submitted,
Gabriel, Roeder, Smith & Company


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RLS/JDA/RCK/MDK:sc



SECTION A

EXECUTIVE SUMMARY

Executive Summary

1. Introduction

Each year actuarial valuations are prepared for the Virginia Retirement System (VRS). This report contains the results of the June 30, 2024 actuarial valuation for each of the Statewide Retirement Systems administered by the VRS.

As referenced throughout this report, the Statewide Retirement Systems are as follows:

- Virginia Retirement System
 - State Employees
 - Teachers
 - Political Subdivisions
- State Police Officer’s Retirement System (State Police)
- Judicial Retirement System (Judicial)
- Virginia Law Officers’ Retirement System (Virginia Law Officers)

In addition, the report presents aggregated results for the participating Political Subdivisions within the agent-multiple employer plan. The funded status and employer contribution rates for participating Political Subdivisions are developed individually at the employer level.

2. Total Employer Contribution Rates to Support Retirement System Benefits – Including an Actuarially Determined Employer Contribution (ADEC) Rate

Fiscal Year(s) Ending:	2023 & 2024		2025 & 2026		Informational - 2026
Valuation Date:	June 30, 2021		June 30, 2023		June 30, 2024
Employer Contribution Rate / System	Board Approved ²	General Assembly Approved ²	Board Approved ³	General Assembly Approved ³	ADEC For Defined Benefit (DB) Plan
State Employees	14.13%	14.46%	12.52%	12.52%	11.77%
Teachers	14.76%	16.62%	14.21%	14.21%	13.63%
State Police	29.98%	29.98%	31.32%	31.32%	31.39%
Judicial	30.67%	30.67%	30.66%	30.67%	28.36%
Virginia Law Officers	24.60%	24.60%	22.81%	24.60%	23.00%
Political Subdivisions (Average) ¹	12.36%	N/A	12.25%	N/A	11.76%

¹ Fiscal years ending 2023 and 2024 were restated as weighted average from prior actuary's published results by individual employer. The General Assembly does not approve the Political Subdivision rates.

² Rates include the Defined Contribution for Hybrid Members.

³ During the 2023 valuation cycle, the Board adopted a change to the VRS Funding Policy Statement which generally reset the remaining amortization period to 20 years for the total unfunded accrued liability as of June 30, 2023.

Executive Summary

The Annual Recommended Contribution rates determined in this report for the Statewide Retirement Systems are reasonable under Actuarial Standard of Practice (ASOP) No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions, based on:

- The use of reasonable actuarial assumptions and cost methods;
- The use of reasonable amortization and asset valuation methods; and
- Application of the VRS funding policy which will accumulate sufficient assets to make benefit payments when due, assuming all assumptions will be realized and Annual Recommended Contributions are made when due.

The Employer Defined Benefit Contribution rate for each participating Political Subdivision is determined individually, as this is an agent multiple-employer plan. Commentary regarding the reasonability of these contribution rates is provided under separate cover.

Contribution rates for the VRS employers are established every two years. Odd valuation years are rate setting valuations. A measure of the funded status and recommended employer contribution rates are determined by the Actuary and approved by the Board of Trustees. Actual employer contribution rates (for all except Political Subdivisions) are established by the General Assembly for the biennium, subject to intermediate updates. Even valuation years are considered informational. Even year valuations provide a current measure of the System's funded status and an illustrative measure of the employer contribution rate, after accounting for updates to demographic data, financial data, plan provisions, and assumption and/or method changes since the previous valuation measurement.

The table on the prior page shows the employer contribution rates for fiscal years ending 2023-2026 based on the June 30, 2021 and June 30, 2023 actuarial valuations. The budget maintains funding for fiscal years ending 2025 and 2026 based on the prior biennium's higher contribution rates for Judicial (30.67% vs. 30.66%) and Virginia Law Officers (24.60% vs. 22.81%). The actuarially determined employer contribution rates based on the June 30, 2024 valuation presented in this report are *informational* in nature.

Executive Summary

3. Funded Ratio

The funded ratio of the plan is the percentage of the dollar value of the accrued liability that is covered by the actuarial value of assets. While the funded ratio may be a useful plan measurement, understanding a plan's funding trend may be more important than a particular point in time. The chart below compares the funded ratio for the current valuation with the results of the prior valuation.

System	Funded Ratio	
	June 30, 2024	June 30, 2023
State Employees	79.99%	78.96%
Teachers	80.60%	79.66%
State Police	71.14%	70.28%
Judicial	86.02%	84.20%
Virginia Law Officers	72.48%	71.19%
Political Subdivisions	88.86%	87.84%

4. Reasons for Change

There are three general reasons why contribution rates change from one valuation to the next.

- Changes in the benefit or eligibility conditions of the plan;
- Change in the valuation assumptions and/or methods used to project future occurrences; and
- Experience of the plan, the difference during the year between the plan's actual experience and that expected under the actuarial assumptions.

There were no significant changes in plan benefits or eligibility conditions since the prior valuation. Some Political Subdivisions made changes to benefits provided to members in hazardous duty positions. Additionally, some entities became participating Political Subdivisions since the previous valuation. In aggregate, the impact of these changes on the Political Subdivision plans is not significant. Please refer to the individual reports for the benefit provisions of each participating Political Subdivision.

Executive Summary

There were no changes in the valuation assumptions or methods since the last valuation. Plan experience differed from expectations as follows:

- For the period ending June 30, 2024, the VRS reported investment return of 9.9% on a market value basis, compared to the assumed level of 6.75%. Under the asset valuation method, investment gains and losses are spread over a 5-year period, subject to a corridor. Partial recognition of this year's gain, combined with the continued phase-in of investment gains and losses from prior years resulted in a net recognized asset gain for the funding value of assets for all plans. In addition, the return on the funding value of assets was approximately 8.6%.
- Pay increases were greater than assumed.
- Cost of Living Adjustments (COLA) were greater than expected for eligible recipients:
 - An actual COLA of 3.56% for Plan 1 recipients compared to a 2.50% assumption; and
 - An actual COLA of 3.00% for Plan 2/Hybrid recipients compared to a 2.25% assumption.
- The net impact of plan experience will depend upon the specific make up (demographic and financial) of each Plan and is reflected in the computed Total Employer Contribution Rate determined in this report.

5. General Comments

HB 473 and SB 70 separate the employer contribution into Defined Benefit and Defined Contribution components effective for contribution rates beginning July 1, 2024. The 2022 valuation continued to show the Defined Contribution Rate to allow continued communication to employers in the interim. The 2023 rate-setting valuation and this 2024 informational valuation do not include the estimated Defined Contribution Rate since the rates set herein will be paid beginning July 1, 2024.

Throughout this report, there may be cases when the schedules do not add due to rounding.

Conclusion. Based upon the results of the June 30, 2024 regular annual actuarial valuation, it is our opinion that *the Virginia Retirement System continues to operate in accordance with actuarial principles of level percent-of-payroll financing.*

Other Observations

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 6.75% on the actuarial value of assets), it is expected that:

- (1) The normal cost as a percentage of pay will trend to the level associated with Plan 2 and/or Hybrid as members are replaced into the ultimate benefit tier.
- (2) The unfunded liability will decrease in dollar amount until it is fully funded.
- (3) The funded status of the plan will move toward a 100% funded ratio.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded ratio measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

- (1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations; in other words, of transferring the obligations to an unrelated third party in an arm's length market value type transaction.
- (2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amount of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon actuarial assumptions. A funded ratio measurement in this report of 100% is not synonymous with no required future contributions. If the funded ratio were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
- (3) The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets, unless the market value of assets is used in the measurement.

Limitation of Project Scope

Actuarial standards do not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make required contributions to the plan when due. Such an evaluation was not within the scope of this project and is not within the actuary's domain of expertise. Consequently, the actuary performed no such evaluation.



SECTION B

VALUATION RESULTS

Results Summary State Employees

(\$ In Thousands)

	June 30, 2024	June 30, 2023
Members:		
Active	80,017	76,876
Long Term Disability	2,186	2,308
Retirees and Beneficiaries	73,100	72,266
Inactive, Vested	16,252	16,005
Inactive, Non-Vested	38,062	35,482
Inactive, active elsewhere in VRS	9,789	9,380
Total	219,406	212,317
Annual Covered Payroll	\$ 5,979,308	\$ 5,448,985
Annual Retirement Benefits	\$ 1,675,263	\$ 1,599,295
Total Assets:		
Actuarial Value	\$ 24,196,357	\$ 22,997,717
Market Value	24,843,784	23,351,827
Actuarial Accrued Liability	\$ 30,248,076	\$ 29,126,311
Funded Ratio:		
Actuarial Value of Assets	79.99%	78.96%
Market Value of Assets	82.13%	80.17%
Unfunded Actuarial Accrued Liability (UAAL)	\$ 6,051,719	\$ 6,128,594
Employer Contribution Rate Development for Fiscal Year(s) Ending	Informational June 30, 2026	June 30, 2025 and June 30, 2026
Employer Contribution Rate Defined Benefit Plan:		
Employer Normal Cost Rate	4.17%	4.38%
Administrative Expense	0.26%	0.27%
Amortization of UAAL ¹	7.34%	7.87%
Employer Defined Benefit (DB) Contribution Rate	11.77%	12.52%
Amortization Period (Years)	19 - 20	20

¹ Includes a timing adjustment factor of 1.018041.

Results Summary Teachers

(\$ In Thousands)

	June 30, 2024	June 30, 2023
Members:		
Active	156,504	153,107
Long Term Disability	54	39
Retirees and Beneficiaries	112,565	110,676
Inactive, Vested	35,014	34,088
Inactive, Non-Vested	54,230	50,497
Inactive, active elsewhere in VRS	7,366	6,586
Total	365,733	354,993
Annual Covered Payroll ¹	\$ 11,008,610	\$ 10,134,322
Annual Retirement Benefits	\$ 2,968,175	\$ 2,830,621
Total Assets:		
Actuarial Value	\$ 49,943,207	\$ 46,810,231
Market Value	51,235,326	47,467,405
Actuarial Accrued Liability	\$ 61,965,308	\$ 58,761,070
Funded Ratio:		
Actuarial Value of Assets	80.60%	79.66%
Market Value of Assets	82.68%	80.78%
Unfunded Actuarial Accrued Liability (UAAL)	\$ 12,022,101	\$ 11,950,840
Employer Contribution Rate Development for Fiscal Year(s) Ending	Informational June 30, 2026	June 30, 2025 and June 30, 2026
Employer Contribution Rate Defined Benefit Plan:		
Employer Normal Cost Rate	5.43%	5.68%
Administrative Expense	0.28%	0.28%
Amortization of UAAL ²	7.92%	8.25%
Employer Defined Benefit (DB) Contribution Rate	13.63%	14.21%
Amortization Period (Years)	19 - 20	20

¹ Includes an assumed pay increase on the valuation date.

