Cavanaugh Macdonald
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Retirement Systems of Alabama

# Teachers' Retirement System of Alabama
# Report of the Actuary on the Annual Valuation
# Prepared as of September 30, 2019

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

June 17, 2020

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, 2019 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, 2019 and to recommend rates of State contribution. While not verifying the data at the source, the actuary performed tests for consistency and reasonability.

On the basis of the valuation, we have determined employer contribution rates of 12.43% of payroll for Tier I members and 11.32% of payroll for Tier II members for the fiscal year ending September 30, 2022.

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 3.00% 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.

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

- 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 CAFR 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, 2019
- 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.

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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.

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,

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

Cathy Turcot
Principal and Managing Director

Edward J. Koebel

Edward Koebel, EA, FCA, MAAA
Chief Executive Officer

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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:

| **VALUATION DATE** | **September 30, 2019** | **September 30, 2018** |
|---|---|---|
| Active members | | |
| Number | 136,325 | 137,161 |
| Annual compensation | $ 7,193,832,116* | $ 6,756,474,151 |
| Retired members and beneficiaries | | |
| Number | 98,539 | 96,231 |
| Annual allowances | $ 2,266,860,064 | $ 2,191,704,758 |
| Deferred vested members | | |
| Number | 6,019 | 5,458 |
| Estimated deferred annual allowances | $ 84,081,986 | $ 74,393,777 |
| Assets | | |
| Actuarial value | $ 25,821,325,694 | $ 25,006,419,004 |
| Market value | 25,443,974,735 | 25,756,495,073 |
| Unfunded actuarial accrued liability | $ 11,394,143,677 | $ 10,621,979,323 |
| Funded Ratio based on Actuarial Value of Assets | 69.4% | 70.2% |
| **CONTRIBUTIONS FOR FISCAL YEAR ENDING** | **September 30, 2022** | **September 30, 2021** |
| **Tier I** (first hired prior to January 1, 2013) | | |
| Employer contribution rate | | |
| Normal | 2.35% | 2.41% |
| Unfunded actuarial accrued liability | 9.72 | 9.59 |
| Death benefit | 0.01 | 0.02 |
| Term life | 0.02 | 0.01 |
| Administration | 0.33 | 0.33 |
| Total | 12.43% | 12.36% |
| **Tier II** (first hired on or after January 1, 2013) | | |
| Employer contribution rate | | |
| Normal | 1.24% | 1.27% |
| Unfunded actuarial accrued liability | 9.72 | 9.59 |
| Death benefit | 0.01 | 0.02 |
| Term life | 0.02 | 0.01 |
| Administration | 0.33 | 0.33 |
| Total | 11.32% | 11.22% |
| Blended Amortization period | 27.8 years | 28.3 years |

*RSA implemented a new pension administration system for contribution reporting within this year, which resulted in larger than expected payroll amounts. This will not occur in subsequent years.

# Section I: Summary of Principal Results

2. Comments on the valuation results as of September 30, 2019 are shown in Section IV and further discussion of the contribution levels is set out in Section V.

3. Schedule B shows the development of the actuarial value of assets. 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. The Board's funding policy is provided in Schedule F.

4. 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. Section VI of this report shows the certification of the liquidation period used to determine the actuarial accrued liability contribution rate.

5. 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, 2019 on the basis of which the valuation was prepared.

**TABLE 1**

**THE NUMBER AND ANNUAL COMPENSATION OF ACTIVE MEMBERS AS OF SEPTEMBER 30, 2019**

| GROUP | NUMBER | COMPENSATION* |
|---|---|---|
| Tier I | 89,805 | $ 5,176,979,811 |
| Tier II | 46,520 | 2,016,852,305 |
| Subtotal | 136,325 | $ 7,193,832,116 |

The table reflects the active membership for whom complete valuation data were submitted. The results of the valuation include an estimated liability for an additional 48 vested inactive members where complete data was not available (with liabilities equal to contribution balances multiplied by a factor of two) and contribution balances for 14,808 non-vested inactive members who have contributed in the last 5 years and 29,660 non-vested inactive members who have not contributed for more than 5 years.

*RSA implemented a new pension administration system for contribution reporting within this year, which resulted in larger than expected payroll amounts. This will not occur in subsequent 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** |
|---|---|---|---|---|---|
| 9/30/2019[1] | 136,325 | $ 7,193,832,116 | 6.47% | $ 52,770 | 7.13% |
| 9/30/2018[1] | 137,161 | 6,756,474,151 | 0.86 | 49,259 | 0.70 |
| 9/30/2017[1] | 136,941 | 6,698,834,819 | 4.20 | 48,918 | 4.00 |
| 9/30/2016[1] | 136,731 | 6,430,999,445 | 2.11 | 47,034 | 1.56 |
| 9/30/2015[2] | 135,986 | 6,297,938,621 | 1.34 | 46,313 | 0.77 |
| 9/30/2014[3] | 135,230 | 6,214,949,700 | 2.47 | 45,958 | 1.48 |

* 2.97% annual increase for Annual Payroll since 2014.
** 2.80% annual increase for Average Pay since 2014.

[1] There are no employees currently participating in the DROP program.
[2] In addition, there are 699 employees with annual compensation of $52,847,343 who are currently participating in the DROP program. Employers of the Retirement System contribute on this payroll.
[3] In addition, there are 1,748 employees with annual compensation of $120,210,805 who are currently participating in the DROP program. Employers of the Retirement System contribute on this payroll.

## Section II: Membership

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, 2019**

| GROUP | NUMBER* | ANNUAL RETIREMENT ALLOWANCES* |
|---|---|---|
| Service Retirements | 87,085 | $ 2,108,770,084 |
| Disability Retirements | 5,965 | 70,092,252 |
| Beneficiaries of Deceased Members | 5,489 | 87,997,728 |
| Total | 98,539 | $ 2,266,860,064 |

** In addition, there were 6,019 vested inactive members with estimated deferred annual allowances totaling $84,081,986 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, 2019, which represent the accumulated contributions of active members to that date, including interest, amounted to $6,100,489,277.

   (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, 2019 the market value of assets credited to this fund amounted to $19,178,246,875.

   (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, 2019, the market value of assets credited to this Fund amounted to $165,238,583.

   (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, 2019, the market value of assets credited to this fund amounted to $55,360,234. 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, 2019, the market value of assets credited to this fund amounted to $9,164,639. 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, 2019, the market value of assets credited to this fund amounted to $(1,210,003). These assets are not included in the valuation.

2. As of September 30, 2019, 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 $25,443,974,735 as shown in the following table.

**TABLE 4**

**MARKET VALUE OF ASSETS BY FUND**
**AS OF SEPTEMBER 30, 2019**

| FUND | MARKET VALUE OF ASSETS |
|---|---|
| Annuity Savings Fund | $ 6,100,489,277 |
| Pension Accumulation Fund | 19,178,246,875 |
| DROP Fund | 165,238,583 |
| Total Market Value of Assets | $ 25,443,974,735 |

3. The five-year market related actuarial value of assets as of September 30, 2019 was $25,821,325,694. Schedule B shows the development of the actuarial value of assets as of September 30, 2019.

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, 2019.

2. The valuation balance sheet shows that the System has total prospective liabilities of $42,059,721,443. Of this amount, $21,093,665,205 is for the prospective benefits payable on account of present retired members, beneficiaries of deceased members, and DROP participants, $727,881,978 is for the prospective benefits payable on account of present inactive members and $20,238,174,260 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 $25,821,325,694 as of September 30, 2019. The difference of $16,238,395,749 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, $3,777,129,532 is the present value of future contributions expected to be made by members to the Annuity Savings Fund, and the balance of $12,461,266,217 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. The valuation indicates that employer normal contributions at the rate of 2.35% of payroll for Tier I members and 1.24% of payroll for Tier II members are required to provide the benefits of the System.

4. Prospective normal contributions have a present value of $1,067,122,540. When this amount is subtracted from $12,461,266,217, which is the present value of the total future contributions to be made by the employer, there remains $11,394,143,677 as the amount of future UAAL contributions.

5. The funding policy adopted by the Board, as shown in Schedule F, provides that one-fifteenth of the unfunded actuarial accrued liability as of September 30, 2012 (Transitional UAAL) will be amortized as a level percent of payroll over a closed period. The closed period shall be the amortization period for the September 30, 2012 valuation, not to exceed 30 years. The remaining Transitional UAAL each year will be amortized over an open period. The open period shall be the amortization period for the September 30, 2012 valuation, not to exceed 30 years. Each year the new closed transitional base is calculated by dividing the remaining transitional UAAL at the beginning of the year by a declining value from 15 initially to 1 in the year 2026. After 15 years, the entire Transitional UAAL will be closed. 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 30-year period from the date it is established, except for benefit improvements, which will be amortized over a closed period not to exceed 15 years.
6. The total UAAL contribution rate is 9.72% 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 actuarial accrued liability contribution will increase by 3.00% each year. Schedule G of this report shows a projection of the open Transitional UAAL, the calculation of the closed transitional bases and amortization schedules for all closed bases on September 30, 2019.

