



Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve



Retirement Systems
of Alabama

**Teachers' Retirement System of Alabama
Report of the Actuary on the Annual Valuation
Prepared as of September 30, 2017**





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

May 8, 2018

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, 2017 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, 2017 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 11.34% of payroll for Tier II members for the fiscal year ending September 30, 2020.

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, 2017
- 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.



May 8, 2018
Board of
Control Page 2

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

EAM/mjn



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**TEACHERS' RETIREMENT SYSTEM OF ALABAMA
REPORT OF THE ACTUARY ON THE ANNUAL VALUATION
PREPARED AS OF SEPTEMBER 30, 2017**

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, 2017	September 30, 2016
Active members		
Number	136,941	136,731
Annual compensation	\$ 6,698,834,819	\$ 6,430,999,445
Retired members and beneficiaries		
Number	93,850	91,574
Annual allowances	\$ 2,118,982,451	\$ 2,053,762,261
Deferred vested members		
Number	5,194	5,001
Estimated deferred annual allowances	\$ 69,657,381	\$ 65,824,827
Assets		
Actuarial value	\$ 23,887,076,646	\$ 22,645,511,571
Market value	24,467,517,906	22,758,953,967
Unfunded actuarial accrued liability	\$ 10,801,001,312	\$ 10,498,321,874
Funded Ratio based on Actuarial Value of Assets	68.9%	68.3%
CONTRIBUTIONS FOR FISCAL YEAR ENDING	September 30, 2020	September 30, 2019
<u>Tier I</u> (first hired prior to January 1, 2013)		
Employer contribution rate		
Normal	2.28%	2.20%
Unfunded actuarial accrued liability	9.79	9.85
Death benefit	0.02	0.02
Term life	0.01	0.01
Administration	<u>0.33</u>	<u>0.33</u>
Total	12.43%	12.41%
<u>Tier II</u> (first hired on or after January 1, 2013)		
Employer contribution rate		
Normal	1.19%	1.14%
Unfunded actuarial accrued liability	9.79	9.85
Death benefit	0.02	0.02
Term life	0.01	0.01
Administration	<u>0.33</u>	<u>0.33</u>
Total	11.34%	11.35%
Blended Amortization period	28.8 years	29.2 years



2. Comments on the valuation results as of September 30, 2017, 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 changed from 7.875% to 7.75% and wage inflation has changed from 3.125% to 3.00%.
4. The Board funding policy is shown in Schedule F.
5. 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.
6. 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, 2017 on the basis of which the valuation was prepared.

TABLE 1
THE NUMBER AND ANNUAL COMPENSATION OF
ACTIVE MEMBERS AS OF SEPTEMBER 30, 2017

GROUP	NUMBER	COMPENSATION
Tier I	101,540	\$ 5,341,436,674
Tier II	<u>35,401</u>	<u>1,357,398,145</u>
Subtotal	136,941	\$ 6,698,834,819

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 64 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 12,306 non-vested inactive members who have contributed in the last 5 years and 30,228 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	Annual Average Pay	% Increase in Average Pay
9/30/2017 ¹	136,941	\$ 6,698,834,819	\$ 48,918	4.00%
9/30/2016 ¹	136,731	6,430,999,445	47,034	1.56
9/30/2015 ²	135,986	6,297,938,621	46,313	0.77
9/30/2014 ³	135,230	6,214,949,700	45,958	1.48
9/30/2013 ⁴	133,919	6,065,042,345	45,289	2.06
9/30/2012 ⁵	133,791	5,936,831,043	44,374	3.74

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.

⁵ In addition, there are 4,436 employees with annual compensation of \$285,484,977 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, 2017

GROUP	NUMBER*	ANNUAL RETIREMENT ALLOWANCES*
Service Retirements	83,038	\$ 1,974,424,899
Disability Retirements	5,762	66,037,861
Beneficiaries of Deceased Members	<u>5,050</u>	<u>78,519,691</u>
Total	93,850	\$ 2,118,982,451

**In addition, there were 5,194 vested inactive members with estimated deferred annual allowances totaling \$69,657,381 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, 2017, which represent the accumulated contributions of active members to that date, including interest, amounted to \$5,504,125,121.