² Includes a timing adjustment factor of 1.018041.

Results Summary State Police

(\$ In Thousands)

	June 30, 2024	June 30, 2023
Members:		
Active	1,890	1,882
Long Term Disability	34	29
Retirees and Beneficiaries	1,829	1,806
Inactive, Vested	202	196
Inactive, Non-Vested	312	289
Inactive, active elsewhere in VRS	264	248
Total	4,531	4,450
Annual Covered Payroll	\$ 176,481	\$ 168,611
Annual Retirement Benefits	\$ 79,198	\$ 75,937
Total Assets:		
Actuarial Value	\$ 1,131,058	\$ 1,063,882
Market Value	1,160,536	1,079,755
Actuarial Accrued Liability	\$ 1,589,982	\$ 1,513,881
Funded Ratio:		
Actuarial Value of Assets	71.14%	70.28%
Market Value of Assets	72.99%	71.32%
Unfunded Actuarial Accrued Liability (UAAL)	\$ 458,924	\$ 449,999
Employer Contribution Rate Development for Fiscal Year(s) Ending	Informational June 30, 2026	June 30, 2025 and June 30, 2026
Employer Contribution Rate Defined Benefit Plan:		
Employer Normal Cost Rate	12.18%	12.29%
Administrative Expense	0.37%	0.35%
Amortization of UAAL ¹	18.84%	18.68%
Employer Defined Benefit (DB) Contribution Rate	31.39%	31.32%
Amortization Period (Years)	19 - 20	20

¹ Includes a timing adjustment factor of 1.018041.

Results Summary Judicial

(\$ In Thousands)

	June 30, 2024	June 30, 2023
Members:		
Active	471	458
Retirees and Beneficiaries	597	592
Inactive, Vested	11	10
Inactive, Non-Vested	1	1
Inactive, active elsewhere in VRS	4	3
Total	1,084	1,064
Annual Covered Payroll	\$ 95,361	\$ 88,391
Annual Retirement Benefits	\$ 52,736	\$ 50,743
Total Assets:		
Actuarial Value	\$ 698,566	\$ 667,563
Market Value	717,164	677,958
Actuarial Accrued Liability	\$ 812,064	\$ 792,794
Funded Ratio:		
Actuarial Value of Assets	86.02%	84.20%
Market Value of Assets	88.31%	85.52%
Unfunded Actuarial Accrued Liability (UAAL)	\$ 113,497	\$ 125,232
Employer Contribution Rate Development for Fiscal Year(s) Ending	Informational June 30, 2026	June 30, 2025 and June 30, 2026
Employer Contribution Rate Defined Benefit Plan:		
Employer Normal Cost Rate	19.30%	20.31%
Administrative Expense	0.40%	0.43%
Amortization of UAAL ¹	8.66%	9.92%
Employer Defined Benefit (DB) Contribution Rate	28.36%	30.66%
Amortization Period (Years)	19 - 20	20

¹ Includes a timing adjustment factor of 1.018041.

Results Summary Virginia Law Officers

(\$ In Thousands)

	June 30, 2024	June 30, 2023
Members:		
Active	7,307	7,478
Long Term Disability	458	484
Retirees and Beneficiaries	7,144	6,810
Inactive, Vested	1,698	1,573
Inactive, Non-Vested	7,966	7,186
Inactive, active elsewhere in VRS	4,146	3,882
Total	28,719	27,413
Annual Covered Payroll	\$ 407,759	\$ 398,110
Annual Retirement Benefits	\$ 152,054	\$ 143,402
Total Assets:		
Actuarial Value	\$ 2,024,638	\$ 1,903,501
Market Value	2,076,732	1,931,061
Actuarial Accrued Liability	\$ 2,793,286	\$ 2,673,711
Funded Ratio:		
Actuarial Value of Assets	72.48%	71.19%
Market Value of Assets	74.35%	72.22%
Unfunded Actuarial Accrued Liability (UAAL)	\$ 768,647	\$ 770,210
Employer Contribution Rate Development for Fiscal Year(s) Ending	Informational June 30, 2026	June 30, 2025 and June 30, 2026
Employer Contribution Rate Defined Benefit Plan:		
Employer Normal Cost Rate	9.05%	9.00%
Administrative Expense	0.28%	0.27%
Amortization of UAAL ¹	13.67%	13.54%
Employer Defined Benefit (DB) Contribution Rate	23.00%	22.81%
Amortization Period (Years)	19 - 20	20

¹ Includes a timing adjustment factor of 1.018041.



Results Summary

Political Subdivisions¹

(\$ In Thousands)

	June 30, 2024	June 30, 2023
Number of Political Subdivisions in VRS (with active members)	603	600
Number of Political Subdivisions in VRS (no active members)	13	13
Total Political Subdivisions in VRS with members	616	613
Members ² :		
Active	119,461	114,279
Long Term Disability	129	104
Retirees and Beneficiaries	89,324	86,397
Inactive, Vested	24,610	24,000
Inactive, Non-Vested	61,242	55,946
Inactive, active elsewhere in VRS	41,327	39,043
Total	336,093	319,769
Annual Covered Payroll	\$ 7,473,906	\$ 6,762,206
Annual Retirement Benefits	\$ 1,519,666	\$ 1,421,328
Total Assets:		
Actuarial Value	\$ 28,739,448	\$ 26,900,812
Market Value	29,500,291	27,308,038
Actuarial Accrued Liability	\$ 32,340,618	\$ 30,623,222
Funded Ratio:		
Actuarial Value of Assets	88.86%	87.84%
Market Value of Assets	91.22%	89.17%
Unfunded Actuarial Accrued Liability (UAAL)	\$ 3,601,170	\$ 3,722,410
	Informational	June 30, 2025
	June 30, 2026	and June 30, 2026
Average Employer Contribution Rate Defined Benefit Plan ³ :		
Employer Normal Cost Rate	8.00%	8.14%
Administrative Expense	0.23%	0.25%
Amortization Charge/(Credit) ⁴	3.50%	3.85%
Additional Funding Contribution	0.00%	0.00%
Plan Surcharge	0.03%	0.01%
Average Employer Contribution Rate Defined Benefit (DB) Plan	11.76%	12.25%
Amortization Period (Years)	5-20	6-20

¹ Includes Political Subdivisions with no active members.

² Includes counts for each plan from which members receive pension benefits or are deferred vested. Members with benefits from more than one Political Subdivision are counted more than once.

³ Calculated as a weighted average starting with the June 30, 2022 valuation, consistent with GASB Statement No. 68 reporting.

⁴ Includes a timing adjustment factor of 1.018041.

Results Summary – Employer Contribution Rate Detail as a Percent of Active Member Payroll

Employer Contribution Rate	State Employees	Teachers	State Police Officers	Judicial	Virginia Law Officers
Defined Benefit (DB) Plan Component					
Normal Cost					
Service Retirement Benefits	5.35%	7.63%	13.58%	22.79%	7.08%
Disability Benefits	0.86%	0.50%	1.35%	0.00%	3.15%
Survivor Benefits	0.36%	0.15%	0.53%	0.84%	0.29%
Separation Benefits	2.10%	1.74%	1.72%	0.00%	3.53%
Total Normal Cost	8.67%	10.02%	17.18%	23.63%	14.05%
Member Current Contributions	4.50%	4.59%	5.00%	4.33%	5.00%
Employer Normal Cost	4.17%	5.43%	12.18%	19.30%	9.05%
Administrative Expense	0.26%	0.28%	0.37%	0.40%	0.28%
Amortization of UAAL	7.34%	7.92%	18.84%	8.66%	13.67%
Employer DB Plan Contribution Rate	11.77%	13.63%	31.39%	28.36%	23.00%

Note: Unfunded Actuarial Accrued Liability amortization detail is shown on the following pages.

Amortization of Unfunded Accrued Liability State Employees

Description	Original Amount	Outstanding Balance as of June 30, 2023	BOY 2023/2024 Amortization Payment	Outstanding Balance as of June 30, 2024	BOY 2024/2025 Amortization Payment	Years Remaining June 30, 2024
2023 (Gain)/Loss	\$ 6,128,594,227	\$ 6,128,594,227	\$ 421,383,930	\$ 6,092,446,992	\$ 434,025,448	19 years
2024 (Gain)/Loss	\$ (40,728,218)			\$ (40,728,218)	\$ (2,800,351)	20 years
Total		\$ 6,128,594,227	\$ 421,383,930	\$ 6,051,718,774	\$ 431,225,097	

Amortization of Unfunded Accrued Liability Teachers

Description	Original Amount	Outstanding Balance as of June 30, 2023	BOY 2023/2024 Amortization Payment	Outstanding Balance as of June 30, 2024	BOY 2024/2025 Amortization Payment	Years Remaining June 30, 2024
2023 (Gain)/Loss	\$ 11,950,839,635	\$ 11,950,839,635	\$ 821,704,226	\$ 11,880,352,049	\$ 846,355,352	19 years
2024 (Gain)/Loss	\$ 141,748,585			\$ 141,748,585	\$ 9,746,212	20 years
Total		\$ 11,950,839,635	\$ 821,704,226	\$ 12,022,100,634	\$ 856,101,564	

Amortization of Unfunded Accrued Liability State Police

Description	Original Amount	Outstanding Balance as of June 30, 2023	BOY 2023/2024 Amortization Payment	Outstanding Balance as of June 30, 2024	BOY 2024/2025 Amortization Payment	Years Remaining June 30, 2024
2023 (Gain)/Loss	\$ 449,998,635	\$ 449,998,635	\$ 30,940,569	\$ 447,344,485	\$ 31,868,786	19 years
2024 (Gain)/Loss	\$ 11,579,470			\$ 11,579,470	\$ 796,170	20 years
Total		\$ 449,998,635	\$ 30,940,569	\$ 458,923,955	\$ 32,664,956	

Amortization of Unfunded Accrued Liability Judicial

Description	Original Amount	Outstanding Balance as of June 30, 2023	BOY 2023/2024 Amortization Payment	Outstanding Balance as of June 30, 2024	BOY 2024/2025 Amortization Payment	Years Remaining June 30, 2024
2023 (Gain)/Loss	\$ 125,231,919	\$ 125,231,919	\$ 8,610,575	\$ 124,493,285	\$ 8,868,892	19 years
2024 (Gain)/Loss	\$ (10,996,085)			\$ (10,996,085)	\$ (756,058)	20 years
Total		\$ 125,231,919	\$ 8,610,575	\$ 113,497,200	\$ 8,112,834	

Amortization of Unfunded Accrued Liability Virginia Law Officers

Description	Original Amount	Outstanding Balance as of June 30, 2023	BOY 2023/2024 Amortization Payment	Outstanding Balance as of June 30, 2024	BOY 2024/2025 Amortization Payment	Years Remaining June 30, 2024
2023 (Gain)/Loss	\$ 770,210,200	\$ 770,210,200	\$ 52,957,365	\$ 765,667,401	\$ 54,546,086	19 years
2024 (Gain)/Loss	\$ 2,979,838			\$ 2,979,838	\$ 204,885	20 years
Total		\$ 770,210,200	\$ 52,957,365	\$ 768,647,239	\$ 54,750,971	

