Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

Retirement Systems of Alabama

Teachers' Retirement System of Alabama
Report of the Actuary on the Annual Valuation
Prepared as of September 30, 2022

www.CavMacConsulting.com

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

March 30, 2023

Board of Control
Teachers' Retirement System of Alabama
Montgomery, Alabama

Members of the Board:

In this report are submitted the results of the annual valuation of the assets and liabilities of the Teachers' Retirement System of Alabama, prepared as of September 30, 2022 in accordance with Section 16-25-19(q) of the act governing the operation of the System.

The purpose of this report is to provide a summary of the funded status of the System as of September 30, 2022 and to recommend rates of State contribution. While not verifying the data at the source, the actuary performed tests for consistency and reasonability.

The valuation reflects the 4% salary increase granted to teachers effective October 1, 2022.

On the basis of the valuation, we have determined employer contribution rates of 13.57% of payroll for Tier I members and 12.60% of payroll for Tier II members for the fiscal year ending September 30, 2025.

Effective with the September 30, 2021 Valuation, the Board approved a phase in of the increase in the required contributions due to the assumption changes made in the most recent experience investigation over a period not to exceed five years with a floor equal to the 2023 fiscal year employer contribution rates. The contribution rates shown in this report reflect the second year using this methodology.

The promised benefits of the System are included in the actuarially calculated contribution rates which are developed using the Entry Age Normal cost method. Five-year smoothed market value of assets is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded actuarial accrued liability that is being amortized by regular annual contributions as a level percentage of payroll, on the assumption that payroll will increase by 2.75% annually. The assumptions recommended by the actuary and adopted by the Board are 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 purposes meet the parameters outlined in the Board's funding policy.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com
Offices in Kennesaw, GA • Bellevue, NE

In this report, we provided the following information and supporting schedules in the Actuarial and Statistical Sections of the Annual Comprehensive Financial Report:

- Summary of Actuarial Assumptions and Methods
- Actuarial Cost Method
- Summary of Plan Provisions as Interpreted for Valuation Purposes
- Schedule of Funding Progress
- Solvency Test
- Schedule of Active Member Valuation Data

We also provide the following schedules for the Annual Comprehensive Financial Report in a separate supplemental report:

- Analysis of Actuarial Gains and Losses
- Schedule of Retirants and Beneficiaries Added and Removed from Rolls
- Retired Members by Type of Benefit as of September 30, 2022
- Ten-Year History of Average Monthly Benefit Payments as of September 30

The necessary GASB Statement Nos. 67 and 68 disclosure information is provided in separate supplemental reports.

This is to certify that Larry Langer and Edward 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.

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.

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 safely anticipated.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,

Cathy Turcot

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

Cathy Turcot
Principal and Managing Director

Edward J. Koebel

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

Table of Contents

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:

VALUATION DATE	September 30, 2022	September 30, 2021
Active members		
Number	135,783	134,034
Annual compensation	$ 7,982,339,732	$ 7,221,790,242
Retired members and beneficiaries		
Number	105,549	103,071
Annual allowances	$ 2,527,829,084	$ 2,438,228,771
Deferred vested members		
Number	7,157	6,826
Estimated deferred annual allowances	$ 108,072,938	$ 98,752,016
Assets		
Actuarial value	$ 28,518,291,664	$ 28,154,228,951
Market value	25,415,982,609	30,390,239,057
Unfunded actuarial accrued liability	$ 14,034,077,422	$ 11,952,577,455
Funded Ratio based on Actuarial Value of Assets	67.0%	70.2%
Blended Amortization period	25.9 years	26.9 years
CONTRIBUTIONS FOR FISCAL YEAR ENDING*	**September 30, 2025**	**September 30, 2024**
Tier I (first hired prior to January 1, 2013)		
Employer contribution rate)		
Normal	2.61%	2.58%
Unfunded actuarial accrued liability	10.64	9.69
Death benefit	0.02	0.02
Term life	0.05	0.05
Administration	0.25	0.25
Total	13.57%	12.59%
Tier II (first hired on or after January 1, 2013)		
Employer contribution rate		
Normal	1.64%	1.56%
Unfunded actuarial accrued liability	10.64	9.69
Death benefit	0.02	0.02
Term life	0.05	0.05
Administration	0.25	0.25
Total	12.60%	11.57%

* *Contribution rates reflect a phase-in of the cost of assumption changes effective with the September 30, 2021 valuation over a period not to exceed five years with a floor equal to the 2023 fiscal year employer contribution rates.*

2. Comments on the valuation results as of September 30, 2022 are shown in Section IV and further discussion of the contribution levels is set out in Section V. The valuation results reflect the 4% salary increase granted to teachers effective October 1, 2022.
3. Section VI of this report shows the certification of the liquidation period used to determine the actuarial accrued liability contribution rate.
4. Schedule B of this report shows the development of the actuarial value of assets.
5. The Board's Funding Policy is provided in Schedule F.
6. Schedule D of this report outlines the full set of actuarial assumptions and methods used in the current valuation. There have been no changes since the previous valuation. Effective with the September 30, 2021 Valuation, the Board approved a phase in of the increase in the required contributions due to the assumption changes made in the most recent experience investigation over a period not to exceed five-years with a floor equal to the 2023 fiscal year employer contribution rates.
7. Provisions of the System, as summarized in Schedule H, were taken into account in the current valuation. There have been no changes since the previous valuation.
8. The funded ratio shown in the Summary of Principal Results is the ratio of the actuarial value of assets to the actuarial accrued liability. The funded status would be different based on the market 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 towards 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 following table shows the number of active members and their annual compensation as of September 30, 2022 on the basis of which the valuation was prepared.

TABLE 1

THE NUMBER AND ANNUAL COMPENSATION OF ACTIVE MEMBERS AS OF SEPTEMBER 30, 2022

GROUP	NUMBER	COMPENSATION
Tier I	73,561	$ 4,908,072,713
Tier II	62,222	3,074,267,019
Subtotal	135,783	$ 7,982,339,732

The table reflects the active membership for whom complete valuation data were submitted. The results of the valuation include an estimated liability equal to the contribution balances for 22,155 non-vested inactive members who have contributed in the last 5 years and 34,892 non-vested inactive members who have not contributed for more than 5 years.

2. The following table shows a six-year history of active member valuation data.

TABLE 2

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

Valuation Date	Number	Annual Payroll	% Increase in Annual Payroll*	Annual Average Pay	% Increase in Average Pay**
9/30/2022	135,783	$ 7,982,339,732	10.53%	$ 58,787	9.11%
9/30/2021	134,034	7,221,790,242	2.89	53,880	1.87
9/30/2020	132,707	7,019,258,383	(2.43)	52,893	0.23
9/30/2019	136,325	7,193,832,116	6.47	52,770	7.13
9/30/2018	137,161	6,756,474,151	0.86	49,259	0.70
9/30/2017	136,941	6,698,834,819	4.20	48,918	4.00

* 3.57% annual increase for Annual Payroll since 2017.
** 3.74% annual increase for Average Pay since 2017.

3. The following table shows the number and annual retirement allowances payable to retired members and their beneficiaries on the roll of the Retirement System as of the valuation date.

TABLE 3

THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES OF RETIRED MEMBERS AND BENEFICIARIES ON THE ROLL AS OF SEPTEMBER 30, 2022

GROUP	NUMBER*	ANNUAL RETIREMENT ALLOWANCES*
Service Retirements	93,393	$ 2,350,914,311
Disability Retirements	5,904	72,162,595
Beneficiaries of Deceased Members	6,252	104,752,178
Total	105,549	$ 2,527,829,084

** In addition, there were 7,157 vested inactive members with estimated deferred annual allowances totaling $108,072,938 included in the valuation.*

4. Schedule I shows the distribution by age and service of the number and average annual compensation of active members included in the valuation and a distribution by age of the number and benefits of retired members and beneficiaries included in the valuation.