- (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, 2017 the market value of assets credited to this fund amounted to \$18,717,587,146.

- (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, 2017, the market value of assets credited to this Fund amounted to \$245,805,639.

- (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, 2017, the market value of assets credited to this fund amounted to \$56,044,022. 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, 2017, the market value of assets credited to this fund amounted to \$12,137,477. 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, 2017, the market value of assets credited to this fund amounted to \$10,093,446. These assets are not included in the valuation.

- 2. As of September 30, 2017 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 \$24,467,517,906 as shown in the following table.

TABLE 4
MARKET VALUE OF ASSETS BY FUND
AS OF SEPTEMBER 30, 2017

FUND	MARKET VALUE OF ASSETS
Annuity Savings Fund	\$ 5,504,125,121
Pension Accumulation Fund	18,717,587,146
DROP Fund	<u>245,805,639</u>
Total Market Value of Assets	\$ 24,467,517,906

- 3. The five-year market related actuarial value of assets as of September 30, 2017 was \$23,887,076,646. Schedule B shows the development of the actuarial value of assets as of September 30, 2017.
- 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, 2017.
2. The valuation balance sheet shows that the System has total prospective liabilities of \$39,282,314,030. Of this amount, \$19,886,016,188 is for the prospective benefits payable on account of present retired members, beneficiaries of deceased members, and DROP participants, \$609,801,422 is for the prospective benefits payable on account of present inactive members and \$18,786,496,420 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 \$23,887,076,646 as of September 30, 2017. The difference of \$15,395,237,384 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, \$3,580,106,280 is the present value of future contributions expected to be made by members to the Annuity Savings Fund, and the balance of \$11,815,131,104 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 2.28% of payroll for Tier I members and 1.19% of payroll for Tier II members are required to provide the benefits of the System.
4. Prospective normal contributions have a present value of \$1,014,129,792. When this amount is subtracted from \$11,815,131,104 which is the present value of the total future contributions to be made by the employer, there remains \$10,801,001,312 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 9.79% 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, 2017.
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	\$6,136,803,088	30	\$393,163,056
Closed Transitional 9/30/2012	674,237,356	25	47,373,722
Closed Transitional 9/30/2013	677,409,090	26	46,611,879
Closed Transitional 9/30/2014	679,696,096	27	45,862,256
Closed Transitional 9/30/2015	681,162,137	28	45,124,658
Closed Transitional 9/30/2016	681,867,009	29	44,398,892
Closed Transitional 9/30/2017	681,867,010	30	43,684,784
New Incremental 9/30/2013	444,392,641	26	30,578,238
New Incremental 9/30/2014	(173,873,657)	27	(11,732,064)
New Incremental 9/30/2015	(82,273,296)	28	(5,450,324)
New Incremental 9/30/2016	242,142,532	29	15,766,799
New Incremental 9/30/2017	<u>157,571,306</u>	30	<u>10,095,031</u>
Total	\$10,801,001,312		\$705,476,927
Total Amortized Payment Adjusted for Timing			\$679,159,496
Total Estimated Payroll*			\$6,935,483,715
UAAL Contribution Rate			9.79%

*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, 2017 it is recommended that the employer make contributions at the following rates beginning October 1, 2019:

TABLE 6

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

<u>EMPLOYER CONTRIBUTION RATE</u>	<u>FISCAL YEAR ENDING SEPTEMBER 30, 2020</u>	
	<u>Tier I</u>	<u>Tier II</u>
Employer Normal Cost**	2.28%	1.19%
Unfunded Actuarial Accrued Liability	9.79	9.79
Death Benefit	0.02	0.02
Term-Life	0.01	0.01
Administration	<u>0.33</u>	<u>0.33</u>
Total	12.43%	11.34%

* All members initially joining the System on and after January 1, 2013 are Tier II members.
 **The total Normal Cost rate is 9.78% for Tier I and 7.19% 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).



3. Contributions at the above rates of payroll are also recommended for payment by the Alabama High School Athletic Association. The following table shows the rates to be paid by special units of the System in addition to the rates shown above and the fiscal year through which these additional rates are required to be paid. These additional rates were determined based on the liabilities for the prior service of members at the time the unit joined the System, amortized over a fixed number of years.