Unfunded Accrued Liability Changes Fiscal Year Ending 2024 (\$ In Thousands)

	State Employees	Teachers	State Police	Judicial	Virginia Law Officers	Political Subdivisions	Total
A. Calculation of Expected Unfunded Actuarial Accrued Liability							
1. UAAL as of June 30, 2023	\$ 6,128,594	\$ 11,950,840	\$ 449,999	\$ 125,232	\$ 770,210	\$ 3,722,410	\$ 23,147,285
2. Normal Cost for previous year	533,952	1,133,887	30,514	23,545	57,086	949,186	2,728,170
3. Actual contributions during the year	(992,948)	(2,172,309)	(58,562)	(29,124)	(117,756)	(1,126,585)	(4,497,284)
4. Interest at previous year's rate of 6.75%							
a. on UAAL	413,680	806,682	30,375	8,453	51,989	251,263	1,562,442
b. on normal cost	36,042	76,537	2,060	1,589	3,853	64,070	184,151
c. on contributions	(33,512)	(73,315)	(1,976)	(983)	(3,974)	(38,022)	(151,782)
d. total: (a) + (b) + (c)	416,210	809,904	30,459	9,059	51,868	277,311	1,594,811
5. Expected UAAL as of June 30, 2024 A1 + A2 + A3 + A4	6,085,808	11,722,322	452,410	128,712	761,408	3,822,322	22,972,982
6. Actual UAAL as of June 30, 2024	6,051,719	12,022,101	458,924	113,497	768,647	3,601,170	23,016,058
7. Total Gain/(Loss): A5 - A6	34,089	(299,779)	(6,514)	15,215	(7,239)	221,152	(43,076)
B. Calculation of Asset Gain/(Loss)							
1. Actuarial Value of Assets (AVA) as of June 30, 2023	\$ 22,997,717	\$ 46,810,231	\$ 1,063,882	\$ 667,563	\$ 1,903,501	\$ 26,900,812	\$ 100,343,706
2. Contributions during the year	992,948	2,172,309	58,562	29,124	117,756	1,126,585	4,497,284
3. Benefit payments and refunds during the year	(1,738,536)	(2,987,254)	(81,269)	(54,384)	(157,172)	(1,573,929)	(6,592,544)
4. Interest at previous year's rate of 6.75%							
a. on AVA at beginning of year	1,552,346	3,159,691	71,812	45,061	128,486	1,815,805	6,773,201
b. on contributions	33,512	73,315	1,976	983	3,974	38,022	151,782
c. on benefit payments	(58,676)	(100,820)	(2,743)	(1,835)	(5,305)	(53,120)	(222,499)
d. total: (a) + (b) + (c)	1,527,182	3,132,186	71,045	44,209	127,155	1,800,707	6,702,484
5. Expected AVA as of June 30, 2024 B1 + B2 + B3 + B4	23,779,311	49,127,472	1,112,220	686,512	1,991,240	28,254,175	104,950,930
6. Actual AVA as of June 30, 2024	24,196,357	49,943,207	1,131,058	698,566	2,024,638	28,739,448	106,733,274
7. Total Gain/(Loss): B6 - B5	417,046	815,735	18,838	12,054	33,398	485,273	1,782,344
C. Calculation of Liability Gain/(Loss)							
1. Gain/(Loss) due to plan amendments	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ (3,054)	\$ (3,054)
2. Gain/(Loss) due to change in methods	0	0	0	0	0	0	0
3. Liability Experience Gain/(Loss): A7 - B7 - C1 - C2	\$ (382,957)	\$ (1,115,514)	\$ (25,352)	\$ 3,161	\$ (40,637)	\$ (261,067)	\$ (1,822,366)

Detailed Gain/Loss Analysis for Fiscal Year Ending 2024 (\$ In Millions)

Type of Activity	State Employees	Teachers	State Police	Judicial	Virginia Law Officers	Political Subdivisions
1. Retirements (including disability retirement). If members retire at older ages or with lower final average pay than assumed, there is a gain. If younger ages or higher average pays, a loss.	(\$7.9)	(\$17.5)	\$2.5	\$2.8	(\$0.6)	\$22.8
2. Withdrawal from Employment (including death-in-service). If more liabilities are released by withdrawals and deaths than assumed, there is a gain. If smaller releases, a loss.	(40.5)	46.4	(1.4)	(0.2)	2.8	12.6
3. Pay Increases . If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	(327.6)	(981.4)	(15.8)	(2.6)	(16.9)	(279.5)
4. Investment Income . If there is greater investment income than assumed, there is a gain. If less income, a loss.	417.0	815.7	18.8	12.1	33.4	485.3
5. Death After Retirement . If retirants and inactive vested members live longer than assumed, there is a loss. If not as long, a gain.	32.6	37.9	(6.5)	1.3	2.9	4.5
6. Cost of Living Allowance (COLA) . If COLA and/or Temporary Supplement Increase is greater than expected, there is a loss. If COLA and/or Temporary Supplement is less, a gain.	(166.2)	(310.8)	(8.1)	(5.2)	(15.4)	(156.7)
7. Other . Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, etc.	126.6	109.8	3.9	7.1	(13.4)	132.2
8. Composite Gain/(Loss) During Year.	34.1	(299.8)	(6.5)	15.2	(7.2)	221.2



Discussion of Risk/Maturity Measures

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

- ¹ **Investment Risk** – actual investment returns may differ from the expected returns;
- ² **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements; because of the way most public retirement systems invest, this tends to be synonymous with investment risk;
- ³ **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
- ⁴ **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
- ⁵ **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
- ⁶ **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The contribution rates shown in this report may be considered as minimum contribution rates that comply with the Board's funding policy and statutes. The timely receipt of the actuarially determined contributions is critical to support the financial health of the VRS. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

Discussion of Risk/Maturity Measures

PLAN MATURITY MEASURES

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following: ratio of the market value of assets to total payroll, ratio of actuarial accrued liability to payroll, ratio of actives to retirees and beneficiaries, and the ratio of net cash flow to market value of assets.

RATIO OF MARKET VALUE OF ASSETS TO PAYROLL

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time. The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

RATIO OF ACTIVES TO RETIREES AND BENEFICIARIES

A young plan with many active members and few retirees will have a high ratio of actives to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

RATIO OF NET CASH FLOW TO MARKET VALUE OF ASSETS

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

ADDITIONAL RISK ASSESSMENT

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability. Additional assessment of risk including stress testing for the Virginia Retirement System is regularly conducted by the VRS Staff.



Risk/Maturity Measures

State Employees

\$ In Thousands									
Valuation Date	(1) Actuarial Accrued Liabilities (AAL)	(2) Market Value of Assets (MVA)	(3) (Overfunded)/ Unfunded AAL (1) - (2)	(4) Valuation Payroll	(5) Change in Valuation Payroll	(6) Funded Ratio (2)/(1)	(7) Retiree Liabilities (RetLiab)	(8) RetLiab/ AAL (7)/(1)	(9) AAL/ Valuation Payroll (1)/(4)
2020	\$ 25,751,335	\$ 18,770,068	\$ 6,981,267	\$ 4,428,496	1.2%	72.9%	\$ 15,099,375	58.6%	581.5%
2021	26,727,971	23,112,417	3,615,554	4,594,347	3.7%	86.5%	15,726,839	58.8%	581.8%
2022	27,779,171	22,579,326	5,199,844	4,946,307	7.7%	81.3%	16,351,577	58.9%	561.6%
2023	29,126,311	23,351,827	5,774,484	5,448,985	10.2%	80.2%	17,153,819	58.9%	534.5%
2024	30,248,076	24,843,784	5,404,292	5,979,308	9.7%	82.1%	17,746,966	58.7%	505.9%

\$ In Thousands								
Valuation Date	(10) Assets/ Payroll (2)/(4)	(11) Asset Portfolio StdDev	(12) StdDev % of Pay (10) x (11)	(13) Unfunded/ Payroll (3)/(4)	(14) Net External Cash Flow (NECF)	(15) NECF/ Assets (14)/(2)	(16) Asset Return	(17) Ratio of Actives to Retirees
2020	423.8%	10.4%	44.1%	157.6%	\$ (681,103)	-3.6%	1.4%	1.1
2021	503.1%	11.4%	57.3%	78.7%	(712,813)	-3.1%	27.5%	1.0
2022	456.5%	13.8%	63.0%	105.1%	(511,512)	-2.3%	0.6%	1.0
2023	428.6%	12.6%	54.0%	106.0%	(665,111)	-2.8%	6.1%	1.1
2024	415.5%	11.0%	45.7%	90.4%	(745,588)	-3.0%	9.9%	1.1

The Risk/Maturity measures shown on this page and the following pages have been developed in response to Actuarial Standard of Practice (“ASOP”) No. 51 entitled “Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions.” In a maturing plan, the ratio of retiree liabilities to total liabilities increases, and the ratios of both assets and liabilities to payroll increases, and contribution rates tend to become increasingly volatile. The risk/maturity measures and associated commentary are intended to help keep stakeholders informed of some of the risks that the plan faces, and the potential contribution rate volatility.

