

Retirement System for Members of the General Assembly of the State of South Carolina (GARS)

ACTUARIAL VALUATION REPORT
AS OF JULY 1, 2024





December 4, 2024

Public Employee Benefit Authority
South Carolina Retirement Systems
P.O. Box 11960
Columbia, SC 29211-1960

Subject: Actuarial Valuation as of July 1, 2024

Dear Members of the Board:

This report describes the current actuarial condition of the Retirement System for Members of the General Assembly of the State of South Carolina (GARS), determines the calculated employer contribution requirement, and analyzes changes in the System's financial condition. In addition, the report provides various summaries of the data.

A separate report is issued with regard to valuation results determined in accordance with Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68. Results of this report should not be used for any other purpose without consultation with the undersigned. Valuations are prepared annually as of July 1, the first day of the plan year for GARS. This report was prepared at the request of the Board of Directors of the South Carolina Public Employee Benefit Authority (Board) and is intended for use by the Public Employee Benefit Authority (PEBA) staff and those designated or approved by the Board.

Under South Carolina State statutes, the Board must certify the employer contribution annually. This amount is determined actuarially, based on the Board's funding policy. The Board certified contribution is determined by this actuarial valuation and to become effective twelve months after the valuation date. In other words, the contribution determined by this July 1, 2024 actuarial valuation is certified to be the employer contribution amount for the fiscal year beginning July 1, 2025. If new legislation is enacted between the valuation date and the date the certified contribution becomes effective, the Board may adjust the certified contribution to reflect this new legislation. Such adjustments are based on information supplied by the actuary.

FINANCING OBJECTIVES AND FUNDING POLICY

The principle objectives in the funding policy that is maintained by the Board include:

- Establish a contribution amount that remains relatively level over time.
- To set an amount so that the measures of the System's funding progress which include the unfunded actuarial accrued liability, funded ratio, and funding period will be maintained or improved.
- To determine an employer contribution amount equal to the sum of the employer normal cost (which pays the current year's cost) and an amortization amount which will result in the outstanding balance of each amortization base be funded over separate five-year periods.

PROGRESS TOWARD REALIZATION OF FINANCING OBJECTIVES

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a plan's funded status. In the absence of benefit improvements, it should increase over time, until it reaches at least 100%. The funded ratio of the retirement system increased from 67.4% to 74.3% since the last actuarial valuation primarily due to the State's contribution effort to finance the unfunded liability. We expect the funded ratio to improve each year as the State's contribution effort continues to finance the existing unfunded actuarial accrued liability. If the market value of assets had been used in the calculation instead of actuarial (smoothed) value of assets, the funded ratio for the System would increase from 67.1% to 76.0%.

Plan assets earned a 10.5% return on a time weighted-basis (net of fees) as reported in the financial statement of the South Carolina Retirement Systems for the year ending June 30, 2023. The 10.5% return documented in this report was determined on a dollar-weighted basis and assumes mid-year cash flows. This return resulted in the market value of assets being \$1,618 thousand more than expected based on the 7.00% investment return assumption.

ASSUMPTIONS AND METHODS

South Carolina State Code requires an experience analysis that reviews the economic and demographic assumptions be performed at least every five years. The last experience study was conducted for the five-year period ending June 30, 2023, and adopted by the Board in June 2024 for first use in the July 1, 2024 actuarial valuation. The investment return assumption is a prescribed assumption in Section 9-16-335 in South Carolina State Code and remains at 7.00% for the July 1, 2024 actuarial valuation. Updated assumptions used in the July 1, 2024 valuation include:

- Updated mortality assumption for active members
- Updated mortality improvement assumption based on the 2020 MP projection scale
- Reduced rate of disability incidence

It is our opinion that the current assumptions are internally consistent and reasonably reflect the anticipated future experience of the System. The combined effect of the assumptions used in this valuation is expected to have no significant bias.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can, and almost certainly will, differ as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rate, and funding periods. The actuarial calculations are intended to provide information for rational decision making.

This report was prepared using our proprietary valuation model and related software, which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.



BENEFIT PROVISIONS

The benefit provisions reflected in this valuation are those which were in effect on July 1, 2024. There were no legislative changes enacted since the prior valuation that materially changed or modified the benefits that members earn or receive.

DATA

Member data for retired, active and inactive members was supplied as of July 1, 2024, by the PEBA staff. The staff also supplied asset information as of July 1, 2024. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data. GRS is not responsible for the accuracy or completeness of the information provided to us by PEBA.

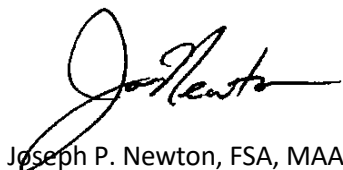
CERTIFICATION

We certify that the information presented herein is accurate and fairly portrays the actuarial position of GARS as of July 1, 2024.

All of our work conforms with generally accepted actuarial principles and practices, and is in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of South Carolina Code of Laws and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board. The undersigned are independent actuaries and consultants. All three are also Enrolled Actuaries and Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries. Each are experienced in performing valuations for large public retirement systems.

Sincerely,

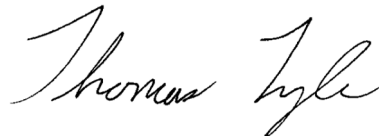
Gabriel, Roeder, Smith & Co.



Joseph P. Newton, FSA, MAAA, EA
Pension Market Leader and Actuary



Daniel J. White, FSA, MAAA, EA
Vice President and Actuary



Thomas Lyle, FSA, MAAA, EA
Consultant



Table of Contents

	<u>PAGE</u>
Section A Executive Summary.....	2
Section B Discussion.....	5
Section C Actuarial Tables.....	13
Section D Membership Information	27
Section E Assessment and Disclosure of Risk	35
Appendix A Actuarial Assumptions and Methods.....	40
Appendix B Benefit Provisions	45
Appendix C Glossary.....	50



SECTION A

EXECUTIVE SUMMARY

Executive Summary

(Dollar amounts expressed in thousands)

Valuation Date:	July 1, 2024	July 1, 2023
Membership <ul style="list-style-type: none"> • Number of <ul style="list-style-type: none"> - Active positions - Special contributors - Retirees and beneficiaries - Inactive members - Total • Projected payroll 	43 16 336 25 <hr/> 420 \$967	44 18 336 27 <hr/> 425 \$1,000
Contribution Requirement <ul style="list-style-type: none"> • Member contribution rate • Employer contribution requirement ¹ 	11.00% \$6,201	11.00% \$6,200
Assets <ul style="list-style-type: none"> • Market value • Actuarial value • Return on market value • Return on actuarial value • Ratio - actuarial value to market value • External cash flow % 	\$50,526 49,399 10.5% 7.7% 97.8% 0.4%	\$45,560 45,723 7.3% 6.7% 100.4% 0.0%
Actuarial Information <ul style="list-style-type: none"> • Normal cost % • Actuarial accrued liability (AAL) • Unfunded actuarial accrued liability (UAAL) • Funded ratio • Funding period from the valuation date ² 	22.04% \$66,520 17,121 74.3% 5 Years	22.16% \$67,853 22,130 67.4% 4 Years
Reconciliation of UAAL <ul style="list-style-type: none"> • Beginning of Year UAAL - Interest on UAAL - Amortization payment - Assumption change - Asset experience - Liability experience - Legislative changes • End of Year UAAL 	\$22,130 1,118 (6,152) (247) (317) 589 0 <hr/> \$17,121	\$27,007 1,459 (6,168) 0 124 (292) 0 <hr/> \$22,130