TABLE 7

ADDITIONAL RATES REQUIRED FOR SPECIAL UNITS OF THE SYSTEM


UNIT	ADDITIONAL EMPLOYER RATE	THROUGH FISCAL YEAR ENDING SEPTEMBER 30
Alabama Congress of Parents and Teachers	2.15	2020



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 29.2 years to 28.8 years. The unfunded actuarial accrued liability rate of 9.79% 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.

Signed 

Edward A. Macdonald, ASA, FCA, MAAA
President



SECTION VII – ANALYSIS OF FINANCIAL EXPERIENCE

The calculation of the System's liabilities and actuarial value of assets requires the use of several assumptions concerning the future experience of the System and its members. In each annual actuarial valuation, the experience of the System is compared with what was expected based on the actuarial assumptions. The differences between the actual and expected experience are called actuarial gains or losses depending on whether the difference increases or decreases the UAAL. The UAAL increased from \$10,498,321,874 on September 30, 2016 to 10,801,001,312 on September 30, 2017. The most significant item contributing to the increase in the UAAL was the decrease in the assumed rate of return from 7.875% to 7.75% and losses due to salary increases more than anticipated. This increase was offset by gains due to investment earnings in excess of expected. Other sources of gains and losses were relatively small and there appear to be no trends developing that would be of concern to the System.

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



**RECONCILIATION OF THE UNFUNDED ACTUARIAL ACCRUED LIABILITY
FOR THE YEAR ENDING SEPTEMBER 30, 2017**

(Dollar amounts in thousands)

(1) UAAL at beginning of year	\$ 10,498,322
(2) Total normal cost at beginning of the year	560,350
(3) Actual contributions	1,248,418
(4) Interest accrual: $[(1) + (2)] - \frac{1}{2} [(3)] \times 0.07875$	821,714
(5) Expected UAAL before changes: $(1) + (2) - (3) + (4)$	10,631,968
(6) Increase from benefit changes	0
(7) Changes from revised actuarial assumptions and methods	351,774
(8) Expected UAAL after changes: $(5) + (6) + (7)$	10,983,742
(9) Actual UAAL at end of year	10,801,001
(10) (Gain)/Loss: $(9) - (8)$	\$ (182,741)

**DEVELOPMENT OF (GAIN)/LOSS
FROM INVESTMENT RETURN
FOR THE YEAR ENDING SEPTEMBER 30, 2017**

(Dollar amounts in thousands)

(1) Actuarial Value of Assets (BOY)	\$ 22,645,512
(2) Net Cash Flow	(918,340)
(3) Expected Return $[(1) + \frac{1}{2} [(2)]] \times 0.07875$	1,747,174
(4) Expected Actuarial Value of Assets $[(1) + (2) + (3)]$	23,474,346
(5) Actual Actuarial Value of Assets (EOY)	23,887,077
(6) (Gain)/Loss: $(4) - (5)$	\$ (412,731)



**(GAINS)/ LOSSES BY SOURCE
FOR THE YEAR ENDING SEPTEMBER 30, 2017**
(Dollar amounts in thousands)

SOURCE	Total	% of Actuarial Accrued Liability
Age and Service Retirements. Generally, earlier retirements cause losses and later retirements cause gains.	\$ 8,651	0.03%
Withdrawal. More withdrawals than expected usually cause gains and less withdrawals than expected cause losses.	75,236	0.22%
Disability Retirements. More disabilities than expected generally cause losses and less disabilities than expected cause gains.	3,170	0.01%
Death-In-Service Benefits. If survivor claims are less than assumed, there is a gain. If claims are more than assumed, there is a loss.	14,960	0.04%
Salary Increases. If salaries increase more than expected, there is a loss. If salaries increase less than expected, there is a gain.	175,807	0.51%
New Members/Rehires. Any past service causes losses.	27,797	0.08%
Retiree Mortality. More deaths than expected cause gains, less than expected cause losses.	(8,515)	(0.02)%
Investment Return. Investment income greater than expected causes gains while investment income less than expected cause losses.	(412,731)	(1.20)%
Other. Miscellaneous gains and losses resulting from data corrections, timing of financial transactions, unit transfers, changes in valuation software, etc.	(67,116)	(0.20)%
Total (Gain)/Loss	\$ (182,741)	(0.53)%



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, 2017**

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	93,850
Terminated employees entitled to benefits but not yet receiving benefits	17,564
Non-vested inactive members who have not contributed for more than 5 years	30,228
Active members	<u>136,941</u>
Total	278,583

- 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)
9/30/2012 ¹	\$18,786,008	\$28,251,367	\$9,465,359	66.5%	\$6,222,316	152.1%
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 ²	22,645,512	33,143,834	10,498,322	68.3	6,430,999	163.2
9/30/2017 ³	23,887,077	34,688,078	10,801,001	68.9	6,698,835	161.2

¹Reflects changes in methods.

