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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, 2018**





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

April 25, 2019

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, 2018 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, 2018 and to recommend rates of State contribution. While not verifying the data at the source, the actuary performed tests for consistency and reasonability.

Since the previous valuation, the total rate of investment return has been changed from 7.75% as of September 30, 2017 to 7.70% as of September 30, 2018.

On the basis of the valuation, we have determined employer contribution rates of 12.36% of payroll for Tier I members and 11.22% of payroll for Tier II members for the fiscal year ending September 30, 2021.

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, 2018
- 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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April 25, 2019
Board of Control
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This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has 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,

A handwritten signature in blue ink, appearing to read 'Edward Macdonald', with a stylized, cursive script.

Edward A. Macdonald, ASA, FCA, MAAA
President

A handwritten signature in blue ink, appearing to read 'Cathy Turcot', in a cursive script.

Cathy Turcot
Principal and Managing Director

A handwritten signature in blue ink, appearing to read 'Larry Langer', in a cursive script.

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



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**TEACHERS' RETIREMENT SYSTEM OF ALABAMA
REPORT OF THE ACTUARY ON THE ANNUAL VALUATION
PREPARED AS OF SEPTEMBER 30, 2018**

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, 2018	September 30, 2017
Active members		
Number	137,161	136,941
Annual compensation	\$ 6,756,474,151	\$ 6,698,834,819
Retired members and beneficiaries		
Number	96,231	93,850
Annual allowances	\$ 2,191,704,758	\$ 2,118,982,451
Deferred vested members		
Number	5,458	5,194
Estimated deferred annual allowances	\$ 74,393,777	\$ 69,657,381
Assets		
Actuarial value	\$ 25,006,419,004	\$ 23,887,076,646
Market value	25,756,495,073	24,467,517,906
Unfunded actuarial accrued liability	\$ 10,621,979,323	\$ 10,801,001,312
Funded Ratio based on Actuarial Value of Assets	70.2%	68.9%
CONTRIBUTIONS FOR FISCAL YEAR ENDING	September 30, 2021	September 30, 2020
<u>Tier I</u> (first hired prior to January 1, 2013)		
Employer contribution rate		
Normal	2.41%	2.28%
Unfunded actuarial accrued liability	9.59	9.79
Death benefit	0.02	0.02
Term life	0.01	0.01
Administration	<u>0.33</u>	<u>0.33</u>
Total	12.36%	12.43%
<u>Tier II</u> (first hired on or after January 1, 2013)		
Employer contribution rate		
Normal	1.27%	1.19%
Unfunded actuarial accrued liability	9.59	9.79
Death benefit	0.02	0.02
Term life	0.01	0.01
Administration	<u>0.33</u>	<u>0.33</u>
Total	11.22%	11.34%
Blended Amortization period	28.3 years	28.8 years



2. Comments on the valuation results as of September 30, 2018, 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. Since the previous valuation, the total rate of investment return has been changed from 7.75% to 7.70%. The Board funding policy is shown 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 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, 2018 on the basis of which the valuation was prepared.

TABLE 1
THE NUMBER AND ANNUAL COMPENSATION OF ACTIVE MEMBERS AS OF SEPTEMBER 30, 2018

GROUP	NUMBER	COMPENSATION
Tier I	95,610	\$ 5,120,452,104
Tier II	<u>41,551</u>	<u>1,636,022,047</u>
Subtotal	137,161	\$ 6,756,474,151

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 9 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 12,046 non-vested inactive members who have contributed in the last 5 years and 31,648 non-vested inactive members who have not contributed for more than 5 years.

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

TABLE 2
SCHEDULE OF ACTIVE MEMBER VALUATION DATA

Valuation Date	Number	Annual Payroll	% Increase in Annual Payroll*	Annual Average Pay	% Increase in Average Pay**
9/30/2018 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
9/30/2013 ⁴	133,919	6,065,042,345	2.16	45,289	2.06

*2.18% annual increase for Annual Payroll since 2013.

**1.69% annual increase for Average Pay since 2013.

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.

⁴ In addition, there are 3,029 employees with annual compensation of \$198,322,151 who are currently participating in the DROP program. Employers of the Retirement System contribute on this payroll.