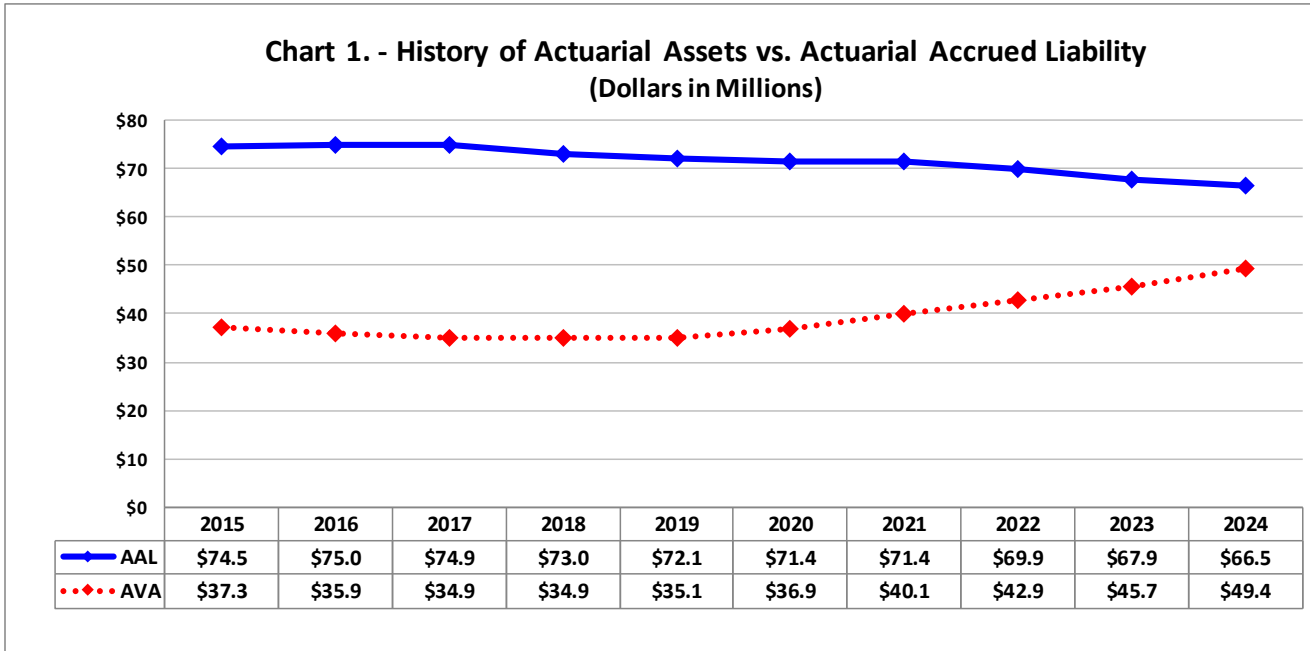
¹ The contribution requirement determined by the July 1, 2024 valuation is effective for the fiscal year beginning July 1, 2025. The contribution requirement determined by the July 1, 2023 valuation was adopted by the Board to be effective for the fiscal year beginning July 1, 2024.

² Gains/losses occurring after 2023 are amortized over separate closed 5-year amortization bases.



Executive Summary (Continued)

The unfunded actuarial accrued liability decreased by \$5.0 million since the prior year’s valuation to \$17.1 million. The single largest source of this decrease is due to the State’s contribution to finance the unfunded actuarial accrued liability. Below is a chart with the historical actuarial value of assets and actuarial accrued liability for GARS.



The recommended employer contribution requirement determined by July 1, 2024 actuarial valuation increased from the prior year’s contribution requirement by \$0.001 million to \$6.2 million. Absent legislative changes or demographic or investment experience that is significantly different than assumed, we expect the recommended contribution to be relatively constant over the next three years as the pre-2023 amortization base is funded. Also, due to the current contribution effort, we expect the funded ratio (on an actuarial value of asset basis) to increase and the dollar amount of the unfunded actuarial liability to decrease in future years.

SECTION B

DISCUSSION

Discussion

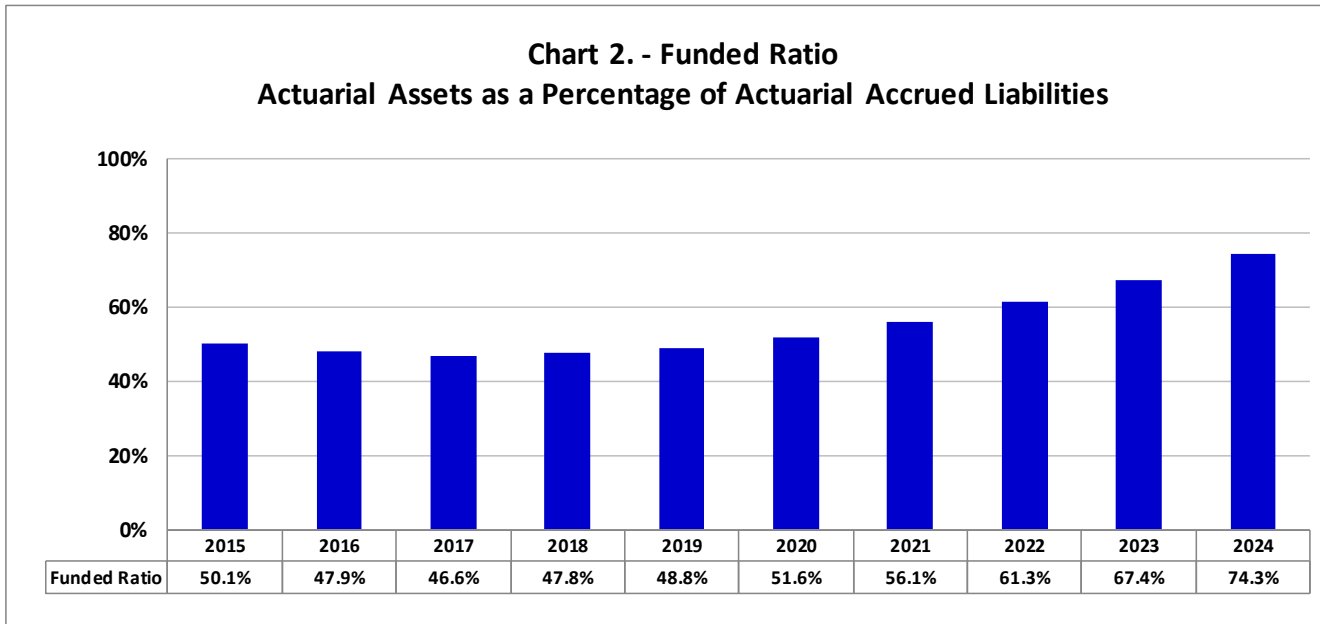
The results of the July 1, 2024 actuarial valuation of the Retirement System for Members of the General Assembly are presented in this report. The purposes of the valuation report are to depict the current financial condition of the System, determine the annual required contribution, and analyze changes in the System's financial condition. In addition, the report provides various summaries of the members participating in the plan.

This section discusses the determination of the current funding requirements and the System's funded status, as well as changes in financial condition of the retirement system. The valuation results for the prior year are shown in this report for comparison purposes.

All of the actuarial and financial tables referenced by the other sections of this report appear in Section C. Section D provides member data and statistical information. Section E provides an assessment and disclosure of risk as required by Actuarial Standards of Practice No. 51. Appendices A and B provide summaries of the principle actuarial assumptions and methods and plan provisions. Finally, Appendix C provides a glossary of technical terms that are used throughout this report.

Funding Progress

The funded ratio increased from 67.4% to 74.3% since the prior valuation. Table 10, Schedule of Funding Progress, in the following section of the report provides additional detail regarding the funding progress of the Retirement System.

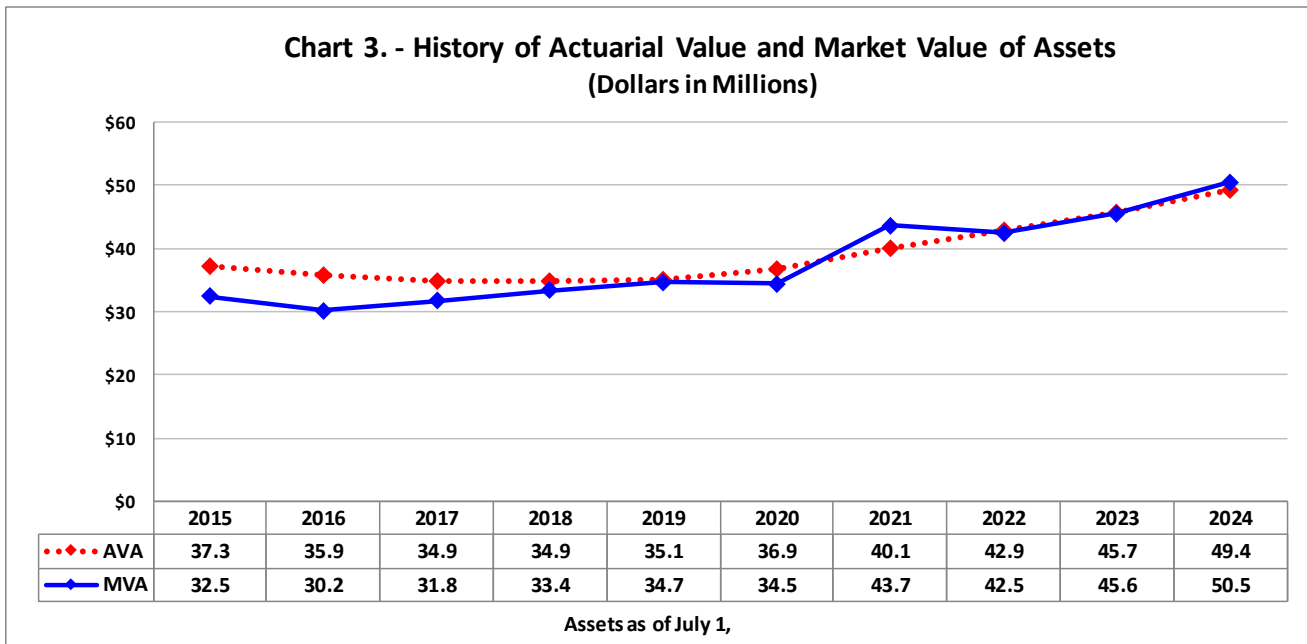


The Board updated the funding policy for this System as a result of the experience study such that the existing UAAL as of July 1, 2023 to be fully amortize the unfunded actuarial accrued liability (UAAL) by June 30, 2027. Under this funding policy, there are three years remaining in the funding period from the valuation date. Experience gains/losses that occur after 2023 are to be recognized as separate amortization bases that are funded over closed five-year periods, each.