Risk/Maturity Measures

Teachers

\$ In Thousands									
Valuation Date	(1) Actuarial Accrued Liabilities (AAL)	(2) Market Value of Assets (MVA)	(3) (Overfunded)/ Unfunded AAL (1) - (2)	(4) Valuation Payroll	(5) Change in Valuation Payroll	(6) Funded Ratio (2)/(1)	(7) Retiree Liabilities (RetLiab)	(8) RetLiab/ AAL (7)/(1)	(9) AAL/ Valuation Payroll (1)/(4)
2020	\$ 50,834,783	\$ 36,449,229	\$ 14,385,554	\$ 8,498,519	3.1%	71.7%	\$ 28,448,471	56.0%	598.2%
2021	52,747,596	45,617,878	7,129,718	8,556,997	0.7%	86.5%	29,671,366	56.3%	616.4%
2022	55,762,533	45,211,731	10,550,802	9,263,309	8.3%	81.1%	30,967,586	55.5%	602.0%
2023	58,761,070	47,467,405	11,293,665	9,666,665	4.4%	80.8%	32,584,423	55.5%	607.9%
2024	61,965,308	51,235,326	10,729,982	10,500,723	8.6%	82.7%	33,778,553	54.5%	590.1%

\$ In Thousands								
Valuation Date	(10) Assets/ Payroll (2)/(4)	(11) Asset Portfolio StdDev	(12) StdDev % of Pay (10) x (11)	(13) Unfunded/ Payroll (3)/(4)	(14) Net External Cash Flow (NECF)	(15) NECF/ Assets (14)/(2)	(16) Asset Return	(17) Ratio of Actives to Retirees
2020	428.9%	10.4%	44.6%	169.3%	\$ (762,552)	-2.1%	1.4%	1.5
2021	533.1%	11.4%	60.8%	83.3%	(718,599)	-1.6%	27.5%	1.4
2022	488.1%	13.8%	67.4%	113.9%	(339,704)	-0.8%	0.6%	1.4
2023	491.0%	12.6%	61.9%	116.8%	(658,188)	-1.4%	6.1%	1.4
2024	487.9%	11.0%	53.7%	102.2%	(814,945)	-1.6%	9.9%	1.4

Risk/Maturity Measures

State Police

\$ In Thousands									
Valuation Date	(1) Actuarial Accrued Liabilities (AAL)	(2) Market Value of Assets (MVA)	(3) (Overfunded)/ Unfunded AAL (1) - (2)	(4) Valuation Payroll	(5) Change in Valuation Payroll	(6) Funded Ratio (2)/(1)	(7) Retiree Liabilities (RetLiab)	(8) RetLiab/ AAL (7)/(1)	(9) AAL/ Valuation Payroll (1)/(4)
2020	\$ 1,206,424	\$ 854,762	\$ 351,662	\$ 131,255	-0.7%	70.9%	\$ 680,986	56.4%	919.1%
2021	1,326,646	1,050,148	276,498	142,795	8.8%	79.2%	751,996	56.7%	929.1%
2022	1,418,464	1,031,383	387,081	159,212	11.5%	72.7%	771,290	54.4%	890.9%
2023	1,513,881	1,079,755	434,126	168,611	5.9%	71.3%	808,641	53.4%	897.9%
2024	1,589,982	1,160,536	429,446	176,481	4.7%	73.0%	838,778	52.8%	900.9%

\$ In Thousands								
Valuation Date	(10) Assets/ Payroll (2)/(4)	(11) Asset Portfolio StdDev	(12) StdDev % of Pay (10) x (11)	(13) Unfunded/ Payroll (3)/(4)	(14) Net External Cash Flow (NECF)	(15) NECF/ Assets (14)/(2)	(16) Asset Return	(17) Ratio of Actives to Retirees
2020	651.2%	10.4%	67.7%	267.9%	\$ (26,843)	-3.1%	1.4%	1.2
2021	735.4%	11.4%	83.8%	193.6%	(33,753)	-3.2%	27.5%	1.1
2022	647.8%	13.8%	89.4%	243.1%	(17,863)	-1.7%	0.6%	1.1
2023	640.4%	12.6%	80.7%	257.5%	(17,875)	-1.7%	6.1%	1.0
2024	657.6%	11.0%	72.3%	243.3%	(22,707)	-2.0%	9.9%	1.0

Risk/Maturity Measures

Judicial

\$ In Thousands									
Valuation Date	(1) Actuarial Accrued Liabilities (AAL)	(2) Market Value of Assets (MVA)	(3) (Overfunded)/ Unfunded AAL (1) - (2)	(4) Valuation Payroll	(5) Change in Valuation Payroll	(6) Funded Ratio (2)/(1)	(7) Retiree Liabilities (RetLiab)	(8) RetLiab/ AAL (7)/(1)	(9) AAL/ Valuation Payroll (1)/(4)
2020	\$ 677,872	\$ 549,455	\$ 128,417	\$ 74,734	-2.8%	81.1%	\$ 446,977	65.9%	907.0%
2021	733,408	673,152	60,256	79,125	5.9%	91.8%	494,666	67.4%	926.9%
2022	748,557	656,964	91,593	80,745	2.0%	87.8%	512,895	68.5%	927.1%
2023	792,794	677,958	114,836	88,391	9.5%	85.5%	535,518	67.5%	896.9%
2024	812,064	717,164	94,900	95,361	7.9%	88.3%	549,463	67.7%	851.6%

\$ In Thousands								
Valuation Date	(10) Assets/ Payroll (2)/(4)	(11) Asset Portfolio StdDev	(12) StdDev % of Pay (10) x (11)	(13) Unfunded/ Payroll (3)/(4)	(14) Net External Cash Flow (NECF)	(15) NECF/ Assets (14)/(2)	(16) Asset Return	(17) Ratio of Actives to Retirees
2020	735.2%	10.4%	76.5%	171.8%	\$ (18,577)	-3.4%	1.4%	0.8
2021	850.7%	11.4%	97.0%	76.2%	(23,504)	-3.5%	27.5%	0.8
2022	813.6%	13.8%	112.3%	113.4%	(15,711)	-2.4%	0.6%	0.8
2023	767.0%	12.6%	96.6%	129.9%	(20,856)	-3.1%	6.1%	0.8
2024	752.1%	11.0%	82.7%	99.5%	(25,260)	-3.5%	9.9%	0.8

Risk/Maturity Measures

Virginia Law Officers

\$ In Thousands									
Valuation Date	(1) Actuarial Accrued Liabilities (AAL)	(2) Market Value of Assets (MVA)	(3) (Overfunded)/ Unfunded AAL (1) - (2)	(4) Valuation Payroll	(5) Change in Valuation Payroll	(6) Funded Ratio (2)/(1)	(7) Retiree Liabilities (RetLiab)	(8) RetLiab/ AAL (7)/(1)	(9) AAL/ Valuation Payroll (1)/(4)
2020	\$ 2,258,553	\$ 1,500,469	\$ 758,084	\$ 363,896	-1.6%	66.4%	\$ 1,290,159	57.1%	620.7%
2021	2,407,153	1,868,924	538,229	351,086	-3.5%	77.6%	1,388,719	57.7%	685.6%
2022	2,507,144	1,841,041	666,103	372,486	6.1%	73.4%	1,474,492	58.8%	673.1%
2023	2,673,711	1,931,061	742,650	398,110	6.9%	72.2%	1,580,660	59.1%	671.6%
2024	2,793,286	2,076,732	716,554	407,759	2.4%	74.3%	1,679,055	60.1%	685.0%

\$ In Thousands								
Valuation Date	(10) Assets/ Payroll (2)/(4)	(11) Asset Portfolio StdDev	(12) StdDev % of Pay (10) x (11)	(13) Unfunded/ Payroll (3)/(4)	(14) Net External Cash Flow (NECF)	(15) NECF/ Assets (14)/(2)	(16) Asset Return	(17) Ratio of Actives to Retirees
2020	412.3%	10.4%	42.9%	208.3%	\$ (24,099)	-1.6%	1.4%	1.5
2021	532.3%	11.4%	60.7%	153.3%	(36,762)	-2.0%	27.5%	1.3
2022	494.3%	13.8%	68.2%	178.8%	(26,217)	-1.4%	0.6%	1.1
2023	485.1%	12.6%	61.1%	186.5%	(28,257)	-1.5%	6.1%	1.1
2024	509.3%	11.0%	56.0%	175.7%	(39,415)	-1.9%	9.9%	1.0

Risk/Maturity Measures

Notes:

The measures shown on the previous pages provide information in accordance with Actuarial Standard of Practice No. 51.

Columns (1) to (4). These columns provide various items for comparison in Columns 5 through 17.

Column (5). When payroll grows at or faster than the assumed rate of 3.0%, funding of unfunded accrued liabilities is likely to proceed at least at the scheduled rate. Payroll growing slower than the assumed rate can lead to underfunding of the plan because expected contributions for unfunded liability may not be received.

Column (6). The Funded ratio is the most widely known measure of a plan's financial strength, but the trend in the funded ratio is much more important than the absolute ratio. The funded ratio should trend to 100%. As it approaches 100%, it is important to re-evaluate the level of investment risk in the portfolio and potentially to re-evaluate the assumed rate of return.

Columns (7) and (8). The ratio of Retiree liabilities to total accrued liabilities gives an indication of the maturity of the system. As the ratio increases, cash flow needs increase, and the investment policy may need to change. A ratio on the order of 50% indicates a maturing system. Ratios near or above 50% are common today.

Column (9). The ratio of liabilities to payroll gives an indication of both maturity and volatility. Many systems have ratios between 500% and 700%. Ratios significantly above that range may indicate difficulty in supporting the benefit level as a level % of payroll.

Column (10). The ratio of assets to payroll gives an indication of both maturity and volatility. Many systems have ratios between 500% and 700%. Ratios significantly above that range may indicate difficulty in supporting the benefit level as a level % of payroll.

Columns (11) and (12). The portfolio standard deviation measures the volatility of investment return. When multiplied by the ratio of assets to payroll it gives the effect of a one standard deviation asset move as a percent of payroll. This figure helps users understand the difficulty of dealing with investment volatility and the challenges volatility brings to sustainability.

Column (13). The ratio of unfunded liability to payroll gives an indication of the plan sponsor's ability to actually pay off the unfunded liability. A ratio above approximately 300% or 400% may indicate difficulty in discharging the unfunded liability within a reasonable time frame.

Columns (14) and (15). The ratio of Net External Cash Flow to assets is an important measure of sustainability. Negative ratios are common and expected for a maturing system. In the longer term, this ratio should be on the order of approximately -4%. A ratio that is significantly more negative than that for an extended period could be a leading indicator of potential exhaustion of assets.

Column (16). Investment return is probably the largest single risk that most systems face. The year by year return gives an indicator of the performance of the portfolio versus the system's assumed return.

Column (17). In the 1970s and 1980s it was common for the ratio of actives to retirees to be 3 or 4 to 1. As plans mature, this ratio can drop significantly. Ratios below 2 are common today. A ratio significantly below 1 usually indicates a closed plan, a shrinking workforce or other special situation.

Low-Default-Risk Obligation Measure

Introduction

In December 2021, the Actuarial Standards Board (ASB) adopted a revision to Actuarial Standard of Practice (ASOP) No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*. The revised ASOP No. 4 requires the calculation and disclosure of a liability referred to by the ASOP as the “Low-Default-Risk Obligation Measure” (LDRM). The rationale that the ASB cited for the calculation and disclosure of the LDRM was included in the Transmittal Memorandum of ASOP No. 4 and is presented below (emphasis added):

“The ASB believes that the calculation and disclosure of this measure provides **appropriate, useful information for the intended user regarding the funded status of a pension plan**. The calculation and disclosure of this additional measure is **not intended to suggest that this is the “right” liability measure** for a pension plan. However, the ASB does believe that **this additional disclosure provides a more complete assessment of a plan’s funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date.**”

Comparing the Accrued Liabilities and the LDRM

One of the fundamental financial objectives of the Virginia Retirement System is to finance each member’s retirement benefits over the period from the member’s date of hire until the member’s projected date of retirement (entry age actuarial cost method) as a level percentage of payroll. To fulfill this objective, the discount rate that is used to value the accrued liabilities of the Virginia Retirement System is set equal to the **expected return** on the System’s diversified portfolio of assets (referred to sometimes as the investment return assumption). For the Virginia Retirement System, the investment return assumption is 6.75%.