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, 2018

GROUP	NUMBER*	ANNUAL RETIREMENT ALLOWANCES*
Service Retirements	85,172	\$ 2,041,874,560
Disability Retirements	5,860	68,058,094
Beneficiaries of Deceased Members	<u>5,199</u>	<u>81,772,104</u>
Total	96,231	\$ 2,191,704,758

**In addition, there were 5,458 vested inactive members with estimated deferred annual allowances totaling \$74,393,777 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, 2018, which represent the accumulated contributions of active members to that date, including interest, amounted to \$5,788,187,483.

- (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, 2018 the market value of assets credited to this fund amounted to \$19,773,148,102.

- (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, 2018, the market value of assets credited to this Fund amounted to \$195,159,488.

- (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, 2018, the market value of assets credited to this fund amounted to \$57,716,963. 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, 2018, the market value of assets credited to this fund amounted to \$10,850,851. 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, 2018, the market value of assets credited to this fund amounted to \$2,863,993. These assets are not included in the valuation.

- 2. As of September 30, 2018 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 \$25,756,495,073 as shown in the following table.

TABLE 4
MARKET VALUE OF ASSETS BY FUND
AS OF SEPTEMBER 30, 2018

FUND	MARKET VALUE OF ASSETS
Annuity Savings Fund	\$ 5,788,187,483
Pension Accumulation Fund	19,773,148,102
DROP Fund	<u>195,159,488</u>
Total Market Value of Assets	\$ 25,756,495,073

- 3. The five-year market related actuarial value of assets as of September 30, 2018 was \$25,006,419,004. Schedule B shows the development of the actuarial value of assets as of September 30, 2018.
- 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, 2018.
2. The valuation balance sheet shows that the System has total prospective liabilities of \$40,269,611,835. Of this amount, \$20,511,810,879 is for the prospective benefits payable on account of present retired members, beneficiaries of deceased members, and DROP participants, \$644,166,268 is for the prospective benefits payable on account of present inactive members and \$19,113,634,688 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 \$25,006,419,004 as of September 30, 2018. The difference of \$15,263,192,831 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, \$3,585,001,984 is the present value of future contributions expected to be made by members to the Annuity Savings Fund, and the balance of \$11,678,190,847 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 2.41% of payroll for Tier I members and 1.27% of payroll for Tier II members are required to provide the benefits of the System.
4. Prospective normal contributions have a present value of \$1,056,211,524. When this amount is subtracted from \$11,678,190,847 which is the present value of the total future contributions to be made by the employer, there remains \$10,621,979,323 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 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.

6. The total UAAL contribution rate is 9.59% 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 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, 2018.
7. The following table shows the components of the total unfunded actuarial accrued liability (UAAL) and the derivation of the accrued liability contribution rate in accordance with the funding policy.

**TABLE 5
TOTAL UAAL AND UAAL CONTRIBUTION**

	<u>UAAL</u>	<u>Amortization Period</u>	<u>Amortization Payment</u>
Open Transitional	\$5,528,215,352	30	352,167,086
Closed Transitional 9/30/2012	679,117,029	24	48,560,159
Closed Transitional 9/30/2013	683,296,415	25	47,772,054
Closed Transitional 9/30/2014	686,510,287	26	46,996,851
Closed Transitional 9/30/2015	688,827,545	27	46,234,335
Closed Transitional 9/30/2016	690,312,811	28	45,484,296
Closed Transitional 9/30/2017	691,026,919	29	44,746,543
Closed Transitional 9/30/2018	691,026,919	30	44,020,886
New Incremental 9/30/2013	448,254,833	25	31,339,333
New Incremental 9/30/2014	(175,616,802)	26	(12,022,306)
New Incremental 9/30/2015	(83,199,153)	27	(5,584,355)
New Incremental 9/30/2016	245,141,779	28	16,152,245
New Incremental 9/30/2017	159,688,051	29	10,340,391
New Incremental 9/30/2018	<u>(310,622,662)</u>	30	<u>(19,787,774)</u>
Total	\$10,621,979,323		\$696,419,744
Total Amortized Payment Adjusted for Timing			\$670,601,583
Total Estimated Payroll*			\$6,994,691,663
UAAL Contribution Rate			9.59%

