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May 15, 2024

Dr. L. C. Evans
Executive Director
Teachers Retirement System of Georgia
Suite 100, Two Northside 75
Atlanta, GA 30318

Dear Dr. Evans:

Enclosed are 20 bound copies of the "Teachers Retirement System of Georgia Report of the Actuary on the Valuation Prepared as of June 30, 2023".

The valuation indicates that employer contributions at the rate of 21.91% of compensation for the fiscal year ending June 30, 2026 are sufficient to support the benefits of the System. The valuation takes into account the effect of all amendments to the System enacted through the 2023 Session of the General Assembly.

Please let us know if there are any questions concerning the report.

Sincerely yours,

John J. Garrett, ASA, FCA, MAAA
Principal and Consulting Actuary

Edward J. Koebel, EA, FCA, MAAA
Chief Executive Officer

Cathy Turcot
Principal and Managing Director

Enclosure

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Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve

Teachers Retirement System of Georgia

TEACHERS RETIREMENT SYSTEM OF GEORGIA

REPORT OF THE ACTUARY ON THE VALUATION PREPARED AS OF JUNE 30, 2023

www.CavMacConsulting.com

May 15, 2024

Board of Trustees
Teachers Retirement System of Georgia
Suite 100, Two Northside 75
Atlanta, GA 30318

Members of the Board:

Section 47-3-23 of the law governing the operation of the Teachers Retirement System of Georgia provides that the actuary shall make annual valuations of the contingent assets and liabilities of the Retirement System on the basis of regular interest and the tables last adopted by the Board of Trustees. We have submitted the report giving the results of the actuarial valuation of the System prepared as of June 30, 2023. The report indicates that annual employer contributions at the rate of 21.91% of compensation for the fiscal year ending June 30, 2026 are sufficient to support the benefits of the System. Our firm, as actuary, is responsible for all of the actuarial trend data in the financial section of the annual report and the supporting schedules in the actuarial section of the annual report.

In our opinion, the valuation is complete and accurate, and the incorporated methodology and assumptions are reasonable as a basis for the valuation. The valuation takes into account the effect of all amendments to the System enacted through the 2023 Session of the General Assembly. In preparing the valuation, the actuary relied on data provided by the System. While not verifying data at the source, the actuary performed tests for consistency and reasonableness.

The System is funded on an actuarial reserve basis. The actuarial assumptions recommended by the actuary and adopted by the Board are both individually and, in the aggregate, reasonably related to the experience under the System and to reasonable expectations of anticipated experience under the System. The assumptions and methods used for funding and financial reporting purposes meet the parameters set by Actuarial Standards of Practice (ASOPs). The funding objective of the plan is that contribution rates over time will remain level as a percent of payroll. The valuation method used is the entry age normal cost method. The normal contribution rate to cover current cost has been determined as a level percent of payroll. Gains and losses are reflected in the unfunded accrued liability, which is amortized as a level percent of payroll in accordance with the funding policy adopted by the Board.

The Plan and the employers are required to comply with the financial reporting requirements of GASB Statements No. 67 and 68. The necessary disclosure information is provided in separate supplemental reports.

We have provided the following information and supporting schedules for the Actuarial Section of the Annual Comprehensive Annual Report:

- Summary of Actuarial Assumptions and Methods
- Schedule of Active Members
- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Schedule of Funding Progress
- Analysis of Financial Experience

The System is being funded in conformity with the minimum funding standard set forth in Code Section 47-20-10 of the Public Retirement Systems Standards Law. In our opinion, the System is operating on an actuarially sound basis. Assuming that contributions to the System are made by the employer from year to year in the future at the rates recommended on the basis of the successive actuarial valuations, the continued sufficiency of the retirement fund to provide the benefits called for under the System may be reasonably anticipated.

In order to prepare the results in this report, we have utilized actuarial models that were developed to measure liabilities and develop actuarial costs. These models include tools that we have produced and tested, along with commercially available valuation software that we have reviewed to confirm the appropriateness and accuracy of the output. In utilizing these models, we develop and use input parameters and assumptions about future contingent events along with recognized actuarial approaches to develop the needed results.

Future actuarial results may differ significantly from the current results 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. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the System. Use of these computations for purposes other than meeting these requirements may not be appropriate.

This is to certify that John Garrett and Ed Koebel are members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

Sincerely yours,

John Garrett

John J. Garrett, ASA, FCA, MAAA
Principal and Consulting Actuary

Edward J. Koebel

Edward J. Koebel, EA, FCA, MAAA
Chief Executive Officer

Cathy Turcot

Cathy Turcot
Principal and Managing Director

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Section I – Summary of Principal Results

1. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized below (all dollar amounts are in thousands):

Valuation Date	June 30, 2023	June 30, 2022
Discount Rate	**6.90%**	**6.90%**
Number of active members	235,920	230,326
Annual earnable compensation	$ 14,306,169	$ 13,224,129
Number of retired members and beneficiaries	148,101	144,043
Annual allowances	$ 6,026,978	$ 5,760,294
Assets:		
Fair value	$ 94,991,195	$ 87,122,859
Actuarial value	99,312,538	96,867,918
Unfunded actuarial accrued liability	$ 27,653,328	$ 23,622,637
Blended amortization period (years)	21.4	21.9
Funded ratio based on Actuarial Value of Assets	78.2%	80.4%
Contributions for Fiscal Year Ending	**June 30, 2026**	**June 30, 2025**
Member contribution rate	6.00%	6.00%
Actuarially Determined Employer Contribution Rates (ADEC):		
Normal*	8.62%	8.65%
Unfunded actuarial accrued liability	13.29	12.13
Total	21.91%	20.78%

* The normal contribution includes administrative expenses of 0.20% of payroll.

2. The valuation takes into account the effect of amendments of the System enacted through the 2023 session of the General Assembly. The major benefit and contribution provisions of the System as reflected in the current valuation are summarized in Schedule H. There have been no changes since the previous valuation.

3. Comments on the valuation results as of June 30, 2023 are given in Section IV and further discussion of the employer contribution levels is provided in Section V.

4. Schedule D of this report outlines the full set of actuarial assumptions and asset method used to prepare the current valuation. There have been no changes since the previous valuation.

5. The entry age actuarial cost method was used to prepare the valuation. Schedule E contains a brief description of this method.

6. The funded ratio shown in the Summary of Principal Results is the ratio of the actuarial value of assets to the accrued liability and would be different if based on fair value of assets. The funded ratio is an indication of progress in funding the promised benefits. Since the ratio is less than 100%, there is a need for additional contributions toward payment of the unfunded actuarial accrued liability. In addition, this funded ratio does not have any relationship to measuring sufficiency if the plan had to settle its liabilities.

Section II – Membership

1. The data we received for the 2023 valuation was provided by the Retirement System. While not verifying the data at its source, we performed tests for consistency and reasonableness.

2. The following table shows the number of teachers and their annual earnable and average compensation as of June 30, 2023 on whose account benefits may be payable under the Retirement System. The annual compensation for each active member was provided by the Retirement System and was used without adjustment.

THE NUMBER AND ANNUAL EARNABLE AND AVERAGE COMPENSATION OF ACTIVE MEMBERS AS OF JUNE 30, 2023

TOTAL NUMBER	ANNUAL COMPENSATION ($1,000's)	AVERAGE COMPENSATION
235,920	$14,306,169	$60,640

3. The following table shows the number of beneficiaries on the roll as of June 30, 2023, together with the amount of their annual retirement allowances payable under the System as of that date.

THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES OF BENEFICIARIES ON THE ROLL AS OF JUNE 30, 2023

GROUP	NUMBER	ANNUAL RETIREMENT ALLOWANCES ($1,000's)
Service Retirements	132,968	$ 5,616,180
Disability Retirements	4,633	117,172
Beneficiaries of Deceased Active and Retired Members	10,500	293,626
Total	148,101	$ 6,026,978

4. In addition, the results of the valuation include liabilities for 137,488 terminated employees not yet receiving benefits.

Section III – Assets

1. The retirement law provides for the maintenance of two funds for the purpose of recording the financial transactions of the System; namely, the Annuity Savings Fund and the Pension Accumulation Fund.

   (a) ***Annuity Savings Fund***

   The Annuity Savings Fund is the fund to which are credited all contributions made by members together with regular interest thereon. When a member retires, or if a death benefit allowance becomes payable to the member's beneficiary, the member's accumulated contributions are transferred from the Annuity Savings Fund to the Pension Accumulation Fund. The annuity which these contributions provide is then paid from the Pension Accumulation Fund. On June 30, 2023, the value of assets credited to the Annuity Savings Fund amounted to $11,806,674,000.

   (b) ***Pension Accumulation Fund***

   The Pension Accumulation Fund is the fund to which all income from investments and all contributions made by employers of members of the System and by the State for members of local retirement funds are credited. All retirement allowance and death benefit allowance payments are disbursed from this fund. Upon the retirement of a member, or upon death if a death benefit allowance is payable, the member's accumulated contributions are transferred from the Annuity Savings Fund to this fund to provide the annuity portion of the allowance. On June 30, 2023, the fair value of assets credited to the Pension Accumulation Fund amounted to $83,184,521,000.

2. As of June 30, 2023, the total fair value of assets amounted to $94,991,195,000 as reported by the auditor of the System. The actuarial value of assets as of June 30, 2023 was determined to be $99,312,538,000 based on a 5-year smoothing of investment gains and losses. Schedule B shows the development of the actuarial value of assets.

3. Schedule C shows receipts and disbursements of the System for the two years preceding the valuation date and a reconciliation of the fund balances at fair value.

Section IV – Comments on Valuation

1. Schedule A of this report contains the valuation balance sheet which shows the present and prospective assets and liabilities of the System as of June 30, 2023 (all amounts are in thousands).

2. The valuation balance sheet shows that the System has total liabilities of $142,764,566, of which $74,384,034 is for the prospective benefits payable on account of present retired members and beneficiaries of deceased members and $68,380,532 is for the prospective benefits payable on account of present active and inactive members and members entitled to deferred vested benefits. Against these liabilities, the System has total present assets for valuation purposes of $99,312,538 as of June 30, 2023. The difference of $43,452,028 between the total liabilities and the total present assets represents the present value of contributions to be made in the future. Of this amount, $6,621,688 is the present value of future contributions expected to be made by members to the Annuity Savings Fund, and the balance of $36,830,340 represents the present value of future contributions payable by the employer.

3. The employer contributions to the System consist of normal contributions and unfunded actuarial accrued liability (UAAL) contributions. The valuation indicates that employer normal contributions at the rate of 8.62% of payroll are required, in addition to member contributions, to provide the benefits of the System for the average new member.

4. Prospective normal contributions, excluding administrative expenses, have a present value of $9,177,012. When this amount is subtracted from $36,830,340, which is the present value of the total future contributions to be made by the employer, there remains $27,653,328 as the amount of future UAAL contributions.

Section IV – Comments on Valuation

5. The funding policy of the Board, as shown in Schedule F, provides that the UAAL as of June 30, 2021 (Transitional UAAL) will be amortized as a level percent of pay over a closed period equal to an amortization period not to exceed 23 years as of June 30, 2021. In each subsequent valuation all benefit changes, assumption and method changes and experience gains and/or losses that have occurred since the previous valuation will determine a New Incremental UAAL. Each New Incremental UAAL will be amortized as a level percent of payroll over a closed 25-year period from the date it is established.

6. The total UAAL contribution rate is 13.29% of payroll, determined in accordance with the Board's funding policy. The UAAL contribution rate has been calculated on the assumption that the aggregate amount of the accrued liability contribution will increase by 2.50% each year.

7. Schedule G of this report shows the amortization schedules for the Transitional UAAL and New Incremental UAALs.

8. The following table shows the components of the total UAAL and the derivation of the UAAL contribution rate in accordance with the funding policy:

TABLE 4
TOTAL UAAL AND UAAL CONTRIBUTION RATE
(Dollar amounts in thousands)

	UAAL	REMAINING AMORTIZATION PERIOD (YEARS)	AMORTIZATION PAYMENT
Transitional 6/30/2021	$21,492,440	20.6	$1,632,427
New Incremental 6/30/2022	2,030,362	24.0	140,615
New Incremental 6/30/2023	4,130,526	25.0	279,461
Total UAAL	$27,653,328		$2,052,503
Amortization payment adjusted for timing			$1,984,053
Blended amortization period (years)			21.4
Estimated payroll			$14,925,897
UAAL contribution rate			13.29%

Section V – Contributions Payable by Employers

1. The Teachers Retirement System funding policy provides for periodic employer contributions at rates which, expressed as a percent of annual covered payroll, are sufficient to provide resources to pay benefits when due without being increased for future generations of taxpayers.
2. The retirement law provides that the contributions of employers shall be a percentage of the compensation of active members consisting of a normal contribution rate and an unfunded actuarial accrued liability (UAAL) contribution rate as determined by actuarial valuation.
3. Normal contributions include 0.20% of compensation that is required to meet the expenses of administering the System.
4. Based on the total employer contribution rate of 21.91% of payroll, the UAAL contribution rate is 13.29% of payroll, which will amortize the UAAL in accordance with the Board's funding policy.
5. The following table summarizes the employer contribution rates, which were determined by the June 30, 2023 valuation and are recommended for use.

ACTUARIALLY DETERMINED EMPLOYER CONTRIBUTION RATES (ADEC)
FOR FISCAL YEAR ENDING JUNE 30, 2026

CONTRIBUTION	PERCENTAGE OF ACTIVE MEMBERS' COMPENSATION
Normal	8.62%
Unfunded Actuarial Accrued Liability	13.29
Total	21.91%

Section VI – Accounting Information

The information required under Governmental Accounting Standard Board (GASB) Statements No. 67 and No. 68 will be issued in separate reports. The following information is provided for informational purposes only.

1. The following is a distribution of the number of employees by type of membership:

NUMBER OF ACTIVE AND RETIRED MEMBERS
AS OF JUNE 30, 2023

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	148,101
Terminated employees not yet receiving benefits	137,488
Active plan members	235,920
Total	521,509

2. The schedule of funding progress is shown below.

SCHEDULE OF FUNDING PROGRESS
(Dollar amounts in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) - Entry Age (b)	Unfunded AAL (UAAL) (b – a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b – a) / c)
6/30/2018	$75,024,364	$96,905,253	$21,880,889	77.4%	$11,704,334	186.9%
6/30/2019*	78,126,922	101,839,399	23,712,477	76.7	11,882,828	199.6
6/30/2020	81,632,571	107,188,775	25,556,204	76.2	12,737,375	200.6
6/30/2021*	94,048,970	115,703,567	21,654,597	81.3	12,728,936	170.1
6/30/2022	96,867,918	120,490,555	23,622,637	80.4	13,224,129	178.6
6/30/2023	99,312,538	126,965,866	27,653,328	78.2	14,306,169	193.3

* Reflects change in assumptions

Section VI – Accounting Information

3. The following shows the schedule of employer contributions.

Year Ending	Actuarially Determined Employer Contribution (ADEC)	Percentage Contributed
6/30/2018	$ 2,018,724	100%
6/30/2019	2,566,403	100
6/30/2020	2,738,818	100
6/30/2021	2,495,527	100
6/30/2022	2,696,714	100
6/30/2023	2,929,096	100

4. The information presented above was determined as part of the actuarial valuation at June 30, 2023. Additional information as of the latest actuarial valuation follows.