- The LDRM is meant to approximately represent the lump sum cost to a plan to purchase low-default-risk fixed income securities whose resulting cash flows essentially replicate in timing and amount the benefits earned (or the costs accrued) as of the measurement date. The LDRM is very dependent upon market interest rates at the time of the LDRM measurement. The lower the market interest rates, the higher the LDRM, and vice versa. The LDRM results presented in this report are based on the entry age actuarial cost method and discount rates based upon the June 2024 Treasury Yield Curve Spot Rates (end of month). The 1-, 5-, 10- and 30-year rates follow: 5.12%, 4.34%, 4.22%, and 4.45%; the effective rate ranges from 4.46%-4.48%.
- This measure may not be appropriate for assessing the need for or amount of future contributions.
- This measure may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan’s benefit obligation.
- The difference between the two measures (Valuation and LDRM) is one illustration of the expected savings the Sponsor anticipates by taking on risk in a diversified portfolio. The actual savings, or not, will depend on actual experience.

\$ In Billions						
Measure	State	Teachers	SPORS	ValORS	JRS	Locals
Valuation	\$30.2	\$62.0	\$1.6	\$2.8	\$0.8	\$32.3
LDRM	39.6	84.1	2.1	3.8	1.0	43.3



Sensitivity of Employer Contribution Rate Under Alternate Investment Return Assumptions

Many assumptions are important in determining the total employer contribution rate. In the following tables we show the sensitivity of the employer contribution rates to varying the Assumed Rate of Investment Return Assumption. Lower investment returns would generally result in higher employer contribution rates, and vice versa. The economic scenarios below provide a quantitative risk assessment for the impact of investment returns on the Plan's future financial condition for funding purposes.

The relative impact of the economic scenarios below will vary from year to year, as the participant demographics change. The impact of each scenario should be analyzed for a given year, not from year to year. It is important to note that calculations in this report are mathematical estimates based upon assumptions regarding future events, which may or may not materialize. Actuarial calculations can and do vary from one valuation to the next, sometimes significantly depending on the group's size.

State Employees (\$ In Thousands)

Assumed Rate of Investment Return	8.75%	7.75%	Current 6.75%	5.75%	4.75%
Total Normal Cost Rate	5.95%	7.10%	8.67%	10.81%	13.81%
Member Contribution Rate	4.50%	4.50%	4.50%	4.50%	4.50%
Employer Normal Cost Rate	1.45%	2.60%	4.17%	6.31%	9.31%
Administrative Expense Load	0.26%	0.26%	0.26%	0.26%	0.26%
Total Employer Normal Cost Rate	1.71%	2.86%	4.43%	6.57%	9.57%
Total Amortization Rate	1.05%	4.16%	7.34%	10.61%	13.98%
Total Employer Rate	2.76%	7.02%	11.77%	17.18%	23.55%
Change in Employer Rate	(9.01)%	(4.75)%	N/A	5.41%	11.78%
Unfunded Liability	\$ 586,071	\$ 3,078,475	\$ 6,051,719	\$ 9,620,669	\$ 13,923,325
Funded Status	97.6%	88.7%	80.0%	71.6%	63.5%

Teachers (\$ In Thousands)

Assumed Rate of Investment Return	8.75%	7.75%	Current 6.75%	5.75%	4.75%
Total Normal Cost Rate	6.46%	7.94%	10.02%	12.89%	16.94%
Member Contribution Rate	4.59%	4.59%	4.59%	4.59%	4.59%
Employer Normal Cost Rate	1.87%	3.35%	5.43%	8.30%	12.35%
Administrative Expense Load	0.28%	0.28%	0.28%	0.28%	0.28%
Total Employer Normal Cost Rate	2.15%	3.63%	5.71%	8.58%	12.63%
Total Amortization Rate	(0.06)%	3.85%	7.92%	12.17%	16.63%
Total Employer Rate	2.09%	7.48%	13.63%	20.75%	29.26%
Change in Employer Rate	(11.54)%	(6.15)%	N/A	7.12%	15.63%
Unfunded Liability	\$ (422,772)	\$ 5,201,657	\$ 12,022,101	\$ 20,349,435	\$ 30,566,793
Funded Status	100.9%	90.6%	80.6%	71.1%	62.0%

Sensitivity of Employer Contribution Rate Under Alternate Investment Return Assumptions

State Police (\$ In Thousands)

Assumed Rate of Investment Return	8.75%	7.75%	Current 6.75%	5.75%	4.75%
Total Normal Cost Rate	10.43%	13.32%	17.18%	22.41%	29.53%
Member Contribution Rate	5.00%	5.00%	5.00%	5.00%	5.00%
Employer Normal Cost Rate	5.43%	8.32%	12.18%	17.41%	24.53%
Administrative Expense Load	0.37%	0.37%	0.37%	0.37%	0.37%
Total Employer Normal Cost Rate	5.80%	8.69%	12.55%	17.78%	24.90%
Total Amortization Rate	7.53%	13.11%	18.84%	24.77%	30.90%
Total Employer Rate	13.33%	21.80%	31.39%	42.55%	55.80%
Change in Employer Rate	(18.06)%	(9.59)%	N/A	11.16%	24.41%
Unfunded Liability	\$ 148,976	\$ 290,200	\$ 458,924	\$ 661,532	\$ 906,146
Funded Status	88.4%	79.6%	71.1%	63.1%	55.5%

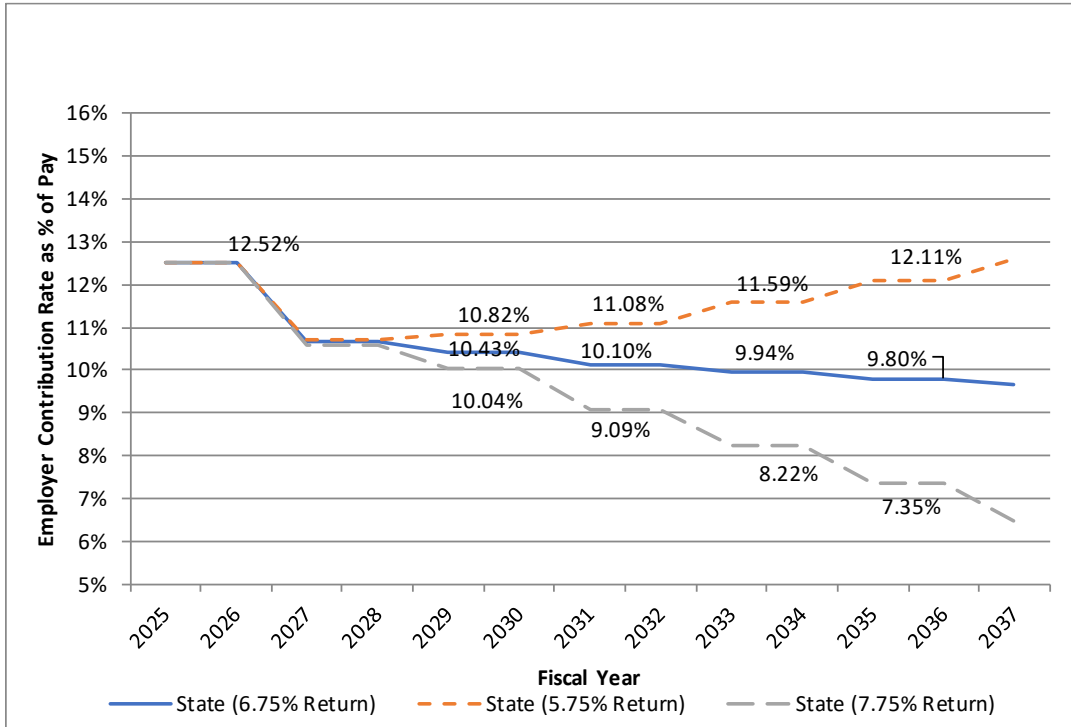
Judicial (\$ In Thousands)

Assumed Rate of Investment Return	8.75%	7.75%	Current 6.75%	5.75%	4.75%
Total Normal Cost Rate	16.57%	19.74%	23.63%	28.45%	34.45%
Member Contribution Rate	4.33%	4.33%	4.33%	4.33%	4.33%
Employer Normal Cost Rate	12.24%	15.41%	19.30%	24.12%	30.12%
Administrative Expense Load	0.40%	0.40%	0.40%	0.40%	0.40%
Total Employer Normal Cost Rate	12.64%	15.81%	19.70%	24.52%	30.52%
Total Amortization Rate	(0.83)%	3.95%	8.66%	13.31%	17.90%
Total Employer Rate	11.81%	19.76%	28.36%	37.83%	48.42%
Change in Employer Rate	(16.55)%	(8.60)%	N/A	9.47%	20.06%
Unfunded Liability	\$ (13,351)	\$ 45,558	\$ 113,497	\$ 192,316	\$ 284,329
Funded Status	102.0%	93.9%	86.0%	78.4%	71.1%

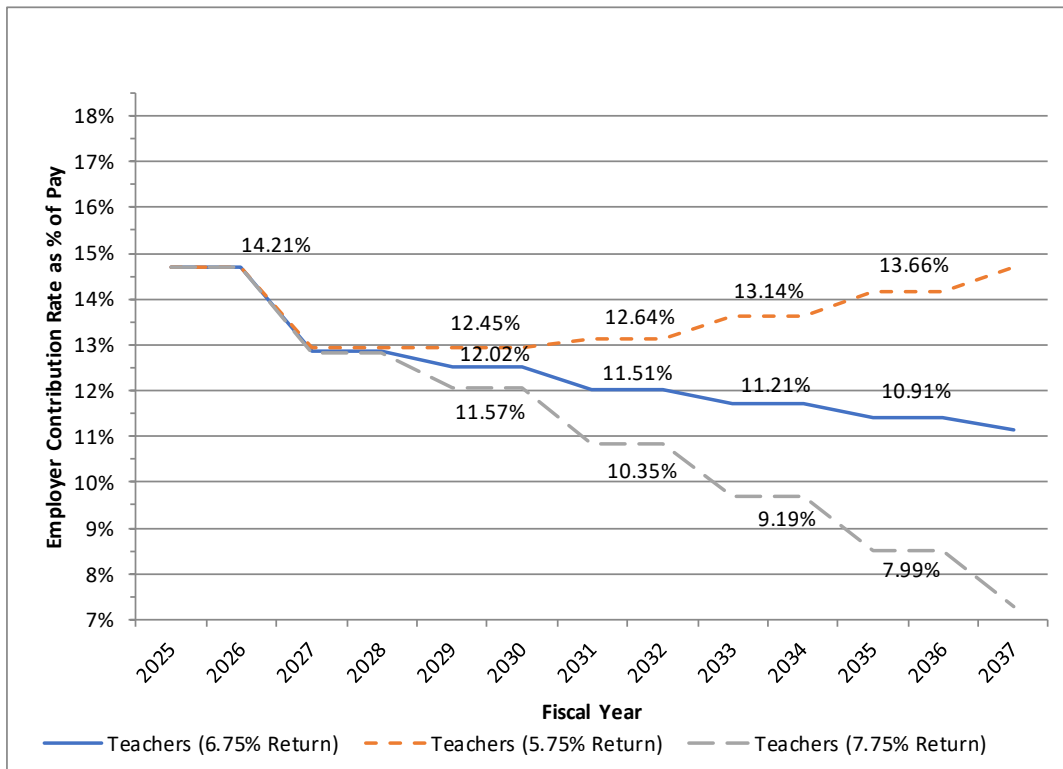
Virginia Law Officers (\$ In Thousands)