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



8. The Pre-Retirement Death Benefit Program was established October 1, 1983 under Alabama Code Section 36-27B. The liabilities and assets associated with the pre-retirement death benefit are not included in the annual actuarial valuation of the System; however, the sufficiency of the Fund to provide the promised benefits is reviewed annually. The contribution requirements are determined every five years during our experience investigation. A contribution of 0.02% is required to meet the cost of the pre-retirement death benefit program this year.
9. The Term Life Insurance fund was established under Alabama Code Section 16-25-33. The liabilities and assets associated with the term life insurance benefit are not included in the annual actuarial valuation of the System; however, the sufficiency of the Fund to provide the promised benefits is reviewed annually. The contribution requirements are determined every five years during our experience investigation. A contribution of 0.01% is required to meet the cost of life insurance premiums.
10. An additional contribution of 0.33% of payroll is required to cover the expenses of administering the System.
11. 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, 2018 it is recommended that the employer make contributions at the following rates beginning October 1, 2020:

TABLE 6

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

<u>EMPLOYER CONTRIBUTION RATE</u>	<u>FISCAL YEAR ENDING SEPTEMBER 30, 2021</u>	
	<u>Tier I</u>	<u>Tier II</u>
Employer Normal Cost**	2.41%	1.27%
Unfunded Actuarial Accrued Liability	9.59	9.59
Death Benefit	0.02	0.02
Term-Life	0.01	0.01
Administration	<u>0.33</u>	<u>0.33</u>
Total	12.36%	11.22%

* All members initially joining the System on and after January 1, 2013 are Tier II members.
 **The total Normal Cost rate is 9.91% for Tier I and 7.27% 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 accrued liability contribution rate from 28.8 years to 28.3 years. The unfunded actuarial accrued liability rate of 9.59% 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 G of this report.

A handwritten signature in blue ink, appearing to read 'LL', is positioned above a horizontal line.

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



SECTION VII – ANALYSIS OF FINANCIAL EXPERIENCE

The calculation of the System's liabilities and actuarial value of assets requires the use of several assumptions concerning the future experience of the System and its members. In each annual actuarial valuation, the experience of the System is compared with what was expected based on the actuarial assumptions. The differences between the actual and expected experience are called actuarial gains or losses depending on whether the difference increases or decreases the UAAL. The UAAL decreased from \$10,801,001,312 on September 30, 2017 to 10,621,979,323 on September 30, 2018. The most significant items contributing to the decrease in the UAAL were the gains due to salary increases less than anticipated and investment earnings in excess of expected. These decreases were somewhat offset by a loss due to the decrease in the assumed rate of return from 7.75% to 7.70%. Other sources of gains and losses were relatively small and there appear to be no trends developing that would be of concern to the System.

The following tables show the reconciliation of the UAAL of the System and a breakdown by source of the actuarial gains and losses. These sources include the expected return on assets, salary increases, retirement, withdrawal, disability and mortality.



**RECONCILIATION OF THE UNFUNDED ACTUARIAL ACCRUED LIABILITY
FOR THE YEAR ENDING SEPTEMBER 30, 2018**

(Dollar amounts in thousands)

(1) UAAL at beginning of year	\$ 10,801,001
(2) Total normal cost at beginning of the year	583,883
(3) Actual contributions	1,296,612
(4) Interest accrual: $[(1) + (2)] - \frac{1}{2} [(3)] \times 0.07750$	832,085
(5) Expected UAAL before changes: $(1) + (2) - (3) + (4)$	10,920,357
(6) Increase from benefit changes	0
(7) Changes from revised actuarial assumptions and methods	178,042
(8) Expected UAAL after changes: $(5) + (6) + (7)$	11,098,399
(9) Actual UAAL at end of year	10,621,979
(10) (Gain)/Loss: $(9) - (8)$	\$ (476,420)

**DEVELOPMENT OF (GAIN)/LOSS
FROM INVESTMENT RETURN
FOR THE YEAR ENDING SEPTEMBER 30, 2018**

(Dollar amounts in thousands)

(1) Actuarial Value of Assets (BOY)	\$ 23,887,077
(2) Net Cash Flow	(970,223)
(3) Expected Return $[(1) + \frac{1}{2} [(2)]] \times 0.07750$	1,813,652
(4) Expected Actuarial Value of Assets $[(1) + (2) + (3)]$	24,730,506
(5) Actual Actuarial Value of Assets (EOY)	25,006,419
(6) (Gain)/Loss: $(4) - (5)$	\$ (275,913)