Valuation date	6/30/2023
Actuarial cost method	Entry age
Amortization method	Level percent of pay, closed
Remaining amortization period	21.4 years
Asset valuation method	5-year smoothed fair market value
Actuarial assumptions:	
Investment rate of return (discount rate)*	6.90%
Projected salary increases*	3.00 – 8.75%
Cost-of-living adjustments	1.5% semi-annually

** Includes inflation at 2.50%*

Section VII – Experience

1. Section 47-3-23 of the act governing the operation of the System provides that as an aid to the Board in adopting service and mortality tables, the actuary will prepare an experience investigation at least once in each 5-year period. The last investigation was prepared for the 5-year period ending June 30, 2018, and based on the results of the investigation, new rates of separation and mortality were adopted by the Board on May 13, 2020. The next experience investigation will be prepared for the 5-year period July 1, 2018 through June 30, 2023.

2. The following table shows the estimated gain or loss from various factors that resulted in an increase of $4,030,691,000 in the unfunded actuarial accrued liability from $23,622,637,000 to $27,653,328,000 during the fiscal year ending June 30, 2023.

ANALYSIS OF THE CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY
(Dollar amounts in millions)

ITEM	AMOUNT OF INCREASE/ (DECREASE)
Interest (6.90%) added to previous UAAL	$ 1,630.0
Accrued liability contribution	(1,982.5)
Experience (Gain)/Loss:	
Valuation asset growth	1,932.9
Pensioners' mortality	106.1
Turnover and retirements	135.7
New entrants and Rehires	239.8
Salary increases	1,768.4
Assumption and Method changes	0.0
Miscellaneous	200.3
Total Change in UAAL	$ 4,030.7

3. The following is a brief description of the items contributing to the change in the unfunded actuarial accrued liability (UAAL) for the year:

<u>Interest:</u> The increase in the UAAL due to interest based on the assumed rate in effect for the year was $1,630.0 million (6.90% assumed for July 1, 2022 through June 30, 2023).

<u>Accrued Liability Contribution:</u> The decrease due to the contribution made during the year that was allocated to amortization of the UAAL was $1,982.5 million. This is the portion of the total employer contribution received during the year in excess of the employer normal cost.

<u>Valuation Asset Growth:</u> The increase in the UAAL due to valuation asset growth recognized for the year ending June 30, 2023, was $1,932.9 million. This loss represents the difference between the expected actuarial value of assets and the actual actuarial value of assets. The expected actuarial value of assets is determined by adding the actuarial value of assets from the prior valuation, non-investment related cash flow during the year and interest expected to be earned during the year at the assumed rate (6.90%). The estimated return on actuarial value of assets is 4.88% for the fiscal year ending June 30, 2023.

<u>Pensioner Mortality:</u> The increase in the UAAL due to pensioner mortality for the year was $106.1 million. This is primarily due to fewer members dying during the year than anticipated based on the mortality tables adopted by the Board.

<u>Turnover and Retirements:</u> There was an increase in the UAAL due to turnover and retirements during the year of $135.7 million. This loss occurred because the number and demographics of terminations and retirements are different than anticipated based on the assumptions adopted by the Board. In addition, this item includes the impact of benefits for new retired members that were greater than anticipated based on the prior year's valuation data (this includes unexpected service increases due to sick leave conversion and service purchase and unanticipated salary increases in the year of retirement).

<u>New Entrants:</u> The increase in the liability due to new entrants was $239.8 million. This represents the accrued liability at the valuation date for new entrants hired during the year. This also includes members who returned to service with prior service credit.

<u>Salary Increases:</u> There was an increase in the UAAL of $1,768.4 million because the salary increases actually received by active members during the year were more than those anticipated based on the assumed salary increase rates adopted by the Board.

<u>Miscellaneous:</u> Other items contributing to the change in the UAAL totaled to an increase in the UAAL of $200.3 million. This includes all gains or losses not specified above. One such item is the loss that occurred for members who purchased service at less than full actuarial cost (such as withdrawn service). Another item is a loss that occurred because the data received to prepare the valuation was different than expected from the previous year (items such as birth dates or service for active members and birth dates, options, or benefit amounts for retired members)

Section VIII – Risk Assessment

Overview

Actuarial Standards of Practice (ASOP) No. 51, issued by the Actuarial Standards Board, provides guidance on assessing and disclosing risks related to pension plan funding. This guidance is binding on all credentialed actuaries practicing in the United States. This standard was issued as final in September 2017 with application to measurement dates on or after November 1, 2018.

The term "risk" frequently has a negative connotation, but from an actuarial perspective, it may be thought of as simply the fact that what actually happens in the real world will not always match what was expected, based on actuarial assumptions. Of course, when actual experience is better than expected, the favorable risk is easily absorbed. The risk of unfavorable experience will likely be unpleasant, and so there is an understandable focus on aspects of risk that are negative.

Risk usually can be reduced or eliminated at some cost. Consumers, for example, buy auto and home insurance to reduce the risk of accidents or catastrophes. Another way to express this concept, however, is that there is generally some reward for assuming risk. Thus, retirement plans invest not just in US Treasury bonds which have almost no risk, but also in equities which are considerably riskier – because they have an expected reward of a higher return that justifies the risk.

Under ASOP 51, the actuary is called on to identify the significant risks to the pension plan and provide information to help those sponsoring and administering the plan understand the implications of these risks. In this section, we identify some of the key risks for the System and provide information to help interested parties better understand these risks.

Investment Risk

The investment return on assets is the most obvious risk – and usually the largest risk – to funding a pension plan. To illustrate the magnitude of this risk, the following chart shows the Asset Volatility Ratio (AVR), defined as the fair value of assets divided by covered payroll.

($ in thousands)

Valuation	Fair Value of Assets	Covered Payroll	Asset Volatility Ratio
2018	$75,532,925	$11,704,334	6.45
2019	$78,788,937	$11,882,828	6.63
2020	$81,161,558	$12,737,375	6.37
2021	$102,146,688	$12,728,936	8.02
2022	$87,122,859	$13,224,129	6.59
2023	$94,991,195	$14,306,169	6.64

The asset volatility ratio is especially useful to compare across plans or through time. It is also frequently useful to consider how the AVR translates into changes in the Required Contribution Rate (actuarially determined employer contribution rate). For example, in the table below with an AVR of 7.0, if the market value return is 10% below assumed, or negative 3.10% (6.90% minus 10.00%) for the System, there will be an increase in the Required Contribution Rate of 0.92% of payroll in the first year. Without asset smoothing or without returns above the expected return in the next four years, the impact on the Required Contribution Rate would be 4.62%. A higher AVR would produce more volatility in the Required Contribution Rate.

AVR	Unsmoothed Amortization	Smoothed Amortization
6.0	3.96%	0.79%
7.0	4.62%	0.92%
8.0	5.28%	1.06%

Section VIII – Risk Assessment

Sensitivity Measures

Valuations are generally performed with a single set of assumptions that reflects the best estimate of future conditions, in the opinion of the actuary and typically the governing board. Note that under actuarial standards of practice, the set of economic assumptions used for funding must be consistent. To enhance the understanding of the importance of an assumption, a sensitivity test can be performed where the valuation results are recalculated using a different assumption or set of assumptions.

The following tables contains the key measures for the System using the valuation assumption for investment return of 6.90%, along with the results if the assumption were 5.90% or 7.90%. In this analysis, only the investment return assumption is changed. Consequently, there may be inconsistencies between the investment return and other economic assumptions such as inflation or payroll increases. In addition, simply because the valuation results under alternative assumptions are shown here, it should not be implied that CavMac believes that either assumption (5.90% or 7.90%) would comply with actuarial standards of practice.