Assumed Rate of Investment Return	8.75%	7.75%	Current 6.75%	5.75%	4.75%
Total Normal Cost Rate	9.63%	11.48%	14.05%	17.70%	22.95%
Member Contribution Rate	5.00%	5.00%	5.00%	5.00%	5.00%
Employer Normal Cost Rate	4.63%	6.48%	9.05%	12.70%	17.95%
Administrative Expense Load	0.28%	0.28%	0.28%	0.28%	0.28%
Total Employer Normal Cost Rate	4.91%	6.76%	9.33%	12.98%	18.23%
Total Amortization Rate	5.14%	9.29%	13.67%	18.34%	23.35%
Total Employer Rate	10.05%	16.05%	23.00%	31.32%	41.58%
Change in Employer Rate	(12.95)%	(6.95)%	N/A	8.32%	18.58%
Unfunded Liability	\$ 233,162	\$ 474,188	\$ 768,647	\$ 1,132,017	\$ 1,582,648
Funded Status	89.7%	81.0%	72.5%	64.1%	56.1%

Contribution Projections Including Return Sensitivity State Employees



Teachers



Note: Projections are not predictions. Future valuations will be based on actual future experience.



Actuarial Balance Sheet

Present Assets and Prospective Assets						
	State Employees	Teachers	State Police	Judicial	Virginia Law Officers	Political Subdivisions
A. Present Actuarial Value of Assets	\$ 24,196,356,815	\$ 49,943,207,369	\$ 1,131,057,850	\$ 698,566,499	\$ 2,024,638,294	\$ 28,739,448,014
B. Present Value of Future Member Contributions	1,840,489,692	3,953,046,189	81,165,312	30,289,132	100,707,662	2,531,251,937
C. Present Value of Future Employer Contributions						
1. Normal Contributions	1,705,520,447	4,676,479,478	197,718,701	135,006,985	182,280,869	4,470,202,097
2. Unfunded Actuarial Accrued Liability Contributions	6,051,718,774	12,022,100,634	458,923,955	113,497,200	768,647,239	3,601,170,396
3. Total Prospective Employer Contributions (C.1. + C.2.)	7,757,239,221	16,698,580,112	656,642,656	248,504,185	950,928,108	8,071,372,493
D. Present Assets and Prospective Assets (A. + B. + C.3.)	\$ 33,794,085,728	\$ 70,594,833,670	\$ 1,868,865,818	\$ 977,359,816	\$ 3,076,274,064	\$ 39,342,072,444
Present Value of Expected Future Benefit Payments						
	State Employees	Teachers	State Police	Judicial	Virginia Law Officers	Political Subdivisions
A. To Retirees and Beneficiaries	\$ 17,746,966,157	\$ 33,778,552,654	\$ 838,777,834	\$ 549,462,820	\$ 1,679,054,505	\$ 17,257,117,315
B. To Inactive Members ¹	1,847,224,510	2,357,586,461	47,884,328	14,630,812	327,274,670	2,004,952,666
C. To Active Members						
1. Allocated to Service Rendered Prior to the Valuation Date	10,653,884,922	25,829,168,888	703,319,643	247,970,067	786,956,358	13,078,548,429
2. Allocated to Service Rendered After the Valuation Date	3,546,010,139	8,629,525,667	278,884,013	165,296,117	282,988,531	7,001,454,034
3. Total (C.1. + C.2.)	14,199,895,061	34,458,694,555	982,203,656	413,266,184	1,069,944,889	20,080,002,463
D. Total Actuarial Present Value of Expected Future Benefit Payments (A. + B. + C.3.)	\$ 33,794,085,728	\$ 70,594,833,670	\$ 1,868,865,818	\$ 977,359,816	\$ 3,076,274,064	\$ 39,342,072,444

¹ Including Long-Term Disability.



Solvency Test

State Employees, Teachers, and Political Subdivisions (\$ In Thousands)

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1)	(2)	(3)	Total		(1)	(2)	(3)
	Active Member Contributions ¹	Retirees, Survivors and Inactive Members	Active Members (Employer Fin. Portion)					
6/30/2024	\$ 12,145,134	\$ 74,992,400	\$ 37,416,468	\$ 124,554,002	\$ 102,879,012	100.00%	100.00%	42.07%
6/30/2023	11,718,388	71,786,785	35,005,430	118,510,603	96,708,759	100.00%	100.00%	37.72%
6/30/2022	11,415,519	67,605,525	33,012,077	112,033,121	91,177,020	100.00%	100.00%	36.82%
6/30/2021	14,452,659	64,528,079	27,662,643	106,643,382	85,027,965	100.00%	100.00%	21.86%
6/30/2020	14,082,163	60,926,216	26,884,877	101,893,256	78,759,722	100.00%	100.00%	13.95%

State Employees (\$ In Thousands)

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1)	(2)	(3)	Total		(1)	(2)	(3)
	Active Member Contributions ¹	Retirees, Survivors and Inactive Members	Active Members (Employer Fin. Portion)					
6/30/2024	\$ 2,919,580	\$ 19,594,191	\$ 7,734,305	\$ 30,248,076	\$ 24,196,357	100.00%	100.00%	21.75%
6/30/2023	2,853,544	18,873,948	7,398,819	29,126,311	22,997,717	100.00%	100.00%	17.17%
6/30/2022	2,814,123	17,936,921	7,028,127	27,779,171	21,917,849	100.00%	100.00%	16.60%
6/30/2021	3,566,175	17,161,682	6,000,114	26,727,971	20,615,301	100.00%	99.34%	0.00%
6/30/2020	3,514,856	16,410,519	5,825,960	25,751,335	19,333,674	100.00%	96.39%	0.00%

Teachers (\$ In Thousands)

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1)	(2)	(3)	Total		(1)	(2)	(3)
	Active Member Contributions ¹	Retirees, Survivors and Inactive Members	Active Members (Employer Fin. Portion)					
6/30/2024	\$ 6,158,899	\$ 36,136,139	\$ 19,670,270	\$ 61,965,308	\$ 49,943,207	100.00%	100.00%	38.88%
6/30/2023	5,905,122	34,776,881	18,079,068	58,761,070	46,810,231	100.00%	100.00%	33.90%
6/30/2022	5,713,400	32,957,731	17,091,402	55,762,533	43,970,442	100.00%	100.00%	31.01%
6/30/2021	7,036,408	31,496,785	14,214,403	52,747,596	40,725,782	100.00%	100.00%	15.43%
6/30/2020	6,811,064	30,055,902	13,967,817	50,834,783	37,556,121	100.00%	100.00%	4.93%

¹ Prior to the June 30, 2022 valuation, amounts include contributions for inactive members.



Solvency Test

Political Subdivisions (\$ In Thousands)

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1)	(2)	(3)	Total		(1)	(2)	(3)
	Active Member Contributions ¹	Retirees, Survivors and Inactive Members	Active Members (Employer Fin. Portion)			Active Member Contributions ¹	Retirees, Survivors and Inactive Members	Active Members (Employer Fin. Portion)
6/30/2024	\$ 3,066,656	\$ 19,262,070	\$ 10,011,893	\$ 32,340,618	\$ 28,739,448	100.00%	100.00%	64.03%
6/30/2023	2,959,723	18,135,956	9,527,543	30,623,222	26,900,812	100.00%	100.00%	60.93%
6/30/2022	2,887,997	16,710,873	8,892,548	28,491,418	25,288,728	100.00%	100.00%	63.98%
6/30/2021	3,850,076	15,869,613	7,448,126	27,167,815	23,686,882	100.00%	100.00%	53.26%
6/30/2020	3,756,243	14,459,794	7,091,101	25,307,138	21,869,927	100.00%	100.00%	51.53%

State Police (\$ In Thousands)

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1)	(2)	(3)	Total		(1)	(2)	(3)
	Active Member Contributions ¹	Retirees, Survivors and Inactive Members	Active Members (Employer Fin. Portion)			Active Member Contributions ¹	Retirees, Survivors and Inactive Members	Active Members (Employer Fin. Portion)
6/30/2024	\$ 108,918	\$ 886,662	\$ 594,401	\$ 1,589,982	\$ 1,131,058	100.00%	100.00%	22.79%
6/30/2023	105,315	841,682	566,884	1,513,881	1,063,882	100.00%	100.00%	20.62%
6/30/2022	100,990	803,632	513,842	1,418,464	1,001,822	100.00%	100.00%	18.92%
6/30/2021	106,923	782,487	437,236	1,326,646	937,332	100.00%	100.00%	10.96%
6/30/2020	109,787	707,082	389,555	1,206,424	880,834	100.00%	100.00%	16.42%

Judicial (\$ In Thousands)

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1)	(2)	(3)	Total		(1)	(2)	(3)
	Active Member Contributions ¹	Retirees, Survivors and Inactive Members	Active Members (Employer Fin. Portion)			Active Member Contributions ¹	Retirees, Survivors and Inactive Members	Active Members (Employer Fin. Portion)
6/30/2024	\$ 41,820	\$ 564,094	\$ 206,150	\$ 812,064	\$ 698,566	100.00%	100.00%	44.94%
6/30/2023	41,898	548,027	202,869	792,794	667,563	100.00%	100.00%	38.27%
6/30/2022	40,990	518,851	188,716	748,557	637,696	100.00%	100.00%	41.25%
6/30/2021	42,082	498,777	192,549	733,408	600,670	100.00%	100.00%	31.06%
6/30/2020	42,320	452,071	183,481	677,872	566,239	100.00%	100.00%	39.16%

¹ Prior to the June 30, 2022 valuation, amounts include contributions for inactive members.