**(GAINS)/ LOSSES BY SOURCE
FOR THE YEAR ENDING SEPTEMBER 30, 2018**
(Dollar amounts in thousands)

SOURCE	Total	% of Actuarial Accrued Liability
Age and Service Retirements. Generally, earlier retirements cause losses and later retirements cause gains.	\$ (5,683)	(0.02)%
Withdrawal. More withdrawals than expected usually cause gains and fewer withdrawals than expected cause losses.	30,805	0.09%
Disability Retirements. More disabilities than expected generally cause losses and fewer disabilities than expected cause gains.	2,979	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.	7,054	0.02%
Salary Increases. If salaries increase more than expected, there is a loss. If salaries increase less than expected, there is a gain.	(245,066)	(0.69)%
New Members/Rehires. Any past service causes losses.	22,534	0.06%
Retiree Mortality. More deaths than expected cause gains, fewer than expected cause losses.	8,480	0.02%
Investment Return. Investment income greater than expected causes gains while investment income less than expected cause losses.	(275,913)	(0.78)%
Other. Miscellaneous gains and losses resulting from data corrections, timing of financial transactions, unit transfers, changes in valuation software, etc.	(21,610)	(0.06)%
Total (Gain)/Loss	\$ (476,420)	(1.35)%



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

SOURCE	September 30	
	2018	2017
Age and Service Retirements	\$ (5,683)	\$ 8,651
Withdrawal	30,805	75,236
Disability Retirements	2,979	3,170
Death-In-Service Benefits	7,054	14,960
Salary Increases	(245,066)	175,807
New Members/Rehires	22,534	27,797
Retiree Mortality	8,480	(8,515)
Investment Return	(275,913)	(412,731)
Other	(21,610)	(67,116)
Total (Gain)/Loss	\$ (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.

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

**NUMBER OF ACTIVE AND RETIRED MEMBERS
AS OF SEPTEMBER 30, 2018**

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	96,231
Terminated employees entitled to benefits but not yet receiving benefits	17,513
Non-vested inactive members who have not contributed for more than 5 years	31,648
Active members	<u>137,161</u>
Total	282,553

- 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)
9/30/2013	\$19,629,816	\$29,665,843	\$10,036,027	66.2%	\$6,263,364	160.2%
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

¹Reflects changes in actuarial assumptions and methods.

²Reflects changes in actuarial assumptions.



3. The information presented above was determined as part of the actuarial valuation at September 30, 2018. Additional information as of the latest actuarial valuation follows.

Valuation date	09/30/2018
Actuarial cost method	Entry Age Normal
Amortization method	Level percent closed
Single equivalent remaining amortization period	28.3 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%



SCHEDULE A

**VALUATION BALANCE SHEET
SHOWING THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES OF
THE TEACHERS' RETIREMENT SYSTEM OF ALABAMA
AS OF SEPTEMBER 30, 2018**

	September 30, 2018
<u>ASSETS</u>	
Actuarial Value of Assets	\$ 25,006,419,004
Present value of future members' contributions to the Annuity Savings Fund	\$ 3,585,001,984
Present value of future employer contributions to the Pension Accumulation Fund	
Normal contributions	\$ 1,056,211,524
Unfunded actuarial accrued liability contributions	<u>10,621,979,323</u>
Total prospective employer contributions	\$ 11,678,190,847
Total Assets	<u>\$ 40,269,611,835</u>
<u>LIABILITIES</u>	
Present value of benefits payable on account of retired members, beneficiaries of deceased members now drawing retirement allowances, and DROP participants	
Service Retirements	\$ 19,070,917,947
Disability Retirements	594,613,843
Beneficiaries of Deceased Members	651,119,601
DROP Participant Accounts	<u>195,159,488</u>
Total	\$ 20,511,810,879
Inactive Members	\$ 584,713,771
Inactive T-Section Accounts	\$ 59,452,497
Present value of prospective benefits payable on account of present active members:	
Service retirement allowances	\$ 17,181,151,278
Disability retirement allowances	747,155,536
Death Benefits	121,431,418
Termination Benefits	<u>1,063,896,456</u>
Total	\$ 19,113,634,688
Total Liabilities	<u>\$ 40,269,611,835</u>



SCHEDULE A
(continued)

SOLVENCY TEST
(Dollar amounts in thousands)

Valuation Date	Aggregate Accrued Liabilities For			Reported Assets	Portion of Accrued Liabilities Covered by Reported Asset		
	(1) Active Member Contributions	(2) Retirants and Beneficiaries	(3) Active Members (Employer Financed Portion)		(1)	(2)	(3)
9/30/2018 ¹	\$5,788,187	\$20,511,811	\$9,328,400	\$25,006,419	100%	94%	0.0%
9/30/2017 ¹	5,504,125	19,886,016	9,297,937	23,887,077	100	92	0.0
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
9/30/2013	4,261,269	17,666,932	7,737,642	19,629,816	100	87	0.0

¹ Reflects changes in actuarial assumptions.