Section III: Assets

1. The current retirement law provides for the maintenance of six funds for the purpose of recording the fiscal transactions of the System, namely, the Annuity Savings Fund, the Pension Accumulation Fund, the Deferred Retirement Option Plan Fund, the Pre-Retirement Death Benefit Fund, the Life Insurance Fund, and the Expense 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 when a survivor allowance becomes payable the amount of the member's accumulated contributions are transferred from the Annuity Savings Fund to the Pension Accumulation Fund. The market value of assets credited to the Annuity Savings Fund on September 30, 2022, which represent the accumulated contributions of active members to that date, including interest, amounted to $6,865,652,047.

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

The Pension Accumulation Fund is the fund to which are credited all contributions made by the employer, except those contributions made to the Pre-Retirement Death Benefit Fund, the Life Insurance Fund, or the Expense Fund. When a member retires or when a survivor allowance becomes payable, the pension is paid from this fund. In addition, the amount of the member's accumulated contributions is transferred from the Annuity Savings Fund to the Pension Accumulation Fund and the annuity is paid from this fund. On September 30, 2022 the market value of assets credited to this fund amounted to $18,462,855,303.

(c) ***DROP Fund***

The DROP Fund is the fund to which are credited deferred retirement benefits on behalf of members who elect to participate in the DROP, together with regular interest thereon. In addition, member contributions while participating in the DROP, together with regular interest therein, are credited to the Fund. At the end of the DROP deferral period, the member receives the amount of the deferred retirement benefits and contributions plus interest in the member's DROP account. The DROP is closed to new participants as of June 1, 2011. On September 30, 2022, the market value of assets credited to this Fund amounted to $87,475,259.

(d) ***Pre-Retirement Death Benefit Fund***

The Pre-Retirement Death Benefit Fund is the fund to which are credited contributions made by the employer for the special pre-retirement death benefit which became effective October 1, 1983. On September 30, 2022, the market value of assets credited to this fund amounted to $50,657,730. These assets are not included in the valuation and the liabilities associated with these death benefits are not included in the valuation.

(e) ***Life Insurance Fund***

The Life Insurance Fund is the fund to which are credited contributions made by the employer for life insurance benefits which became effective October 1, 1987. On September 30, 2022, the market value of assets credited to this fund amounted to $1,541,063. These assets are not included in the valuation and the liabilities associated with these life insurance benefits are not included in the valuation.

(f) ***Expense Fund***

The Expense Fund is the fund from which the expenses of the administration of the retirement system are paid. Any amounts credited to the accounts of members withdrawing before retirement and not returnable under the provisions of subsection (g) of Section 16-25-14 are credited to the Expense Fund. Additional contributions required to meet the expenses of the retirement system made by the employer are also credited to this fund. On September 30, 2022, the market value of assets credited to this fund amounted to $24,326,972. These assets are not included in the valuation.

2. As of September 30, 2022, the total market value of assets reported exclusive of the Pre-Retirement Death Benefit Fund, the Life Insurance Fund and the Expense Fund amounted to $25,415,982,609 as shown in the following table.

TABLE 4

MARKET VALUE OF ASSETS BY FUND
AS OF SEPTEMBER 30, 2022

FUND	MARKET VALUE OF ASSETS
Annuity Savings Fund	$ 6,865,652,047
Pension Accumulation Fund	18,462,855,303
DROP Fund	87,475,259
Total Market Value of Assets	$ 25,415,982,609

3. The five-year market related actuarial value of assets as of September 30, 2022 was $28,518,291,664. Schedule B shows the development of the actuarial value of assets as of September 30, 2022.

4. Schedule C shows the receipts and disbursements of the System for the year preceding the valuation date and a reconciliation of the fund balances at market 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 September 30, 2022.

2. The valuation balance sheet shows that the System has total prospective liabilities of $48,431,273,725. Of this amount, $23,899,984,027 is for the prospective benefits payable on account of present retired members, beneficiaries of deceased members, and DROP participants, $965,055,135 is for the prospective benefits payable on account of present inactive members and $23,566,234,563 is for the prospective benefits payable on account of present active members. Against these liabilities, the System has total actuarial value of assets, exclusive of the Pre-Retirement Death Benefit Fund, the Life Insurance Fund, and the Expense Fund, of $28,518,291,664 as of September 30, 2022. The difference of $19,912,982,061 between the total liabilities and the total actuarial value of assets represents the present value of contributions to be made in the future. Of this amount, $4,318,088,605 is the present value of future contributions expected to be made by members to the Annuity Savings Fund, and the balance of $15,594,893,456 represents the present value of future contributions payable by the employer.

3. The employer's regular contributions to the System consist of normal contributions and unfunded actuarial accrued liability (UAAL) contributions. Prospective normal contributions have a present value of $1,560,816,034. When this amount is subtracted from $15,594,893,456, which is the present value of the total future contributions to be made by the employer, there remains $14,034,077,422 as the amount of future UAAL contributions.

4. The funding policy adopted by the Board, as shown in Schedule F, provides that the initial total UAAL established as of September 30, 2021, shall be amortized over a closed 27-year period. Each subsequent valuation may produce a New Incremental UAAL consisting of all benefit changes that have occurred since the previous valuation which shall be amortized over a closed 15-year period. All gains and losses occurring after the establishment of the initial total UAL and before September 30, 2028, except for those due to benefit improvements, shall be included in the remaining initial total UAAL each year and amortized over the remaining closed period. Each valuation beginning with the September 30, 2028 valuation will produce a New Incremental UAAL consisting of all assumption and method changes and experience gains and/or losses that have occurred since the previous valuation.

5. The total UAAL contribution rate is 10.64% of payroll determined in accordance with the Board's funding policy and the phase-in methodology adopted by the Board. The UAAL contribution rate has been calculated on the assumption that each incremental component of actuarial accrued liability contribution will increase by 2.75% each year. Schedule G of this report shows the amortization schedules for all bases on September 30, 2022.

Section IV: Comments on Valuation

6. The following table shows the components of the total unfunded actuarial accrued liability (UAAL) and the derivation of the actuarial accrued liability contribution rate in accordance with the funding policy.

TABLE 5
TOTAL UAAL AND UAAL CONTRIBUTION

	UAAL	**Amortization Period**	**Amortization Payment**
Remaining Initial Total UAAL	$13,979,041,360	26	$955,768,808
Benefit Improvements Effective 10/1/2021	55,036,062	14	5,558,398
Total	$14,034,077,422		$961,327,206
Total Amortized Payment Adjusted for Timing			$926,803,766
Total Estimated Payroll*			$8,272,169,234
UAAL Contribution Rate			11.20%
UAAL Contribution Rate Phase-in Methodology**			10.64%

* *Estimated payroll based on applying the assumed salary scale to current salaries.*

** *Phase in impact of assumption and method changes on employer contribution rates over a period not to exceed five years.*

7. The Pre-Retirement Death Benefit Program (PRDB) was established October 1, 1983 under Alabama Code Section 36-27B. The liabilities and assets associated with the PRDB are not included in the annual actuarial valuation of the System; however, the sufficiency of the Fund to provide the promised benefits is reviewed annually. The contribution requirements are determined every five years during our experience investigation. A contribution of 0.02% is required to meet the cost of the pre-retirement death benefit program this year.

Section IV: Comments on Valuation

8. The Term Life Insurance fund was established under Alabama Code Section 16-25-33. The liabilities and assets associated with the term life insurance benefit are not included in the annual actuarial valuation of the System; however, the sufficiency of the Fund to provide the promised benefits is reviewed annually. The contribution requirements are determined every five years during our experience investigation. A contribution of 0.05% is required to meet the cost of life insurance premiums.

9. An additional contribution of 0.25% of payroll is required to cover the expenses of administering the System.

10. In our opinion, the current experience, assumptions, and methods adopted by the Board support the funding policy and generally accepted and emerging practice. Assuming that required contributions continue to be made each year, the funding of the System will continue to remain on track.

Section V: Contributions Payable By Employer

1. The retirement law provides that the employer contributions are to be paid from the same source from which employees' salaries are paid.