²Reflects changes in actuarial assumptions and methods.

³Reflects changes in actuarial assumptions.



3. The information presented above was determined as part of the actuarial valuation at September 30, 2017. Additional information as of the latest actuarial valuation follows.

Valuation date	09/30/2017
Actuarial cost method	Entry Age Normal
Amortization method	Level percent closed
Single equivalent remaining amortization period	28.8 years
Asset valuation method	Five-year market related value
Actuarial assumptions:	
Investment Rate of Return*	7.75%
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, 2017**

	September 30, 2017
<u>ASSETS</u>	
Actuarial Value of Assets	\$ 23,887,076,646
Present value of future members' contributions to the Annuity Savings Fund	\$ 3,580,106,280
Present value of future employer contributions to the Pension Accumulation Fund	
Normal contributions	\$ 1,014,129,792
Unfunded actuarial accrued liability contributions	<u>10,801,001,312</u>
Total prospective employer contributions	\$ 11,815,131,104
Total Assets	<u>\$ 39,282,314,030</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	\$ 18,439,169,796
Disability Retirements	576,081,608
Beneficiaries of Deceased Members	624,959,145
DROP Participant Accounts	<u>245,805,639</u>
Total	\$ 19,886,016,188
Inactive Members	\$ 560,024,014
Inactive T-Section Accounts	\$ 49,777,408
Present value of prospective benefits payable on account of present active members:	
Service retirement allowances	\$ 16,888,932,264
Disability retirement allowances	731,162,023
Death Benefits	117,334,894
Termination Benefits	<u>1,049,067,239</u>
Total	\$ 18,786,496,420
Total Liabilities	<u>\$ 39,282,314,030</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)
9/30/2017 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
9/30/2012 ³	3,921,179	17,085,972	7,244,216	18,786,008	100	87	0.0

¹ Reflects changes in actuarial assumptions.

² Reflects changes in actuarial assumptions and methods.

³ Reflects changes in methods.



SCHEDULE B

DEVELOPMENT OF SEPTEMBER 30, 2017 ACTUARIAL VALUE OF ASSETS

(1)	Actuarial Value of Assets on September 30, 2016	\$ 22,645,511,571
(2)	Market Value of Assets on September 30, 2017	24,467,517,906
(3)	Market Value of Assets on September 30, 2016	22,758,953,967
(4)	Net Cash Flow During the Fiscal Year	
	a. Contributions	1,248,418,018
	b. Benefit Payments and DROP Distributions	2,111,807,808
	c. Refunds to Members	51,260,884
	d. Transfer to Expense Fund – Interest Forfeiture	3,689,324
	e. Investment Expenses	19,147,618
	f. Net Cash Flow: (a. - b. - c. - d. - e.)	(937,487,616)
(5)	Actual Investment Return ((2) - (3) - (4)f.)	2,646,051,555
(6)	Assumed Rate of Return on Assets	7.875%
(7)	Amount for Immediate Recognition ((3) * (6)) + (((4)a. - (4)b. - (4)c. - (4)d.) * .5 * (6)) + (4)e.	1,775,255,605
(8)	Investment Gain/(Loss) for the Fiscal Year ((5) - (7))	870,795,950
(9)	Phased-In Recognition of Investment Gain/(Loss)	
	a. Current Fiscal Year: (.2 * (8))	174,159,190
	b. Prior Fiscal Year	101,741,473
	c. Second Prior Fiscal Year	(296,335,495)
	d. Third Prior Fiscal Year	171,251,071
	e. Fourth Prior Fiscal Year	252,980,847
	f. Total Recognized Investment Gain/(Loss) for Fiscal Year	403,797,086
(10)	Actuarial Value of Assets on September 30, 2017 ((1) + (4)f. + (7) + (9)f.)	\$ 23,887,076,646