7. 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 |
|---|---|---|---|
| Open Transitional | $4,901,505,742 | 30 | $312,243,443 |
| Closed Transitional 9/30/2012 | 682,848,881 | 23 | 50,016,964 |
| Closed Transitional 9/30/2013 | 688,138,185 | 24 | 49,205,216 |
| Closed Transitional 9/30/2014 | 692,374,728 | 25 | 48,406,756 |
| Closed Transitional 9/30/2015 | 695,632,931 | 26 | 47,621,365 |
| Closed Transitional 9/30/2016 | 697,982,601 | 27 | 46,848,825 |
| Closed Transitional 9/30/2017 | 699,489,449 | 28 | 46,088,940 |
| Closed Transitional 9/30/2018 | 700,215,106 | 29 | 45,341,512 |
| Closed Transitional 9/30/2019 | 700,215,106 | 30 | 44,606,206 |
| New Incremental 9/30/2013 | 451,431,122 | 24 | 32,279,513 |
| New Incremental 9/30/2014 | (177,116,990) | 25 | (12,382,975) |
| New Incremental 9/30/2015 | (84,021,132) | 26 | (5,751,886) |
| New Incremental 9/30/2016 | 247,865,452 | 27 | 16,636,812 |
| New Incremental 9/30/2017 | 161,643,641 | 28 | 10,650,602 |
| New Incremental 9/30/2018 | (314,752,833) | 29 | (20,381,408) |
| New Incremental 9/30/2019 | 650,691,688 | 30 | 41,451,387 |
| Total | $11,394,143,677 | | $752,881,272 |
| | | | |
| Total Amortized Payment Adjusted for Timing | | | $724,969,931 |
| Total Estimated Payroll* | | | $7,455,676,591 |
| UAAL Contribution Rate | | | 9.72% |

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

8. 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. Based on this review, we recommend a decrease in the required contribution rate from 0.02% to 0.01%. This rate is sufficient to fund the cost of the PRDB this year. The contribution requirements are reviewed in detail every five years during our experience investigation

# 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. Based on this review, we find that an increase in the required contribution rate from 0.01% to 0.02% is required to meet the cost of life insurance premiums. The contribution requirements are reviewed in detail every five years during our experience investigation

9. An additional contribution of 0.33% 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, 2019 it is recommended that the employer make contributions at the following rates beginning October 1, 2021:

**TABLE 6**

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

| EMPLOYER CONTRIBUTION RATE | FISCAL YEAR ENDING SEPTEMBER 30, 2022 | |
|---|---|---|
| | Tier I | Tier II |
| Employer Normal Cost** | 2.35% | 1.24% |
| Unfunded Actuarial Accrued Liability | 9.72 | 9.72 |
| Death Benefit | 0.01 | 0.01 |
| Term-Life | 0.02 | 0.02 |
| Administration | 0.33 | 0.33 |
| Total | 12.43% | 11.32% |

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

** The total Normal Cost rate is 9.85% for Tier I and 7.24% for Tier II. Tier I members contribute 7.50% (8.50% for FLC members) and Tier II members contribute 6.00% (7.00% for FLC members).

# Section VI: Annual Actuarial Certification

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

1. 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 28.3 years to 27.8 years. The unfunded actuarial accrued liability rate of 9.72% to be paid by employers to the Teachers' Retirement System of Alabama has been determined in accordance with the Funding Policy adopted by the Board and shown in Schedule F of this report.

Signed ____________________________________

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

# Section VII: Analysis of Financial Experience

1. 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 $10,621,979,323 on September 30, 2018 to 11,394,143,677 on September 30, 2019. The most significant items contributing to the increase in the UAAL were the losses due to salary increases more than anticipated 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.
2. 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, 2019**
(Dollar amounts in thousands)

| | | |
|---|---|---|
| (1) | UAAL at beginning of year | $ 10,621,979 |
| (2) | Total normal cost at beginning of the year | 591,326 |
| (3) | Actual contributions | 1,366,460 |
| (4) | Interest accrual:<br>[ [(1) + (2) ] - ½ [ (3)] ] x 0.07700 | 810,816 |
| (5) | Expected UAAL before changes:<br>(1) + (2) – (3) + (4) | 10,657,661 |
| (6) | Increase from benefit changes | 0 |
| (7) | Changes from revised actuarial assumptions and methods | 0 |
| (8) | Expected UAAL after changes:<br>(5) + (6) + (7) | 10,657,661 |
| (9) | Actual UAAL at end of year | 11,394,144 |
| (10) | (Gain)/Loss: (9) - (8) | $ 736,483 |

**DEVELOPMENT OF (GAIN)/LOSS**
**FROM INVESTMENT RETURN**
**FOR THE YEAR ENDING SEPTEMBER 30, 2019**
(Dollar amounts in thousands)

| | | |
|---|---|---|
| (1) | Actuarial Value of Assets (BOY) | $ 25,006,419 |
| (2) | Net Cash Flow | (925,454) |
| (3) | Expected Return<br>[(1) + ½ [ (2)] ] x 0.07700 | 1,889,864 |
| (4) | Expected Actuarial Value of Assets<br>[(1) + (2) + (3)] | 25,970,829 |
| (5) | Actual Actuarial Value of Assets (EOY) | 25,821,326 |
| (6) | (Gain)/Loss: (4) – (5) | $ 149,503 |

# Section VII: Analysis of Financial Experience

**(GAINS)/ LOSSES BY SOURCE**
**FOR THE YEAR ENDING SEPTEMBER 30, 2019**
(Dollar amounts in thousands)

| SOURCE | Total | % of Actuarial Accrued Liability |
|---|---|---|
| **Age and Service Retirements.** Generally, earlier retirements cause losses and later retirements cause gains. | $ 5,637 | 0.02% |
| **Withdrawal.** More withdrawals than expected usually cause gains and fewer withdrawals than expected cause losses. | 29,495 | 0.08% |
| **Disability Retirements.** More disabilities than expected generally cause losses and fewer disabilities than expected cause gains. | 3,557 | 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. | 4,205 | 0.01% |
| **Salary Increases.** If salaries increase more than expected, there is a loss. If salaries increase less than expected, there is a gain. | 592,855 | 1.59% |
| **New Members/Rehires.** Any past service causes losses. | 21,617 | 0.06% |
| **Retiree Mortality.** More deaths than expected cause gains, fewer than expected cause losses. | 9,712 | 0.03% |
| **Investment Return.** Investment income greater than expected causes gains while investment income less than expected cause losses. | 149,503 | 0.40% |
| **Other.** Miscellaneous gains and losses resulting from data corrections, timing of financial transactions, unit transfers, changes in valuation software, etc. | (80,098) | (0.22)% |
| **Total (Gain)/Loss** | $ 736,483 | 1.98% |

# Section VII: Analysis of Financial Experience

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

| SOURCE | September 30 2019 | 2018 | 2017 |
|---|---|---|---|
| Age and Service Retirements | $ 5,637 | $ (5,683) | $ 8,651 |
| Withdrawal | 29,495 | 30,805 | 75,236 |
| Disability Retirements | 3,557 | 2,979 | 3,170 |
| Death-In-Service Benefits | 4,205 | 7,054 | 14,960 |
| Salary Increases | 592,855 | (245,066) | 175,807 |
| New Members/Rehires | 21,617 | 22,534 | 27,797 |
| Retiree Mortality | 9,712 | 8,480 | (8,515) |
| Investment Return | 149,503 | (275,913) | (412,731) |
| Other | (80,098) | (21,610) | (67,116) |
| **Total (Gain)/Loss** | $ 736,483 | $ (476,420) | $ (182,741) |

# 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, 2019**

| GROUP | NUMBER |
|---|---|
| Retirees and beneficiaries currently receiving benefits | 98,539 |
| Terminated employees entitled to benefits but not yet receiving benefits | 20,875 |
| Non-vested inactive members who have not contributed for more than 5 years | 29,660 |
| Active members | 136,325 |
| Total | 285,399 |

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 ) |
|---|---|---|---|---|---|---|
| 9/30/2014 | $20,809,871 | $30,837,829 | $10,027,958 | 67.5% | $6,335,161 | 158.3% |
| 9/30/2015 | 21,740,280 | 31,844,843 | 10,104,563 | 68.3 | 6,350,786 | 159.1 |
| 9/30/2016[1] | 22,645,512 | 33,143,834 | 10,498,322 | 68.3 | 6,430,999 | 163.2 |
| 9/30/2017[2] | 23,887,077 | 34,688,078 | 10,801,001 | 68.9 | 6,698,835 | 161.2 |
| 9/30/2018[2] | 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 |

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

# Section VIII: Accounting Information

3. The information presented above was determined as part of the actuarial valuation at September 30, 2019. Additional information as of the latest actuarial valuation follows.

| | |
|---|---|
| Valuation date | 09/30/2019 |
| Actuarial cost method | Entry Age Normal |
| Amortization method | Level percent closed |
| Single equivalent remaining amortization period | 27.8 years |
| Asset valuation method | Five-year market related value |
| Actuarial assumptions: | |
| Investment Rate of Return* | 7.70% |
| Projected salary increases* | 3.25 - 5.00% |
| Cost-of-living adjustments | None |
| *Includes price inflation at | 2.75% |

# 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.

# Section IX: Risk Assessment

***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 |
|---|---|---|---|
| 2014 | $22,253,818 | $6,335,161 | 3.51 |
| 2015 | $21,574,653 | $6,350,786 | 3.40 |
| 2016 | $22,758,954 | $6,430,999 | 3.54 |
| 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 |

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, 2019 is 3.54. As shown in the table below, if the market value return is 5% below assumed, or 2.70% (7.70% minus 5.00%) for the System, there will be an increase in the Required Contribution Rate of 0.22% 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 1.09%.

| Investment Rate of Return 5% Less Than Assumed | | |
|---|---|---|
| AVR | Unsmoothed Amortization | Smoothed Amortization |
| 3.00 | 0.93% | 0.19% |
| 3.54 | 1.09% | 0.22% |
| 5.00 | 1.55% | 0.31% |

# 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 7.70%, along with the results if the assumption were 6.70% or 8.70%. 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 (6.70% or 8.70%) would comply with actuarial standards of practice.

**($ in thousands)**

| As of September 30, 2019 | Current Discount Rate (7.70%) | -1% Discount Rate (6.70%) | +1% Discount Rate (8.70%) |
|---|---|---|---|
| Accrued Liability | $37,215,470 | $41,290,043 | $33,770,160 |
| Unfunded Liability | $11,394,144 | $15,468,718 | $7,948,834 |
| Funded Ratio (AVA) | 69.4% | 62.5% | 76.5% |
| ADEC Rate* | | | |
| Tier I | 12.43% | 16.69% | 8.59% |
| Tier II | 11.32% | 14.84% | 8.06% |

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

# 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 next actuarial experience study will be for the period from October 1, 2015 – September 30, 2020.