2. On the basis of the actuarial valuation prepared as of September 30, 2022 it is recommended that the employer make contributions at the following rates beginning October 1, 2024:

TABLE 6

**EMPLOYER CONTRIBUTION RATES
AS A PERCENTAGE OF MEMBERS' COMPENSATION***

EMPLOYER CONTRIBUTION RATE**	FISCAL YEAR ENDING SEPTEMBER 30, 2025	
	Tier I	Tier II
Contribution Rates		
Employer Normal Cost***	2.61%	1.64%
Unfunded Actuarial Accrued Liability	10.64	10.64
Death Benefit	0.02	0.02
Term-Life	0.05	0.05
Administration	0.25	0.25
Total	13.57%	12.60%

* All members initially joining the System on and after January 1, 2013 are Tier II members.

** Contribution rates reflect a phase-in of the cost of assumption changes over a period not to exceed five years with a floor equal to the 2023 fiscal year employer contribution rates.

*** The Total Normal Cost rate is 10.11% for Tier I and 7.84% for Tier II. Tier I members contribute 7.50% (8.50% for FLC members) and Tier II members contribute 6.20% (7.20% for FLC members)

3. The total employer contribution rates without the phase-in would have been 14.48% of compensation for Tier I and 13.48% of compensation for Tier II.

Section VI: Annual Actuarial Certification

The following is the annual actuarial certification to the Teachers' Retirement System of Alabama required by Act 2000-732.

We hereby certify that there has been a change since the previous valuation in the liquidation period used to determine the actuarial accrued liability contribution rate from 26.9 years to 25.9 years. The unfunded actuarial accrued liability rate of 10.64% to be paid by employers to the Teachers' Retirement System of Alabama has been determined in accordance with the Funding Policy shown in Schedule F of this report and the phase in methodology adopted by the Board.

Signed ______________________________

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

Section VII: Analysis of Financial Experience

The calculation of the System's liabilities and actuarial value of assets requires the use of several assumptions concerning the future experience of the System and its members. In each annual actuarial valuation, the experience of the System is compared with what was expected based on the actuarial assumptions. The differences between the actual and expected experience are called actuarial gains or losses depending on whether the difference increases or decreases the UAAL. The UAAL increased from $11,952,577,455 on September 30, 2021 to 14,034,077,422 on September 30, 2022. The most significant items contributing to the increase in the UAAL were salary increases more than anticipated (including the 4% salary increase effective October 1, 2022) and investment earnings less than expected. Other sources of gains and losses were relatively small and there appear to be no trends developing that would be of concern to the System. The following tables show the reconciliation of the UAAL of the System and a breakdown by source of the actuarial gains and losses. These sources include the expected return on assets, salary increases, retirement, withdrawal, disability, and mortality.

Section VII: Analysis of Financial Experience

RECONCILIATION OF THE UNFUNDED ACTUARIAL ACCRUED LIABILITY
FOR THE YEAR ENDING SEPTEMBER 30, 2022
(Dollar amounts in thousands)

(1)	UAAL at beginning of year	$ 11,952,577
(2)	Total normal cost at beginning of the year	670,831
(3)	Actual contributions	1,526,296
(4)	Interest accrual: [[(1) + (2)] - ½ [(3)]] x 0.07450	883,589
(5)	Expected UAAL before changes: (1) + (2) – (3) + (4)	11,980,701
(6)	Increase from benefit changes	0
(7)	Changes from revised actuarial assumptions and methods	0
(8)	Expected UAAL after changes: (5) + (6) + (7)	11,980,701
(9)	Actual UAAL at end of year	14,034,077
(10)	(Gain)/Loss: (9) - (8)	$ 2,053,376

DEVELOPMENT OF (GAIN)/LOSS
FROM INVESTMENT RETURN
FOR THE YEAR ENDING SEPTEMBER 30, 2022
(Dollar amounts in thousands)

(1)	Actuarial Value of Assets (BOY)	$ 28,154,229
(2)	Net Cash Flow	(1,097,327)
(3)	Expected Return [(1) + ½ [(2)]] x 0.07450	2,056,615
(4)	Expected Actuarial Value of Assets [(1) + (2) + (3)]	29,113,517
(5)	Actual Actuarial Value of Assets (EOY)	28,518,292
(6)	(Gain)/Loss: (4) – (5)	$ 595,225

Section VII: Analysis of Financial Experience

(GAINS)/LOSSES BY SOURCE
FOR THE YEAR ENDING SEPTEMBER 30, 2022
(Dollar amounts in thousands)

SOURCE	Total	% of Actuarial Accrued Liability
Age and Service Retirements. Generally, earlier retirements cause losses and later retirements cause gains.	$ 52,932	0.12%
Withdrawal. More withdrawals than expected usually cause gains and fewer withdrawals than expected cause losses.	23,309	0.05%
Disability Retirements. More disabilities than expected generally cause losses and fewer disabilities than expected cause gains.	3,025	0.01%
Death-In-Service Benefits. If survivor claims are less than assumed, there is a gain. If claims are greater than assumed, there is a loss.	(19)	0.00%
Salary Increases. If salaries increase more than expected, there is a loss. If salaries increase less than expected, there is a gain.	1,306,038	3.07%
New Members/Rehires. Any past service causes losses.	34,520	0.08%
Retiree Mortality. More deaths than expected cause gains, fewer than expected cause losses.	(23,799)	(0.06)%
Investment Return. Investment income greater than expected causes gains while investment income less than expected cause losses.	595,225	1.40%
Other. Miscellaneous gains and losses resulting from data corrections, timing of financial transactions, unit transfers, changes in valuation software, etc.	62,145	0.15%
Total (Gain)/Loss	$ 2,053,376	4.82%

Section VII: Analysis of Financial Experience

(GAINS)/LOSSES BY SOURCE
Historical Trends
(Dollar amounts in thousands)

	September 30				
SOURCE	**2022**	**2021**	**2020**	**2019**	**2018**
Age and Service Retirements	$ 52,932	$ 20,640	$ (39,224)	$ 5,637	$ (5,683)
Withdrawal	23,309	31,005	22,293	29,495	30,805
Disability Retirements	3,025	3,821	1,231	3,557	2,979
Death-In-Service Benefits	(19)	(530)	4,611	4,205	7,054
Salary Increases	1,306,038	41,499	(516,747)	592,855	(245,066)
New Members/Rehires	34,520	20,469	17,306	21,617	22,534
Retiree Mortality	(23,799)	(44,624)	179	9,712	8,480
Investment Return	595,225	(562,705)	49,582	149,503	(275,913)
Other	62,145	4,488	(3,554)	(80,098)	(21,610)
Total (Gain)/Loss	$ 2,053,376	$ (485,937)	$ (464,323)	$ 736,483	$ (476,420)

Section VIII: Accounting Information

The information required under Governmental Accounting Standard Board (GASB) Statements No. 67 and 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 SEPTEMBER 30, 2022

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	105,549
Terminated employees entitled to benefits but not yet receiving benefits	29,312
Non-vested inactive members who have not contributed for more than 5 years	34,892
Active members	135,783
Total	305,536

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)
9/30/2017[1]	$23,887,077	$34,688,078	$10,801,001	68.9%	$6,698,835	161.2%
9/30/2018[1]	25,006,419	35,628,398	10,621,979	70.2	6,756,474	157.2
9/30/2019	25,821,326	37,215,470	11,394,144	69.4	7,193,832	158.4
9/30/2020	26,681,324	37,752,800	11,071,566	70.7	7,019,258	157.7
9/30/2021[2]	28,154,229	40,106,806	11,952,577	70.2	7,221,790	165.5
9/30/2022	28,518,292	42,552,369	14,034,077	67.0	7,982,340	175.8

[1]Reflects changes in actuarial assumptions.

[2] Reflects changes in actuarial assumptions and methods.

Section VIII: Accounting Information

3. The information presented above was determined as part of the actuarial valuation at September 30, 2022. Additional information as of the latest actuarial valuation follows.