Solvency Test

Virginia Law Officers (\$ In Thousands)

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1)	(2)	(3)	Total		(1)	(2)	(3)
	Active Member Contributions ¹	Retirees, Survivors and Inactive Members	Active Members (Employer Fin. Portion)			Active Members		
6/30/2024	\$ 150,842	\$ 2,006,329	\$ 636,114	\$ 2,793,286	\$ 2,024,638	100.00%	93.39%	0.00%
6/30/2023	154,856	1,871,522	647,333	2,673,711	1,903,501	100.00%	93.43%	0.00%
6/30/2022	157,404	1,718,160	631,580	2,507,144	1,789,127	100.00%	94.97%	0.00%
6/30/2021	251,678	1,640,876	514,599	2,407,153	1,668,802	100.00%	86.36%	0.00%
6/30/2020	250,900	1,498,644	509,009	2,258,553	1,546,528	100.00%	86.45%	0.00%

Grand Total (\$ In Thousands)

Valuation Date	Aggregate Accrued Liabilities For				Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1)	(2)	(3)	Total		(1)	(2)	(3)
	Active Member Contributions ¹	Retirees, Survivors and Inactive Members	Active Members (Employer Fin. Portion)			Active Members		
6/30/2024	\$ 12,446,715	\$ 78,449,485	\$ 38,853,133	\$ 129,749,333	\$ 106,733,275	100.00%	100.00%	40.76%
6/30/2023	12,020,457	75,048,016	36,422,517	123,490,990	100,343,705	100.00%	100.00%	36.45%
6/30/2022	11,714,903	70,646,168	34,346,216	116,707,287	94,605,665	100.00%	100.00%	35.65%
6/30/2021	14,853,342	67,450,219	28,807,028	111,110,589	88,234,769	100.00%	100.00%	20.59%
6/30/2020	14,485,170	63,584,014	27,966,921	106,036,105	81,753,323	100.00%	100.00%	13.17%

¹ Prior to the June 30, 2022 valuation, amounts include contributions for inactive members.



SECTION C

FUND ASSETS

Summary of Asset Values

System	Market Value	
	June 30, 2024	June 30, 2023
State Employees	\$ 24,843,784	\$ 23,351,827
Teachers	51,235,326	47,467,405
State Police	1,160,536	1,079,755
Judicial	717,164	677,958
Virginia Law Officers	2,076,732	1,931,061
Political Subdivisions ¹	29,500,291	27,308,038
Total Market Value of Assets	\$ 109,533,833	\$ 101,816,044

System	Actuarial Value	
	June 30, 2024	June 30, 2023
State Employees	\$ 24,196,357	\$ 22,997,717
Teachers	49,943,207	46,810,231
State Police	1,131,058	1,063,882
Judicial	698,566	667,563
Virginia Law Officers	2,024,638	1,903,501
Political Subdivisions ¹	28,739,448	26,900,812
Total Actuarial Value of Assets	\$ 106,733,275	\$ 100,343,705

¹ Includes Political Subdivisions with zero active members.

Market Value of Asset Reconciliation

	State Employees	Teachers	State Police	Judicial	Virginia Law Officers	Political Subdivisions
(1) Market Value of Assets (MVA) Beginning of Year						
a. MVA as of 6/30/2023	\$ 23,351,827,481	\$ 47,467,404,711	\$ 1,079,754,981	\$ 677,958,301	\$ 1,931,060,670	\$ 27,308,037,671
b. Adjustment	0	0	0	0	0	0
c. Adjusted Beginning of Year MVA	\$ 23,351,827,481	\$ 47,467,404,711	\$ 1,079,754,981	\$ 677,958,301	\$ 1,931,060,670	\$ 27,308,037,671
(2) Additions for the Year						
a. Contributions:						
i. Members	\$ 257,469,474	\$ 499,609,753	\$ 8,545,993	\$ 2,590,029	\$ 20,043,931	\$ 329,308,997
ii. Employers	752,394,176	1,702,445,130	50,767,032	26,925,705	97,758,439	814,108,787
iii. Non-Employer Contributing Entities	0	0	0	0	0	0
iv. Total [(2)a.i. + (2)a.ii. + (2)a.iii.]	\$ 1,009,863,650	\$ 2,202,054,883	\$ 59,313,025	\$ 29,515,734	\$ 117,802,370	\$ 1,143,417,784
b. Miscellaneous Revenue	(1,575,445)	666,245	(105,123)	(8,508)	1,097,145	434,288
c. Net Investment Income	2,237,544,225	4,582,866,507	103,487,971	64,466,022	185,086,278	2,639,597,547
d. Total Additions [(2)a.iv. + (2)b. + (2)c.]	\$ 3,245,832,430	\$ 6,785,587,635	\$ 162,695,873	\$ 93,973,248	\$ 303,985,793	\$ 3,783,449,619
(3) Deductions for the Year						
a. Benefit Payments	\$ 1,710,386,786	\$ 2,941,708,574	\$ 80,552,334	\$ 54,211,289	\$ 152,250,003	\$ 1,531,980,823
b. Refunds	28,149,318	45,545,845	716,693	173,166	4,921,754	41,948,221
c. Transfers	0	0	0	0	0	0
d. Administrative Expenses	15,339,857	30,412,113	646,084	382,742	1,143,040	17,266,802
e. Total Deductions [(3)a. + (3)b. + (3)c. + (3)d.]	\$ 1,753,875,961	\$ 3,017,666,532	\$ 81,915,111	\$ 54,767,197	\$ 158,314,797	\$ 1,591,195,846
(4) Change In Value [(2)d. - (3)e.]	\$ 1,491,956,469	\$ 3,767,921,103	\$ 80,780,762	\$ 39,206,051	\$ 145,670,996	\$ 2,192,253,773
(5) Market Value of Assets End of Year						
a. MVA as of 6/30/2024 [(1)c. + (4)]	\$ 24,843,783,950	\$ 51,235,325,814	\$ 1,160,535,743	\$ 717,164,352	\$ 2,076,731,666	\$ 29,500,291,444

Actuarial Value of Asset Reconciliation

	State Employees	Teachers	State Police	Judicial	Virginia Law Officers	Political Subdivisions
(1) Actuarial Value Beginning of Year	\$ 22,997,716,641	\$ 46,810,230,760	\$ 1,063,882,313	\$ 667,562,547	\$ 1,903,501,016	\$ 26,900,812,024
(2) Market Value End of Year	24,843,783,950	51,235,325,814	1,160,535,743	717,164,352	2,076,731,666	29,500,291,444
(3) Market Value Beginning of Year						
a. Initial Market Value Beginning of Year	23,351,827,481	47,467,404,711	1,079,754,981	677,958,301	1,931,060,670	27,308,037,671
b. Adjustment to Market Value Beginning of Year	0	0	0	0	0	0
c. Adjusted Market Value Beginning of Year: (3)a + (3)b	23,351,827,481	47,467,404,711	1,079,754,981	677,958,301	1,931,060,670	27,308,037,671
(4) Cash Flow						
a. Contributions	1,009,863,650	2,202,054,883	59,313,025	29,515,734	117,802,370	1,143,417,784
b. Benefit Payments	(1,738,536,104)	(2,987,254,419)	(81,269,027)	(54,384,455)	(157,171,757)	(1,573,929,044)
c. Administrative Expenses	(15,339,857)	(30,412,113)	(646,084)	(382,742)	(1,143,040)	(17,266,802)
d. Miscellaneous revenue and expenses	(1,575,445)	666,245	(105,123)	(8,508)	1,097,145	434,288
e. Net Cash Flow: [(4)a + (4)b + (4)c + (4)d]	(745,587,756)	(814,945,404)	(22,707,209)	(25,259,971)	(39,415,282)	(447,343,774)
(5) Investment Income						
a. Market total: (2) - (3)c - (4)e	2,237,544,225	4,582,866,507	103,487,971	64,466,022	185,086,278	2,639,597,547
b. Assumed Rate	6.75%	6.75%	6.75%	6.75%	6.75%	6.75%
c. Amount of Immediate Recognition [(3)c x (5)b] + [(4)e x (5)b x 0.5]	1,551,084,768	3,176,545,411	72,117,093	44,909,661	129,016,329	1,828,194,690
d. Amount for Phased-in Recognition: (5)a - (5)c	686,459,457	1,406,321,096	31,370,878	19,556,361	56,069,949	811,402,857
(6) Phased-In Recognition of Investment Income						
a. Current Year: 0.20 x (5)d	137,291,891	281,264,219	6,274,176	3,911,272	11,213,990	162,280,571
b. First Prior Year	(12,808,974)	(23,143,199)	(553,765)	(358,220)	(1,008,069)	(13,186,863)
c. Second Prior Year	(312,880,755)	(626,872,418)	(14,236,758)	(9,076,790)	(25,386,690)	(360,497,634)
d. Third Prior Year	762,448,000	1,490,236,000	34,516,000	22,181,000	61,035,000	872,277,000
e. Fourth Prior Year	(180,907,000)	(350,108,000)	(8,234,000)	(5,303,000)	(14,318,000)	(203,088,000)
f. Total Recognized Investment Gain	393,143,162	771,376,602	17,765,653	11,354,262	31,536,231	457,785,074
(7) Actuarial Value End of Year: [(1) + (3)b + (4)e + (5)c + (6)f]	\$ 24,196,356,815	\$ 49,943,207,369	\$ 1,131,057,850	\$ 698,566,499	\$ 2,024,638,294	\$ 28,739,448,014



SECTION D

CENSUS DATA

Retiree and Beneficiary Detail – Tabulated by Type of Retirement June 30, 2024

Retired, Disabled, and Survivor participants included in the valuations totaled 284,559 as follows:

Type of Retirement	System ¹						
	State Employees	Teachers	State Police	Judicial	Virginia Law Officers	Political Subdivisions ²	Total
Service:							
Number	64,783	104,567	1,356	465	6,452	75,643	253,266
Annual Benefits	\$ 1,527,491	\$ 2,795,838	\$ 65,054	\$ 45,707	\$ 143,190	\$ 1,306,683	\$ 5,883,963
Average Age	73.82	73.47	69.47	77.19	66.50	71.02	72.63
Disability:							
Number	2,640	4,115	177	0	245	7,760	14,937
Annual Benefits	\$ 51,329	\$ 106,301	\$ 7,236	\$ 0	\$ 4,222	\$ 145,429	\$ 314,517
Average Age	72.50	69.27	68.44	N/A	62.07	66.49	68.27
Survivors:							
Number	5,677	3,883	296	132	447	5,921	16,356
Annual Benefits	\$ 96,443	\$ 66,036	\$ 6,908	\$ 7,029	\$ 4,642	\$ 67,554	\$ 248,612
Average Age	75.49	72.32	72.11	78.78	65.59	70.59	72.66
Total:							
Number	73,100	112,565	1,829	597	7,144	89,324	284,559
Annual Benefits	\$ 1,675,263	\$ 2,968,175	\$ 79,198	\$ 52,736	\$ 152,054	\$ 1,519,666	\$ 6,447,092
Average Age	73.90	73.27	69.80	77.54	66.29	70.60	72.41

¹ Includes counts for each plan from which members receive pension benefits. Members with benefits from more than one employer are counted more than once.

² Includes counts for Participating Political Subdivisions with zero active members.