Asset Gains/ (Losses)

The actuarial value of assets (“AVA”) is based on a smoothed market value of assets, using a systematic approach to phase-in the difference between the actual and expected investment return on a market value of asset basis (adjusted for receipts and disbursements during the year). This is appropriate because it dampens the short-term volatility inherent in investment markets. The returns are computed net of investment expenses. The actuarial value of assets increased from \$45.7 million to \$49.4 million since the prior valuation. Table 8 in the following section of the report provides the development of the actuarial value of assets.

The rate of return on the mean market value of assets for fiscal year 2024 was 10.5%, which is greater than the 7.00% investment return assumption. The return on an actuarial (smoothed) asset value was 7.7%. This difference in the estimated return on market value and actuarial value illustrates the smoothing effect of the asset valuation method.



Tables 6 and 7 in the following section of this report provide asset information that was included in the annual financial statements of the System. Also, Table 9 shows the estimated yield on a market value basis and on the actuarial asset valuation method.

Actuarial Gains/ (Losses) and the Contribution Requirement

The annual actuarial valuation is a snapshot analysis of the benefit liabilities, assets and funded position of the System as of the first day of the plan year. In any one fiscal year, the experience can be better or worse from that which is assumed or expected. The actuarial assumptions do not necessarily attempt to model what the experience will be for any one given fiscal year, but instead try to model the overall experience on average over many years. The demographic experience for the last year is briefly summarized in the chart below.

The unfunded actuarial accrued liability (UAAL) has decreased from \$22.1 million on July 1, 2023 to \$17.1 million on July 1, 2024. The table below shows the source of the gains and losses and the impact of those gains and losses on the UAAL.

Reconciliation of UAAL	
(Dollars in thousands)	
• Beginning of Year UAAL	\$22,130
- Interest on UAAL	\$1,118
- Amortization payment	(6,152)
- Assumption change	(247)
- Asset experience	(317)
- Liability experience	589
- Legislative changes	0
- Total change	<u>(5,009)</u>
• End of Year UAAL	\$17,121

Actuarial Gains/ (Losses) and the Contribution Requirement (Continued)

The following table provides a reconciliation of the change in the recommended contribution from the July 1, 2023 valuation to the July 1, 2024 valuation.

Change in Recommended Employer Contribution	
(Dollars in thousands)	
• Prior year valuation	\$6,200
- Expected change	\$0
- Assumption change	(141)
- Asset experience	(206)
- Liability experience	348
- Total change	\$1
• Current year valuation	\$6,201

This funding method and contribution policy is designed to result in relatively level contribution requirements from year to year. However, as the funding period decreases, there could be some increased volatility in the contribution requirement because future experience gains and losses will be amortized over a shorter period.

Development of the Employer Contribution

Amortization Base	Amount as of Valuation Date	Years Remaining as of Valuation Date	FY 2026 Amortization Amount
Pre-2024 Unfunded Actuarial Accrued Liability	\$ 17,096,101	3	\$ 6,086,972
2024 Gain/(Loss)	24,429	5	7,213
Total	\$ 17,120,530		\$ 6,094,185
 Employer Normal Cost			 \$ 106,703
 Total FY 2026 Employer Contribution			 \$ 6,200,888



Actuarial Assumptions and Methods

In determining costs and liabilities, actuaries use assumptions about the future, such as rates of salary increase, probabilities of retirement, termination, death and disability, and an annual investment return assumption. South Carolina State Statute requires an experience analysis that reviews the economic and demographic assumptions be performed at least every five years and the last experience study was conducted for the five-year period ending June 30, 2023, and adopted by the Board in June 2024 for first use in the July 1, 2024 actuarial valuation. The investment return assumption is a prescribed assumption in Section 9-16-335 in South Carolina State Code and remains at 7.00% for the July 1, 2024 actuarial valuation. Updated assumptions used in the July 1, 2024 valuation include:

- Updated mortality assumption for active members
- Updated mortality improvement assumption based on the 2020 MP projection scale
- Reduced rate of disability incidence

The Board also updated the funding policy for this System as a result of the experience study such that the existing UAAL as of July 1, 2023 to be fully amortize the unfunded actuarial accrued liability (UAAL) by June 30, 2027. Under this funding policy, there are three years remaining in the funding period from the valuation date. Experience gains/losses that occur after 2023 are to be recognized as separate amortization bases that are funded over closed five-year periods, each.

It is our opinion that the current assumptions are internally consistent and reasonably reflect the anticipated future experience of the System. The combined effect of the assumptions used in this valuation is expected to have no significant bias. The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can, and almost certainly will, differ as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rate, and funding periods. The actuarial calculations are intended to provide information for rational decision making.

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; 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. This report 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.

An actuarial valuation assumes that all assumptions will be met in future years, including a 7.00% return on the actuarial value of assets determined as of the actuarial valuation date. Establishing the contribution rates, funding period, and other financial metrics on an actuarial value of asset basis is consistent with applicable actuarial standards of practice, industry prevalence, and applicable provisions in South Carolina State Statute. Emerging experience due to liabilities or investments that is different than assumed (including the recognition of previously deferred investment losses) may result in a change in the required contribution rate.

Benefit Provisions

Appendix B of this report includes a summary of the benefit provisions for GARS. There were no legislative changes enacted since the previous valuation that had a measurable effect on the current valuation.

Summary of Retirement Provisions

- Membership was closed to new members after the 2012 general election.
- Earnable compensation is comprised of \$10,400 annually plus 40 times the daily rate of remuneration (i.e. \$22,400 in total earnable compensation annually). Certain line-item additional compensation for specified offices is also included. Monthly benefits are based on one-twelfth of this amount.
- The member contribution rate is 11% of earnable compensation.
- The retirement benefit amount is equal to 4.82% of the member's earnable compensation times the member's credited service (years).
- Members are eligible for retirement after they have (i) attained age 60, or (ii) completed 30 years of creditable service. Members may commence their benefit before retiring from service upon the attainment of age 70 or after accruing 30 years of service.
- Members with eight or more years of credited service that cease membership in the General Assembly may elect to continue earning future service in the system by contributing the required membership contributions (i.e. a special contributing member).

SECTION C

ACTUARIAL TABLES

Actuarial Tables

	<u>Page</u>
Table 1	Summary of Cost Items..... 14
Table 2	Actuarial Present Value of Future Benefits..... 15
Table 3	Analysis of Normal Cost 16
Table 4	Results of July 1, 2024 Valuation 17
Table 5	Actuarial Balance Sheet 18
Table 6	System Net Assets..... 19
Table 7	Reconciliation of System Net Assets..... 20
Table 8	Development of Actuarial Value of Assets 21
Table 9	Estimation of Yields..... 22
Table 10	Schedule of Funding Progress..... 23
Table 11	Summary of Principle Assumptions and Methods..... 24
Table 12	Solvency Test..... 25



Summary of Cost Items
(Dollar amounts expressed in thousands)

	July 1, 2024 (1)	July 1, 2023 (2)
1. Projected payroll of active members	\$ 967	\$ 1,000
2. Present value of future pay	\$ 4,564	\$ 5,261
3. Normal cost		
a. Total normal cost	\$ 213	\$ 222
b. Less: member contribution	(106)	(110)
c. Employer normal cost	\$ 107	\$ 112
4. Actuarial accrued liability for active members		
a. Present value of future benefits	\$ 11,612	\$ 11,894
b. Less: present value of future normal costs	(865)	(989)
c. Actuarial accrued liability	\$ 10,747	\$ 10,905
5. Total actuarial accrued liability for:		
a. Retirees and beneficiaries	\$ 52,966	\$ 53,997
b. Inactive members	2,807	2,951
c. Active members (Item 4c)	10,747	10,905
d. Total	\$ 66,520	\$ 67,853
6. Actuarial value of assets	\$ 49,399	\$ 45,723
7. Unfunded actuarial accrued liability (UAAL) (Item 5d - Item 6)	\$ 17,121	\$ 22,130
8. Annual Required Contribution		
a. Employer normal cost	\$ 107	\$ 112
b. Employer contribution to amortize the UAAL	6,094	6,088
c. Total employer contribution	\$ 6,201	\$ 6,200