Valuation date	09/30/2022
Actuarial cost method	Entry Age Normal
Amortization method	Level percent closed
Single equivalent remaining amortization period	25.9 years
Asset valuation method	Five-year market related value
Actuarial assumptions:	
Investment Rate of Return*	7.45%
Projected salary increases*	3.25 - 5.00%
Cost-of-living adjustments	None
*Includes price inflation at	2.50%

Section IX: 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 can simply be considered 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 understandably, there is a focus on aspects of risk that are negative.

Risk can usually 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 upon 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
2017	$24,467,518	$6,698,835	3.65
2018	$25,756,495	$6,756,474	3.81
2019	$25,443,975	$7,193,832	3.54
2020	$25,776,401	$7,019,258	3.67
2021	$30,390,239	$7,221,790	4.21
2022	$25,415,983	$7,982,340	3.18

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). The greater the AVR, the more volatility there is in the Required Contribution Rate. For plans with low AVRs, the impact of investment gains and losses on Required Contribution Rates is less than for plans with high AVRs. The AVR for TRS at September 30, 2022 is 3.18. As shown in the table below, if the market value return is 5% below assumed, or 2.45% (7.45% minus 5.00%) for the System, there will be an increase in the Required Contribution Rate of 0.21% 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 1.06%.

Investment Rate of Return 5% Less Than Assumed		
AVR	Unsmoothed Amortization	Smoothed Amortization
3.00	1.00%	0.20%
3.18	1.06%	0.21%
4.00	1.33%	0.27%

Section IX: 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 7.45%, along with the results if the assumption were 6.45% or 8.45%. 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 CMC believes that either assumption (6.45% or 8.45%) would comply with actuarial standards of practice. The contribution rates below represent the full ADEC with no phase in.

($ in thousands)

As of September 30, 2022	Current Discount Rate (7.45%)	-1% Discount Rate (6.45%)	+1% Discount Rate (8.45%)
Accrued Liability	$42,552,369	$47,365,011	$38,503,309
Unfunded Liability	$14,034,077	$18,846,720	$9,985,017
Funded Ratio (AVA)	67.0%	60.2%	74.1%
ADEC Rate*			
Tier I	14.48%	19.42%	10.11%
Tier II	13.48%	17.68%	9.67%

** Contribution rates are determined based on the Board's current Funding Policy and do not reflect phase in of contributions*

Section IX: 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 projection scale for how the mortality table is expected to improve through time.

The future, however, is unknown, 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 reviewed carefully 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. The next actuarial experience study will be for the period from October 1, 2020 to September 30, 2025.

Contribution Risk

The System is funded primarily 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 used to determine the UAAL amortization amounts, there is an expectation that future payments will grow at the assumed 2.75% 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.

Schedule A: Valuation Balance Sheet & Solvency Test

VALUATION BALANCE SHEET
SHOWING THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES OF
THE TEACHERS' RETIREMENT SYSTEM OF ALABAMA
AS OF SEPTEMBER 30, 2022

ASSETS		
Actuarial Value of Assets	$	28,518,291,664
Present value of future members' contributions to the Annuity Savings Fund	$	4,318,088,605
Present value of future employer contributions to the Pension Accumulation Fund		
Normal contributions	$	1,560,816,034
Unfunded actuarial accrued liability contributions		14,034,077,422
Total prospective employer contributions	$	15,594,893,456
Total Assets	$	48,431,273,725
LIABILITIES		
Present value of benefits payable on account of retired members, beneficiaries of deceased members now drawing retirement allowances, and DROP participants		
Service Retirements	$	22,374,460,444
Disability Retirements		628,097,359
Beneficiaries of Deceased Members		809,950,965
DROP Participant Accounts		87,475,259
Total	$	23,899,984,027
Inactive Members	$	881,495,163
Inactive T-Section Accounts	$	83,559,972
Present value of prospective benefits payable on account of present active members:		
Service retirement allowances	$	21,307,350,830
Disability retirement allowances		859,470,492
Death Benefits		108,573,324
Termination Benefits		1,290,839,917
Total	$	23,566,234,563
Total Liabilities	$	48,431,273,725

Schedule A: Valuation Balance Sheet & Solvency Test

SOLVENCY TEST
(Dollar amounts in thousands)

Valuation Date	Aggregate Accrued Liabilities For (1) Active Member Contributions	(2) Retirants and Beneficiaries	(3) Active Members (Employer Financed Portion)	Reported Assets	Portion of Accrued Liabilities Covered by Reported Asset (1)	(2)	(3)
9/30/2022	$6,865,652	$23,899,984	$11,786,733	$28,518,292	100%	91%	0.0%
9/30/2021[2]	6,589,860	23,111,616	10,405,330	28,154,229	100	93	0.0
9/30/2020	6,356,922	21,781,149	9,614,729	26,681,234	100	93	0.0
9/30/2019	6,100,489	21,093,665	10,021,316	25,821,326	100	93	0.0
9/30/2018[1]	5,788,187	20,511,811	9,328,400	25,006,419	100	94	0.0
9/30/2017[1]	5,504,125	19,886,016	9,297,937	23,887,077	100	92	0.0

[1] Reflects changes in actuarial assumptions.
[2] Reflects changes in actuarial assumptions and methods.

Schedule B: Actuarial Value of Assets

DEVELOPMENT OF SEPTEMBER 30, 2022 ACTUARIAL VALUE OF ASSETS

(1)	Actuarial Value of Assets on September 30, 2021	$ 28,154,228,951
(2)	Market Value of Assets on September 30, 2022	25,415,982,609
(3)	Market Value of Assets on September 30, 2021	30,390,239,057
(4)	Net Cash Flow During the Fiscal Year	
	a. Contributions	1,526,295,946
	b. Benefit Payments and DROP Distributions	2,555,649,728
	c. Refunds to Members	67,973,688
	d. Transfer to Expense Fund – Interest Forfeiture	0
	e. Investment Expenses	18,566,252
	f. Net Cash Flow: (a. - b. - c. - d. - e.)	(1,115,893,722)
(5)	Actual Investment Return ((2) - (3) - (4)f.)	(3,858,362,726)
(6)	Assumed Rate of Return on Assets	7.450%
(7)	Amount for Immediate Recognition ((3) * (6)) + (((4)a. - (4)b. - (4)c. - (4)d.) * 0.5 * (6)) + (4)e.	2,241,763,613
(8)	Investment Gain/(Loss) for the Fiscal Year ((5) - (7))	(6,100,126,339)
(9)	Phased-In Recognition of Investment Gain/(Loss)	
	a. Current Fiscal Year: (0.2 * (8))	(1,220,025,268)
	b. Prior Fiscal Year	754,644,083
	c. Second Prior Fiscal Year	(109,601,480)
	d. Third Prior Fiscal Year	(266,937,275)
	e. Fourth Prior Fiscal Year	80,112,762
	f. Total Recognized Investment Gain/(Loss) for Fiscal Year	(761,807,178)
(10)	Actuarial Value of Assets on September 30, 2022 ((1) + (4)f. + (7) + (9)f.)	$ 28,518,291,664

Date	Investment Gain/(Loss)	Amount Recognized	Remaining Balance as of September 30, 2022
9/30/2018	$ 400,563,810	$ 400,563,810	$ 0
9/30/2019	(1,334,686,373)	(1,067,749,100)	(266,937,273)
9/30/2020	(548,007,399)	(328,804,440)	(219,202,959)
9/30/2021	3,773,220,414	1,509,288,166	2,263,932,248
9/30/2022	(6,100,126,339)	(1,220,025,268)	(4,880,101,071)

Schedule C: Summary of Receipts & Disbursements

FOR THE PERIOD ENDING SEPTEMBER 30, 2022

Receipts for the Period		
Contributions:		
Members	$ 563,132,459	
Employer	963,163,487	
Total		$ 1,526,295,946
Investment Income		(3,865,353,726)*
TOTAL		$ (2,339,057,780)
Disbursements for the Period		
Benefit Payments		$ 2,537,116,233
Refunds to Members		67,973,688
DROP Distributions		18,533,495
Miscellaneous:		
Transfers from Plant Fund	$ 0	
Transfers to Expense Fund –Interest Forfeiture	0	
Transfers to Expense Fund –Investment Expenses	11,575,252	
Transfers to Pre-retirement Death Benefit Fund	0	
Total		11,575,252
TOTAL		$ 2,635,198,668
Excess of Receipts over Disbursements		$ (4,974,256,448)
Reconciliation of Asset Balances		
Market Value of Assets as of September 30, 2021		$ 30,390,239,057
Excess of Receipts over Disbursements		(4,974,256,448)
Market Value of Assets as of September 30, 2022		$ 25,415,982,609

* Net of $6,991,000 in investment expenses.