<u>Date</u>	<u>Investment Gain/(Loss)</u>	<u>Amount Recognized</u>	<u>Remaining Balance as of September 30, 2017</u>
9/30/2013	\$ 1,264,904,237	\$ 1,264,904,237	\$ 0
9/30/2014	856,255,357	685,004,282	171,251,075
9/30/2015	(1,481,677,477)	(889,006,485)	(592,670,992)
9/30/2016	508,707,363	203,482,946	305,224,417
9/30/2017	870,795,950	174,159,190	696,636,760



SCHEDULE C

**SUMMARY OF RECEIPTS AND DISBURSEMENTS
FOR THE PERIOD ENDING SEPTEMBER 30, 2017**

<u>Receipts for the Period</u>		
Contributions:		
Members	\$ 489,637,845	
Employer	<u>758,780,173</u>	
Total		\$ 1,248,418,018
Investment Income		<u>2,644,790,659*</u>
TOTAL		\$ 3,893,208,677
<u>Disbursements for the Period</u>		
Benefit Payments		\$ 2,041,377,039
Refunds to Members		51,260,884
DROP Distributions		70,430,769
Miscellaneous:		
Transfers from Plant Fund	\$ 0	
Transfers to Expense Fund –Interest Forfeiture	3,689,324	
Transfers to Expense Fund –Investment Expenses	8,685,618	
Transfers to Pre-retirement Death Benefit Fund	<u>9,201,104</u>	
Total		<u>21,576,046</u>
TOTAL		\$ 2,184,644,738
<u>Excess of Receipts over Disbursements</u>		\$ 1,708,563,939
<u>Reconciliation of Asset Balances</u>		
Market Value of Assets as of September 30, 2016		\$ 22,758,953,967
Excess of Receipts over Disbursements		<u>1,708,563,939</u>
Market Value of Assets as of September 30, 2017		<u>\$ 24,467,517,906</u>

*Net of \$10,462,000 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.

INVESTMENT RATE OF RETURN: 7.75% 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 Years of Service	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:

<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 7.75%), 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>7.75% Interest (5)=(4) x .0775*</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	428,436,690	354,173,014	5,602,479,028
9/30/2019	5,602,479,028	8	700,309,879	4,902,169,149	379,918,109	314,064,469	4,968,022,789
9/30/2020	4,968,022,789	7	709,717,541	4,258,305,248	330,018,657	272,814,409	4,315,509,496
9/30/2021	4,315,509,496	6	719,251,583	3,596,257,913	278,709,988	230,399,400	3,644,568,501
9/30/2022	3,644,568,501	5	728,913,700	2,915,654,801	225,963,247	186,795,590	2,954,822,458
9/30/2023	2,954,822,458	4	738,705,615	2,216,116,843	171,749,055	141,978,691	2,245,887,207
9/30/2024	2,245,887,207	3	748,629,069	1,497,258,138	116,037,506	95,923,981	1,517,371,663
9/30/2025	1,517,371,663	2	758,685,832	758,685,831	58,798,152	48,606,292	768,877,691
9/30/2026	768,877,691	1	768,877,691	0	0	0	0

*8.00% prior to September 30, 2016 and 7.875% for September 30, 2016.



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	48,794,933
9/30/2019	682,953,665	50,258,781
9/30/2020	685,623,793	51,766,545
9/30/2021	686,993,092	53,319,541
9/30/2022	686,915,516	54,919,127
9/30/2023	685,232,341	56,566,701
9/30/2024	681,771,146	58,263,702
9/30/2025	676,344,708	60,011,613
9/30/2026	668,749,809	61,811,962
9/30/2027	658,765,958	63,666,321
9/30/2028	646,153,999	65,576,310
9/30/2029	630,654,623	67,543,599
9/30/2030	611,986,757	69,569,907
9/30/2031	589,845,824	71,657,005
9/30/2032	563,901,870	73,806,715
9/30/2033	533,797,550	76,020,916
9/30/2034	499,145,944	78,301,544
9/30/2035	459,528,211	80,650,590
9/30/2036	414,491,057	83,070,108
9/30/2037	363,544,006	85,562,211
9/30/2038	306,156,456	88,129,077
9/30/2039	241,754,504	90,772,950
9/30/2040	169,717,528	93,496,138
9/30/2041	89,374,499	96,301,022
9/30/2042	0	0