***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 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.

# 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, 2019**

| | | September 30, 2019 |
|---|---|---|
| **ASSETS** | | |
| Actuarial Value of Assets | $ | 25,821,325,694 |
| Present value of future members' contributions to the Annuity Savings Fund | $ | 3,777,129,532 |
| Present value of future employer contributions to the Pension Accumulation Fund | | |
| Normal contributions | $ | 1,067,122,540 |
| Unfunded actuarial accrued liability contributions | | 11,394,143,677 |
| Total prospective employer contributions | $ | 12,461,266,217 |
| Total Assets | $ | 42,059,721,443 |
| **LIABILITIES** | | |
| Present value of benefits payable on account of retired members, beneficiaries of deceased members now drawing retirement allowances, and DROP participants | | |
| Service Retirements | $ | 19,624,821,969 |
| Disability Retirements | | 610,564,073 |
| Beneficiaries of Deceased Members | | 693,040,580 |
| DROP Participant Accounts | | 165,238,583 |
| Total | $ | 21,093,665,205 |
| Inactive Members | $ | 664,216,188 |
| Inactive T-Section Accounts | $ | 63,665,790 |
| Present value of prospective benefits payable on account of present active members: | | |
| Service retirement allowances | $ | 18,196,760,105 |
| Disability retirement allowances | | 796,483,825 |
| Death Benefits | | 128,077,949 |
| Termination Benefits | | 1,116,852,381 |
| Total | $ | 20,238,174,260 |
| Total Liabilities | $ | 42,059,721,443 |

# Schedule A: Valuation Balance Sheet & Solvency Test

**SOLVENCY TEST**
**(Dollar amounts in thousands)**

| | Aggregate Accrued Liabilities For | | | | Portion of Accrued Liabilities Covered by Reported Asset | | |
|---|---|---|---|---|---|---|---|
| Valuation Date | (1) Active Member Contributions | (2) Retirants and Beneficiaries | (3) Active Members (Employer Financed Portion) | Reported Assets | (1) | (2) | (3) |
| 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 | 9,297,737 | 23,887,077 | 100 | 92 | 0.0 |
| 9/30/2016[2] | 5,197,469 | 19,257,160 | 8,689,205 | 22,645,512 | 100 | 91 | 0.0 |
| 9/30/2015 | 4,894,145 | 18,621,250 | 8,329,448 | 21,740,280 | 100 | 90 | 0.0 |
| 9/30/2014 | 4,589,021 | 18,104,369 | 8,144,439 | 20,809,871 | 100 | 90 | 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, 2019 ACTUARIAL VALUE OF ASSETS**

| | | |
|---|---|---|
| (1) | Actuarial Value of Assets on September 30, 2018 | $ 25,006,419,004 |
| (2) | Market Value of Assets on September 30, 2019 | 25,443,974,735 |
| (3) | Market Value of Assets on September 30, 2018 | 25,756,495,073 |
| (4) | Net Cash Flow During the Fiscal Year | |
| | a. Contributions | 1,366,459,960 |
| | b. Benefit Payments and DROP Distributions | 2,233,683,773 |
| | c. Refunds to Members | 58,230,290 |
| | d. Transfer to Expense Fund – Interest Forfeiture | 0 |
| | e. Investment Expenses | 31,478,341 |
| | f. Net Cash Flow: (a. - b. - c. - d. - e.) | (956,932,444) |
| (5) | Actual Investment Return ((2) - (3) - (4)f.) | 644,412,106 |
| (6) | Assumed Rate of Return on Assets | 7.700% |
| (7) | Amount for Immediate Recognition<br>((3) * (6)) + (((4)a. - (4)b. - (4)c. - (4)d.) * 0.5 * (6)) + (4)e. | 1,979,098,479 |
| (8) | Investment Gain/(Loss) for the Fiscal Year ((5) - (7)) | (1,334,686,373) |
| (9) | Phased-In Recognition of Investment Gain/(Loss) | |
| | a. Current Fiscal Year: ( 0.2 * (8)) | (266,937,275) |
| | b. Prior Fiscal Year | 80,112,762 |
| | c. Second Prior Fiscal Year | 174,159,190 |
| | d. Third Prior Fiscal Year | 101,741,473 |
| | e. Fourth Prior Fiscal Year | (296,335,495) |
| | f. Total Recognized Investment Gain/(Loss) for Fiscal Year | (207,259,345) |
| (10) | Actuarial Value of Assets on September 30, 2019<br>((1) + (4)f. + (7) + (9)f.) | $ 25,821,325,694 |

| Date | Investment Gain/(Loss) | Amount Recognized | Remaining Balance as of September 30, 2019 |
|---|---|---|---|
| 9/30/2015 | $ (1,481,677,477) | $ (1,481,677,477) | $ 0 |
| 9/30/2016 | 508,707,363 | 406,965,890 | 101,741,473 |
| 9/30/2017 | 870,795,950 | 522,477,570 | 348,318,380 |
| 9/30/2018 | 400,563,810 | 160,225,524 | 240,338,286 |
| 9/30/2019 | (1,334,686,373) | (266,937,275) | (1,067,749,098) |

# Schedule C: Summary of Receipts & Disbursements

**FOR THE PERIOD ENDING SEPTEMBER 30, 2019**

| | | |
|---|---|---|
| Receipts for the Period | | |
| Contributions: | | |
| Members | $ 522,908,600 | |
| Employer | 843,551,360 | |
| Total | | $ 1,366,459,960 |
| Investment Income | | 623,632,167* |
| TOTAL | | $ 1,990,092,127 |
| Disbursements for the Period | | |
| Benefit Payments | | $ 2,197,464,715 |
| Refunds to Members | | 58,230,290 |
| DROP Distributions | | 36,219,058 |
| Miscellaneous: | | |
| Transfers from Plant Fund | $ 0 | |
| Transfers to Expense Fund –Interest Forfeiture | 0 | |
| Transfers to Expense Fund –Investment Expenses | 9,205,341 | |
| Transfers to Pre-retirement Death Benefit Fund | 1,493,061 | |
| Total | | 10,698,402 |
| TOTAL | | $ 2,302,612,465 |
| Excess of Receipts over Disbursements | | $ (312,520,338) |
| Reconciliation of Asset Balances | | |
| Market Value of Assets as of September 30, 2018 | | $ 25,756,495,073 |
| Excess of Receipts over Disbursements | | (312,520,338) |
| Market Value of Assets as of September 30, 2019 | | $ 25,443,974,735 |

* Net of $22,273,000 in investment expenses.

# Schedule D: Outline of Actuarial Assumptions & Methods

The assumptions and methods used in the valuation were selected based on the actuarial experience study prepared as of September 30, 2015, submitted to and adopted by the Board on September 13, 2016. The discount rate of 7.70% was subsequently adopted by the Board of Trustees on December 4, 2018.

INVESTMENT RATE OF RETURN: 7.70% per annum, compounded annually, including price inflation at 2.75%.

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases are as follows and include wage inflation at 3.00% per annum:

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

# Schedule D: Outline of Actuarial Assumptions & Methods

SEPARATIONS BEFORE SERVICE RETIREMENT: Representative values of the assumed annual rates of death, disability, and withdrawal are as follows:

| | Annual Rate of | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | Death* | Disability** | | | Withdrawal*** | | | |
| | | Tier I | | Tier II | | | | |
| | | Years of Service | | | Years of Service | | | |
| | | 10-24 | 25+ | 10+ | 0-4 | 5-9 | 10-19 | 20+ |
| | | | | **Male** | | | | |
| 20 | 0.0293% | 0.0008% | | 0.0008% | 25.00% | | | |
| 25 | 0.0319 | 0.0250 | | 0.0250 | 14.80 | 11.00% | | |
| 30 | 0.0376 | 0.0425 | | 0.0425 | 13.80 | 5.40 | 3.50% | |
| 35 | 0.0655 | 0.1300 | | 0.1300 | 13.50 | 5.40 | 2.50 | 0.50% |
| 40 | 0.0914 | 0.1700 | | 0.1700 | 13.00 | 5.40 | 2.25 | 0.50 |
| 45 | 0.1278 | 0.2700 | 0.2000% | 0.2700 | 13.00 | 5.40 | 2.25 | 0.75 |
| 50 | 0.1812 | 0.6000 | 0.2000 | 0.6000 | 12.00 | 5.00 | 2.50 | 0.80 |
| 55 | 0.2567 | 0.9000 | 0.2000 | 0.9000 | 11.50 | 5.00 | 2.50 | 0.90 |
| 60 | 0.3815 | 0.5000 | 0.5000 | 1.3000 | 12.00 | 4.50 | 2.50 | 0.90 |
| 65 | 0.5353 | 0.5000 | 0.5000 | 0.5000 | 12.00 | 6.00 | | |
| 69 | 0.6326 | 0.5000 | 0.5000 | 0.5000 | 12.00 | 6.25 | | |
| | | | | **Female** | | | | |
| 20 | 0.0108% | 0.0100% | | 0.0100% | 25.00% | | | |
| 25 | 0.0117 | 0.0275 | | 0.0275 | 12.75 | 9.00% | | |
| 30 | 0.0149 | 0.0425 | | 0.0425 | 13.50 | 5.80 | 4.30% | |
| 35 | 0.0268 | 0.1000 | | 0.1000 | 13.50 | 5.00 | 2.60 | 1.50% |
| 40 | 0.0399 | 0.2000 | | 0.2000 | 11.50 | 4.75 | 2.00 | 1.50 |
| 45 | 0.0635 | 0.3500 | 0.2000% | 0.3500 | 10.75 | 4.10 | 2.00 | 0.50 |
| 50 | 0.0947 | 0.6500 | 0.2000 | 0.6500 | 10.75 | 3.90 | 2.20 | 0.75 |
| 55 | 0.1371 | 1.0500 | 0.2000 | 1.0500 | 11.00 | 4.20 | 2.40 | 0.80 |
| 60 | 0.1929 | 0.5000 | 0.5000 | 1.4000 | 12.00 | 4.50 | 2.70 | 1.00 |
| 65 | 0.2743 | 0.5000 | 0.5000 | 0.5000 | 15.00 | 6.75 | | |
| 69 | 0.3435 | 0.5000 | 0.5000 | 0.5000 | 15.00 | 7.25 | | |