Schedule D: Outline of Actuarial Assumptions & Methods

The assumptions and methods used in the valuation are based on the results of the Experience Investigation for the Five-Year Period Ending September 30, 2020, dated July 12, 2021, and adopted by the Board on September 13, 2021.

LONG-TERM INVESTMENT RATE OF RETURN: 7.45% per annum, compounded annually, including price inflation at 2.50%.

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases are as follows and include wage inflation at 2.75% per annum:

Service	Annual Rate
0	5.00 %
1-5	4.00
6-10	3.75
11-15	3.50
16 & Over	3.25

SEPARATIONS BEFORE SERVICE RETIREMENT:

Representative values of the assumed annual rates of death and disability are as follows:

AGE	Annual Rates							
			Disability Retirement**					
	Death*		Tier 1				Tier 2	
			Males		Females			
	Males	Females	Years of Service		Years of Service		Males	Females
			<25	>=25	<25	>=25		
25	0.0143%	0.0072%	0.1000%		0.0700%		0.1000%	0.0700%
30	0.0195	0.0111	0.1000		0.0700		0.1000	0.0700
35	0.0267	0.0169	0.1000		0.0700		0.1000	0.0700
40	0.0371	0.0260	0.1300		0.1700		0.1300	0.1700
45	0.0585	0.0403	0.2500	0.2000%	0.3200	0.2000%	0.2500	0.3200
50	0.0969	0.0605	0.5000	0.2000	0.5800	0.2000	0.5000	0.5800
55	0.1508	0.0878	0.8000	0.2000	0.9000	0.2250	0.8000	0.9000
60	0.2321	0.1326	0.5000	0.2000	0.6500	0.3000	0.5000	0.6500
65	0.3809	0.2223	0.5000	0.2000	0.6500	0.3000	0.5000	0.6500

**Base mortality rates as of 2010 before application of the improvement scale.*
***No rates of disability are assumed for members with less than 10 years of creditable service.*

Schedule D: Outline of Actuarial Assumptions & Methods

Values of the assumed annual rates of withdrawal are as follows:

Years of Service	Annual Rates of Withdrawal*	
	Males	Females
0-3	12.00%	11.00%
4	10.00	9.00
5	7.25	6.50
6	6.25	5.50
7	5.25	5.00
8	5.00	4.25
9	4.25	3.50
10	3.25	3.25
11	3.25	3.00
12	3.00	2.75
13	3.00	2.50
14	2.75	2.25
15	2.50	2.25
16	2.00	2.00
17	2.00	1.90
18	2.00	1.85
19	2.00	1.70
>=20	1.00	1.00

**No rates after eligibility for retirement.*

Schedule D: Outline of Actuarial Assumptions & Methods

Values of the assumed annual rates of service retirement for Tier 1 are as follows:

AGE	Annual Rates				
	Males		Females		
	Years of Service		Years of Service		
	<25	>=25	<25	25	>=25
40-47		25.00%		25.00%	25.00%
48		22.00		18.00	18.00
49		17.50		15.50	15.50
50		16.00		17.50	12.50
51		16.00		19.00	14.00
52		16.00		19.50	14.50
53		16.00		20.00	15.00
54		16.00		21.50	16.50
55		15.50		22.00	17.00
56		15.50		22.00	17.00
57		15.50		22.50	17.50
58		15.50		23.50	18.50
59		18.00		25.00	20.00
60	12.00%	18.00	15.00%	29.00	24.00
61	9.50	18.00	12.00	29.00	24.00
62	22.00	32.00	21.00	45.00	40.00
63	16.00	27.50	16.00	36.00	31.00
64	14.00	21.50	15.50	32.50	27.50
65	25.00	27.50	27.00	38.00	38.00
66	25.00	27.50	28.00	40.00	40.00
67	22.00	23.50	23.00	33.00	33.00
68	21.00	22.50	25.00	33.00	33.00
69	21.00	22.50	20.50	30.00	30.00
70	21.00	22.50	24.50	30.00	30.00
71-74	20.00	22.50	22.00	30.00	30.00
75-76	30.00	22.50	30.00	30.00	30.00
77-79	30.00	22.50	30.00	30.00	30.00
80	100.00	100.00	100.00	100.00	100.00

Schedule D: Outline of Actuarial Assumptions & Methods

Values of the assumed annual rates of service retirement for Tier 2 (Non-FLC) are as follows:

AGE	Annual Rates								
	Males				Females				
	Years of Service				Years of Service				
	<25	25-29	30	>=31	<25	25	26-29	30	>=31
40-47			10.00%	10.00%				10.00%	10.00%
48			10.00	10.00				10.00	10.00
49			10.00	10.00				10.00	10.00
50			10.00	10.00				10.00	10.00
51			10.00	10.00				10.00	10.00
52			10.00	10.00				10.00	10.00
53			10.00	10.00				10.00	10.00
54			10.00	10.00				10.00	10.00
55			20.00	10.00				20.00	10.00
56			20.00	10.00				20.00	10.00
57			20.00	10.00				20.00	10.00
58			20.00	10.00				20.00	10.00
59			20.00	10.00				20.00	10.00
60			40.00	40.00				45.00	45.00
61			40.00	40.00				45.00	45.00
62	50.00%	60.00%	60.00	60.00	50.00%	70.00%	70.00%	70.00	70.00
63	16.00	27.50	27.50	27.50	16.00	36.00	31.00	31.00	31.00
64	14.00	21.50	21.50	21.50	15.50	32.50	27.50	27.50	27.50
65	25.00	27.50	27.50	27.50	27.00	38.00	38.00	38.00	38.00
66	25.00	27.50	27.50	27.50	28.00	40.00	40.00	40.00	40.00
67	22.00	23.50	23.50	23.50	23.00	33.00	33.00	33.00	33.00
68	21.00	22.50	22.50	22.50	25.00	33.00	33.00	33.00	33.00
69	21.00	22.50	22.50	22.50	20.50	30.00	30.00	30.00	30.00
70	21.00	22.50	22.50	22.50	24.50	30.00	30.00	30.00	30.00
71-74	20.00	22.50	22.50	22.50	22.00	30.00	30.00	30.00	30.00
75-76	30.00	22.50	22.50	22.50	30.00	30.00	30.00	30.00	30.00
77-79	30.00	30.00	22.50	22.50	30.00	30.00	30.00	30.00	30.00
80	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Schedule D: Outline of Actuarial Assumptions & Methods

Values of the assumed annual rates of service retirement for Tier 2 (FLC) (for both males and females) are as follows:

AGE	Annual Rates		
	Years of Service		
	10	11-29	30
40-47			2.50%
48			2.50
49			5.00
50			5.00
51			10.00
52			10.00
53			10.00
54			10.00
55			10.00
56	15.00%	15.00%	15.00
57	15.00	15.00	15.00
58	15.00	15.00	15.00
59	15.00	15.00	15.00
60	17.00	17.00	17.00
61	40.00	18.50	18.50
62	40.00	30.00	30.00
63	40.00	25.00	25.00
64	40.00	22.00	22.00
65	40.00	27.00	27.00
66	40.00	38.00	38.00
67	40.00	30.00	30.00
68	40.00	30.00	30.00
69	40.00	30.00	30.00
70-74	60.00	30.00	30.00
75	100.00	100.00	100.00

Schedule D: Outline of Actuarial Assumptions & Methods

DEATHS AFTER RETIREMENT: Mortality rates were based on the Pub-2010 Teacher tables with the following adjustments, projected generationally using scale MP-2020 adjusted by 66-2/3% beginning with year 2019:

Group	Membership Table	SetForward(+)/ Setback (-)	Adjustment to Rates
Service Retirees	Teacher Retiree - Below Median	Male: +2, Female: +2	Male: 108% ages < 63, 96% ages > 67; Phasing down 63 -67 Female: 112% ages < 69 98% > age 74 Phasing down 69-74
Beneficiaries	Contingent Survivor Below Median	Male: +2, Female: None	None
Disabled Retirees	Teacher Disability	Male: +8, Female: +3	None

PRE-RETIREMENT DEATH BENEFITS: For those eligible for pre-retirement death benefits, it is assumed that 70% will elect the lump sum death benefit payable from the death benefit fund and 30% will elect the monthly benefit payable from the pension accumulation fund (20% spouses and 10% non-spouse beneficiaries).