Actuarial Present Value of Future Benefits
(Dollar amounts expressed in thousands)

	<u>July 1, 2024</u>	<u>July 1, 2023</u>
	(1)	(2)
1. Active members		
a. Service retirement	\$ 11,358	\$ 11,580
b. Disability retirement	47	84
c. Survivors' benefits	206	230
d. Total	<u>\$ 11,611</u>	<u>\$ 11,894</u>
2. Retired members		
a. Service retirement	\$ 44,524	\$ 45,955
b. Disability retirement	0	0
c. Beneficiaries	8,244	7,833
d. Incidental death benefits	198	209
e. Total	<u>\$ 52,966</u>	<u>\$ 53,997</u>
3. Inactive members		
a. Vested terminations	\$ 2,693	\$ 2,781
b. Nonvested terminations	114	170
c. Total	<u>\$ 2,807</u>	<u>\$ 2,951</u>
4. Total actuarial present value of future benefits	\$ 67,384	\$ 68,842

Analysis of Normal Cost
(Dollar amounts expressed in thousands)

	<u>July 1, 2024</u> (1)	<u>July 1, 2023</u> (2)
1. Total normal cost rate		
a. Service retirement	20.26%	20.19%
b. Survivor benefits	1.05%	0.99%
c. Disability benefits	0.55%	0.80%
d. Total	<u>21.86%</u>	<u>21.98%</u>
2. Admin expenses	0.18%	0.18%
3. Less: member contribution rate	<u>11.00%</u>	<u>11.00%</u>
4. Net employer normal cost rate	11.04%	11.16%
5. Projected valuation payroll	\$967	\$1,000
6. Projected employer normal cost contribution	\$107	\$112

Results of July 1, 2024 Valuation
(Dollar amounts expressed in thousands)

	July 1, 2024
	(1)
1. Actuarial Present Value of Future Benefits	
a. Present retired members and beneficiaries	\$ 52,966
b. Present active and inactive members	14,418
c. Total actuarial present value	\$ 67,384
2. Present Value of Future Normal Contributions	
a. Employee	\$ 502
b. Employer	362
c. Total future normal contributions	\$ 864
3. Actuarial Liability	\$ 66,520
4. Current Actuarial Value of Assets	\$ 49,399
5. Unfunded Actuarial Liability	\$ 17,121
6. Unfunded Actuarial Liability Liquidation Period from the Valuation Date	5 years ¹

¹ Gains/losses occurring after 2023 are amortized over separate 5-year closed amortization bases.

Actuarial Balance Sheet
(Dollar amounts expressed in thousands)

	July 1, 2024 (1)	July 1, 2023 (2)
1. <u>Assets</u>		
a. Current Assets (Actuarial Value)		
i. Employee annuity savings fund	\$ 5,535	\$ 5,608
ii. Employer annuity accumulation fund	43,864	40,115
iii. Total current assets	\$ 49,399	\$ 45,723
b. Present Value of Future Member Contributions ¹	\$ 502	\$ 578
c. Present Value of Future Employer Contributions		
i. Normal contributions	\$ 362	\$ 411
ii. Accrued liability contributions	17,121	22,130
iii. Total future employer contributions	\$ 17,483	\$ 22,541
d. Total Assets	\$ 67,384	\$ 68,842
2. <u>Liabilities</u>		
a. Employee Annuity Savings Fund		
i. Past member contributions	\$ 5,535	\$ 5,608
ii. Present value of future member contributions ¹	502	578
iii. Total contributions to employee annuity savings fund	\$ 6,037	\$ 6,186
b. Employer Annuity Accumulation Fund		
i. Benefits currently in payment	\$ 52,966	\$ 53,997
ii. Benefits to be provided to other members	8,381	8,659
iii. Total benefits payable from employer annuity accumulation fund	\$ 61,347	\$ 62,656
c. Total Liabilities	\$ 67,384	\$ 68,842

¹ Includes expected contributions from special contributors.



System Net Assets
Assets at Market or Fair Value
(Dollar amounts expressed in thousands)

Item (1)	July 1, 2024 (2)	July 1, 2023 (3)
1. Cash and cash equivalents (operating cash)	\$ 7,118	\$ 5,674
2. Receivables	628	290
3. Investments		
a. Short-term securities	\$ 250	\$ 150
b. Fixed income (global)	1,345	1,975
c. Global public equity	21,201	18,614
d. Alternative investments	20,142	19,866
e. Total investments	\$ 42,938	\$ 40,605
4. Securities lending cash collateral invested	\$ 324	\$ 2
5. Prepaid administrative expenses	1	1
6. Capital assets, net of accumulated depreciation	4	5
7. Total assets	\$ 51,013	\$ 46,577
8. Liabilities		
a. Due to other systems	\$ 0	\$ 0
b. Accounts payable	37	955
c. Investment fees payable	5	3
d. Obligations under securities lending	324	2
e. Due to South Carolina Retiree Health Insurance Trust Fund	0	0
f. Benefit payable	0	0
g. Other liabilities	121	57
h. Total liabilities	\$ 487	\$ 1,017
9. Total market value of assets available for benefits (Item 7. - Item 8.h.)	\$ 50,526	\$ 45,560
10. Asset allocation (investments) ¹		
a. Net invested cash	15.5%	11.2%
b. Fixed income	2.7%	4.3%
c. Public equities	42.0%	40.9%
d. Alternative investments	39.8%	43.6%
e. Total investments	100.0%	100.0%

¹ These asset allocations are calculated based on the dollar amounts shown in items 1. through 9. above and, due to cash flow and rebalancing timing, may be slightly different than the allocation percentages reported by the South Carolina Retirement System Investment Commission.



Reconciliation of System Net Assets

(Dollar amounts expressed in thousands)

	Year Ending	
	July 1, 2024 (1)	July 1, 2023 (2)
1. Value of Assets at Beginning of Year	\$ 45,560	\$ 42,476
2. Revenue for the Year		
a. Contributions		
i. Member contributions	\$ 147	\$ 155
ii. Employer contributions	6,286	6,308
iii. Total	\$ 6,433	\$ 6,463
b. Income		
i. Interest, dividends, and other income	\$ 982	\$ 779
ii. Investment expenses	(518)	(498)
iii. Net	\$ 464	\$ 281
c. Net realized and unrealized gains (losses)	\$ 4,349	\$ 2,825
d. Total revenue	\$ 11,246	\$ 9,569
3. Expenditures for the Year		
a. Disbursements		
i. Refunds	\$ 0	\$ 0
ii. Regular annuity benefits	6,243	6,313
iii. Other benefit payments	13	15
iv. Net transfers to other systems	0	135
v. Total	\$ 6,256	\$ 6,463
b. Administrative expenses and depreciation	24	22
c. Total expenditures	\$ 6,280	\$ 6,485
4. Increase in Net Assets (Item 2. - Item 3.)	\$ 4,966	\$ 3,084
5. Value of Assets at End of Year (Item 1. + Item 4.)	\$ 50,526	\$ 45,560
6. Net External Cash Flow		
a. Dollar amount	\$ 177	\$ 0
b. Percentage of market value	0.4%	0.0%



Development of Actuarial Value of Assets
(Dollar amounts expressed in thousands)

	Year Ending June 30, 2024
1. Actuarial value of assets at beginning of year	\$ 45,723
2. Market value of assets at beginning of year	\$ 45,560
3. Net new investments	
a. Contributions	\$ 6,433
b. Disbursements	(6,280)
c. Subtotal	153
4. Market value of assets at end of year	\$ 50,526
5. Net earnings (Item 4. - Item 2. - Item 3.c.)	\$ 4,813
6. Assumed investment return rate for fiscal year	7.00%
7. Expected return (Item 6. x (Item 2. + 1/2 Item 3.c.))	\$ 3,195
8. Excess/(Deficit) return (Item 5. - Item 7.)	\$ 1,618
9. Excess/(Deficit) return on assets as of June 30, 2024:	
a.	\$ 1,294
b.	80
c.	(1,638)
d.	1,391
e.	0
f. Total	\$ 1,127
10. Actuarial value of assets as of June 30, 2024 (Item 4. - Item 9.f.)	\$ 49,399
11. Expected actuarial value as of June 30, 2023	\$ 49,082
12. Asset gain (loss) for year (Item 10. - Item 11.)	\$ 317
13. Asset gain (loss) as % of the actuarial value of assets	0.6%
14. Ratio of actuarial value to market value	97.8%



Estimation of Yields
(Dollar amounts expressed in thousands)