**Rates of pre-retirement mortality are according to the sex distinct RP-2000 Employee Mortality Table (with the sex distinct RP-2000 Combined Mortality Table used for ages over 70) projected with Scale BB to 2020 with an adjustment factor of 90% for males and 60% for females.*

***No rates of disability are assumed for members with less than 10 years of service.*

****No rates of withdrawal are assumed after eligibility for service retirement.*

SERVICE RETIREMENT:

The assumed annual rates of service retirement for **Tier I** members are as follows:

For members upon attaining 25 years of service, rates are as follows:

| | Annual Rate | |
|---|---|---|
| Age Group | Male* | Female** |
| 47 & Under | 25.0% | 28.0% |
| 48 | 25.0 | 20.0 |
| 49 | 20.0 | 17.0 |
| 50 | 16.5 | 13.0 |
| 51 to 53 | 16.0 | 15.0 |
| 54 | 16.0 | 17.0 |
| 55 | 16.0 | 18.0 |
| 56-57 | 16.0 | 19.0 |
| 58 | 16.0 | 21.0 |
| 59 | 20.0 | 22.0 |
| 60 | 20.0 | 30.0 |
| 61 | 20.0 | 27.5 |
| 62 | 35.0 | 45.0 |
| 63 | 30.0 | 35.0 |
| 64 | 23.0 | 32.0 |
| 65 | 28.0 | 38.0 |
| 66 | 27.0 | 40.0 |
| 67 | 22.0 | 35.0 |
| 68 | 22.0 | 37.0 |
| 69 to 70 | 22.0 | 30.0 |
| 71-74 | 20.0 | 30.0 |
| 75 | 100.0 | 100.0 |

**For males, retirement rates are increased by 5% in the year first attaining 25 years of service from age 51 through age 60.*
***For females, retirement rates are increased by 9% in the year first attaining 25 years of service from age 50 through age 59.*

For members first eligible for unreduced benefits before attaining 25 years of service, the rates are as follows:

| | Annual Rate | |
|---|---|---|
| Age Group | Male | Female |
| 60 | 12.5% | 17.0% |
| 61 | 11.0 | 13.5 |
| 62 | 25.0 | 23.5 |
| 63 | 18.5 | 18.0 |
| 64 | 15.0 | 17.0 |
| 65 | 28.0 | 28.0 |
| 66 | 27.0 | 28.0 |
| 67 | 22.0 | 23.0 |
| 68 | 22.0 | 27.0 |
| 69 | 22.0 | 22.0 |
| 70 | 22.0 | 26.0 |
| 71 to 74 | 20.0 | 24.0 |
| 75 & Above | 100.0 | 100.0 |

The assumed annual rates of service retirement for **Tier II** members are as follows:

| | Annual Rate | | | |
|---|---|---|---|---|
| | Male* | | Female** | |
| Age Group | Less than 25 years of service | 25 or more years of service | Less than 25 years of service | 25 or more years of service |
| 62 | 50.0% | 60.0% | 50.0% | 70.0% |
| 63 | 18.5 | 30.0 | 18.0 | 35.0 |
| 64 | 15.0 | 23.0 | 17.0 | 32.0 |
| 65 | 28.0 | 28.0 | 28.0 | 38.0 |
| 66 | 27.0 | 27.0 | 28.0 | 40.0 |
| 67 | 22.0 | 22.0 | 23.0 | 35.0 |
| 68 | 22.0 | 22.0 | 27.0 | 37.0 |
| 69 | 22.0 | 22.0 | 22.0 | 30.0 |
| 70 | 22.0 | 22.0 | 26.0 | 30.0 |
| 71 to 74 | 20.0 | 20.0 | 24.0 | 30.0 |
| 75 & above | 100.0 | 100.0 | 100.0 | 100.0 |

** For FLC Tier II members, rates on or after age 60 are the same as those for Tier I, while rates from ages 56 to 59 are equal to 0.20 for service less than 25 years and 0.30 for service greater than or equal to 25 years.*

*** For FLC Tier II members, rates on or after age 60 are the same as those for Tier I, while rates from ages 56 to 59 are equal to 0.20 for service less than 25 years and 0.40 for service greater than or equal to 25 years.*

# Schedule D: Outline of Actuarial Assumptions & Methods

DEATHS AFTER RETIREMENT: Rates of mortality for the period after service retirement are according to the RP-2000 White Collar Mortality Table projected to 2020 using scale BB and adjusted 115% for all ages for males and 112% for ages 78 and over for females. The rates of disabled mortality were based on the RP-2000 Disabled Mortality Table projected to 2020 using scale BB and adjusted 105% for males and 120% for females. Representative values of assumed mortality are as follows:

| | Service Retirement | | Disability Retirement | |
|---|---|---|---|---|
| Age | Male | Female | Male | Female |
| 55 | 0.3575% | 0.2339% | 3.5044% | 1.7959% |
| 60 | 0.5579 | 0.3825 | 3.8359 | 2.1434 |
| 65 | 0.9991 | 0.6795 | 4.1382 | 2.6417 |
| 70 | 1.6384 | 1.1928 | 4.8570 | 3.5474 |
| 75 | 2.8589 | 2.0200 | 6.3692 | 4.9231 |
| 80 | 5.0501 | 3.7900 | 8.4883 | 6.8160 |
| 85 | 8.8966 | 6.5271 | 10.9897 | 9.4450 |
| 90 | 16.4327 | 11.3249 | 15.4359 | 13.4706 |

SPOUSE'S BENEFIT: For those eligible for spouse's benefits, it is assumed that 75% will elect the lump sum death benefit payable from the death benefit fund and 25% will elect the spouse's benefit payable from the pension accumulation fund.

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: 3% load on service retirement liabilities for active members. (No load for Tier II 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. In order to reduce short-term volatility in valuation results and because the market value and actuarial value of assets were close in value, the actuarial value of assets was set equal to the market value on September 30, 2012. 5-year smoothing commenced again beginning September 30, 2013.

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 7.70%), 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 the 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 9/30/2019**

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. For that reason, it is critical that this funding policy remain unchanged until its objectives 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 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. An open amortization period is one for which the amortization period is recalculated on a yearly basis and the ending date of the amortization period is a variable with each recalculation. 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.

# Schedule F: Board Funding Policy

- **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 (applicable only to employers participating in the System as of the adoption date of the funding policy).
  - **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.
- **UAAL Amortization Period and Contribution Rates**
  - In each valuation 1/15th of the Transitional UAAL will be amortized over a closed period. The closed period shall be the amortization period for the valuation preceding the adoption of the funding policy not to exceed 30 years. The remaining Transitional UAAL each year will be amortized over an open period. The open period shall be the amortization period for the valuation preceding the adoption of the funding policy not to exceed 30 years. After 15 years the entire Transitional UAAL will be closed.
  - Each New Incremental UAAL shall be amortized over a closed 30 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, the individual amortization rate for each of the 15 closed periods for the Transitional UAAL and the amortization of any remaining open portion of the Transitional 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 30 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 including the Interest Smoothing methodology. 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, which shall include the Interest Smoothing Methodology.

**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

**PROJECTION OF THE OPEN TRANSITIONAL UAAL**

| Valuation Date | Transitional UAAL Beginning of Year (1) | Years (2) | Transitional Closed (3)= (1) / (2) | Transitional Remaining Open (4)=(1)-(3) | Interest (5)=(4) x ROR* | Amortization Payment (6) | Transitional Open UAAL End of Year (7)=(4)+(5)-(6) |
|---|---|---|---|---|---|---|---|
| **9/30/2012** | $9,465,359,317 | 15 | $631,023,954 | $8,834,335,363 | $706,746,829 | $566,618,173 | $8,974,464,019 |
| **9/30/2013** | 8,974,464,019 | 14 | 641,033,144 | 8,333,430,875 | 666,674,470 | 534,491,072 | 8,465,614,273 |
| **9/30/2014** | 8,465,614,273 | 13 | 651,201,098 | 7,814,413,175 | 625,153,054 | 501,202,222 | 7,938,364,007 |
| **9/30/2015** | 7,938,364,007 | 12 | 661,530,334 | 7,276,833,673 | 582,146,694 | 466,722,853 | 7,392,257,515 |
| **9/30/2016** | 7,392,257,515 | 11 | 672,023,410 | 6,720,234,104 | 529,218,436 | 430,782,442 | 6,818,670,097 |
| **9/30/2017** | 6,818,670,097 | 10 | 681,867,010 | 6,136,803,088 | 475,602,239 | 393,163,056 | 6,219,242,271 |
| **9/30/2018** | 6,219,242,271 | 9 | 691,026,919 | 5,528,215,352 | 425,672,582 | 352,167,086 | 5,601,720,848 |
| **9/30/2019** | **5,601,720,848** | **8** | **700,215,106** | **4,901,505,742** | **377,415,942** | **312,243,443** | **4,966,678,241** |
| **9/30/2020** | 4,966,678,241 | 7 | 709,525,463 | 4,257,152,778 | 327,800,764 | 271,195,855 | 4,313,757,687 |
| **9/30/2021** | 4,313,757,687 | 6 | 718,959,615 | 3,594,798,072 | 276,799,452 | 229,001,492 | 3,642,596,032 |
| **9/30/2022** | 3,642,596,032 | 5 | 728,519,206 | 2,914,076,826 | 224,383,916 | 185,637,114 | 2,952,823,628 |
| **9/30/2023** | 2,952,823,628 | 4 | 738,205,907 | 2,214,617,721 | 170,525,565 | 141,079,068 | 2,244,064,218 |
| **9/30/2024** | 2,244,064,218 | 3 | 748,021,406 | 1,496,042,812 | 115,195,297 | 95,303,277 | 1,515,934,832 |
| **9/30/2025** | 1,515,934,832 | 2 | 757,967,416 | 757,967,416 | 58,363,491 | 48,285,235 | 768,045,672 |
| **9/30/2026** | 768,045,672 | 1 | 768,045,672 | 0 | 0 | 0 | 0 |