BENEFITS PAYABLE UPON SEPARATION FROM SERVICE: For active members who separate from service prior to eligibility for a service retirement allowance, the liability is assumed to be the greater of the value of the refund of contributions or the value of the deferred annuity.

UNUSED SICK LEAVE: 2.5% load on service retirement liabilities for active members.

PERCENTAGE MARRIED: 100% of active members are assumed to be married with the husband 3 years older than the wife.

VALUATION METHOD: Individual entry age normal cost method.

ASSET METHOD: Actuarial value, as developed in Schedule B. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected market value.

LIABILITY FOR CURRENT INACTIVE MEMBERS: Member Contribution Balance is multiplied by a factor of 2.0. for vested members with incomplete data and 1.0 for other inactive members.

LIABILITY FOR POST-DROP ACTIVE MEMBERS: Members are assumed to retire immediately and receive their accrued benefit.

COLA: No future ad hoc cost of living adjustments (COLAs) are assumed.

FUTURE SERVICE CREDIT: One year of creditable service per year of employment.

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 7.45%), of each member's expected benefit payable at retirement or death is determined, based on his 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 probability of his terminating with a service, disability, or survivor's benefit. Future salary increases 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 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 actuarial accrued liability contribution.
3. The normal contribution is determined using the "individual 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 each new member during the entire period of his anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.
4. The unfunded actuarial accrued liability contributions are determined by subtracting the present value of prospective employer normal contributions and member contributions together with the current assets held from the present value of expected benefits to be paid from the System.

Schedule F: Board Funding Policy

FUNDING POLICY OF THE
TEACHERS' RETIREMENT SYSTEM BOARD OF CONTROL
EFFECTIVE 9/30/2021

The purpose of the funding policy is to state the overall funding objectives for the Teachers' Retirement System of Alabama (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.

The funding policy reflects the Board's long-term strategy for stability in funding of the plan.

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 maintain an increasing funded ratio (ratio of system actuarial value of assets to actuarial accrued liabilities) that reflects a trend of improved actuarial condition. The long-term objective is to attain a funded ratio which is consistent with the fiscal health and long-term stability of the System.
- To maintain adequate asset levels to finance the benefits promised to members and monitor the future demands for liquidity.
- 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. In no event will the employer contribution rate be negative.
- To provide intergenerational equity for taxpayers with respect to System costs.

II. Benchmarks

To track progress in achieving the previously outlined funding objectives, the following benchmarks will be measured annually as of the valuation date. The valuation date is the date that the annual actuarial valuation of the System's assets and liabilities is prepared. This date is currently September 30th each year 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.

Schedule F: Board Funding Policy

- **Unfunded Actuarial Accrued Liability (UAAL)**
  - **Initial Total UAAL -** The initial total UAAL established as of the initial valuation date (September 30, 2021) for which this funding policy is adopted shall be amortized over a closed period. (A closed amortization period is one which is calculated over a fixed period and at the end of that period, the amount is fully amortized). All gains and losses occurring after the initial valuation date and before September 30, 2028, with the exception of those due to benefit improvements, shall be included in the remaining initial total UAAL each year and amortized over the remaining closed period. (applicable only to employers participating in the System as of the adoption date of the funding policy).
  - **New Incremental UAAL -** Each valuation after the initial valuation date will produce a New Incremental UAAL consisting of all benefit changes that have occurred since the previous valuation. Each valuation beginning with the September 30, 2028 valuation will produce a New Incremental UAAL consisting of all assumption and method changes and experience gains and/or losses that have occurred since the previous valuation.
- **UAAL Amortization Period and Contribution Rates**
  - The Initial Total UAAL will be amortized over a 27-year closed period.
  - Except as noted later, each New Incremental UAAL shall be amortized over a closed 20-year period.
  - Incremental UAAL resulting from plan changes that grant benefit improvements shall be amortized over a period not to exceed 15 years.
  - Employer Normal Contribution Rate – the contribution rate determined as of the valuation date each year based on the provisions of Alabama Code Section 16-25-21.
  - 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, a contribution rate for the pre-retirement death benefit fund, a contribution rate for the term life insurance fund, the individual amortization rate for each of the New Incremental UAAL bases, and the amortization rate of the remaining initial UAAL.

- **UAAL Amortization Period for Employers joining the System after the Implementation of this Funding Policy**
    - For Employers joining the System after the implementation of this Funding Policy, the employer contribution rate shall be computed as the sum of the employer Normal Contribution rate, a contribution rate for administrative expenses, a contribution rate for the pre-retirement death benefit fund, a contribution rate for the term life insurance fund, and the initial UAAL contribution rate. The initial UAAL contribution rate shall be determined by amortizing the initial UAAL over a closed period equal to the expected future working lifetime of the active membership. This initial amortization period shall not be less than 10 years nor greater than 20 years.
    - In subsequent years the UAAL and employer contribution rate shall be determined in accordance with the rules of the Funding Policy described in the previous section.

III. Methods and Assumptions

The actuarial funding method used to develop the benchmarks will be the Entry Age Normal (EAN) actuarial cost method. The actuarial methods and assumptions used will be those last adopted by the Board based upon the advice and recommendation of the actuary. 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 those recommendations.

IV. Funding Policy Progress

The Board will periodically have projections of funded status performed to assess the current and expected future progress towards the overall funding goals of the System.

Schedule G: Amortization of Bases

AMORTIZATION SCHEDULE FOR THE REMAINING INITIAL UAAL INCLUDING GAINS AND LOSSES NOT DUE TO BENEFIT IMPROVEMENTS AFTER SEPTEMBER 30, 2021

Valuation Date	Initial Balance of UAAL	Amortization Period	Annual Amortization Payment
9/30/2021	$11,896,322,737	27	$797,507,849
9/30/2022	**13,979,041,360**	**26**	**955,768,808**
9/30/2023	14,064,711,133	25	982,052,451
9/30/2024	14,130,479,662	24	1,009,058,893
9/30/2025	14,174,141,503	23	1,036,808,013
9/30/2026	14,193,307,032	22	1,065,320,233
9/30/2027	14,185,388,173	21	1,094,616,540
9/30/2028	14,147,583,053	20	1,124,718,494
9/30/2029	14,076,859,496	19	1,155,648,253
9/30/2030	13,969,937,275	18	1,187,428,580
9/30/2031	13,823,269,022	17	1,220,082,866
9/30/2032	13,633,019,698	16	1,253,635,145
9/30/2033	13,395,044,521	15	1,288,110,111
9/30/2034	13,104,865,227	14	1,323,533,139
9/30/2035	12,757,644,547	13	1,359,930,301
9/30/2036	12,348,158,765	12	1,397,328,384
9/30/2037	11,870,768,209	11	1,435,754,914
9/30/2038	11,319,385,526	10	1,475,238,175
9/30/2039	10,687,441,573	9	1,515,807,224
9/30/2040	9,967,848,746	8	1,557,491,923
9/30/2041	9,152,961,555	7	1,600,322,951
9/30/2042	8,234,534,240	6	1,644,331,832
9/30/2043	7,203,675,209	5	1,689,550,957
9/30/2044	6,050,798,054	4	1,736,013,609
9/30/2045	4,765,568,900	3	1,783,753,983
9/30/2046	3,336,849,800	2	1,832,807,218
9/30/2047	1,752,637,893	1	1,883,209,416
9/30/2048	0	0	0