($ in thousands)

As of June 30, 2023	Current Discount Rate (6.90%)	-1% Discount Rate (5.90%)	+1% Discount Rate (7.90%)
Accrued Liability	$126,965,866	$144,686,547	$112,513,059
Unfunded Liability	$27,653,328	$45,374,009	$13,200,521
Funded Ratio (AVA)	78.2%	68.6%	88.3%
ADEC Rate*	21.91%	32.08%	13.01%

* Contribution rates are determined based on the Board's Funding Policy

Section VIII – Risk Assessment

Mortality Risk

The mortality assumption is a significant assumption for valuation results, second only to the investment assumption in most situations. The System's mortality assumption utilizes a mortality table (with separate rates for males and females, as well as different rates by status) and a generational projection scale to build in an expected degree of improvement to the member's mortality experience through time.

The future, however, is not known, and actual mortality improvements may occur at a faster rate than expected, or at a slower rate than expected. Although changes in mortality will affect the benefits paid, this assumption is carefully studied during the regular experience studies that the System conducts so that incremental changes can be made to smoothly reflect emerging experience. The risk to the System due to mortality is significantly reduced due to the use of the generational improvement method.

Contribution Risk

The System is primarily funded by member and employer contributions to the trust fund, together with the earnings on those accumulated contributions. Each year in the valuation, the Actuarial Determined Employer Contribution (ADEC) rate is determined, based on the System's funding policy. This rate is the sum of the rates for the normal cost for the plan (which includes expected administrative expenses), and the rate necessary to amortize the UAAL. Since the level percentage of payroll method is utilized to determine the UAAL amortization amounts, there is an expectation that future payments will grow at the assumed 3.00% annual rate of increase in covered payroll. If payroll grows at a slower rate, under this amortization method, less than expected UAAL amortization payments would result in a greater UAAL in future years and may require increases to either the amortization rate or the amortization period. From a policy perspective, since the ADEC rate has always been made by the plan sponsors, and that procedure is expected to continue, there is no risk to the System associated with the contribution amounts being less than the ADEC.

Liquidation Risk

Under the revised Actuarial Standards of Practice (ASOP) No. 4 effective for valuations after February 15, 2023, we must now include a low-default-risk obligation measure of the System's liability in our funding valuation report. This is an informational disclosure as described below and would not be appropriate for assessing the funding progress or health of this plan.

This measure uses the unit credit cost method and reflects all the assumptions and provisions of the funding valuation except that the discount rate is derived from considering low-default-risk fixed income securities. We considered the FTSE Pension Discount Curve based on market bond rates published by the Society of Actuaries as of June 30, 2023 and with the 30-year spot rate used for all durations beyond 30. Using these assumptions, we calculate a low-default-risk obligation measure liability of approximately $143.6 billion.

This amount approximates the termination liability if the plan (or all covered employment) ended on the valuation date and all of the accrued benefits had to be paid with cash-flow matched bonds. This assurance of funded status and benefit security is typically more relevant for corporate plans than for governmental plans since governments rarely have the need or option to completely terminate a plan.

Schedule A – Valuation Balance Sheet

THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES OF THE TEACHERS RETIREMENT SYSTEM OF GEORGIA AS OF JUNE 30, 2023 (Dollar amounts in thousands)

ASSETS		
Actuarial value of assets		$ 99,312,538
Present value of future member contributions to Annuity Savings Fund		6,621,688
Present value of future employer contributions to the Pension Accumulation Fund:		
Normal contributions	$ 9,177,012	
Unfunded actuarial accrued liability contributions	27,653,328	
Total Prospective Employer Contributions		36,830,340
Total Assets		$ 142,764,566
LIABILITIES		
Present value of prospective benefits payable on account of present retired members and beneficiaries of deceased members		$ 74,384,034
Present value of prospective benefits payable on account of present active and inactive members and members entitled to deferred vested benefits		68,380,532
Total Liabilities		$ 142,764,566

Schedule B – Development of Actuarial Value of Assets

(Dollar amounts in thousands)

(1)		Actuarial Value Beginning of Year	$ 96,867,918
(2)		Fair Value End of Year	94,991,195
(3)		Fair Value Beginning of Year	87,122,859
(4)		Cash Flow	
	(a)	Contributions	3,840,638
	(b)	Benefit Payments	6,046,840
	(c)	Administrative Expenses	23,285
	(d)	Investment Expenses	57,907
	(e)	Net: (4)(a) - (4)(b) - 4(c) - 4(d)	(2,287,394)
(5)		Investment Income	
	(a)	Fair Total: (2) - (3) - (4)(e)	10,155,730
	(b)	Assumed Rate	6.90%
	(c)	Amount for Immediate Recognition: [(3) x (5)(b)] + {[(4)(a) - (4)(b) – 4(c)] x (5)(b) x 0.5} + (4)(d)	5,992,467
	(d)	Amount for Phased-In Recognition: (5)(a) – (5)(c)	4,163,263
(6)		Phased-In Recognition of Investment Income	
	(a)	Current Year	832,653
	(b)	First Prior Year	(3,948,190)
	(c)	Second Prior Year	2,249,234
	(d)	Third Prior Year	(305,852)
	(e)	Fourth Prior Year	(88,298)
	(f)	Total Recognized Investment Gain	(1,260,453)
(7)		Preliminary Value End of Year: (1) + (4)(e) + 5(c) + (6)(f)	$ 99,312,538
(8)		Corridor	
	(a)	75% of Fair Value: 0.75 x (2)	$ 71,243,396
	(b)	125% of Fair Value: 1.25 x (2)	$ 118,738,994
(9)		Actuarial Value End of Year: (7), but not less than (8)(a) and not greater than (8)(b)	$ 99,312,538
(10)		Difference Between Fair & Actuarial Values: (2) - (9)	$ (4,321,343)
(11)		Estimated Rate of Return on Actuarial Value*	4.88%

* Calculated assuming mid-year cash flow

Schedule C – Summary of Receipts and Disbursements

(Dollar amounts in thousands)

	YEAR ENDING	
Receipts for the Year	June 30, 2023	June 30, 2022
Contributions:		
Member	$ 911,542	$ 853,376
Employer	2,923,577	2,691,316
Non-Employer	5,519	5,398
Subtotal	$ 3,840,638	$ 3,550,090
Investment Income (Net of Investment Expenses)	1,906,951	1,779,816
Unrealized Appreciation/(Depreciation)	8,190,872	(14,550,380)
TOTAL	$ 13,938,461	$ (9,220,474)
Disbursements for the Year		
Benefit Payments	$ 5,957,380	$ 5,692,032
Refunds to Members	89,460	94,853
Administrative Expenses	23,285	16,470
TOTAL	$ 6,070,125	$ 5,803,355
Excess of Receipts over Disbursements	$ 7,868,336	$ (15,023,829)
Reconciliation of Asset Balances		
Asset Balance as of the Beginning of Year (Fair Value)	$ 87,122,859	$ 102,146,688
Excess of Receipts over Disbursements	7,868,336	(15,023,829)
Asset Balance as of the End of Year (Fair Value)	$ 94,991,195	$ 87,122,859
Rate of Return on Fair Value	11.9%	-12.8%

Schedule D – Outline of Actuarial Assumptions and Methods

All assumptions, with the exception of the discount rate, payroll growth and the inflation component of the rates of salary increases, were adopted by the Board on May 13, 2020.

INVESTMENT RATE OF RETURN (Discount Rate): 6.90% per annum, net of investment expenses, compounded annually (including inflation of 2.50%).