** The assumed rate of return (ROR) and the assumed rate of payroll growth are as follows:*
*2012-2015: 8.00%/3.25%*
*2016: 7.875%/3.125%*
*2017: 7.75%/3.00%*
*2018 and later: 7.70%/3.00%*

# Schedule G: Amortization of Bases

**AMORTIZATION SCHEDULE FOR BASE CLOSED ON SEPTEMBER 30, 2012***

| Valuation Date | Balance of Transitional Closed 9/30/2012 | Annual Amortization Payment |
|---|---|---|
| **9/30/2012** | $631,023,954 | $40,472,727 |
| **9/30/2013** | 641,033,144 | 41,788,090 |
| **9/30/2014** | 650,527,705 | 43,146,203 |
| **9/30/2015** | 659,423,718 | 44,548,455 |
| **9/30/2016** | 667,629,161 | 45,967,602 |
| **9/30/2017** | 674,237,356 | 47,373,722 |
| **9/30/2018** | 679,117,029 | 48,560,159 |
| **9/30/2019** | **682,848,881** | **50,016,964** |
| **9/30/2020** | 685,411,281 | 51,517,473 |
| **9/30/2021** | 686,670,476 | 53,062,997 |
| **9/30/2022** | 686,481,106 | 54,654,887 |
| **9/30/2023** | 684,685,264 | 56,294,534 |
| **9/30/2024** | 681,111,496 | 57,983,370 |
| **9/30/2025** | 675,573,711 | 59,722,871 |
| **9/30/2026** | 667,870,016 | 61,514,557 |
| **9/30/2027** | 657,781,450 | 63,359,994 |
| **9/30/2028** | 645,070,629 | 65,260,793 |
| **9/30/2029** | 629,480,274 | 67,218,617 |
| **9/30/2030** | 610,731,637 | 69,235,176 |
| **9/30/2031** | 588,522,798 | 71,312,231 |
| **9/30/2032** | 562,526,822 | 73,451,598 |
| **9/30/2033** | 532,389,789 | 75,655,146 |
| **9/30/2034** | 497,728,657 | 77,924,800 |
| **9/30/2035** | 458,128,964 | 80,262,544 |
| **9/30/2036** | 413,142,350 | 82,670,421 |
| **9/30/2037** | 362,283,890 | 85,150,533 |
| **9/30/2038** | 305,029,216 | 87,705,049 |
| **9/30/2039** | 240,811,417 | 90,336,201 |
| **9/30/2040** | 169,017,695 | 93,046,287 |
| **9/30/2041** | 88,985,771 | 95,837,675 |
| **9/30/2042** | 0 | 0 |

**Reflects changes in interest rate and payroll growth assumptions as noted in the first exhibit in Schedule G*

# Schedule G: Amortization of Bases

**AMORTIZATION SCHEDULE FOR BASES CLOSED ON SEPTEMBER 30, 2013***

| Valuation Date | Balance of Transitional Closed 9/30/2013 | Annual Amortization Payment | Balance of New Incremental UAAL 9/30/2013 | Annual Amortization Payment |
|---|---|---|---|---|
| **9/30/2013** | $641,033,144 | $41,114,698 | $420,529,361 | $26,971,987 |
| **9/30/2014** | 651,201,098 | 42,450,925 | 427,199,723 | 27,848,577 |
| **9/30/2015** | 660,846,260 | 43,830,581 | 433,527,124 | 28,753,655 |
| **9/30/2016** | 669,883,380 | 45,227,607 | 439,455,639 | 29,670,130 |
| **9/30/2017** | 677,409,090 | 46,611,879 | 444,392,641 | 30,578,238 |
| **9/30/2018** | 683,296,415 | 47,772,054 | 448,254,833 | 31,339,333 |
| **9/30/2019** | **688,138,185** | **49,205,216** | **451,431,122** | **32,279,513** |
| **9/30/2020** | 691,919,610 | 50,681,372 | 453,911,805 | 33,247,899 |
| **9/30/2021** | 694,516,048 | 52,201,813 | 455,615,115 | 34,245,336 |
| **9/30/2022** | 695,791,970 | 53,767,868 | 456,452,143 | 35,272,696 |
| **9/30/2023** | 695,600,084 | 55,380,904 | 456,326,263 | 36,330,877 |
| **9/30/2024** | 693,780,387 | 57,042,331 | 455,132,508 | 37,420,803 |
| **9/30/2025** | 690,159,146 | 58,753,601 | 452,756,908 | 38,543,427 |
| **9/30/2026** | 684,547,799 | 60,516,209 | 449,075,763 | 39,699,730 |
| **9/30/2027** | 676,741,771 | 62,331,695 | 443,954,867 | 40,890,722 |
| **9/30/2028** | 666,519,192 | 64,201,646 | 437,248,670 | 42,117,443 |
| **9/30/2029** | 653,639,524 | 66,127,695 | 428,799,375 | 43,380,967 |
| **9/30/2030** | 637,842,072 | 68,111,526 | 418,435,960 | 44,682,396 |
| **9/30/2031** | 618,844,386 | 70,154,872 | 405,973,133 | 46,022,868 |
| **9/30/2032** | 596,340,531 | 72,259,518 | 391,210,197 | 47,403,554 |
| **9/30/2033** | 569,999,234 | 74,427,304 | 373,929,829 | 48,825,660 |
| **9/30/2034** | 539,461,872 | 76,660,123 | 353,896,765 | 50,290,430 |
| **9/30/2035** | 504,340,313 | 78,959,926 | 330,856,386 | 51,799,143 |
| **9/30/2036** | 464,214,591 | 81,328,724 | 304,533,185 | 53,353,117 |
| **9/30/2037** | 418,630,390 | 83,768,586 | 274,629,123 | 54,953,711 |
| **9/30/2038** | 367,096,344 | 86,281,643 | 240,821,855 | 56,602,322 |
| **9/30/2039** | 309,081,119 | 88,870,093 | 202,762,816 | 58,300,392 |
| **9/30/2040** | 244,010,272 | 91,536,196 | 160,075,161 | 60,049,403 |
| **9/30/2041** | 171,262,868 | 94,282,281 | 112,351,545 | 61,850,885 |
| **9/30/2042** | 90,167,827 | 97,110,750 | 59,151,729 | 63,706,412 |
| **9/30/2043** | 0 | 0 | 0 | 0 |

**Reflects changes in interest rate and payroll growth assumptions as noted in the first exhibit in Schedule G*

# Schedule G: Amortization of Bases

**AMORTIZATION SCHEDULE FOR BASES CLOSED ON SEPTEMBER 30, 2014***

| Valuation Date | Balance of Transitional Closed 9/30/2014 | Annual Amortization Payment | Balance of New Incremental UAAL 9/30/2014 | Annual Amortization Payment |
|---|---|---|---|---|
| **9/30/2014** | $651,201,098 | $41,766,852 | $(166,584,327) | $(10,684,415) |
| **9/30/2015** | 661,530,334 | 43,124,275 | (169,226,658) | (11,031,659) |
| **9/30/2016** | 671,328,486 | 44,499,509 | (171,733,132) | (11,383,459) |
| **9/30/2017** | 679,696,096 | 45,862,256 | (173,873,657) | (11,732,064) |
| **9/30/2018** | 686,510,287 | 46,996,851 | (175,616,802) | (12,022,306) |
| **9/30/2019** | **692,374,728** | **48,406,756** | **(177,116,990)** | **(12,382,975)** |
| **9/30/2020** | 697,280,826 | 49,858,959 | (178,372,023) | (12,754,464) |
| **9/30/2021** | 701,112,491 | 51,354,728 | (179,352,204) | (13,137,098) |
| **9/30/2022** | 703,743,425 | 52,895,369 | (180,025,226) | (13,531,211) |
| **9/30/2023** | 705,036,300 | 54,482,230 | (180,355,957) | (13,937,147) |
| **9/30/2024** | 704,841,864 | 56,116,697 | (180,306,219) | (14,355,262) |
| **9/30/2025** | 702,997,990 | 57,800,198 | (179,834,536) | (14,785,920) |
| **9/30/2026** | 699,328,637 | 59,534,204 | (178,895,875) | (15,229,497) |
| **9/30/2027** | 693,642,738 | 61,320,230 | (177,441,360) | (15,686,382) |
| **9/30/2028** | 685,732,999 | 63,159,837 | (175,417,963) | (16,156,974) |
| **9/30/2029** | 675,374,602 | 65,054,632 | (172,768,172) | (16,641,683) |
| **9/30/2030** | 662,323,814 | 67,006,271 | (169,429,639) | (17,140,933) |
| **9/30/2031** | 646,316,476 | 69,016,460 | (165,334,788) | (17,655,161) |
| **9/30/2032** | 627,066,386 | 71,086,953 | (160,410,405) | (18,184,816) |
| **9/30/2033** | 604,263,544 | 73,219,562 | (154,577,190) | (18,730,361) |
| **9/30/2034** | 577,572,275 | 75,416,149 | (147,749,273) | (19,292,272) |
| **9/30/2035** | 546,629,191 | 77,678,633 | (139,833,695) | (19,871,040) |
| **9/30/2036** | 511,041,006 | 80,008,992 | (130,729,850) | (20,467,171) |
| **9/30/2037** | 470,382,171 | 82,409,262 | (120,328,878) | (21,081,186) |
| **9/30/2038** | 424,192,336 | 84,881,540 | (108,513,015) | (21,713,622) |
| **9/30/2039** | 371,973,606 | 87,427,986 | (95,154,896) | (22,365,030) |
| **9/30/2040** | 313,187,588 | 90,050,826 | (80,116,793) | (23,035,981) |
| **9/30/2041** | 247,252,206 | 92,752,350 | (63,249,805) | (23,727,061) |
| **9/30/2042** | 173,538,276 | 95,534,921 | (44,392,979) | (24,438,872) |
| **9/30/2043** | 91,365,802 | 98,400,969 | (23,372,366) | (25,172,039) |
| **9/30/2044** | 0 | 0 | 0 | 0 |