² Reflects changes in actuarial assumptions and methods.



SCHEDULE B

DEVELOPMENT OF SEPTEMBER 30, 2018 ACTUARIAL VALUE OF ASSETS

(1)	Actuarial Value of Assets on September 30, 2017	\$ 23,887,076,646
(2)	Market Value of Assets on September 30, 2018	25,756,495,073
(3)	Market Value of Assets on September 30, 2017	24,467,517,906
(4)	Net Cash Flow During the Fiscal Year	
	a. Contributions	1,296,612,499
	b. Benefit Payments and DROP Distributions	2,204,221,852
	c. Refunds to Members	56,594,215
	d. Transfer to Expense Fund – Interest Forfeiture	6,019,566
	e. Investment Expenses	24,745,398
	f. Net Cash Flow: (a. - b. - c. - d. - e.)	(994,968,532)
(5)	Actual Investment Return ((2) - (3) - (4)f.)	2,283,945,699
(6)	Assumed Rate of Return on Assets	7.750%
(7)	Amount for Immediate Recognition ((3) * (6)) + (((4)a. - (4)b. - (4)c. - (4)d.) * .5 * (6)) + (4)e.	1,883,381,889
(8)	Investment Gain/(Loss) for the Fiscal Year ((5) - (7))	400,563,810
(9)	Phased-In Recognition of Investment Gain/(Loss)	
	a. Current Fiscal Year: (.2 * (8))	80,112,762
	b. Prior Fiscal Year	174,159,190
	c. Second Prior Fiscal Year	101,741,473
	d. Third Prior Fiscal Year	(296,335,495)
	e. Fourth Prior Fiscal Year	171,251,071
	f. Total Recognized Investment Gain/(Loss) for Fiscal Year	230,929,001
(10)	Actuarial Value of Assets on September 30, 2018 (1) + (4)f. + (7) + (9)f.)	\$ 25,006,419,004

<u>Date</u>	<u>Investment Gain/(Loss)</u>	<u>Amount Recognized</u>	<u>Remaining Balance as of September 30, 2018</u>
9/30/2014	\$ 856,255,357	\$ 856,255,357	\$ 0
9/30/2015	(1,481,677,477)	(1,185,341,984)	(296,335,493)
9/30/2016	508,707,363	305,224,419	203,482,944
9/30/2017	870,795,950	348,318,380	522,477,570
9/30/2018	400,563,810	80,112,762	320,451,048



SCHEDULE C

**SUMMARY OF RECEIPTS AND DISBURSEMENTS
FOR THE PERIOD ENDING SEPTEMBER 30, 2018**

<u>Receipts for the Period</u>		
Contributions:		
Members	\$ 493,466,175	
Employer	<u>803,146,324</u>	
Total		\$ 1,296,612,499
Investment Income		<u>2,273,405,962*</u>
TOTAL		\$ 3,570,018,461
<u>Disbursements for the Period</u>		
Benefit Payments		\$ 2,145,380,889
Refunds to Members		56,594,215
DROP Distributions		58,840,963
Miscellaneous:		
Transfers from Plant Fund	\$ 0	
Transfers to Expense Fund –Interest Forfeiture	6,019,566	
Transfers to Expense Fund –Investment Expenses	9,171,398	
Transfers to Pre-retirement Death Benefit Fund	<u>5,034,263</u>	
Total		<u>20,225,227</u>
TOTAL		\$ 2,281,041,294
<u>Excess of Receipts over Disbursements</u>		\$ 1,288,977,167
<u>Reconciliation of Asset Balances</u>		
Market Value of Assets as of September 30, 2017		\$ 24,467,517,906
Excess of Receipts over Disbursements		<u>1,288,977,167</u>
Market Value of Assets as of September 30, 2018		<u>\$ 25,756,495,073</u>

*Net of \$15,574,000 in investment expenses.