	Year Ending	
	July 1, 2024 (1)	July 1, 2023 (2)
1. Market Value Yield		
a. Beginning of year market assets	\$ 45,560	\$ 42,476
b. Contributions to fund during the year	6,433	6,463
c. Disbursements	(6,280)	(6,485)
d. Investment income (net of investment expenses)	<u>4,813</u>	<u>3,106</u>
e. End of year market assets	\$ 50,526	\$ 45,560
f. Estimated dollar weighted market value yield	10.5%	7.3%
2. Actuarial Value Yield		
a. Beginning of year actuarial assets	\$ 45,723	\$ 42,869
b. Contributions to fund during the year	6,433	6,463
c. Disbursements	(6,280)	(6,485)
d. Investment income (net of investment expenses)	<u>3,523</u>	<u>2,876</u>
e. End of year actuarial assets	\$ 49,399	\$ 45,723
f. Estimated actuarial value yield	7.7%	6.7%

Schedule of Funding Progress
(Dollar amounts expressed in thousands)

July 1, (1)	Actuarial Value of Assets (AVA) (2)	Actuarial Accrued Liability (AAL) (3)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2) (4)	Funded Ratio (2)/(3) (5)	Annual Covered Payroll ¹ (6)	UAAL as % of Payroll (4)/(6) (7)
2010	43,712	68,671	24,959	63.7%	3,854	647.6%
2011	41,484	74,604	33,120	55.6%	3,854	859.4%
2012	39,233	74,332	35,099	52.8%	3,854	910.7%
2013	38,033	75,639	37,606	50.3%	2,688	1399.0%
2014	37,646	74,514	36,868	50.5%	2,601	1417.5%
2015	37,312	74,509	37,197	50.1%	2,338	1591.0%
2016	35,926	74,996	39,070	47.9%	2,316	1,686.9%
2017	34,887	74,855	39,968	46.6%	1,961	2,038.2%
2018	34,902	73,004	38,102	47.8%	1,866	2,041.9%
2019	35,140	72,055	36,915	48.8%	1,570	2,351.3%
2020	36,869	71,426	34,557	51.6%	1,570	2,201.1%
2021	40,056	71,433	31,377	56.1%	1,249	2,512.1%
2022	42,869	69,876	27,007	61.3%	1,204	2,243.1%
2023	45,723	67,853	22,130	67.4%	1,000	2,213.0%
2024	49,399	66,520	17,121	74.3%	967	1,770.6%

¹ For valuations prior to 2013 the annual covered payroll included the payroll of filled and unfilled positions.

Summary of Principle Assumptions and Methods

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation date	July 1, 2024
Actuarial cost method	Entry Age Normal
Amortization method	Level dollar
Amortization period for contribution requirement	Gains / Losses occurring after 2023 are amortized over separate closed 5-year amortization bases.
Asset valuation method	5-Year Smoothed
Actuarial assumptions:	
Investment rate of return ¹	7.00%
Projected salary increases	None
Inflation	2.25%
Cost-of-living adjustments	0.00%
Retiree mortality	The gender-distinct South Carolina Retirees 2020 Mortality Tables, projected on a fully generational basis by 80% of Scale UMP. Male rates are multiplied by 97% and female rates are multiplied by 107%.

¹ This is a prescribed assumption in Section 9-16-335 of South Carolina State Code.

Solvency Test

(Dollar amounts expressed in thousands)

July 1, (1)	Actuarial Accrued Liability				Valuation Assets (5)	Portion of Aggregate Accrued Liabilities Covered by Assets		
	Active Member Contributions (2)	Retirants & Beneficiaries (3)	Active & Inactive Members (Employer Financed) (4)	Active (6)		Retirants (7)	ER Financed (8)	
2010	7,265	53,486	7,920	43,712	100.0%	68.1%	0.0%	
2011	7,100	58,291	9,213	41,484	100.0%	59.0%	0.0%	
2012	7,267	58,213	8,852	39,233	100.0%	54.9%	0.0%	
2013	7,164	59,592	8,883	38,033	100.0%	51.8%	0.0%	
2014	7,358	58,098	9,058	37,646	100.0%	52.1%	0.0%	
2015	7,295	58,384	8,830	37,312	100.0%	51.4%	0.0%	
2016	7,334	57,314	10,348	35,926	100.0%	49.9%	0.0%	
2017	6,852	58,042	9,961	34,887	100.0%	48.3%	0.0%	
2018	7,066	55,749	10,189	34,902	100.0%	49.9%	0.0%	
2019	6,661	55,781	9,613	35,140	100.0%	51.1%	0.0%	
2020	7,046	53,951	10,429	36,869	100.0%	55.3%	0.0%	
2021	6,567	55,142	9,724	40,056	100.0%	60.7%	0.0%	
2022	6,508	53,995	9,373	42,869	100.0%	67.3%	0.0%	
2023	5,608	53,997	8,248	45,723	100.0%	74.3%	0.0%	
2024	5,535	52,966	8,019	49,399	100.0%	82.8%	0.0%	



SECTION D

MEMBERSHIP INFORMATION

Membership Information

Page

Table 13	Summary of Membership Data.....	28
Table 14	Summary of Historical Active Membership	29
Table 15	Distribution of Active and Special Contributor Members by Age and Service	30
Table 16	Schedule of Annuitants by Type of Benefit.....	31
Table 17	Distribution of Annuitants by Monthly Benefit	32
Table 18	Schedule of Retirants Added to and Removed From Rolls.....	33



Summary of Membership Data

	July 1, 2024 (1)	July 1, 2023 (2)
1. Active Members		
a. Males	38	39
b. Females	5	5
c. Total members	43	44
d. Total annualized prior year pay	\$ 966,800	\$ 1,000,200
e. Average pay	\$ 22,484	\$ 22,732
f. Average age	61.4	60.3
g. Average service	20.4	19.6
h. Member contributions with interest	\$ 3,442,598	\$ 3,364,640
i. Average contributions with interest	\$ 80,060	\$ 76,469
2. Special Contributors		
a. Males	11	13
b. Females	5	5
c. Total members	16	18
d. Member contributions with interest	\$ 973,736	\$ 1,042,593
e. Average contributions with interest	60,859	57,922
3. Vested Inactive Members		
a. Number	13	13
b. Total annual deferred benefits	\$ 278,502	\$ 284,980
c. Average annual deferred benefit	\$ 21,423	\$ 21,922
4. Nonvested Inactive Members		
a. Number	12	14
b. Member contributions with interest	\$ 113,816	\$ 170,048
c. Average contributions with interest	\$ 9,485	\$ 12,146
5. Service Retirees		
a. Number	251	255
b. Total annual benefits	\$ 5,152,256	\$ 5,211,446
c. Average annual benefit	\$ 20,527	\$ 20,437
d. Average age at the valuation date	76.4	75.8
e. Average age at retirement date	60.9	60.9
6. Disabled Retirees		
a. Number	0	0
b. Total annual benefits	\$ 0	\$ 0
c. Average annual benefit	\$ 0	\$ 0
d. Average age at the valuation date	N/A	N/A
e. Average age at retirement date	N/A	N/A
7. Beneficiaries		
a. Number	85	81
b. Total annual benefits	\$ 1,060,471	\$ 1,013,559
c. Average annual benefit	\$ 12,476	\$ 12,513
d. Average age at the valuation date	73.7	73.1



Summary of Historical Active Membership

July 1,	Number of Employers	Active Members		Covered Payroll		Average Annual Pay		Average Age	Average Service
		Number ¹	Percent Increase / (Decrease)	Amount in Thousands ¹	Percent Increase / (Decrease)	Amount	Percent Increase / (Decrease)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2010	2	170	0.0%	3,854	0.0%	22,671	0.0%	52.3	10.2
2011	2	170	0.0%	3,854	0.0%	22,671	0.0%	52.7	9.8
2012	2	170	0.0%	3,854	0.0%	22,671	0.0%	53.3	10.8
2013	2	119	-30.0%	2,688	-30.3%	22,588	-0.4%	53.7	11.8
2014	2	115	-3.4%	2,601	-3.2%	22,617	0.1%	54.7	12.4
2015	2	104	-9.6%	2,338	-10.1%	22,481	-0.6%	55.6	13.4
2016	2	102	-1.9%	2,316	-0.9%	22,710	1.0%	56.4	14.3
2017	2	87	-14.7%	1,961	-15.3%	22,535	-0.8%	56.9	15.1
2018	2	83	-4.6%	1,866	-4.8%	22,476	-0.3%	57.8	16.0
2019	2	69	-16.9%	1,570	-15.9%	22,757	1.3%	58.5	17.1
2020	2	69	0.0%	1,570	0.0%	22,757	0.0%	59.5	18.1
2021	2	55	-20.3%	1,249	-20.4%	22,702	-0.2%	59.5	18.6
2022	2	53	-3.6%	1,204	-3.6%	22,713	0.0%	60.4	19.9
2023	2	44	-17.0%	1,000	-16.9%	22,732	0.1%	60.3	19.6
2024	2	43	-18.9%	967	-19.7%	22,484	-1.0%	61.4	20.4

¹ For valuations prior to 2013 the annual covered payroll included the payroll of filled and unfilled positions.