**Reflects changes in interest rate and payroll growth assumptions as noted in the first exhibit in Schedule G*

# Schedule G: Amortization of Bases

**AMORTIZATION SCHEDULE FOR BASES CLOSED ON SEPTEMBER 30, 2015***

| Valuation Date | Balance of Transitional Closed 9/30/2015 | Annual Amortization Payment | Balance of New Incremental UAAL 9/30/2015 | Annual Amortization Payment |
|---|---|---|---|---|
| **9/30/2015** | $661,530,334 | $42,429,350 | $(79,902,094) | $(5,124,775) |
| **9/30/2016** | 672,023,410 | 43,783,117 | (81,169,487) | (5,288,288) |
| **9/30/2017** | 681,162,137 | 45,124,658 | (82,273,296) | (5,450,324) |
| **9/30/2018** | 688,827,545 | 46,234,335 | (83,199,153) | (5,584,355) |
| **9/30/2019** | **695,632,931** | **47,621,365** | **(84,021,132)** | **(5,751,886)** |
| **9/30/2020** | 701,575,301 | 49,050,006 | (84,738,874) | (5,924,442) |
| **9/30/2021** | 706,546,594 | 50,521,506 | (85,339,325) | (6,102,175) |
| **9/30/2022** | 710,429,175 | 52,037,151 | (85,808,278) | (6,285,241) |
| **9/30/2023** | 713,095,071 | 53,598,266 | (86,130,275) | (6,473,798) |
| **9/30/2024** | 714,405,125 | 55,206,214 | (86,288,508) | (6,668,012) |
| **9/30/2025** | 714,208,106 | 56,862,400 | (86,264,711) | (6,868,052) |
| **9/30/2026** | 712,339,730 | 58,568,272 | (86,039,042) | (7,074,094) |
| **9/30/2027** | 708,621,617 | 60,325,320 | (85,589,954) | (7,286,317) |
| **9/30/2028** | 702,860,161 | 62,135,080 | (84,894,064) | (7,504,906) |
| **9/30/2029** | 694,845,313 | 63,999,132 | (83,926,001) | (7,730,053) |
| **9/30/2030** | 684,349,270 | 65,919,106 | (82,658,250) | (7,961,955) |
| **9/30/2031** | 671,125,058 | 67,896,680 | (81,060,980) | (8,200,813) |
| **9/30/2032** | 654,905,008 | 69,933,580 | (79,101,862) | (8,446,838) |
| **9/30/2033** | 635,399,113 | 72,031,587 | (76,745,868) | (8,700,243) |
| **9/30/2034** | 612,293,258 | 74,192,535 | (73,955,057) | (8,961,250) |
| **9/30/2035** | 585,247,304 | 76,418,311 | (70,688,346) | (9,230,088) |
| **9/30/2036** | 553,893,035 | 78,710,860 | (66,901,261) | (9,506,990) |
| **9/30/2037** | 517,831,938 | 81,072,186 | (62,545,667) | (9,792,200) |
| **9/30/2038** | 476,632,811 | 83,504,352 | (57,569,484) | (10,085,966) |
| **9/30/2039** | 429,829,186 | 86,009,482 | (51,916,368) | (10,388,545) |
| **9/30/2040** | 376,916,551 | 88,589,767 | (45,525,383) | (10,700,201) |
| **9/30/2041** | 317,349,359 | 91,247,460 | (38,330,636) | (11,021,208) |
| **9/30/2042** | 250,537,800 | 93,984,884 | (30,260,887) | (11,351,844) |
| **9/30/2043** | 175,844,327 | 96,804,430 | (21,239,132) | (11,692,399) |
| **9/30/2044** | 92,579,910 | 99,708,563 | (11,182,146) | (12,043,171) |
| **9/30/2045** | 0 | 0 | 0 | 0 |

**Reflects changes in interest rate and payroll growth assumptions as noted in the first exhibit in Schedule G*

# Schedule G: Amortization of Bases

**AMORTIZATION SCHEDULE FOR BASES CLOSED ON SEPTEMBER 30, 2016***

| Valuation Date | Balance of Transitional Closed 9/30/2016 | Annual Amortization Payment | Balance of New Incremental UAAL 9/30/2016 | Annual Amortization Payment |
|---|---|---|---|---|
| **9/30/2016** | $672,023,410 | $43,078,244 | $238,646,903 | $15,297,815 |
| **9/30/2017** | 681,867,009 | 44,398,892 | 242,142,532 | 15,766,799 |
| **9/30/2018** | 690,312,811 | 45,484,296 | 245,141,779 | 16,152,245 |
| **9/30/2019** | **697,982,601** | **46,848,825** | **247,865,452** | **16,636,812** |
| **9/30/2020** | 704,878,436 | 48,254,290 | 250,314,279 | 17,135,916 |
| **9/30/2021** | 710,899,785 | 49,701,919 | 252,452,563 | 17,649,994 |
| **9/30/2022** | 715,937,150 | 51,192,976 | 254,241,416 | 18,179,494 |
| **9/30/2023** | 719,871,334 | 52,728,766 | 255,638,512 | 18,724,878 |
| **9/30/2024** | 722,572,661 | 54,310,629 | 256,597,799 | 19,286,625 |
| **9/30/2025** | 723,900,127 | 55,939,947 | 257,069,205 | 19,865,223 |
| **9/30/2026** | 723,700,490 | 57,618,146 | 256,998,310 | 20,461,180 |
| **9/30/2027** | 721,807,281 | 59,346,690 | 256,325,999 | 21,075,016 |
| **9/30/2028** | 718,039,752 | 61,127,091 | 254,988,086 | 21,707,266 |
| **9/30/2029** | 712,201,722 | 62,960,904 | 252,914,902 | 22,358,484 |
| **9/30/2030** | 704,080,350 | 64,849,731 | 250,030,866 | 23,029,239 |
| **9/30/2031** | 693,444,807 | 66,795,223 | 246,254,004 | 23,720,116 |
| **9/30/2032** | 680,044,834 | 68,799,079 | 241,495,447 | 24,431,719 |
| **9/30/2033** | 663,609,207 | 70,863,052 | 235,658,877 | 25,164,671 |
| **9/30/2034** | 643,844,064 | 72,988,943 | 228,639,940 | 25,919,611 |
| **9/30/2035** | 620,431,113 | 75,178,612 | 220,325,604 | 26,697,199 |
| **9/30/2036** | 593,025,697 | 77,433,970 | 210,593,476 | 27,498,115 |
| **9/30/2037** | 561,254,706 | 79,756,989 | 199,311,059 | 28,323,059 |
| **9/30/2038** | 524,714,329 | 82,149,699 | 186,334,952 | 29,172,750 |
| **9/30/2039** | 482,967,634 | 84,614,190 | 171,509,993 | 30,047,933 |
| **9/30/2040** | 435,541,952 | 87,152,615 | 154,668,329 | 30,949,371 |
| **9/30/2041** | 381,926,067 | 89,767,194 | 135,628,419 | 31,877,852 |
| **9/30/2042** | 321,567,180 | 92,460,210 | 114,193,956 | 32,834,188 |
| **9/30/2043** | 253,867,643 | 95,234,016 | 90,152,703 | 33,819,213 |
| **9/30/2044** | 178,181,435 | 98,091,037 | 63,275,248 | 34,833,790 |
| **9/30/2045** | 93,810,369 | 101,033,768 | 33,313,652 | 35,878,803 |
| **9/30/2046** | 0 | 0 | 0 | 0 |