SCHEDULE D

OUTLINE OF ACTUARIAL ASSUMPTIONS AND 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



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

Age	Annual Rate of						
	Death*	Disability**			Withdrawal***		
		Tier I		Tier II	Years of Service		
		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
40	0.0914	0.1700		0.1700	13.00	5.40	2.25
45	0.1278	0.2700	0.2000%	0.2700	13.00	5.40	2.25
50	0.1812	0.6000	0.2000	0.6000	12.00	5.00	2.50
55	0.2567	0.9000	0.2000	0.9000	11.50	5.00	2.50
60	0.3815	0.5000	0.5000	1.3000	12.00	4.50	2.50
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
40	0.0399	0.2000		0.2000	11.50	4.75	2.00
45	0.0635	0.3500	0.2000%	0.3500	10.75	4.10	2.00
50	0.0947	0.6500	0.2000	0.6500	10.75	3.90	2.20
55	0.1371	1.0500	0.2000	1.0500	11.00	4.20	2.40
60	0.1929	0.5000	0.5000	1.4000	12.00	4.50	2.70
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:

<u>Age Group</u>	<u>Annual Rate</u>	
	<u>Male*</u>	<u>Female**</u>
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:

<u>Age Group</u>	<u>Annual Rate</u>	
	<u>Male</u>	<u>Female</u>
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:

<u>Age Group</u>	<u>Annual Rate</u>			
	<u>Male*</u>		<u>Female**</u>	
	<u>Less than 25</u> <u>years of service</u>	<u>25 or more years</u> <u>of service</u>	<u>Less than 25</u> <u>years of service</u>	<u>25 or more years</u> <u>of service</u>
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.



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:

Age	Service Retirement		Disability Retirement	
	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 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

The purpose of the funding policy is to state the overall funding objectives for the Teachers' Retirement System of Alabama (System), the benchmarks that will be used to measure progress in achieving those goals, and the methods and assumptions that will be employed to develop the benchmarks. The funding policy reflects the Board's long-term strategy for stability in funding of the plan.

I. Funding Objectives

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

- To maintain an increasing funded ratio (ratio of system actuarial value of assets to actuarial accrued liabilities) that reflects a trend of improved actuarial condition. The long-term objective is to attain a funded ratio which is consistent with the fiscal health and long-term stability of the System.
- To maintain adequate asset levels to finance the benefits promised to members and monitor the future demands for liquidity.
- To develop a pattern of contribution rates expressed as a percentage of member payroll as measured by valuations prepared in accordance with applicable State laws and the principles of practice prescribed by the Actuarial Standards Board. In no event will the employer contribution rate be negative.
- To provide intergenerational equity for taxpayers with respect to System costs.

II. Benchmarks

To track progress in achieving the previously outlined funding objectives, the following benchmarks will be measured annually as of the valuation date. The valuation date is the date that the annual actuarial valuation of the System's assets and liabilities is prepared. This date is currently September 30th each year with due recognition that a single year's results may not be indicative of long-term trends:

- **Funded ratio** – The funded ratio, defined as the actuarial value of assets divided by the actuarial accrued liability, should increase over time, before adjustments for changes in benefits, actuarial methods, and/or actuarial assumptions. 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.
- **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.
 - **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. The actuary shall conduct an investigation into the system's experience at least every five years and utilize the results of the investigation to form the basis for those recommendations.

IV. Funding Policy Progress

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



SCHEDULE G

**PROJECTION OF TRANSITIONAL UAAL
AND AMORTIZATION OF BASES**

PROJECTION OF THE OPEN TRANSITIONAL UAAL

<u>Valuation Date</u>	<u>Transitional UAAL Beginning of Year (1)</u>	<u>Years (2)</u>	<u>Transitional Closed (3)=(1)/(2)</u>	<u>Transitional Remaining Open (4)=(1)-(3)</u>	<u>Interest (5)=(4) x ROR*</u>	<u>Amortization Payment (6)</u>	<u>Transitional Open UAAL End of Year (7)=(4)+(5)-(6)</u>
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
(continued)

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

<u>Valuation Date</u>	<u>Balance of Transitional Closed 9/30/2012</u>	<u>Annual Amortization Payment</u>
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
(continued)

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

<u>Valuation Date</u>	<u>Balance of Transitional Closed 9/30/2013</u>	<u>Annual Amortization Payment</u>	<u>Balance of New Incremental UAAL 9/30/2013</u>	<u>Annual Amortization Payment</u>
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
(continued)