Distribution of Active and Special Contributor Members by Age and Service

Attained Age	Years of Credited Service												Total
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	
Under 20	-	-	-	-	-	-	-	-	-	-	-	-	-
20-24	-	-	-	-	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	1	-	-	-	-	-	1
40-44	-	-	-	-	-	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	2	4	2	-	-	-	8
50-54	-	-	-	-	-	-	-	4	4	1	-	-	9
55-59	-	-	-	-	-	-	2	5	4	2	-	-	13
60-64	-	-	-	-	-	-	3	4	5	1	-	1	14
65 & Over	-	-	-	-	-	-	3	5	2	1	3	-	14
Total	-	-	-	-	-	-	11	22	17	5	3	1	59



Schedule of Annuitants by Type of Benefit

Type of Benefit/ Form of Payment (1)	Number (2)	Annual Benefits Amount (3)	Average Monthly Benefit (4)
Service :			
Maximum & QDRO	128	\$ 2,652,945	\$ 1,727
100% J&S	58	1,135,516	1,631
100% Pop-up	31	632,221	1,700
50% J&S	18	378,064	1,750
50% Pop-up	16	353,510	1,841
Subtotal:	251	\$ 5,152,256	\$ 1,711
Disability:			
Maximum	0	\$ 0	\$ 0
Beneficiaries:	85	\$ 1,060,471	\$ 1,040
Total:	336	\$ 6,212,727	\$ 1,541

Distribution of Annuitants by Monthly Benefit

Monthly Benefit Amount	Number of Annuitants	Female	Male	Average Service
(1)	(2)	(3)	(4)	(5)
Under \$200	12	6	6	2.33
\$ 200 - 399	17	10	7	15.59
400 - 599	12	5	7	12.42
600 - 799	20	7	13	13.60
800 - 999	29	19	10	17.07
1,000 - 1,199	29	8	21	17.83
1,200 - 1,399	21	3	18	17.76
1,400 - 1,599	36	11	25	19.78
1,600 - 1,799	41	9	32	20.90
1,800 - 1,999	35	9	26	22.31
2,000 - 2,199	21	6	15	28.71
2,200 - 2,399	17	6	11	27.18
2,400 - 2,599	16	2	14	30.19
2,600 - 2,799	13	3	10	32.62
2,800 - 2,999	5	0	5	29.80
3,000 - 3,199	3	1	2	33.33
3,200 - 3,399	3	1	2	39.33
3,400 - 3,599	0	0	0	0.00
3,600 - 3,799	0	0	0	0.00
3,800 - 3,999	3	0	3	30.67
4,000 - 4,199	3	0	3	29.67
4,200 - 4,399	0	0	0	0.00
4,400 - 4,599	0	0	0	0.00
4,600 - 4,799	0	0	0	0.00
4,800 - 4,999	0	0	0	0.00
5,000 & Over	<u>0</u>	<u>0</u>	<u>0</u>	0.00
Total	336	106	230	20.74

Average age at retirement for service retirees as of July 1, 2024 is age 60.9.

Schedule of Retirants Added to And Removed from Rolls

July 1, (1)	Added to Rolls		Removed from Rolls		Rolls End of the Year		% Increase in Annual Benefit (8)	Average Annual Benefit (9)
	Number (2)	Annual Benefits(\$000) (3)	Number (4)	Annual Benefits(\$000) (5)	Number (6)	Annual Benefits(\$000) (7)		
2010	7	148	14	261	346	6,412	-1.7%	18,532
2011	12	238	5	108	353	6,542	2.0%	18,534
2012	16	251	11	130	358	6,663	1.8%	18,611
2013	22	444	17	353	363	6,754	1.4%	18,606
2014	12	200	20	358	355	6,596	-2.3%	18,581
2015	15	262	8	193	362	6,666	1.1%	18,414
2016	7	109	11	161	358	6,614	-0.8%	18,475
2017	18	345	22	427	354	6,532	-1.2%	18,451
2018	4	55	15	231	343	6,356	-2.7%	18,530
2019	19	290	17	268	345	6,378	0.3%	18,486
2020	7	99	14	217	338	6,260	-1.8%	18,521
2021	16	242	13	217	341	6,285	0.4%	18,432
2022	11	166	15	220	337	6,231	-0.9%	18,490
2023	19	302	20	308	336	6,225	-0.1%	18,527
2024	19	290	20	308	336	6,213	-0.2%	18,490

SECTION E

ASSESSMENT AND DISCLOSURE OF RISK

Risks Associated with Measuring the Accrued Liability And Actuarially Determined Contribution

(As Required by ASOP No. 51)

The determination of GARS accrued liability, actuarially determined contribution, and calculated funding period requires the use of assumptions regarding future economic and demographic experience. The risk measures illustrated in this section are intended to aid stakeholders in understanding the effects when future experience differs from the assumptions used in performing an actuarial valuation. These risk measures may also help with illustrating the potential volatility in the funded status and actuarially determined contributions that result from differences between actual experience and the expected experience based on 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 (economic and demographic) differing from the assumptions, changes in assumptions due to changing conditions, changes in contribution requirements due to modifications to the funding policy, and changes in the liability and cost due to 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 risks that may reasonably be anticipated to significantly affect the System's future financial condition include:

- Investment risk – actual investment returns may differ from expected returns;
- Longevity risk – members may live longer or shorter than expected and receive pensions for a time period different than assumed;
- Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liabilities and contributions differing from expected;
- Salary and payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liabilities and contributions differing from expected;
- Asset/Liability mismatch – changes in assets may be inconsistent with changes in liabilities, thereby altering the relative difference between the assets and liabilities, which may alter the funded status and contribution requirements;
- Contribution risk – actual contributions may differ from expected future contributions. For example, actual contributions are not made in accordance with the System's funding policy or Statute, other anticipated payments to the plan are not made, or material changes occur in the anticipated number of covered employees, covered payroll, or another relevant contribution base.

On the other hand, effects of certain 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 of return, the funded status of the plan can be expected to decrease (or increase) more than anticipated.

Under South Carolina State Statute, the Board must certify the employer contribution annually. This amount is determined actuarially, based on the Board's funding policy. The contribution requirement determined by this actuarial valuation becomes effective twelve months after the valuation date.

Employer Risk with Contribution Requirements

The funding policy is intended to finance the unfunded actuarial accrued liability over a reasonable time period and provide stability in the employer contribution rates so employers are better able to budget their pension cost in future years. However, as the funding period decreases there can be increased short-term volatility in the contribution requirement.

Plan Maturity Measures

Risks faced by a pension plan evolve over time. A relatively new plan with virtually no assets and paying few benefits will experience lower investment risk than a mature plan with a significant amount of assets and large number of members receiving benefits. There are a few measures that can assist stakeholders in understanding and comparing the maturity of a plan to other systems, which include:

- Ratio of market value of assets to payroll: The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. If assets are approximately the same as covered payroll, an investment return that is 5% different than assumed would equal 5% of payroll. In another example, if the assets are approximately twice as large as covered payroll, an investment return that is 5% different than assumed would equal 10% of payroll. A ratio that increases over time generally indicates the potential of an increasing volatility in employer contribution rates as a percentage of payroll.
- Ratio of actuarial accrued liability to payroll: The ratio of actuarial accrued liability to payroll can be used as a measure to indicate the potential volatility of contributions due to volatility in the liability experience. For instance, if the actuarial accrued liability is 5 times the size of the covered payroll, then a change in the liability that is 2% different than expected would be a change in magnitude that is 10% of payroll. A ratio that increases over time generally indicates the potential of an increasing volatility in employer contribution rates as a percentage of payroll.

- Ratio of active to retired members: A relatively mature open plan is likely to have close to the same number of actives to retirees resulting in a ratio that is around 1.0. On the other hand, a super-mature plan, or a plan that is closed to new entrants will have more retirees than active members resulting in a ratio below 1.0. As this ratio declines, a larger portion of the total actuarial accrued liability in the System is attributable to retirees. This metric also typically moves in tandem with the liability to payroll metric, which provides an indication of potential contribution volatility.
- Ratio of net cash flow to market value of assets: A negative net cash flow means that benefit payments exceed contributions and the plan is depending on investment earnings and possibly existing funds to make payments to retirees. A certain amount of negative net cash flow is expected to occur when benefits are prefunded and the plan has matured. However, a relatively large negative net cash flow as a percent of assets may be an indication of the need for additional contributions for a plan with a low funded ratio.