**Reflects change in interest rate and payroll growth assumption as noted in the first exhibit in Schedule G*

# Schedule G: Amortization of Bases

**AMORTIZATION SCHEDULE FOR BASES CLOSED ON SEPTEMBER 30, 2017***

| Valuation Date | Balance of Transitional Closed 9/30/2017 | Annual Amortization Payment | Balance of New Incremental UAAL 9/30/2017 | Annual Amortization Payment |
|---|---|---|---|---|
| **9/30/2017** | $681,867,010 | $43,684,784 | $157,571,306 | $10,095,031 |
| **9/30/2018** | 691,026,919 | 44,746,543 | 159,688,051 | 10,340,391 |
| **9/30/2019** | **699,489,449** | **46,088,940** | **161,643,641** | **10,650,602** |
| **9/30/2020** | 707,261,197 | 47,471,608 | 163,439,599 | 10,970,120 |
| **9/30/2021** | 714,248,701 | 48,895,756 | 165,054,327 | 11,299,224 |
| **9/30/2022** | 720,350,095 | 50,362,629 | 166,464,286 | 11,638,201 |
| **9/30/2023** | 725,454,424 | 51,873,508 | 167,643,836 | 11,987,347 |
| **9/30/2024** | 729,440,907 | 53,429,713 | 168,565,064 | 12,346,967 |
| **9/30/2025** | 732,178,144 | 55,032,604 | 169,197,607 | 12,717,376 |
| **9/30/2026** | 733,523,256 | 56,683,582 | 169,508,446 | 13,098,898 |
| **9/30/2027** | 733,320,965 | 58,384,090 | 169,461,699 | 13,491,864 |
| **9/30/2028** | 731,402,589 | 60,135,612 | 169,018,386 | 13,896,620 |
| **9/30/2029** | 727,584,976 | 61,939,681 | 168,136,181 | 14,313,519 |
| **9/30/2030** | 721,669,339 | 63,797,871 | 166,769,148 | 14,742,925 |
| **9/30/2031** | 713,440,006 | 65,711,807 | 164,867,448 | 15,185,212 |
| **9/30/2032** | 702,663,080 | 67,683,162 | 162,377,029 | 15,640,769 |
| **9/30/2033** | 689,084,975 | 69,713,656 | 159,239,291 | 16,109,992 |
| **9/30/2034** | 672,430,862 | 71,805,066 | 155,390,725 | 16,593,291 |
| **9/30/2035** | 652,402,972 | 73,959,218 | 150,762,519 | 17,091,090 |
| **9/30/2036** | 628,678,782 | 76,177,995 | 145,280,143 | 17,603,823 |
| **9/30/2037** | 600,909,054 | 78,463,335 | 138,862,891 | 18,131,938 |
| **9/30/2038** | 568,715,717 | 80,817,235 | 131,423,396 | 18,675,896 |
| **9/30/2039** | 531,689,592 | 83,241,752 | 122,867,102 | 19,236,173 |
| **9/30/2040** | 489,387,939 | 85,739,004 | 113,091,696 | 19,813,258 |
| **9/30/2041** | 441,331,806 | 88,311,174 | 101,986,499 | 20,407,656 |
| **9/30/2042** | 387,003,181 | 90,960,510 | 89,431,804 | 21,019,885 |
| **9/30/2043** | 325,841,916 | 93,689,325 | 75,298,168 | 21,650,482 |
| **9/30/2044** | 257,242,419 | 96,500,005 | 59,445,645 | 22,299,996 |
| **9/30/2045** | 180,550,081 | 99,395,005 | 41,722,963 | 22,968,996 |
| **9/30/2046** | 95,057,433 | 102,376,855 | 21,966,635 | 23,658,066 |
| **9/30/2047** | 0 | 0 | 0 | 0 |

**Reflects change in interest rate and payroll growth assumption beginning as noted in the first exhibit in Schedule G*

# Schedule G: Amortization of Bases

**AMORTIZATION SCHEDULE FOR BASES CLOSED ON SEPTEMBER 30, 2018**

| Valuation Date | Balance of Transitional Closed 9/30/2018 | Annual Amortization Payment | Balance of New Incremental UAAL 9/30/2018 | Annual Amortization Payment |
|---|---|---|---|---|
| **9/30/2018** | $691,026,919 | $44,020,886 | $(310,622,662) | $(19,787,774) |
| **9/30/2019** | **700,215,106** | **45,341,512** | **(314,752,833)** | **(20,381,408)** |
| **9/30/2020** | 708,790,157 | 46,701,758 | (318,607,393) | (20,992,850) |
| **9/30/2021** | 716,665,241 | 48,102,810 | (322,147,313) | (21,622,635) |
| **9/30/2022** | 723,745,654 | 49,545,895 | (325,330,021) | (22,271,314) |
| **9/30/2023** | 729,928,175 | 51,032,272 | (328,109,118) | (22,939,454) |
| **9/30/2024** | 735,100,373 | 52,563,240 | (330,434,066) | (23,627,637) |
| **9/30/2025** | 739,139,862 | 54,140,137 | (332,249,852) | (24,336,466) |
| **9/30/2026** | 741,913,494 | 55,764,341 | (333,496,624) | (25,066,560) |
| **9/30/2027** | 743,276,493 | 57,437,271 | (334,109,304) | (25,818,557) |
| **9/30/2028** | 743,071,511 | 59,160,389 | (334,017,163) | (26,593,114) |
| **9/30/2029** | 741,127,628 | 60,935,201 | (333,143,370) | (27,390,907) |
| **9/30/2030** | 737,259,255 | 62,763,257 | (331,404,502) | (28,212,635) |
| **9/30/2031** | 731,264,960 | 64,646,155 | (328,710,014) | (29,059,014) |
| **9/30/2032** | 722,926,207 | 66,585,539 | (324,961,672) | (29,930,784) |
| **9/30/2033** | 712,005,986 | 68,583,106 | (320,052,936) | (30,828,708) |
| **9/30/2034** | 698,247,341 | 70,640,599 | (313,868,305) | (31,753,569) |
| **9/30/2035** | 681,371,787 | 72,759,817 | (306,282,596) | (32,706,176) |
| **9/30/2036** | 661,077,598 | 74,942,611 | (297,160,180) | (33,687,361) |
| **9/30/2037** | 637,037,962 | 77,190,890 | (286,354,152) | (34,697,982) |
| **9/30/2038** | 608,898,995 | 79,506,616 | (273,705,440) | (35,738,921) |
| **9/30/2039** | 576,277,602 | 81,891,815 | (259,041,837) | (36,811,089) |
| **9/30/2040** | 538,759,162 | 84,348,569 | (242,176,970) | (37,915,422) |
| **9/30/2041** | 495,895,049 | 86,879,026 | (222,909,174) | (39,052,884) |
| **9/30/2042** | 447,199,941 | 89,485,397 | (201,020,296) | (40,224,471) |
| **9/30/2043** | 392,148,939 | 92,169,959 | (176,274,388) | (41,431,205) |
| **9/30/2044** | 330,174,449 | 94,935,058 | (148,416,311) | (42,674,141) |
| **9/30/2045** | 260,662,823 | 97,783,110 | (117,170,226) | (43,954,366) |
| **9/30/2046** | 182,950,751 | 100,716,603 | (82,237,968) | (45,272,996) |
| **9/30/2047** | 96,321,356 | 103,738,101 | (43,297,295) | (46,631,186) |
| **9/30/2048** | 0 | 0 | 0 | 0 |

# Schedule G: Amortization of Bases

**AMORTIZATION SCHEDULE FOR BASES CLOSED ON SEPTEMBER 30, 2019**

| Valuation Date | Balance of Transitional Closed 9/30/2019 | Annual Amortization Payment | Balance of New Incremental UAAL 9/30/2019 | Annual Amortization Payment |
|---|---|---|---|---|
| **9/30/2019** | **$700,215,106** | **$44,606,206** | **$650,691,688** | **$41,451,387** |
| **9/30/2020** | 709,525,463 | 45,944,392 | 659,343,561 | 42,694,929 |
| **9/30/2021** | 718,214,531 | 47,322,724 | 667,418,086 | 43,975,777 |
| **9/30/2022** | 726,194,326 | 48,742,406 | 674,833,502 | 45,295,050 |
| **9/30/2023** | 733,368,884 | 50,204,678 | 681,500,631 | 46,653,902 |
| **9/30/2024** | 739,633,610 | 51,710,818 | 687,322,278 | 48,053,519 |
| **9/30/2025** | 744,874,579 | 53,262,143 | 692,192,575 | 49,495,124 |
| **9/30/2026** | 748,967,779 | 54,860,007 | 695,996,279 | 50,979,978 |
| **9/30/2027** | 751,778,291 | 56,505,807 | 698,608,015 | 52,509,377 |
| **9/30/2028** | 753,159,412 | 58,200,982 | 699,891,455 | 54,084,659 |
| **9/30/2029** | 752,951,705 | 59,947,011 | 699,698,438 | 55,707,198 |
| **9/30/2030** | 750,981,975 | 61,745,421 | 697,868,020 | 57,378,414 |
| **9/30/2031** | 747,062,166 | 63,597,784 | 694,225,443 | 59,099,767 |
| **9/30/2032** | 740,988,169 | 65,505,718 | 688,581,035 | 60,872,760 |
| **9/30/2033** | 732,538,541 | 67,470,889 | 680,729,015 | 62,698,943 |
| **9/30/2034** | 721,473,119 | 69,495,016 | 670,446,207 | 64,579,911 |
| **9/30/2035** | 707,531,534 | 71,579,866 | 657,490,654 | 66,517,308 |
| **9/30/2036** | 690,431,596 | 73,727,262 | 641,600,126 | 68,512,827 |
| **9/30/2037** | 669,867,566 | 75,939,080 | 622,490,509 | 70,568,212 |
| **9/30/2038** | 645,508,289 | 78,217,252 | 599,854,066 | 72,685,259 |
| **9/30/2039** | 616,995,175 | 80,563,770 | 573,357,570 | 74,865,816 |
| **9/30/2040** | 583,940,033 | 82,980,683 | 542,640,287 | 77,111,791 |
| **9/30/2041** | 545,922,733 | 85,470,104 | 507,311,798 | 79,425,144 |
| **9/30/2042** | 502,488,679 | 88,034,207 | 466,949,662 | 81,807,899 |
| **9/30/2043** | 453,146,101 | 90,675,233 | 421,096,887 | 84,262,136 |
| **9/30/2044** | 397,363,118 | 93,395,490 | 369,259,212 | 86,790,000 |
| **9/30/2045** | 334,564,588 | 96,197,355 | 310,902,171 | 89,393,700 |
| **9/30/2046** | 264,128,707 | 99,083,275 | 245,447,938 | 92,075,511 |
| **9/30/2047** | 185,383,342 | 102,055,773 | 172,271,919 | 94,837,776 |
| **9/30/2048** | 97,602,086 | 105,117,447 | 90,699,080 | 97,682,909 |
| **9/30/2049** | 0 | 0 | 0 | 0 |