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

<u>Valuation Date</u>	<u>Balance of Transitional Closed 9/30/2014</u>	<u>Annual Amortization Payment</u>	<u>Balance of New Incremental UAAL 9/30/2014</u>	<u>Annual Amortization Payment</u>
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
(continued)

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

<u>Valuation Date</u>	<u>Balance of Transitional Closed 9/30/2015</u>	<u>Annual Amortization Payment</u>	<u>Balance of New Incremental UAAL 9/30/2015</u>	<u>Annual Amortization Payment</u>
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
(continued)

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

<u>Valuation Date</u>	<u>Balance of Transitional Closed 9/30/2016</u>	<u>Annual Amortization Payment</u>	<u>Balance of New Incremental UAAL 9/30/2016</u>	<u>Annual Amortization Payment</u>
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
(continued)

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

<u>Valuation Date</u>	<u>Balance of Transitional Closed 9/30/2017</u>	<u>Annual Amortization Payment</u>	<u>Balance of New Incremental UAAL 9/30/2017</u>	<u>Annual Amortization Payment</u>
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
(continued)

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

<u>Valuation Date</u>	<u>Balance of Transitional Closed 9/30/2018</u>	<u>Annual Amortization Payment</u>	<u>Balance of New Incremental UAAL 9/30/2018</u>	<u>Annual Amortization Payment</u>
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
(continued)

AMORTIZATION SCHEDULE FOR TOTAL UAAL
AS OF SEPTEMBER 30, 2018

<u>Year</u>	<u>Projected UAAL</u>	<u>Payment for year</u> <u>Beginning</u> <u>September 30,</u>
2018	10,621,979,324	696,419,744
2019	10,743,451,988	711,429,886
2020	10,859,267,905	727,557,201
2021	10,967,874,332	744,853,977
2022	11,067,546,679	763,374,452
2023	11,156,373,322	783,174,882
2024	11,232,239,185	804,313,604
2025	11,292,807,999	826,851,106
2026	11,335,503,109	850,850,103
2027	11,357,486,745	876,375,606
2028	11,355,637,618	902,666,875
2029	11,327,354,840	929,746,881
2030	11,269,814,282	957,639,287
2031	11,179,950,694	986,368,466
2032	11,054,438,432	1,015,959,520
2033	10,889,670,671	1,046,438,305
2034	10,681,737,007	1,077,831,455
2035	10,426,399,302	1,110,166,398
2036	10,119,065,650	1,143,471,390
2037	9,754,762,315	1,177,775,532
2038	9,328,103,482	1,213,108,798
2039	8,833,258,652	1,249,502,062
2040	8,263,917,506	1,286,987,124
2041	7,613,252,031	1,325,596,737
2042	6,873,875,700	1,266,651,834
2043	6,136,512,295	1,139,009,712
2044	5,470,014,030	1,097,754,206
2045	4,793,450,904	1,040,391,478
2046	4,122,155,146	930,583,274
2047	3,508,977,818	828,684,804
2048	2,950,484,306	794,725,226
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).



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.
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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).



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.



Special Privileges at Retirement

In lieu of the full retirement allowance, any member may, at retirement, elect to receive a reduced retirement allowance equal in value to the full allowance, with the provision that:

Option 1 - If the member dies before annuity payments have equaled the present value of the annuity at the date of retirement, the balance is paid to a designated beneficiary or to his estate, or

Option 2 - After the member's death, the member's allowance is continued throughout the life of the designated beneficiary, or

Option 3 - After the member's death, one-half of the member's allowance is continued throughout the life of the designated beneficiary, or

Option 4 - Some other benefit is paid either to the member or to such other person as the member shall designate provided such benefit, together with the reduced retirement allowance, is of equivalent actuarial value to his retirement allowance and is approved by the Board of Control.

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.

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)



Member Contributions

Tier I	<p>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.</p> <p>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.</p> <p>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.</p>
Tier II	<p>Regular members contribute 6% of salary and full-time certified firefighters, police officers and correctional officers contribute 7% of salary</p>
Both	<p>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.</p> <p>“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)).</p>



SCHEDULE I
SCHEDULE OF MEMBERSHIP DATA
AS OF SEPTEMBER 30, 2018
NUMBER OF ACTIVE MEMBERS AND THEIR AVERAGE COMPENSATION
BY AGE AND YEARS OF SERVICE