The following exhibit provides a summary of these measures for GARS. We have also included these metrics for the prior four years so stakeholders can identify how these measures are trending.

	July 1,				
	2024	2023	2022	2021	2020
Ratio of the market value of assets to total payroll	52.25	45.56	35.28	34.95	21.95
Ratio of actuarial accrued liability to payroll	68.79	67.85	58.04	57.19	45.49
Ratio of actives to retirees and beneficiaries	0.13	0.13	0.16	0.16	0.20
Ratio of net cash flow to market value of assets	0.4%	0.0%	-0.3%	-0.6%	0.6%

Low-Default-Risk Obligation Measure

Actuarial Standards of Practice No. 4 (ASOP No. 4) was revised and reissued in December 2021 by the Actuarial Standards Board (ASB). It includes a new calculation called a low-default-risk obligation measure (LDROM) to be prepared and issued annually for defined benefit pension plans. The transmittal memorandum for ASOP No. 4 includes the following explanation:

“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.”

The LDROM estimates the amount of money the plan would need to invest in low risk securities to provide the benefits with greater certainty. The current model expects lower costs but with higher investment risk, which creates less certainty and a possibility of higher costs. Thus, the difference between the two measures (Valuation and LDROM) is one illustration of the possible costs the sponsor could incur if there was a reduction in the investment risk in comparison to the current diversified portfolio. However, the downside risk would be limited in the scenarios where the current portfolio would fail to achieve returns in excess of the low-default-risk discount, in this case 5.32%.

The following information has been prepared in compliance with this new requirement. Unless otherwise noted, the measurement date, actuarial cost methods, and assumptions used are the same as for the funding valuation covered in this actuarial valuation report.

Retirement System for Members of the General Assembly	
Valuation Accrued Liability	LDROM
\$66.520 Million	\$77.669 Million

Again, the difference between the two measures, or \$11.149 million, is one illustration of the savings the sponsor anticipates by assuming investment risk in a diversified portfolio.

Disclosures: Discount rate used to calculate LDROM: 5.32% Intermediate FTSE Pension Discount Curve as of June 30, 2024. This measure may not be appropriate for assessing the need for or amount of future contributions as the current portfolio is expected to generate significantly more investment earnings than the low-default-risk portfolio. This measure is also not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan’s benefit obligation as this measure includes projections of salary increases and the ability for current members to continue to accrue eligibility and vesting service.

APPENDIX A

ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Methods and Assumptions

The following presents a summary of the actuarial assumptions and methods used in the valuation of the Retirement System for Members of the General Assembly of South Carolina. The actuarial assumptions are based on an experience study conducted as of July 1, 2023 and adopted by the Board in June 2024.

Investment Rate of Return

Assumed annual rate of 7.00% composed of a 2.25% inflation component and a 4.75% real rate of return, net of investment expenses.

This is a prescribed assumption in Section 9-16-335 of the South Carolina State Code.

Rates of Annual Salary Increase

No increases in salary are assumed.

Active Member Decrement Rates

- a. Assumed rates of service retirement are shown in the following table. In addition to the rates in the table below, members with 30 years of service are assumed to immediately commence their retirement benefit. Special contributors are assumed to retire at the earlier of attaining age 60 or attaining 22 years of service.

Age Based Retirement Rates	
Age	Assumed Rate
59 & Under	50%
60	20%
61-64	7%
65-69	10%
70 & older	100%

- b. An abbreviated table with the assumed rates of disability and mortality while employed is shown below. There is no active employment withdrawal assumption.

Age	Disability Rates		Pre-Retirement Mortality	
	Males	Females	Males	Females
25	0.0225%	0.0150%	0.0410%	0.0120%
30	0.0450%	0.0210%	0.0520%	0.0190%
35	0.0675%	0.0420%	0.0680%	0.0300%
40	0.1125%	0.0540%	0.0960%	0.0470%
45	0.1575%	0.0780%	0.1430%	0.0720%
50	0.2250%	0.1320%	0.2180%	0.1070%
55	0.3600%	0.2100%	0.3200%	0.1570%
60	0.4500%	0.3210%	0.4660%	0.2380%
64	0.5625%	0.4470%	0.6820%	0.3800%
Multiplier	68.0%	58.0%	100%	100%

Note: The multiplier has been applied to the decrement in the illustrative table.

Post Retirement Mortality

- a. Healthy retirees and beneficiaries – The gender-distinct South Carolina Retirees 2020 Mortality Tables. The rates are projected on a fully generational basis by 80% of Scale UMP based on the 2020 MP projection scale to account for future mortality improvements and adjusted with multipliers based on plan experience. The following are sample rates of the base table:

Healthy Annuitant Mortality Rates Before Projection		
Age	Males	Females
50	0.1920%	0.2192%
55	0.3243%	0.2824%
60	0.5751%	0.3863%
65	0.8761%	0.5616%
70	1.4502%	0.9097%
75	2.5442%	1.7869%
80	4.7175%	3.5220%
85	8.5346%	6.8204%
90	14.9914%	12.8871%
Multiplier	97%	107%

Note: The multiplier has been applied to the decrement in the illustrative table.

The following table provides the life expectancy for individuals retiring in future years based on the assumption with full generational projection:

Life Expectancy for an Age 65 Retiree in Years				
Gender	Year of Retirement			
	2025	2030	2035	2040
Male	21.1	21.4	21.6	21.9
Female	23.1	23.4	23.6	23.9

- b. A separate table of mortality rates is used for disabled retirees based on the Pub-2010 Public Retirement Plans Disabled Mortality tables on a fully generational basis by 80% of Scale UMP to account for future mortality and with multipliers based on plan experience. The following are sample rates of the base table:

Disabled Annuitant Mortality Rates		
Age	Males	Females
50	2.2470%	1.9279%
55	2.9596%	2.2646%
60	3.5042%	2.5428%
65	4.2616%	2.9328%
70	5.4614%	3.7206%
75	7.2688%	5.2039%
80	10.2872%	7.8091%
85	15.1410%	12.1303%
90	22.7542%	17.7645%
Multiplier	140%	130%

Note: The multiplier has been applied to the decrement in the illustrative table.

Asset Valuation Method

The actuarial value of assets is equal to the market value, adjusted for the five-year phase in of the actual investment return in excess of (or less than) the expected investment return on a market value of asset basis. The actual return is calculated net of investment expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's market value of assets, adjusted for contributions, benefits paid, and refunds.

Actuarial Cost Method

The Entry Age Normal actuarial cost method allocates the System's actuarial present value of future benefits to various periods based upon service. The portion of the present value of future benefits allocated to years of service prior to the valuation date is the actuarial accrued liability, and the portion allocated to years following the valuation date is the present value of future normal costs. The normal cost is determined for each active member as the level dollar amount necessary to fully fund the expected benefits to be earned over the career of each individual active member. The normal cost is partially funded with active member contributions with the remainder funded by employer contributions.

An unfunded accrued liability exists in the amount equal to the excess of accrued liability over valuation assets. The amortization period of the System is the number of years required to fully amortize the unfunded accrued liability, on an actuarial value of asset basis, with the expected amount of employer contributions in excess of the employers' portion of the normal cost.

Note, the principle financial measurement calculations in this actuarial valuation, which include the unfunded actuarial accrued liability, funded ratio, contributions rates, and funding period, are based on an actuarial value of assets (smoothed value) basis. The actuarial value of assets is a calculated asset value which may be greater than or less than the market value of assets and is used to dampen some of the volatility in the market value of assets. As a result, many of these measures would be different if they were determined on a market value of asset basis.

Future Cost-of-living Increases

No increases are assumed.

Payroll Growth Rate

None assumed.

Other Assumptions

1. The normal cost rate is increased by 0.18% to account for administrative expenses that are paid with plan assets.
2. Percent married: 100% of active members are assumed to be married.
3. Age difference: Males are assumed to be four years older than their spouses.
4. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an immediate life annuity.
5. Inactive Population: All non-vested members are assumed to take an immediate refund. Members with a vested benefit are assumed to elect a refund or a deferred benefit commencing at age 60, whichever is more valuable at the valuation date.
6. It is assumed there will be no recoveries once disabled.
7. Decrement timing: Decrements of all types are assumed to occur mid-year.
8. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
9. Benefit Service: All active and special contributing members are assumed to accrue one year of service each year.

Participant Data

Participant data was securely supplied in electronic text files. There were separate files for (i) active and inactive members, and (ii) members and beneficiaries receiving benefits.

The data for active members included birth date, gender, service with the current employer and total vesting service, salary, and employee contribution account balances. For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and form of payment code.

Salary supplied for the current year was based on the annualized earnings for the year preceding the valuation date. Assumptions were made to correct for missing or inconsistent data. These had no material impact on the results presented.