**Reflects changes in interest rate and payroll growth assumptions beginning with September 30, 2016 valuation*



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	48,010,235	448,254,833	31,495,585
9/30/2019	688,241,652	49,450,543	451,498,998	32,440,452
9/30/2020	692,129,837	50,934,059	454,049,718	33,413,666
9/30/2021	694,835,841	52,462,081	455,824,905	34,416,076
9/30/2022	696,223,538	54,035,943	456,735,260	35,448,558
9/30/2023	696,144,919	55,657,021	456,683,684	36,512,015
9/30/2024	694,439,129	57,326,732	455,564,655	37,607,375
9/30/2025	690,931,430	59,046,534	453,263,541	38,735,596
9/30/2026	685,432,081	60,817,930	449,655,869	39,897,664
9/30/2027	677,735,138	62,642,468	444,606,534	41,094,594
9/30/2028	667,617,143	64,521,742	437,968,946	42,327,432
9/30/2029	654,835,730	66,457,394	429,584,108	43,597,255
9/30/2030	639,128,105	68,451,116	419,279,621	44,905,173
9/30/2031	620,209,417	70,504,649	406,868,619	46,252,328
9/30/2032	597,770,998	72,619,789	392,148,609	47,639,898
9/30/2033	571,478,461	74,798,383	374,900,228	49,069,095
9/30/2034	540,969,659	77,042,334	354,885,901	50,541,167
9/30/2035	505,852,474	79,353,604	331,848,391	52,057,403
9/30/2036	465,702,436	81,734,212	305,509,239	53,619,125
9/30/2037	420,060,163	84,186,239	275,567,080	55,227,698
9/30/2038	368,428,587	86,711,826	241,695,831	56,884,529
9/30/2039	310,269,977	89,313,180	203,542,728	58,591,065
9/30/2040	245,002,720	91,992,576	160,726,225	60,348,797
9/30/2041	171,997,855	94,752,353	112,833,710	62,159,261
9/30/2042	90,575,335	97,594,924	59,419,062	64,024,039
9/30/2043	0	0	0	0

*Reflects changes in interest rate and payroll growth assumptions beginning with September 30, 2016 valuation



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	47,238,124	(175,616,802)	(12,084,026)
9/30/2019	692,476,710	48,655,268	(177,143,078)	(12,446,547)
9/30/2020	697,488,388	50,114,926	(178,425,119)	(12,819,943)
9/30/2021	701,428,812	51,618,373	(179,433,123)	(13,204,542)
9/30/2022	704,171,172	53,166,925	(180,134,648)	(13,600,678)
9/30/2023	705,577,513	54,761,932	(180,494,406)	(14,008,698)
9/30/2024	705,497,838	56,404,790	(180,474,024)	(14,428,959)
9/30/2025	703,769,130	58,096,934	(180,031,802)	(14,861,828)
9/30/2026	700,214,303	59,839,842	(179,122,438)	(15,307,683)
9/30/2027	694,641,070	61,635,037	(177,696,745)	(15,766,913)
9/30/2028	686,840,716	63,484,088	(175,701,329)	(16,239,921)
9/30/2029	676,586,783	65,388,611	(173,078,261)	(16,727,118)
9/30/2030	663,633,647	67,350,269	(169,764,708)	(17,228,932)
9/30/2031	647,714,985	69,370,777	(165,692,541)	(17,745,800)
9/30/2032	628,542,119	71,451,901	(160,787,914)	(18,278,174)
9/30/2033	605,802,233	73,595,458	(154,970,803)	(18,826,519)
9/30/2034	579,156,448	75,803,322	(148,154,522)	(19,391,315)
9/30/2035	548,237,751	78,077,421	(140,245,182)	(19,973,054)
9/30/2036	512,648,756	80,419,744	(131,141,130)	(20,572,246)
9/30/2037	471,959,290	82,832,336	(120,732,322)	(21,189,413)
9/30/2038	425,703,799	85,317,306	(108,899,664)	(21,825,095)
9/30/2039	373,378,537	87,876,825	(95,514,293)	(22,479,848)
9/30/2040	314,438,549	90,513,130	(80,436,802)	(23,154,244)
9/30/2041	248,294,406	93,228,524	(63,516,411)	(23,848,871)
9/30/2042	174,308,698	96,025,380	(44,590,062)	(24,564,337)
9/30/2043	91,792,242	98,906,141	(23,481,454)	(25,301,267)
9/30/2044	0	0	0	0