Schedule G: Amortization of Bases

AMORTIZATION SCHEDULE FOR BASE
CLOSED ON SEPTEMBER 30, 2021
DUE TO BENEFIT IMPROVEMENTS

Valuation Date	Balance of UAAL Due to Benefit Improvements	Amortization Period	Annual Amortization Payment
9/30/2021	$56,254,718	15	$5,409,633
9/30/2022	**55,036,062**	**14**	**5,558,398**
9/30/2023	53,577,851	13	5,711,254
9/30/2024	51,858,147	12	5,868,313
9/30/2025	49,853,266	11	6,029,692
9/30/2026	47,537,643	10	6,195,508
9/30/2027	44,883,689	9	6,365,885
9/30/2028	41,861,639	8	6,540,946
9/30/2029	38,439,385	7	6,720,822
9/30/2030	34,582,297	6	6,905,645
9/30/2031	30,253,033	5	7,095,550
9/30/2032	25,411,333	4	7,290,678
9/30/2033	20,013,799	3	7,491,172
9/30/2034	14,013,656	2	7,697,179
9/30/2035	7,360,494	1	7,908,851
9/30/2036	0	0	0

Schedule G: Amortization of Bases

AMORTIZATION SCHEDULE FOR TOTAL UAAL
AS OF SEPTEMBER 30, 2022

Year	Projected UAAL	Payment for year Beginning September 30,
2022	**14,034,077,422**	**961,327,206**
2023	14,118,288,984	987,763,704
2024	14,182,337,809	1,014,927,206
2025	14,223,994,769	1,042,837,704
2026	14,240,844,675	1,071,515,741
2027	14,230,271,862	1,100,982,424
2028	14,189,444,692	1,131,259,441
2029	14,115,298,880	1,162,369,075
2030	14,004,519,572	1,194,334,225
2031	13,853,522,055	1,227,178,416
2032	13,658,431,031	1,260,925,823
2033	13,415,058,321	1,295,601,283
2034	13,118,878,883	1,331,230,318
2035	12,765,005,041	1,367,839,152
2036	12,348,158,765	1,397,328,384
2037	11,870,768,209	1,435,754,914
2038	11,319,385,526	1,475,238,175
2039	10,687,441,573	1,515,807,224
2040	9,967,848,746	1,557,491,923
2041	9,152,961,555	1,600,322,951
2042	8,234,534,240	1,644,331,832
2043	7,203,675,209	1,689,550,957
2044	6,050,798,054	1,736,013,609
2045	4,765,568,900	1,783,753,983
2046	3,336,849,800	1,832,807,218
2047	1,752,637,893	1,883,209,416
2048	0	0

Schedule H: Summary of Main Plan Provisions

AS INTERPRETED FOR VALUATION PURPOSES

The Teachers' Retirement System of Alabama was established on September 15, 1939, and went into effect September 30, 1941. The valuation took into account amendments to the System through the valuation date. There is a new tier (Tier II) of benefits for all members initially joining the System on and after January 1, 2013. The following summary describes the main benefit and contribution provisions of the System as interpreted for the valuation.

1 – DEFINITIONS

Average Final Compensation - the average compensation of a member for:

Tier I – the 3 highest years in the last 10 years of Creditable Service
Tier II – the 5 highest years in the last 10 years of Creditable Service

Membership Service – all creditable service rendered while a member of the retirement system and for which contributions are made.

Creditable Service – the sum of membership service, prior service, and any other service established as creditable in accordance with the provisions of the retirement law.

Annuity – payments for life derived from accumulated contributions of a member.

Pension – payments for life derived from employer contributions.

Retirement Allowance – the sum of the annuity and pension.

2 - BENEFITS

Service Retirement Allowance

Condition for Allowance

Tier I — A retirement allowance is payable upon the request of any member who has completed 25 years of creditable service or who has attained age 60 and completed at least 10 years of creditable service.

Tier II — A retirement allowance is payable upon the request of any member who has completed 30 years of creditable service or who has attained age 62 and completed at least 10 years of creditable service (age 56 with 10 years of creditable service for a full-time certified firefighter, police officer, or correctional officer).

Schedule H: Summary of Main Plan Provisions

Amount of Allowance

Tier I	Upon service retirement, a member receives a retirement allowance equal to 2.0125% of the member's average final compensation multiplied by the number of years of creditable service. At retirement, a member receives one additional year of creditable service in determining the retirement allowance for each five years of creditable service as a full-time certified firefighter, police officer, or correctional officer.
Tier II	Upon service retirement, a member receives a retirement allowance equal to 1.65% of the member's average final compensation multiplied by the number of years of creditable service. The benefit is capped at 80% of the member's average final compensation. For a member whose age at retirement is less than age 62 (age 56 for a full-time certified firefighter, police officer, or correctional officer), the amount of the allowance will be reduced by 2% for each year that the member's age is less than age 62 (age 56 for a full-time certified firefighter, police officer, or correctional officer).
Both	The member may elect to receive a reduced retirement allowance in order to provide an allowance to a designated beneficiary after the member's death (see "Special Privileges at Retirement" below).

Disability Retirement Allowance

Condition for Allowance	A disability retirement allowance may be granted to a member who has 10 years or more of creditable service and becomes totally and permanently incapacitated for duty before reaching eligibility for a service retirement allowance.
Amount of Allowance	
Tier I	On retirement for disability, a member receives a retirement allowance equal to 2.0125% of the member's average final compensation multiplied by the number of years of creditable service. At retirement, a member receives one additional year of creditable service in determining the retirement allowance for each five years of creditable service as a full-time certified firefighter, police officer, or correctional officer.
Tier II	Upon disability retirement, a member receives a retirement allowance equal to 1.65% of the member's average final compensation multiplied by the number of years of creditable service. The benefit is capped at 80% of the member's average final compensation.
Both	The member may elect to receive a reduced retirement allowance in order to provide an allowance to a designated beneficiary after the member's death (see "Special Privileges at Retirement" below).

Schedule H: Summary of Main Plan Provisions

Benefits Payable on Separation from Service

Any member who withdraws from service is entitled to receive his or her contributions with allowable interest. A member who has completed 10 years of creditable service may, after separation from service, continue in the membership of the System and file for service retirement after reaching age 60 (age 62 for Tier II members).

Benefits Payable upon Death in Active Service

In the event of the death of a member eligible for service retirement, the designated beneficiary may elect (1) to exercise Option 2 (spouse) or Option 3 (non-spouse beneficiary) as defined below under "Special Privileges at Retirement" or (2) to receive a return of member contributions and total earned interest plus a death benefit payable from the preretirement death benefit fund equal to the salary on which the member made retirement contributions for the previous scholastic year (July 1-June 30).*

In the event of the death of a member with more than one year of creditable service who is not eligible to retire, the designated beneficiary shall receive the return of member contributions and total earned interest. Also, the designated beneficiary shall receive an additional death benefit payable from the preretirement death benefit fund equal to the salary on which retirement contributions were made for the previous scholastic year (July 1-June 30).*

In the event of a job-related death of a member with less than one year of creditable service, the designated beneficiary shall receive the return of member contributions and total earned interest plus a death benefit payable from the preretirement death benefit fund equal to the annual earnable compensation of the member at the time of death.*

In the event of the death of a member with less than one year of creditable service that is not job-related, the designated beneficiary shall receive the return of member contributions and total earned interest plus a matching death benefit which is limited to a $5,000 maximum.

*However, if the death occurred more than 180 calendar days after the member's last day in pay status or if the deceased had applied for a refund of contributions or terminated employment, the lump sum will be the same as if the member had less than one year of creditable service and the death was not job-related.