Attained Age	Years of Service										Total
	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	
Under 25	1,276	1,510	5								2,791
Avg. Pay	33,705	31,254	30,612								32,374
25 to 29	1,307	7,749	1,659	6							10,721
Avg. Pay	33,981	36,298	44,014	33,938							37,209
30 to 34	978	5,564	5,732	1,583	11						13,868
Avg. Pay	37,486	40,406	47,923	51,863	50,766						44,623
35 to 39	1,140	5,083	3,787	5,951	1,450	10					17,421
Avg. Pay	38,782	42,516	51,060	54,774	57,652	52,781					49,582
40 to 44	670	4,055	3,273	4,103	5,036	1,362	12				18,511
Avg. Pay	35,726	40,783	50,313	56,043	59,793	61,743	50,264				52,388
45 to 49	647	3,612	3,093	3,895	3,675	5,029	967	13			20,931
Avg. Pay	36,098	40,002	45,665	52,200	58,884	62,867	65,003	47,450			52,957
50 to 54	465	2,644	2,448	3,429	3,126	3,356	2,444	527	8		18,447
Avg. Pay	34,404	38,925	45,362	48,699	53,281	60,369	66,140	64,973	49,247		52,170
55 to 59	347	2,196	2,044	2,858	3,084	3,231	1,809	1,121	262	8	16,960
Avg. Pay	31,597	36,560	43,912	46,264	49,090	53,520	62,628	65,136	64,721	53,154	49,601
60 to 64	183	1,469	1,461	1,876	1,830	2,118	1,301	718	382	74	11,412
Avg. Pay	29,365	42,770	45,386	45,785	49,735	52,683	60,082	70,891	65,701	65,377	50,999
65 to 69	76	660	808	772	573	572	422	199	43	21	4,146
Avg. Pay	22,677	45,469	49,871	47,064	55,212	52,017	67,109	75,302	99,571	65,478	52,753
70 & up	34	282	422	433	272	222	162	84	14	28	1,953
Avg. Pay	22,589	42,536	48,565	49,171	52,006	49,345	73,407	78,040	62,845	110,963	52,270
Total	7,123	34,824	24,732	24,906	19,057	15,900	7,117	2,662	709	131	137,161
Avg. Pay	35,156	39,263	47,511	51,564	55,435	58,402	64,182	67,737	67,151	74,390	49,259

Average Age: 45.61

Average Service: 11.10



SCHEDULE I
(continued)

**NUMBER OF SERVICE RETIREMENTS
AND THEIR BENEFITS BY AGE**

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	338	\$ 10,675,569	\$ 31,585
50 – 54	1,952	61,101,091	31,302
55 – 59	4,339	136,777,717	31,523
60 – 64	13,368	357,020,291	26,707
65 – 69	20,779	503,143,099	24,214
70 – 74	18,526	425,461,049	22,966
75 – 79	11,955	267,545,707	22,379
80 – 84	7,398	155,832,863	21,064
85 – 89	4,199	83,883,527	19,977
90 – 94	1,756	31,822,722	18,122
95 & Over	562	8,610,925	15,322
Total	85,172	\$ 2,041,874,560	\$ 23,974

Average Age: 70.8

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

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	372	\$ 4,473,675	\$ 12,026
50 – 54	189	1,838,735	9,729
55 – 59	287	3,697,234	12,882
60 – 64	451	6,539,802	14,501
65 – 69	652	10,329,694	15,843
70 – 74	815	14,459,115	17,741
75 – 79	768	13,492,771	17,569
80 – 84	769	12,987,364	16,889
85 – 89	544	8,731,606	16,051
90 – 94	271	4,247,238	15,672
95 & Over	81	974,870	12,035
Total	5,199	\$ 81,772,104	\$ 15,728

Average Age: 71.9



SCHEDULE I
(continued)

**NUMBER OF DISABLED RETIREES
AND THEIR BENEFITS BY AGE**

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	369	\$ 4,866,785	\$ 13,189
50 – 54	482	5,734,499	11,897
55 – 59	910	10,860,367	11,934
60 – 64	1,328	16,140,934	12,154
65 – 69	1,216	13,342,556	10,972
70 – 74	848	9,496,619	11,199
75 – 79	448	4,825,703	10,772
80 – 84	160	1,657,014	10,356
85 – 89	76	895,865	11,788
90 – 94	20	203,787	10,189
95 & Over	3	33,965	11,322
Total	5,860	\$ 68,058,094	\$ 11,614

Average Age: 64.0