SALARY INCREASES*:

Service	Annual Rate	Service	Annual Rate	Service	Annual Rate
0	8.75 %	7	4.25 %	14	3.25 %
1	7.25	8	3.75	15	3.25
2	5.75	9	3.75	16	3.00
3	5.25	10	3.50	17	3.00
4	5.00	11	3.50	18	3.00
5	5.00	12	3.50	19	3.00
6	5.00	13	3.50	20 or more	3.00

*includes price inflation component of 2.50%

SERVICE RETIREMENT:

	Annual Rate			
	Male		Female	
AGE	Less than 30 years of service	30 or more years of service*	Less than 30 years of service	30 or more years of service**
50	3.00 %	52.00 %	2.75 %	50.00 %
55	5.00	37.00	5.75	35.00
60	20.00	34.00	25.00	40.00
61	18.00	30.00	25.00	40.00
62	25.00	35.00	25.00	43.00
63	22.00	28.00	25.00	43.00
64	22.00	28.00	24.00	43.00
65	27.00	27.00	32.00	32.00
66	32.00	32.00	32.00	32.00
67	30.00	30.00	32.00	32.00
68	30.00	30.00	30.00	30.00
69	30.00	30.00	30.00	30.00
70	30.00	30.00	30.00	30.00

*An additional 10% are assumed to retire at 30 years of service for ages between 50 and 64.
**An additional 15% are assumed to retire at 30 years of service for ages between 50 and 61.

SEPARATION BEFORE SERVICE RETIREMENT:

	Annual Rate of				
Age	Death*	Disability	Withdrawal Years of Service		
			0-4	5-9	10+
		Male			
20	0.0375%	-	27.00%	-	-
25	0.0336	-	17.00	13.00%	-
30	0.0437	-	14.00	6.50	6.00%
35	0.0549	0.0165%	14.00	6.25	3.50
40	0.0714	0.0275	13.00	6.25	2.75
45	0.1087	0.0720	13.00	6.00	2.50
50	0.1799	0.1360	11.25	5.75	2.75
55	0.2828	0.2400	11.75	5.50	3.25
60	0.4441	-	12.00	6.00	-
64	0.6475	-	15.00	7.50	-
		Female			
20	0.0139%	-	28.00%	-	-
25	0.0148	-	13.50	12.00%	-
30	0.0235	-	13.50	7.00	6.00%
35	0.0345	0.0152%	13.00	7.00	4.00
40	0.0493	0.0312	12.00	6.50	3.00
45	0.0728	0.0650	10.75	6.00	2.50
50	0.1107	0.1400	10.75	5.50	3.00
55	0.1687	0.3400	10.75	5.00	3.00
60	0.2554	-	11.50	5.50	-
64	0.3665	-	15.00	7.50	-

** The Pub-2010 Teachers Headcount Weighted Below Median Employee mortality table with ages set forward one year and adjusted 106% is used for death prior to retirement. Future improvement in mortality rates is assumed using the MP-2019 projection scale generationally. These rates of improvement have been reduced by 20% for all years prior to the ultimate rate. The proposed rates shown above are based on a projection to 2015. Actual mortality rates would be projected generationally.*

Schedule D – Outline of Actuarial Assumptions and Methods

DEATHS AFTER RETIREMENT: The Pub-2010 Teachers Headcount Weighted Below Median Healthy Retiree mortality table (ages set forward one year and adjusted 106%) with the MP-2019 Projection scale applied generationally is used for death after service retirement and beneficiaries. The rates of improvement have been reduced by 20% for all years prior to the ultimate rate. The Pub-2010 Teachers Mortality Table for Disabled Retirees (ages set forward one year and adjusted 106%) with the MP-2019 Projection scale applied generationally is used for death after disability retirement. The rates of improvement have been reduced by 20% for all years prior to the ultimate rate. The representative rates shown below are based on a projection to 2015. Actual mortality rates are projected generationally to the year of the measurement.

	Annual Rate of Death After			
	Service Retirement*		Disability Retirement*	
Age	Men	Women	Men	Women
40	0.0714%	0.0493%	0.8444%	0.7386%
45	0.1087	0.0728	1.2146	1.1004
50	0.1799	0.1107	1.8432	1.6181
55	0.5241	0.3901	2.4790	1.9679
60	0.6440	0.4136	3.0569	2.2548
65	0.8433	0.5260	3.7177	2.6170
70	1.4580	0.9329	4.6328	3.3740
75	2.7028	1.7905	6.1798	4.7842
80	4.9635	3.4310	8.8648	7.2311
85	9.0522	6.5905	13.0223	11.2015
90	16.0712	12.3050	18.8001	16.0832
95	26.1186	21.7258	27.0439	22.7586

*Rates as of 2015

COST OF LIVING: Increases of 1.5% semi-annually.

PAYROLL GROWTH ASSUMPTION: 2.50%

ADMINISTRATIVE EXPENSES: 0.20% of active members' payroll included in normal contribution.

ASSET METHOD: Actuarial Value, as developed in Schedule B. The actuarial value of assets recognizes a portion of the difference between the fair value of assets and the expected fair value of assets, based on the investment rate of return. The amount recognized each year will be based on 5-year smoothing of assets, where 20% of the difference between fair value and expected fair value will be recognized each year. The actuarial value of assets is limited to a range between 75% and 125% of the fair value of assets.

PERCENTAGE MARRIED: 100% of active members were assumed to be married with the husband 4 years older than the wife.

UNUSED SICK LEAVE: 1.50% for members who retire on early retirement and for members who retire with unreduced retirement before 30 years of service and a 2.00% load for members who retire with 30 or more years of service.

TERMINATING VESTED MEMBERS: Prior to age 50, 30% of active vested members who terminate are assumed to elect a refund in lieu of a benefit; on or after age 50, 20% of active vested members who terminate are assumed to elect a refund in lieu of a benefit. Benefits are assumed to begin at age 60

Schedule E – Actuarial Cost Method

1. The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently 6.90%), of each active member's expected benefit at retirement or death is determined, based on age, service, sex, and compensation. The calculations take into account the probability of a member's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of termination with a service, disability, or survivor's benefit. Future salary increases and post-retirement cost-of-living adjustments are also anticipated. The present value of the expected benefits payable on account of the active members is added to the present value of the expected future payments to retired members and beneficiaries and inactive members to obtain the present value of all expected benefits payable from the System on account of the present group of members and beneficiaries.
2. The employer contributions required to support the benefits of the System are determined following a level funding approach and consist of a normal contribution and an accrued liability contribution.
3. The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on the member's behalf.
4. The unfunded actuarial accrued liability is determined by subtracting the present value of prospective employer normal contributions and member contributions, together with the current actuarial value of assets held, from the present value of expected benefits to be paid from the System.

Schedule F – Funding Policy

The purpose of the funding policy is to state the overall funding objectives for the Teachers Retirement System of Georgia (the "System"), the benchmarks that will be used to measure progress in achieving those goals, and the methods and assumptions that will be employed to develop the benchmarks. It is intended that the funding policy will remain unchanged until the objectives below are met.

I. Funding Objectives

The goal in requiring employer and member contributions to the System is to accumulate sufficient assets during a member's employment to fully finance the benefits the member is expected to receive throughout retirement. In meeting this objective, the System will strive to meet the following funding objectives:

- To develop a pattern of contribution rates expressed as a percentage of member payroll as measured by valuations prepared in accordance with applicable State laws and the principles of practice prescribed by the Actuarial Standards Board.
- To maintain an increasing funded ratio (ratio of actuarial value of assets to actuarial accrued liabilities) that reflects a trend of improved actuarial condition. The long-term objective is to attain a 100% funded ratio over a reasonable period of future years.
- To maintain adequate asset levels to finance the benefits promised to members and to monitor the future demand for liquidity.
- To promote intergenerational equity for taxpayers with respect to contributions required for the benefits provided by the System.