APPENDIX B

BENEFIT PROVISIONS

Summary of Benefit Provisions for South Carolina General Assembly Retirement System (GARS)

Effective Date: January 1, 1966.

Administration: The South Carolina Public Employee Benefit Authority is responsible for the general administrative operations and day to day management of the Plan.

Type of Plan: This is a qualified governmental defined benefit retirement plan.

Eligibility: All members of the General Assembly who acquired office prior to the 2012 general election are required to participate, unless exempted by Statute. Members with eight (8) or more years of credited service that cease membership in the General Assembly may elect to continue earning future service in the system by contributing the required membership contributions (i.e. special contributing member).

Employee Contributions: Effective January 1, 2013, the active member contribution rate increased from 10% to 11% of compensation. Member contributions are credited with interest at the rate of 4.0% per annum. Retired members who are serving in office do not make employee contributions to the system.

Earnable Compensation: \$10,400 annually plus 40 times the daily rate of remuneration (i.e. \$22,400 in total earnable compensation annually). Certain line-item additional compensation for specified offices is also included.

Service Retirement:

- a. **Eligibility:** A member may retire upon the attainment of age 60 or completing 30 years of credited service, if earlier. Members may commence their benefit before retiring from service upon the attainment of age 70 or after accruing 30 years of service.
- b. **Monthly Benefit:** 4.82% of earnable compensation times credited service.
- c. **Payment Form:** Standard annuity payment



Disability Retirement:

- a. Eligibility: Members must have five or more years of credited service, unless the disability is due to performing his or her duties.
- b. Monthly Benefit: The member will receive a service retirement benefit if they become disabled after attaining the age of 60 or completed at least 35 years of credited service. Otherwise the member will receive a benefit that is equal to the larger of 1. or 2. below.
 - 1. 50% of the retirement benefit that would have been payable had he continued service to the earlier of age 60 or 35 years of credited service and his earnable compensation had remained unchanged.
 - 2. 100% of the retirement benefit based on the member's service and earnable compensation at the time of his disability.
- c. Payment Form: Standard annuity payment
- d. Death while Disabled: A disabled member is treated as a retired member for purposes of determining a death benefit.

Vesting and Refunds:

- a. Eligibility: All members who are not vested are eligible for a refund when they terminate service. Members are vested after eight (8) years of credited service. Vested members may also elect to receive a refund in lieu of the deferred termination benefit described below.
- b. Amount: The refund benefit is the accumulated value of the member's contributions plus interest credited by the fund. Members do not earn interest on their employee contribution account balance while they are inactive.

Deferred Termination Benefit:

- a. Eligibility: Member must be vested (8 years of credited service) and must elect to leave his/her contributions on deposit.
- b. Monthly Benefit: Same as the service retirement benefit, based on service and earnable compensation at termination, and commencing once the member is eligible. Note, special contributors continue to accrue benefits under the system until the earlier of 22 years of creditable service or age 60.
- c. Payment Form: Standard annuity payment
- d. Death Benefit: The beneficiary of an inactive member who dies is entitled to receive the amount of the member's accumulated contributions (with interest).

Death while an Active Member:

- a. In General: A refund of the member's accumulated contributions (with interest) is paid to the beneficiary of a deceased member.
- b. Beneficiary Annuity: If the deceased member had attained the age of 60 or had accumulated 15 or more years of creditable service, the beneficiary may elect to receive, in lieu of the accumulated contributions, a monthly benefit for life of the beneficiary.

Optional Forms of Benefit: The System permits members to elect certain optional forms of benefit at retirement. In each case the benefit amount is adjusted to be actuarially equivalent to the "Maximum Option" form. The optional forms of payment include:

- a. Maximum Option: A life annuity. Upon the member's death, any remaining member contributions and interest will be paid to the member's designated beneficiary.
- b. Option 1 (100% Joint & Survivor): A reduced annuity payable as long as either the member or his/her beneficiary is living.
- c. Option 1A (100% Joint & Survivor with a revert to Maximum Option feature): A reduced annuity payable as long as either the member or his/her beneficiary is living. In the event the member's designated beneficiary predeceases the member, then the member shall receive a retirement allowance equal to the maximum option.
- d. Option 2 (50% Joint & Survivor): A reduced annuity payable during the member's life, and continues after the member's death at 50% of the rate paid to the member for the life of the member's designated beneficiary.
- e. Option 2B (50% Joint & Survivor with a revert to Maximum Option feature): A reduced annuity payable during the member's life, and continues after the member's death at 50% of the rate paid to the member for the life of the member's designated beneficiary. In the event the member's designated beneficiary predeceases the member, then the member shall receive a retirement allowance equal to the maximum option.

Incidental Death Benefit:

- a. Active Employees: The beneficiary (or estate) of an active employee who completes at least one full year of membership service will receive a death benefit equal to the member’s annual earnable compensation at the time of death.

The one full year membership requirement is waived for members whose death is a result of an injury arising out of and in the course of performing his duties.

- b. Post Employment: The beneficiary (or estate) of a retiree, both current and future, will receive a one-time payment upon the retiree’s death. The amount of the one-time payment is based on the retiree’s credited service.

Years of Service Credit	Death Benefit
10 or more, but less than 20	\$1,000
20 or more, but less than 30	\$2,000
30 or more	\$3,000

Postretirement Benefit Increases: Retired members and beneficiaries will receive an adjustment to their benefit equal to the same percentage increase that the General Assembly approves in earnable compensation for active GARS members.

APPENDIX C

GLOSSARY

Glossary

Actuarial Accrued Liability (AAL): That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of Future Plan Benefits which is not provided for by future Normal Costs. It is equal to the Actuarial Present Value of Future Plan Benefits minus the actuarial present value of future Normal Costs.

Actuarial Assumptions: Assumptions as to future experience under the Fund. These include assumptions about the occurrence of future events affecting costs or liabilities, such as:

- mortality, withdrawal, disablement, and retirement;
- future increases in salary;
- future rates of investment earnings and future investment and administrative expenses;
- characteristics of members not specified in the data, such as marital status;
- characteristics of future members;
- future elections made by members; and
- other relevant items.

Actuarial Cost Method or Funding Method: A procedure for allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability. These items are used to determine the ADC.

Actuarial Gain or Actuarial Loss: A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., the Fund's assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results that produce actuarial liabilities which are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.

Actuarially Equivalent: Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.

Actuarial Present Value (APV): The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:

- a. adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.)
- b. multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned, and
- c. discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits: The Actuarial Present Value of those benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members either entitled to a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.

Actuarial Valuation: The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial valuation for a governmental retirement system typically also includes calculations that provide the financial information of the plan, such as the funded ratio, unfunded actuarial accrued liability and the ADC.

Actuarial Value of Assets or Valuation Assets: The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly actuaries use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.

Actuarially Determined: Values which have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.

Actuarially Determined Contribution (ADC): The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation. The ADC consists of the Employer Normal Cost and the Amortization Payment.

Amortization Method: A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.

Amortization Payment: That portion of the pension plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Closed Amortization Period: A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Funding Period and Open Amortization Period.

Decrements: Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.

Defined Benefit Plan: A retirement plan that is not a Defined Contribution Plan. Typically a defined benefit plan is one in which benefits are defined by a formula applied to the member's compensation and/or years of service.



Defined Contribution Plan: A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, and the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.

Employer Normal Cost: The portion of the Normal Cost to be paid by the employers. This is equal to the Normal Cost less expected member contributions.

Experience Study: A periodic review and analysis of the actual experience of the Fund which may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.

Funded Ratio: The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA, although GASB 25 reporting requires the use of the AVA.

Funding Period or Amortization Period: The term "Funding Period" is used two ways. In the first sense, it is the period used in calculating the Amortization Payment as a component of the ADC. This funding period is chosen by the Board of Trustees. In the second sense, it is a calculated item: the number of years in the future that will theoretically be required to amortize (i.e., pay off or eliminate) the Unfunded Actuarial Accrued Liability, based on the statutory employer contribution rate, and assuming no future actuarial gains or losses.

GASB: Governmental Accounting Standards Board.

GASB 67 and GASB 68: Governmental Accounting Standards Board Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting and reporting rules for public retirement systems and the employers that sponsor, participate in, or contribute to them. Statement No. 67 sets the accounting rules for the financial reporting of the retirement systems, while Statement No. 68 sets the rules for the employers that sponsor, participate in, or contribute to public retirement systems.

Normal Cost: That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits which are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated. Under the entry age normal cost method, the Normal Cost is intended to be the level cost (when expressed as a percentage of pay) needed to fund the benefits of a member from hire until ultimate termination, death, disability or retirement.

Open Amortization Period: An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.

Unfunded Actuarial Accrued Liability: The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.



Valuation Date or Actuarial Valuation Date: The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.