Deferred Detail – Tabulated by Type

June 30, 2024

Members with deferred benefits included in the valuations totaled 143,544 as follows:

System ¹	Number	Average Age	Average Service	Average Annual Estimated Benefit
State Employees:				
Inactive, Vested	16,252	51.80	8.56	\$ 7,209
Long Term Disability	2,186	56.20	15.30	\$ 53,869
Inactive, active elsewhere in VRS	9,789	48.39	4.35	\$ 2,784
Teachers:				
Inactive, Vested	35,014	48.57	9.24	\$ 8,017
Long Term Disability	54	49.78	4.97	\$ 22,782
Inactive, active elsewhere in VRS	7,366	48.54	5.86	\$ 4,706
State Police:				
Inactive, Vested	202	44.93	9.60	\$ 11,535
Long Term Disability	34	48.62	12.91	\$ 66,426
Inactive, active elsewhere in VRS	264	42.37	4.61	\$ 4,251
Judicial:				
Inactive, Vested	11	65.47	14.05	\$ 93,668
Long Term Disability	0	N/A	N/A	N/A
Inactive, active elsewhere in VRS	4	59.75	9.19	\$ 55,511
Virginia Law Officers:				
Inactive, Vested	1,698	46.62	7.07	\$ 5,738
Long Term Disability	458	51.09	8.37	\$ 34,464
Inactive, active elsewhere in VRS	4,146	42.88	4.41	\$ 3,578
Political Subdivisions ² :				
Inactive, Vested	24,610	50.71	6.93	\$ 5,382
Long Term Disability	129	56.65	4.09	\$ 12,298
Inactive, active elsewhere in VRS	41,327	46.57	4.22	\$ 3,213
Total:				
Inactive, Vested	77,787	49.87	8.32	\$ 6,986
Long Term Disability	2,861	55.19	13.46	\$ 48,451
Inactive, active elsewhere in VRS	62,896	46.82	4.45	\$ 3,353

¹ Includes counts for each plan from which members are entitled to deferred pension benefits. Members with benefits from more than one employer are counted more than once.

² Includes counts for Participating Political Subdivisions with zero active members.



Active Participant Detail June 30, 2024

Active participants included in the valuations totaled 365,650 with compensation and statistics, as follows:

System	Number	Annual Compensation (\$ in Thousands)	Average				
			Compensation	Age	Employer Type Service	Total Service	Entry Age on Employer Type Service
State Employees	80,017	\$ 5,979,308	\$ 74,725	47.0	10.2	11.1	36.8
Teachers	156,504	10,500,723	67,096	45.2	11.4	11.7	33.8
State Police	1,890	176,481	93,376	41.0	14.2	15.5	26.9
Judicial	471	95,361	202,466	57.8	9.0	14.6	48.8
Virginia Law Officers	7,307	407,759	55,804	39.8	7.6	8.5	32.2
Political Subdivisions	119,461	7,473,906	62,564	45.6	8.5	9.7	37.1
Total	365,650	\$ 24,633,538	\$ 67,369	45.6	10.1	10.9	35.5

Historical active participant member data follows:

Valuation Date	Number	Annual Compensation (\$ in Thousands)	Average Annual Compensation	% Change in Average Annual Compensation
6/30/2024	365,650	\$ 24,633,538	\$ 67,369	5.86%
6/30/2023	354,080	22,532,968	63,638	5.42%
6/30/2022	346,945	20,943,750	60,366	7.52%
6/30/2021	342,315	19,219,079	56,144	3.20%
6/30/2020	347,531	18,906,440	54,402	2.08%



Active Participants – Tabulated by Age and Total Service State Employees

Attained Age	Completed Years of Service							Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Payroll
Under 20	107	0	0	0	0	0	0	107	\$ 4,255,868
20-24	2,645	12	0	0	0	0	0	2,657	125,330,513
25-29	5,685	634	4	0	0	0	0	6,323	358,591,184
30-34	5,332	2,236	307	4	0	0	0	7,879	510,101,387
35-39	4,494	2,554	1,438	350	7	0	0	8,843	637,601,993
40-44	3,826	2,416	1,680	1,326	349	10	0	9,607	741,013,400
45-49	3,230	2,027	1,458	1,494	933	281	15	9,438	760,037,908
50-54	2,989	1,925	1,545	1,482	1,173	871	295	10,280	835,862,768
55-59	2,544	1,753	1,399	1,501	1,199	977	1,167	10,540	838,625,383
60	453	354	261	330	240	190	335	2,163	173,501,048
61	362	306	279	287	239	218	401	2,092	165,188,135
62	326	282	213	280	209	207	341	1,858	147,371,288
63	279	277	198	255	221	158	349	1,737	138,347,385
64	187	224	173	236	192	147	327	1,486	118,708,396
65	185	154	154	157	135	89	280	1,154	96,044,236
66	125	118	133	135	99	78	182	870	72,928,797
67	72	104	95	103	71	69	170	684	57,159,170
68	68	76	63	81	63	36	113	500	41,067,170
69	67	52	59	51	36	31	104	400	31,899,713
70 & Over	159	142	142	206	191	109	450	1,399	125,672,379
Totals	33,135	15,646	9,601	8,278	5,357	3,471	4,529	80,017	\$ 5,979,308,121



Active Participants by Age and Total Service Teachers

Attained Age	Completed Years of Service							Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Payroll
Under 20	119	0	0	0	0	0	0	119	\$ 2,910,655
20-24	5,175	15	0	0	0	0	0	5,190	230,700,748
25-29	10,848	3,206	4	0	0	0	0	14,058	753,217,012
30-34	6,653	7,601	2,099	4	0	0	0	16,357	962,803,455
35-39	6,149	4,714	5,990	1,838	5	0	0	18,696	1,195,347,435
40-44	5,853	4,041	3,380	6,321	2,124	6	0	21,725	1,515,194,472
45-49	4,951	3,844	2,642	3,570	5,128	1,486	7	21,628	1,584,120,196
50-54	4,138	3,637	2,860	3,291	3,752	4,290	973	22,941	1,736,966,376
55-59	2,946	2,770	2,348	3,086	2,912	2,326	1,944	18,332	1,342,694,732
60	495	462	381	520	526	343	331	3,058	214,728,466
61	475	397	369	511	482	344	311	2,889	195,775,286
62	349	314	263	455	473	287	285	2,426	166,974,351
63	319	280	240	376	410	281	271	2,177	146,749,722
64	234	227	216	295	339	234	231	1,776	120,738,139
65	206	218	154	229	222	131	171	1,331	88,595,055
66	141	138	109	170	154	107	133	952	64,083,728
67	135	99	81	100	109	66	97	687	44,303,433
68	86	68	58	60	67	42	98	479	31,599,546
69	72	54	34	62	55	49	70	396	24,770,318
70 & Over	278	166	122	170	180	120	251	1,287	78,450,257
Totals	49,622	32,251	21,350	21,058	16,938	10,112	5,173	156,504	\$ 10,500,723,383

Active Participants by Age and Total Service State Police

Attained Age	Completed Years of Service							Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Payroll
Under 20	0	0	0	0	0	0	0	0	\$ 0
20-24	95	0	0	0	0	0	0	95	5,813,411
25-29	177	92	0	0	0	0	0	269	18,399,344
30-34	68	143	68	0	0	0	0	279	21,286,802
35-39	32	62	141	33	0	0	0	268	22,691,536
40-44	17	21	48	116	72	1	0	275	27,044,986
45-49	16	11	24	36	122	47	0	256	27,485,343
50-54	6	4	19	25	52	109	12	227	26,489,670
55-59	4	2	12	14	20	30	60	142	16,989,072
60	0	0	0	2	1	1	8	12	1,571,422
61	1	1	0	2	2	2	9	17	2,064,482
62	0	1	3	4	0	1	5	14	1,725,762
63	0	0	2	1	0	0	12	15	1,968,000
64	0	0	0	0	1	1	5	7	1,008,871
65	0	0	0	0	0	0	3	3	412,564
66	0	0	0	0	0	1	5	6	896,729
67	0	0	0	0	0	1	2	3	417,723
68	0	0	0	0	0	0	0	0	0
69	0	0	0	1	0	0	1	2	215,577
70 & Over	0	0	0	0	0	0	0	0	0
Totals	416	337	317	234	270	194	122	1,890	\$ 176,481,294

Active Participants by Age and Total Service Judicial

Attained Age	Completed Years of Service							Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Payroll
Under 20	0	0	0	0	0	0	0	0	\$ 0
20-24	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	1	0	0	0	0	0	0	1	218,873
35-39	5	2	0	0	0	0	0	7	1,368,569
40-44	21	6	1	0	0	0	0	28	5,565,694
45-49	38	24	1	0	0	0	0	63	12,602,013
50-54	27	35	9	5	0	0	0	76	15,255,417
55-59	26	30	15	15	5	1	0	92	18,726,373
60	2	10	4	2	2	0	0	20	3,988,890
61	4	5	6	1	3	0	0	19	3,849,101
62	5	4	1	3	1	0	0	14	2,895,445
63	2	8	2	2	1	3	0	18	3,734,754
64	5	11	1	4	3	1	0	25	5,079,469
65	1	9	1	4	2	1	0	18	3,642,732
66	2	6	2	3	2	1	0	16	3,264,838
67	1	3	5	5	1	1	1	17	3,451,426
68	0	3	6	1	2	0	0	12	2,516,461
69	2	5	2	2	3	0	0	14	2,887,148
70 & Over	4	7	6	2	4	4	4	31	6,314,131
Totals	146	168	62	49	29	12	5	471	\$ 95,361,334

Active Participants by Age and Total Service Virginia Law Officers

Attained Age	Completed Years of Service							Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Payroll
Under 20	70	0	0	0	0	0	0	70	\$ 3,264,928
20-24	755	8	0	0	0	0	0	763	36,895,032
25-29	854	176	0	0	0	0	0	1,030	52,499,648
30-34	673	354	77	0	0	0	0	1,104	58,788,128
35-39	464	252	161	90	1	0	0	968	54,079,548
40-44	290	174	101	211	34	5	0	815	47,536,217
45-49	237	140	110	161	130	97	1	876	52,599,735
50-54	208	102	113	144	97	66	7	737	44,835,194
55-59	143	86	67	136	56	31	23	542	32,629,167
60	19	11	15	19	18	7	5	94	5,591,961
61	24	7	5	19	7	4	4	70	4,323,939
62	9	6	6	20	4	10	4	59	3,591,274
63	13	6	8	7	6	4	4	48	2,986,527
64	8	4	8	9	6	2	0	37	2,092,842
65	7	1	2	9	2	5	1	27	1,540,639
66	3	2	3	3	2	3	2	18	1,048,918
67	3	0	3	2	0	4	2	14	1,016,563
68	3	1	1	2	0	1	3	11	824,278
69	3	3	0	1	1	1	0	9	557,714
70 & Over	4	2	1	0	1	3	4	15	1,057,100
Totals	3,790	1,335	681	833	365	243	60	7,307	\$ 407,759,350