II. Measures of Funding Progress

To track progress in achieving the System's funding objectives, the following measures will be determined annually as of the actuarial valuation date (with due recognition that a single year's results may not be indicative of long-term trends):

Funded ratio
The funded ratio, defined as the actuarial value of assets divided by the actuarial accrued liability, should increase over time, before adjustments for changes in benefits, actuarial methods, and/or actuarial assumptions.

Unfunded Actuarial Accrued Liability (UAAL)

- Transitional UAAL - The UAAL established as of the initial valuation date for which this funding policy is adopted shall be known as the Transitional UAAL.
- New Incremental UAAL - Each subsequent valuation will produce a New Incremental UAAL consisting of all benefit changes, assumption and method changes and experience gains and/or losses that have occurred since the previous valuation.
- Total UAAL - In each valuation year, this is the sum of the remaining balance of the Transitional UAAL and the remaining balance of each New Incremental UAAL.

UAAL Amortization Period

- The Transitional UAAL will be amortized over a closed period equal to the amortization period determined in the valuation preceding the adoption of the funding policy not to exceed 23 years.
- Each New Incremental UAAL shall be amortized over a closed 25-year period.

Schedule F – Funding Policy

Employer Contribution Rates

- Employer Normal Contribution Rate – the contribution rate determined as of the valuation date each year based on the provisions of Georgia Code Section 47-3-43.
- In each valuation subsequent to the adoption of this funding policy, the required employer contribution rate will be determined by the summation of the employer Normal Contribution Rate, a contribution rate for administrative expenses, the amortization rate for the Transitional UAAL and the individual amortization rate for each of the New Incremental UAAL bases.

Stability of Employer Contribution Rates

The valuation methodology, including the amortization of the UAAL would be expected to maintain reasonably stable contribution rates. In each valuation, a single equivalent UAAL amortization period will be determined equal to the number of years that the sum of all of the individual amortization payments for the Transitional UAAL and each New Incremental UAAL determined above would be expected to fully amortize the Total UAAL. The employer contribution rate established in the prior valuation can be maintained provided that the payment of this rate results in a reduction from the prior valuation of at least one-year to the single equivalent UAAL amortization period.

III. Methods and Assumptions

The annual actuarial valuations providing the measures to assess funding progress will utilize the actuarial methods and assumptions last adopted by the Board based upon the advice and recommendation of the System's actuary. These include the following primary methods and assumptions:

- The actuarial cost method used to develop the benchmarks will be the Entry Age Normal actuarial cost method.
- The long-term investment rate of return assumption will be based on the discount rate adopted by the Board of Trustees.
- The actuarial value of assets in subsequent valuations will be determined by recognizing the annual differences between actual and expected market value of assets over a 5-year period.

In order to insure the sufficiency of long-term funding of benefits, the annual employer contribution rate determined in each actuarial valuation shall not be less than the employer normal cost contribution rate plus a contribution rate for administrative expenses.

The actuary shall conduct an investigation into the System's experience at least every five years and utilize the results of the investigation to form the basis for recommended assumptions and methods.

IV. Funding Policy Progress

The Board will periodically have actuarial projections of the valuation results performed to assess the current and expected future progress towards the overall funding goals of the System. These periodic projections will provide the expected valuation results over at least a 30-year period. The projected measures of funding progress and the recent historical trend provided in valuations will provide important information for the Board's assessment of the System's funding progress.

Schedule G – Amortization of UAAL

AMORTIZATION OF TRANSITIONAL UAAL
(Dollar amounts in thousands)

Valuation Date	Balance of Transitional UAAL 6/30/2021	Expected UAAL Contribution
6/30/2021	$ 21,654,597	$ 1,553,767
6/30/2022	21,594,997	1,592,611
6/30/2023	**21,492,440**	**1,632,427**
6/30/2024	21,342,992	1,673,237
6/30/2025	21,142,421	1,715,068
6/30/2026	20,886,180	1,757,945
6/30/2027	20,569,381	1,801,894
6/30/2028	20,186,775	1,846,941
6/30/2029	19,732,721	1,893,115
6/30/2030	19,201,164	1,940,442
6/30/2031	18,585,602	1,988,954
6/30/2032	17,879,055	2,038,677
6/30/2033	17,074,033	2,089,644
6/30/2034	16,162,497	2,141,885
6/30/2035	15,135,823	2,195,433
6/30/2036	13,984,763	2,250,318
6/30/2037	12,699,393	2,306,576
6/30/2038	11,269,075	2,364,241
6/30/2039	9,682,400	2,423,347
6/30/2040	7,927,139	2,483,930
6/30/2041	5,990,181	2,546,029
6/30/2042	3,857,475	2,609,679
6/30/2043	1,513,962	1,618,425
6/30/2044	0	0

Schedule G – Amortization of UAAL

AMORTIZATION OF 2022 INCREMENTAL UAAL
(Dollar amounts in thousands)

Valuation Date	Balance of New Incremental UAAL 6/30/2022	Expected UAAL Contribution
6/30/2022	$ 2,027,640	$ 137,185
6/30/2023	**2,030,362**	**140,615**
6/30/2024	2,029,842	144,130
6/30/2025	2,025,771	147,734
6/30/2026	2,017,816	151,427
6/30/2027	2,005,618	155,213
6/30/2028	1,988,793	159,093
6/30/2029	1,966,927	163,070
6/30/2030	1,939,575	167,147
6/30/2031	1,906,259	171,326
6/30/2032	1,866,465	175,609
6/30/2033	1,819,642	179,999
6/30/2034	1,765,199	184,499
6/30/2035	1,702,499	189,111
6/30/2036	1,630,860	193,839
6/30/2037	1,549,550	198,685
6/30/2038	1,457,784	203,652
6/30/2039	1,354,718	208,744
6/30/2040	1,239,450	213,962
6/30/2041	1,111,010	219,311
6/30/2042	968,359	224,794
6/30/2043	810,382	230,414
6/30/2044	635,884	236,174
6/30/2045	443,586	242,079
6/30/2046	232,115	248,131
6/30/2047	0	0

Schedule G – Amortization of UAAL

AMORTIZATION OF 2023 INCREMENTAL UAAL
(Dollar amounts in thousands)

Valuation Date	Balance of New Incremental UAAL 6/30/2023	Expected UAAL Contribution
6/30/2023	$ **4,130,526**	$ **279,461**
6/30/2024	4,136,070	286,448
6/30/2025	4,135,011	293,609
6/30/2026	4,126,718	300,949
6/30/2027	4,110,512	308,473
6/30/2028	4,085,664	316,185
6/30/2029	4,051,390	324,090
6/30/2030	4,006,847	332,192
6/30/2031	3,951,127	340,497
6/30/2032	3,883,258	349,009
6/30/2033	3,802,194	357,734
6/30/2034	3,706,811	366,678
6/30/2035	3,595,904	375,845
6/30/2036	3,468,177	385,241
6/30/2037	3,322,240	394,872
6/30/2038	3,156,603	404,743
6/30/2039	2,969,665	414,862
6/30/2040	2,759,710	425,234
6/30/2041	2,524,896	435,864
6/30/2042	2,263,250	446,761
6/30/2043	1,972,653	457,930
6/30/2044	1,650,836	469,378
6/30/2045	1,295,365	481,113
6/30/2046	903,633	493,141
6/30/2047	472,843	505,469
6/30/2048	0	0

Schedule H – Summary of Main Plan Provisions

SUMMARY OF MAIN PLAN PROVISIONS
AS INTERPRETED FOR VALUATION PURPOSES

The Teachers Retirement System of Georgia began operation as of January 1, 1945. The System is supported by the joint contributions of the members and their employers. All teachers employed by an agency of and within the State of Georgia are eligible for membership in the System. The State makes contributions for certain retired members of local funds and certain benefits are payable by the System to them or on their account.