# Schedule G:   Amortization of Bases

**AMORTIZATION SCHEDULE FOR TOTAL UAAL**
**AS OF SEPTEMBER 30, 2019**

| Year | Projected UAAL | Payment for year Beginning September 30, |
|---|---|---|
| 2019 | $11,394,143,677 | $752,881,272 |
| 2020 | 11,518,611,465 | 770,252,130 |
| 2021 | 11,635,292,418 | 788,829,753 |
| 2022 | 11,742,380,181 | 808,669,502 |
| 2023 | 11,837,873,953 | 829,828,784 |
| 2024 | 11,919,561,464 | 852,367,122 |
| 2025 | 11,985,000,574 | 876,346,230 |
| 2026 | 12,031,499,388 | 901,830,081 |
| 2027 | 12,056,094,760 | 928,884,984 |
| 2028 | 12,055,529,072 | 956,751,533 |
| 2029 | 12,027,053,278 | 985,454,079 |
| 2030 | 11,967,682,301 | 1,015,017,702 |
| 2031 | 11,874,176,137 | 1,045,468,233 |
| 2032 | 11,743,019,467 | 1,076,832,280 |
| 2033 | 11,570,399,686 | 1,109,137,248 |
| 2034 | 11,352,183,214 | 1,142,411,365 |
| 2035 | 11,083,889,956 | 1,176,683,706 |
| 2036 | 10,760,665,777 | 1,211,984,218 |
| 2037 | 10,377,252,824 | 1,248,343,744 |
| 2038 | 9,927,957,547 | 1,285,794,056 |
| 2039 | 9,406,616,222 | 1,324,367,878 |
| 2040 | 8,806,557,793 | 1,364,098,914 |
| 2041 | 8,120,563,829 | 1,405,021,882 |
| 2042 | 7,340,825,362 | 1,348,459,733 |
| 2043 | 6,557,609,182 | 1,223,271,848 |
| 2044 | 5,839,273,241 | 1,184,544,205 |
| 2045 | 5,104,353,075 | 1,129,785,178 |
| 2046 | 4,367,603,084 | 1,022,658,785 |
| 2047 | 3,681,249,737 | 923,522,580 |
| 2048 | 3,041,183,386 | 892,408,136 |
| 2049 | 2,382,946,371 | 710,296,013 |
| 2050 | 1,856,137,228 | 621,894,307 |
| 2051 | 1,377,165,489 | 529,381,790 |
| 2052 | 953,825,441 | 432,615,744 |
| 2053 | 594,654,256 | 331,448,907 |
| 2054 | 308,993,726 | 225,729,341 |
| 2055 | 107,056,902 | 115,300,283 |
| 2056 | 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 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 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 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. |
| 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 who 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 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 3 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 pre-retirement 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 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 pre-retirement 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 service, the designated beneficiary shall receive the return of member contributions and total earned interest plus a death benefit payable from the pre-retirement 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 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 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:<br><br>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 estate, or<br><br>Option 2 - After the member's death, the member's allowance is continued throughout the life of the designated beneficiary, or<br><br>Option 3 - After the member's death, one-half of the member's allowance is continued throughout the life of the designated beneficiary, or<br><br>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. |
| Deferred Retirement Option Plan (DROP) | Prior to March 25, 2011, a member may 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 may defer receipt of a retirement allowance and continue employment for a period not to exceed five years, nor to be less than three years. At the end of this period, the member will withdraw from active service and receive the retirement benefit calculated at the time of enrollment in the DROP, and also receive a payment for the deferred retirement benefits, employee contributions while participating in the DROP and interest earned on DROP deposits.<br><br>The effect of Act 2011-27 is that no new participants will be allowed to enter 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 continue to contribute during the DROP period, but receive a refund of these contributions and regular interest upon retirement. |
| | Beginning October 1, 2011, the contribution rates were increased to 7.25% for regular members and 8.25% for police officers, firefighters and correctional officers. |
| | Beginning October 1, 2012, the contribution rates were increased to 7.50% for regular members and 8.50% for police officers, firefighters and correctional officers. |
| Tier II | Regular members contribute 6% of salary and full-time certified firefighters, police officers and correctional officers contribute 7% of salary |
| 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 System 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

**AS OF SEPTEMBER 30, 2019**
**NUMBER OF ACTIVE MEMBERS AND THEIR AVERAGE COMPENSATION**
**BY AGE AND YEARS OF SERVICE**

| **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 | 1,338 | 1,572 | 3 | | | | | | | | 2,913 |
| Avg. Pay | 40,908 | 35,260 | 25,685 | | | | | | | | 37,844 |
| 25 to 29 | 1,465 | 7,424 | 1,598 | 4 | | | | | | | 10,491 |
| Avg. Pay | 40,431 | 39,627 | 47,679 | 43,056 | | | | | | | 40,967 |
| 30 to 34 | 1,181 | 5,393 | 6,031 | 1,294 | 8 | | | | | | 13,907 |
| Avg. Pay | 43,909 | 43,371 | 51,060 | 55,807 | 38,285 | | | | | | 47,905 |
| 35 to 39 | 995 | 4,785 | 3,947 | 5,329 | 1,608 | 12 | | | | | 16,676 |
| Avg. Pay | 41,482 | 44,875 | 53,958 | 58,782 | 61,430 | 48,805 | | | | | 52,865 |
| 40 to 44 | 768 | 4,061 | 3,454 | 3,753 | 5,127 | 1,391 | 7 | | | | 18,561 |
| Avg. Pay | 40,889 | 43,561 | 53,803 | 59,120 | 64,205 | 66,586 | 56,906 | | | | 55,935 |
| 45 to 49 | 700 | 3,548 | 3,191 | 3,484 | 3,563 | 5,051 | 939 | 8 | | | 20,484 |
| Avg. Pay | 40,414 | 43,649 | 49,001 | 56,896 | 62,487 | 67,836 | 69,727 | 65,014 | | | 57,070 |
| 50 to 54 | 562 | 2,653 | 2,653 | 3,145 | 3,101 | 3,493 | 2,555 | 507 | 6 | | 18,675 |
| Avg. Pay | 39,421 | 42,333 | 47,681 | 53,110 | 56,767 | 64,045 | 72,037 | 71,197 | 48,262 | | 56,127 |
| 55 to 59 | 408 | 2,176 | 2,133 | 2,621 | 2,986 | 3,270 | 1,758 | 1,116 | 242 | 9 | 16,719 |
| Avg. Pay | 39,773 | 39,173 | 45,053 | 50,376 | 51,548 | 57,203 | 67,224 | 68,925 | 67,279 | 50,123 | 52,779 |
| 60 to 64 | 255 | 1,420 | 1,497 | 1,716 | 1,916 | 2,134 | 1,269 | 774 | 408 | 117 | 11,506 |
| Avg. Pay | 33,075 | 41,409 | 47,415 | 48,866 | 51,480 | 55,958 | 64,621 | 71,920 | 73,910 | 66,290 | 53,511 |
| 65 to 69 | 104 | 650 | 892 | 694 | 615 | 604 | 418 | 284 | 47 | 32 | 4,340 |
| Avg. Pay | 30,877 | 46,769 | 52,914 | 52,685 | 54,098 | 55,993 | 66,772 | 80,179 | 111,771 | 64,573 | 55,867 |
| 70 & up | 42 | 292 | 455 | 447 | 285 | 225 | 159 | 109 | 12 | 27 | 2,053 |
| Avg. Pay | 35,728 | 39,711 | 49,027 | 53,887 | 53,184 | 53,666 | 67,343 | 81,096 | 62,348 | 110,769 | 53,585 |
| Total | 7,818 | 33,974 | 25,854 | 22,487 | 19,209 | 16,180 | 7,105 | 2,798 | 715 | 185 | 136,325 |
| Avg. Pay | 40,716 | 42,043 | 50,378 | 55,557 | 58,719 | 62,542 | 68,787 | 71,770 | 73,745 | 71,698 | 52,770 |

Average Age: 45.72 Average Service: 11.12

# 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 | 314 | $ 9,799,806 | $ 31,210 |
| 50 – 54 | 2,071 | 66,745,553 | 32,229 |
| 55 – 59 | 4,356 | 139,135,734 | 31,941 |
| 60 – 64 | 12,668 | 343,890,282 | 27,146 |
| 65 – 69 | 20,634 | 503,315,640 | 24,393 |
| 70 – 74 | 19,826 | 462,168,650 | 23,311 |
| 75 – 79 | 12,594 | 283,433,085 | 22,505 |
| 80 – 84 | 7,822 | 168,320,014 | 21,519 |
| 85 – 89 | 4,392 | 88,292,793 | 20,103 |
| 90 – 94 | 1,843 | 34,567,991 | 18,756 |
| 95 & Over | 565 | 9,100,536 | 16,107 |
| Total | 87,085 | $ 2,108,770,084 | $ 24,215 |

Average Age: 71.0

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

| Age | Number of Members | Total Annual Benefits | Average Annual Benefits |
|---|---|---|---|
| Under 50 | 380 | $ 4,499,625 | $ 11,841 |
| 50 – 54 | 188 | 2,015,424 | 10,720 |
| 55 – 59 | 288 | 3,898,343 | 13,536 |
| 60 – 64 | 459 | 6,823,072 | 14,865 |
| 65 – 69 | 674 | 10,636,589 | 15,781 |
| 70 – 74 | 866 | 15,266,684 | 17,629 |
| 75 – 79 | 865 | 15,203,152 | 17,576 |
| 80 – 84 | 766 | 13,744,995 | 17,944 |
| 85 – 89 | 587 | 9,447,263 | 16,094 |
| 90 – 94 | 313 | 5,003,111 | 15,984 |
| 95 & Over | 103 | 1,459,470 | 14,170 |
| Total | 5,489 | $ 87,997,728 | $ 16,032 |

Average Age: 72.2

# 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 | 342 | $ 4,564,069 | $ 13,345 |
| 50 – 54 | 478 | 6,129,532 | 12,823 |
| 55 – 59 | 891 | 10,682,703 | 11,990 |
| 60 – 64 | 1,314 | 15,969,409 | 12,153 |
| 65 – 69 | 1,267 | 14,365,115 | 11,338 |
| 70 – 74 | 912 | 10,020,807 | 10,988 |
| 75 – 79 | 466 | 5,171,673 | 11,098 |
| 80 – 84 | 186 | 1,975,788 | 10,623 |
| 85 – 89 | 83 | 928,858 | 11,191 |
| 90 – 94 | 23 | 246,669 | 10,725 |
| 95 & Over | 3 | 37,629 | 12,543 |
| Total | 5,965 | $ 70,092,252 | $ 11,751 |

Average Age: 64.4