Schedule H: Summary of Main Plan Provisions

Special Privileges at Retirement	In lieu of the full retirement allowance, any member may, at retirement, elect to receive a reduced retirement allowance equal in value to the full allowance, with the provision that: Option 1 - If the member dies before annuity payments have equaled the present value of the annuity at the date of retirement, the balance is paid to a designated beneficiary or to his/her estate, or Option 2 - After the member's death, the member's allowance is continued throughout the life of the designated beneficiary, or Option 3 - After the member's death, one-half of the member's allowance is continued throughout the life of the designated beneficiary, or Option 4 - Some other benefit is paid either to the member or to such other person as the member shall designate provided such benefit, together with the reduced retirement allowance, is of equivalent actuarial value to his retirement allowance and is approved by the Board of Control. Partial Lump Sum Option Plan (PLOP). For members retiring on or after October 1, 2019, in addition to selecting Options 1, 2, 3, or 4, the member may also elect to receive a one-time lump-sum distribution in addition to the monthly retirement benefit. The PLOP distribution will be made as a single payment at the time the first monthly benefit is paid. Based on the amount of the PLOP and the member's age, the monthly retirement benefit is actuarially reduced.
Deferred Retirement Option Plan (DROP)	Prior to March 25, 2011, a member could elect to participate in the Deferred Retirement Option Plan (DROP) upon completion of at least 25 years of creditable service (excluding sick leave) and attainment of at least 55 years of age. Under the DROP, the member deferred receipt of a retirement allowance and continued employment for a period not to exceed five years, nor to be less than three years. At the end of this period, the member withdrew from active service and received the retirement benefit calculated at the time of enrollment in the DROP, and also received a payment for the deferred retirement benefits, employee contributions while participating in the DROP, and interest earned on DROP deposits. The effect of Act 2011-27 was that no new participants were allowed to enter the DROP with an effective participation date after June 1, 2011.
Term Life Insurance	Upon the death of a contributing member, there is paid a term life insurance benefit of $15,000 (pro-rated for part-time members).

Schedule H: Summary of Main Plan Provisions

Member Contributions

Tier I	Prior to October 1, 2011, regular members contributed 5.0% of salary and certified police officers, firefighters, and correctional officers contributed 6.0% of salary. DROP participants continued to contribute during the DROP period, but received a refund of these contributions and regular interest upon retirement.
	Beginning October 1, 2011, the contribution rates were increased to 7.25% of salary for regular members and 8.25% of salary for full-time, certified police officers, firefighters, and correctional officers.
	Beginning October 1, 2012, the contribution rates were increased to 7.50% of salary for regular members and 8.50% of salary for full-time certified police officers, firefighters, and correctional officers.
Tier II	Prior to October 1, 2021, regular members contributed 6% of salary and full-time certified firefighters, police officers, and correctional officers contributed 7% of salary.
	Beginning October 1, 2021, the contribution rates were increased to 6.20% of salary for regular members and 7.20% of salary for full-time certified police officers, firefighters, and correctional officers.
Both	If positive investment performance results in a decrease in the total contribution rate paid by employers and employees participating in the System, the Retirement Systems of Alabama shall first reduce the employee contribution rate.
	"Regular Interest" is 4% which is the rate adopted by the Board and applied to the balance in each member's account every year; however, if a member receives a refund of contributions, the interest rate applied to the refund is lower than the 4% regular rate (Based on Section 16-25-14-(g)(1)).

Schedule I: Schedule of Membership Data

NUMBER OF ACTIVE MEMBERS AND THEIR AVERAGE COMPENSATION
BY AGE AND YEARS OF SERVICE
AS OF SEPTEMBER 30, 2022

Attained 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	Total
Under 25	1,563	1,851	4								3,418
Avg. Pay	40,613	38,545	54,089								$39,509
25 to 29	1,584	7,389	1,677	3							10,653
Avg. Pay	42,073	44,632	53,380	50,061							$45,630
30 to 34	1,352	5,097	5,872	1,216	7						13,544
Avg. Pay	42,108	46,781	56,530	63,997	50,062						$52,088
35 to 39	1,212	4,721	4,514	4,450	1,559	17					16,473
Avg. Pay	42,517	49,244	59,434	66,797	69,448	51,056					$58,197
40 to 44	984	4,082	3,876	3,002	5,441	1,316	5				18,706
Avg. Pay	43,492	47,417	59,088	68,430	71,168	75,206	55,674				$61,867
45 to 49	740	3,284	3,362	2,615	3,648	4,835	924	5			19,413
Avg. Pay	44,080	47,018	57,925	66,220	71,930	76,698	78,818	88,543			$64,979
50 to 54	654	3,032	3,002	2,524	3,407	3,686	2,961	454	3		19,723
Avg. Pay	44,650	47,986	54,172	61,033	66,610	73,608	80,946	82,854	46,031		$64,243
55 to 59	459	2,209	2,232	1,980	2,909	2,941	1,776	1,122	199	3	15,830
Avg. Pay	44,110	45,169	51,720	58,088	59,473	65,586	75,894	83,367	79,529	86,722	$60,694
60 to 64	327	1,489	1,729	1,360	1,933	1,987	1,259	713	382	84	11,263
Avg. Pay	36,612	42,876	48,289	58,439	57,062	61,054	69,530	78,467	82,071	73,021	$57,833
65 to 69	141	670	912	644	671	564	446	314	136	87	4,585
Avg. Pay	31,515	36,198	54,002	59,512	61,894	65,646	71,416	86,961	83,222	79,868	$59,379
70 & up	79	292	514	395	323	211	159	116	47	39	2,175
Avg. Pay	28,663	33,163	51,387	63,652	58,444	67,116	63,611	98,959	93,581	110,661	$58,322
Total	9,095	34,116	27,694	18,189	19,898	15,557	7,530	2,724	767	213	135,783
Avg. Pay	$42,015	$45,816	$56,003	$64,095	$66,786	$71,182	$76,637	$83,087	$82,180	$82,902	**$58,787**

Average Age: 45.64 Average Service: 10.94

Schedule I: Schedule of Membership Data

NUMBER OF SERVICE RETIREMENTS AND THEIR BENEFITS BY AGE

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	269	$ 9,129,587	$ 33,939
50 – 54	2,512	87,521,304	34,841
55 – 59	4,673	160,400,084	34,325
60 – 64	11,312	319,831,590	28,274
65 – 69	20,050	516,230,171	25,747
70 – 74	21,458	519,336,602	24,202
75 – 79	16,259	372,935,315	22,937
80 – 84	9,296	210,503,496	22,645
85 – 89	4,795	101,840,983	21,239
90 – 94	2,169	42,404,900	19,550
95 & Over	600	10,780,279	17,967
Total	93,393	$ 2,350,914,311	$ 25,172

Average Age: 71.6

NUMBER OF BENEFICIARIES AND THEIR BENEFITS BY AGE

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	451	$ 5,545,923	$ 12,297
50 – 54	241	3,114,072	12,921
55 – 59	292	3,829,033	13,113
60 – 64	484	7,219,751	14,917
65 – 69	764	12,604,112	16,498
70 – 74	938	16,519,795	17,612
75 – 79	1,100	20,572,361	18,702
80 – 84	862	16,203,990	18,798
85 – 89	650	11,633,443	17,898
90 – 94	337	5,620,825	16,679
95 & Over	133	1,888,873	14,202
Total	6,252	$ 104,752,178	$ 16,755

Average Age: 72.3

Schedule I: Schedule of Membership Data

NUMBER OF DISABLED RETIREES AND THEIR BENEFITS BY AGE

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	250	$ 3,649,408	$ 14,598
50 – 54	462	6,809,216	14,739
55 – 59	763	9,818,114	12,868
60 – 64	1,162	14,544,073	12,516
65 – 69	1,329	15,816,967	11,901
70 – 74	925	10,265,555	11,098
75 – 79	619	6,955,549	11,237
80 – 84	290	3,217,868	11,096
85 – 89	76	755,978	9,947
90 – 94	24	289,965	12,082
95 & Over	4	39,902	9,976
Total	5,904	$ 72,162,595	$ 12,223

Average Age: 65.6