The following summary describes the main benefit and contribution provisions of the System as interpreted for the valuation.

1 - DEFINITIONS

"Prior service" means service rendered prior to January 1, 1945 for which credit is allowed. "Creditable service" means the sum of membership service and prior service. "Earnable compensation" means the full rate of compensation that would be payable to a member teacher if he worked the full normal working time and shall include compensation paid to a member by an employer from grants or contracts made by outside agencies with the employer. "Employer" means the State of Georgia, the county or independent board of education, the State Board of Education, the Board of Regents of the University System of Georgia, or any other agency of and within the State by which a teacher is paid.

2 - BENEFITS

MEMBERS OF THE RETIREMENT SYSTEM

Service Retirement Benefit

Condition for Allowance	Any member may retire on a service retirement allowance upon the attainment of age 60 and the completion of 10 years of creditable service or upon the completion of 25 years of creditable service.

Schedule H – Summary of Main Plan Provisions

Amount of Allowance	The service retirement allowance consists of: (a) An annuity which is the actuarial equivalent of the member's accumulated contributions at the time of retirement; and (b) A pension which, together with the annuity, will provide a total annual allowance equal to 2.00% of the member's average annual compensation during the two consecutive years of creditable service as a contributing member producing the highest such average, multiplied by the number of years of creditable service limited to 40 years. If the member has less than 30 years of creditable service and has not attained age 60 at the time of retirement, the allowance is reduced by the lesser of 1/12 of 7% for each month that retirement precedes age 60 or 7% for each year or fraction of a year by which the member has less than 30 years of creditable service at the time of retirement. The minimum service retirement allowance is $17 per month for each year of creditable service, not to exceed 40 years of such service. In no event will a teacher who was a member on June 30, 1961 receive a smaller retirement allowance than he would have received under the benefit provisions of the System in effect on that date.
Disability Retirement Benefit	
Condition for Allowance	A disability retirement allowance is payable to any member who becomes permanently incapacitated, mentally, or physically, for the further performance of duty, after having rendered 10 or more years of creditable service.
Amount of Allowance	If a member qualifies for either service retirement or disability retirement and a service retirement calculation exceeds the amount that he would receive on disability, he shall receive a service retirement allowance. Otherwise, he receives a disability retirement allowance determined as a service retirement allowance on the basis of the member's creditable service and compensation up to the time of disability, but with no reduction for age.

Schedule H – Summary of Main Plan Provisions

Death Benefit

Condition for Allowance	A death benefit is payable on account of a member who dies after having completed 10 or more years of creditable service provided there is a named living beneficiary.
Amount of Allowance	The death benefit is the amount which would have become payable to the member's beneficiary had the member retired on the date of death on either a service retirement allowance or a disability retirement allowance, whichever is larger, and died after an election of Option 2 had become effective.

Vesting Benefit

Condition for Allowance	A member who withdraws from service prior to attaining age 60 after having rendered at least 10 years of creditable service and who elects to leave their accumulated contributions in the System is eligible for a vesting retirement allowance upon application therefore upon the attainment of age 60 or at any time thereafter.
Amount of Allowance	The vesting allowance is determined as a service retirement allowance on the basis of the member's creditable service and compensation up to the time of withdrawal from service and on the basis of the member's age at the time the allowance commences.

Return of Contributions Prior to Retirement	Upon a member's withdrawal from service or death prior to retirement, the member's accumulated contributions together with the accumulated interest are returned to him, or are paid to the member's designated beneficiary or estate, provided no other benefit is payable under the System.
Return of Contributions After Retirement Under Maximum Plan	Benefits are payable to a member retired on service or disability for the remainder of the member's lifetime under the maximum plan. In the event total monthly benefits paid at the time of death are less than the contributions which the member made to the System, the difference between the benefits paid and the amount of contributions is refunded to the member's designated beneficiary or estate, provided no optional allowance has been selected.

Schedule H – Summary of Main Plan Provisions

Optional Allowances	Upon retirement, any member may elect to convert the retirement allowance otherwise payable to him, except any additional pension payable under the minimum provision, to a reduced retirement allowance of equivalent actuarial value in one of the following optional forms:

Option 1. If the member dies before receiving in annuity payments the amount of the member's accumulated contributions at retirement, the balance is paid to the designated beneficiary or to the estate; or

Option 2. Upon the member's death the member's reduced retirement allowance is continued throughout the life of and paid to the designated beneficiary; or

Option 2 Pop-up. A member may elect Option 2 with the added provision that in the event the designated beneficiary predeceases the member, the retirement allowance payable to the member after the designated beneficiary's death shall be equal to the retirement allowance which would have been payable had the member not elected the option; or

Option 3. Upon the member's death one-half of the member's reduced retirement allowance is continued throughout the life of and paid to the designated beneficiary; or

Option 3 Pop-up. A member may elect Option 3 with the added provision that in the event the designated beneficiary predeceases the member, the retirement allowance payable to the member after the designated beneficiary's death shall be equal to the retirement allowance which would have been payable had the member not elected the option; or

Option 4. A reduced retirement allowance payable during the life of the retired member, with the provision that upon the member's death some other benefit shall be payable; provided that the total value of such benefits is the actuarial equivalent of the retirement allowance he would have received without optional modification and provided the benefit is approved by the Board of Trustees; or

Option 5. A reduced retirement allowance together with a partial lump sum distribution not to exceed the sum of 36 months of the member's monthly retirement allowance that would have been payable if this option was not elected. This option may be elected with any other option described above. This option is not available to disability retirements or members subject to the minimum benefit formula.

Schedule H – Summary of Main Plan Provisions

Cost-of-Living Adjustment	The retirement allowances of members or of any beneficiary of a member who died in service will be subject to adjustment as of each January 1 and July 1 based upon the change in the average CPI during the previous six-month period. The maximum increase in retirement allowances for any such six-month period will be 1-1/2%. If the CPI decreases, no reduction in allowance will be made for the first 2-1/2% of a reduction and retirement allowances will not be reduced below the amounts initially paid upon retirement. In addition, for members who retired prior to January 1, 2013, a one-time 3% increase on the first $37,500 of members' allowances is made at retirement. Members who retire on or after January 1, 2013 do not receive this increase. A member who retires prior to age 60 with less than 30 years of creditable service is not eligible for post-retirement adjustments until such time as the member reaches age 60 or would have obtained 30 years of creditable service, whichever occurs earlier.

3 - CONTRIBUTIONS

By Members	Each member contributes 6.00% of earnable compensation. However, no contributions are payable after the attainment of age 65 and the completion of 40 years of creditable service unless the member elects to continue to make contributions. Members may elect to cease making contributions after the completion of 40 years of creditable service.
By Employers	The employer contributes at a specified percentage of active member payroll determined annually by actuarial valuation.

Schedule I – Tables of Membership Data

THE NUMBER AND AVERAGE ANNUAL COMPENSATION OF ACTIVE MEMBERS BY AGE AND SERVICE AS OF JUNE 30, 2023

Age	Years of Service										
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	Total
Under 25	423	5,373	25								5,821
Avg. Pay	23,593	36,196	32,930								35,266
25 to 29	468	15,472	3,977	4							19,921
Avg. Pay	28,915	44,148	53,020	38,273							45,560
30 to 34	398	9,888	12,239	2,437	9						24,971
Avg. Pay	32,571	44,013	56,368	64,525	71,220						51,898
35 to 39	403	8,623	8,592	7,931	2,841	9					28,399
Avg. Pay	32,355	45,616	57,365	66,859	72,377	51,206					57,594
40 to 44	372	7,936	7,595	5,093	9,703	2,587	8				33,294
Avg. Pay	35,841	47,404	58,261	68,355	75,070	81,881	66,756				63,703
45 to 49	273	6,389	6,909	4,393	6,702	8,470	2,132	11			35,279
Avg. Pay	38,484	47,975	57,886	67,282	74,184	82,650	85,009	69,786			67,795
50 to 54	285	5,615	6,293	4,430	6,482	6,143	7,390	952	6		37,596
Avg. Pay	41,573	49,585	56,900	64,252	70,229	77,935	85,947	88,856	65,812		68,813
55 to 59	186	3,894	4,607	3,340	5,386	4,578	3,801	1,457	209	3	27,461
Avg. Pay	44,980	49,139	55,715	60,070	64,739	69,962	77,706	87,744	79,615	31,626	64,307
60 to 64	106	2,199	2,890	2,039	3,126	2,643	1,944	749	335	34	16,065
Avg. Pay	32,778	45,312	53,116	59,523	61,940	65,143	71,683	76,113	84,905	79,615	60,461
65 to 69	34	733	1,090	774	877	767	563	299	127	44	5,308
Avg. Pay	29,341	42,711	50,859	60,542	62,796	65,885	70,157	77,539	75,852	101,121	59,716
70 & up	9	304	359	224	297	211	162	111	77	51	1,805
Avg. Pay	41,091	41,433	47,766	56,716	59,983	64,451	71,738	81,298	83,712	126,335	59,704
Total Count	2,957	66,426	54,576	30,665	35,423	25,408	16,000	3,579	754	132	235,920
Avg. Pay	33,280	45,195	56,393	65,142	70,640	76,656	81,422	84,498	81,640	103,744	60,640

Average Age: 44.84 Average Service: 11.07

Schedule I – Tables of Membership Data

**NUMBER OF RETIRED MEMBERS
AND THEIR BENEFITS BY AGE**

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	36	$ 1,198,155	$ 33,282
50 – 54	1,893	86,081,423	45,474
55 – 59	6,286	299,228,816	47,602
60 – 64	17,887	651,315,479	36,413
65 – 69	28,490	1,031,085,140	36,191
70 – 74	31,597	1,328,442,566	42,043
75 – 79	24,281	1,130,707,558	46,568
80 – 84	13,059	632,151,436	48,407
85 – 89	6,102	296,233,642	48,547
90 – 94	2,643	127,341,024	48,180
95 & Over	694	32,395,233	46,679
Total	132,968	$ 5,616,180,472	$ 42,237

Average Age: 71.66

**NUMBER OF BENEFICIARIES
AND THEIR BENEFITS BY AGE**

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 25	171	$ 2,107,771	$ 12,326
25 – 29	208	2,727,548	13,113
30 – 34	272	3,593,372	13,211
35 – 39	361	4,927,577	13,650
40 – 44	485	6,938,393	14,306
45 – 49	546	8,516,512	15,598
50 – 54	619	11,180,529	18,062
55 – 59	634	12,662,163	19,972
60 – 64	806	17,895,865	22,203
65 – 69	1,081	29,970,725	27,725
70 – 74	1,387	42,723,183	30,803
75 – 79	1,441	49,562,141	34,394
80 – 84	1,137	43,861,777	38,577
85 – 89	817	33,666,219	41,207
90 – 94	404	17,609,424	43,588
95 & Over	131	5,682,502	43,378
Total	10,500	$ 293,625,701	$ 27,964

Average Age: 65.97

Schedule I – Tables of Membership Data

NUMBER OF DISABLED RETIREES AND THEIR BENEFITS BY AGE

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	212	$ 3,927,786	$ 18,527
50 – 54	395	9,319,910	23,595
55 – 59	682	16,143,989	23,672
60 – 64	904	20,784,547	22,992
65 – 69	949	23,956,203	25,244
70 – 74	711	20,227,523	28,449
75 – 79	472	14,009,674	29,682
80 – 84	207	5,763,069	27,841
85 – 89	63	1,894,897	30,078
90 – 94	26	808,960	31,114
95 & Over	12	335,683	27,974
Total	4,633	$ 117,172,241	$ 25,291

Average Age: 65.23

Schedule J – Annual Comprehensive Financial Report Schedules

Active Members				
Fiscal Year	Number of Members	Annual Payroll (000's)	Average Pay	% Increase
2014	209,828	$ 9,993,686	$ 47,628	0.7%
2015	213,990	10,347,332	48,354	1.5%
2016	218,193	10,783,277	49,421	2.2%
2017	222,902	11,333,997	50,847	2.9%
2018	226,039	11,704,334	51,780	1.8%
2019	226,366	11,882,828	52,494	1.4%
2020	231,032	12,737,375	55,133	5.0%
2021	227,926	12,728,936	55,847	1.3%
2022	230,326	13,224,129	57,415	2.8%
2023	235,920	14,306,169	60,640	5.6%

Retirants and Beneficiaries								
Fiscal Year	Added to Roll		Removed from Roll		Roll – End of Year		% Increase In Annual Allowances	Average Annual Income
	Number of Members	Annual Allowances (000's)	Number of Members	Annual Allowances (000's)	Number of Members	Annual Allowances (000's)		
2014	7,078	$ 291,066	2,195	$ 68,324	108,154	$ 3,831,655	6.2	$ 35,428
2015	7,207	306,751	2,237	72,818	113,124	4,065,588	6.1	35,939
2016	7,225	312,063	2,392	80,359	117,957	4,297,292	5.7	36,431
2017	7,189	318,594	2,459	84,596	122,687	4,531,290	5.4	36,934
2018	7,345	341,242	2,732	98,829	127,300	4,773,703	5.3	37,500
2019	7,247	347,533	2,727	100,233	131,820	5,021,003	5.2	38,090
2020	6,894	346,319	3,036	114,317	135,678	5,253,005	4.6	38,717
2021	7,915	391,351	3,728	144,560	139,865	5,499,796	4.7	39,322
2022	7,762	403,232	3,584	142,734	144,043	5,760,294	4.7	39,990
2023	7,375	404,322	3,317	137,638	148,101	6,026,978	4.6	40,695

Solvency Test							
	Aggregate Accrued Liabilities For				Portion of Accrued Liabilities Covered by Assets		
Fiscal Year	(1) Active Member Contributions (000's)	(2) Retirants and Beneficiaries (000's)	(3) Active Members (Employer-Financed Portion) (000's)	Actuarial Value of Assets (000's)	(1)	(2)	(3)
2014	$ 7,815,630	$ 45,841,742	$ 22,114,745	$ 62,061,722	100.0%	100.0%	38.0%
2015	8,153,958	50,251,964	24,385,088	65,514,119	100.0	100.0	29.1
2016	8,522,267	55,186,998	28,012,510	68,161,710	100.0	100.0	15.9
2017	8,936,010	57,659,259	29,385,762	71,212,660	100.0	100.0	15.7
2018	9,350,031	58,993,494	28,561,728	75,024,364	100.0	100.0	23.4
2019	9,791,208	61,856,920	30,191,271	78,126,922	100.0	100.0	21.5
2020	10,320,195	64,144,338	32,724,242	81,632,571	100.0	100.0	21.9
2021	10,787,139	68,862,439	36,053,989	94,048,970	100.0	100.0	39.9
2022	11,241,201	71,651,571	37,597,783	96,867,918	100.0	100.0	37.2
2023	11,806,674	74,384,034	40,775,158	99,312,538	100.0	100.0	32.2