*Reflects changes in interest rate and payroll growth assumptions beginning with September 30, 2016 valuation



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	46,478,398	(83,199,153)	(5,613,834)
9/30/2019	695,733,282	47,872,749	(84,033,253)	(5,782,249)
9/30/2020	701,779,862	49,308,932	(84,763,582)	(5,955,716)
9/30/2021	706,858,869	50,788,200	(85,377,043)	(6,134,388)
9/30/2022	710,852,232	52,311,846	(85,859,376)	(6,318,419)
9/30/2023	713,631,434	53,881,201	(86,195,059)	(6,507,972)
9/30/2024	715,056,668	55,497,637	(86,367,204)	(6,703,211)
9/30/2025	714,975,923	57,162,566	(86,357,451)	(6,904,307)
9/30/2026	713,223,991	58,877,443	(86,145,846)	(7,111,437)
9/30/2027	709,621,406	60,643,767	(85,710,713)	(7,324,780)
9/30/2028	703,973,299	62,463,080	(85,028,513)	(7,544,523)
9/30/2029	696,068,150	64,336,972	(84,073,700)	(7,770,859)
9/30/2030	685,676,459	66,267,081	(82,818,553)	(8,003,985)
9/30/2031	672,549,303	68,255,094	(81,233,006)	(8,244,104)
9/30/2032	656,416,781	70,302,747	(79,284,460)	(8,491,427)
9/30/2033	636,986,335	72,411,829	(76,937,578)	(8,746,170)
9/30/2034	613,940,947	74,584,184	(74,154,071)	(9,008,555)
9/30/2035	586,937,186	76,821,709	(70,892,456)	(9,278,812)
9/30/2036	555,603,109	79,126,361	(67,107,810)	(9,557,176)
9/30/2037	519,535,989	81,500,151	(62,751,489)	(9,843,891)
9/30/2038	478,299,877	83,945,156	(57,770,838)	(10,139,208)
9/30/2039	431,422,962	86,463,511	(52,108,870)	(10,443,384)
9/30/2040	378,394,731	89,057,416	(45,703,923)	(10,756,686)
9/30/2041	318,662,906	91,729,138	(38,489,291)	(11,079,386)
9/30/2042	251,630,143	94,481,013	(30,392,825)	(11,411,768)
9/30/2043	176,650,467	97,315,443	(21,336,500)	(11,754,121)
9/30/2044	93,025,435	100,234,906	(11,235,958)	(12,106,745)
9/30/2045	0	0	0	0

*Reflects changes in interest rate and payroll growth assumptions beginning with September 30, 2016 valuation



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	45,730,859	245,141,779	16,239,803
9/30/2019	698,081,195	47,102,784	247,900,464	16,726,997
9/30/2020	705,079,703	48,515,868	250,385,753	17,228,807
9/30/2021	711,207,512	49,971,344	252,561,842	17,745,671
9/30/2022	716,354,751	51,470,484	254,389,713	18,278,041
9/30/2023	720,401,760	53,014,599	255,826,875	18,826,383
9/30/2024	723,218,297	54,605,037	256,827,075	19,391,174
9/30/2025	724,662,679	56,243,188	257,339,999	19,972,909
9/30/2026	724,580,848	57,930,483	257,310,940	20,572,097
9/30/2027	722,805,381	59,668,398	256,680,442	21,189,259
9/30/2028	719,154,400	61,458,450	255,383,916	21,824,937
9/30/2029	713,430,416	63,302,203	253,351,233	22,479,685
9/30/2030	705,419,070	65,201,269	250,506,268	23,154,076
9/30/2031	694,887,778	67,157,308	246,766,428	23,848,698
9/30/2032	681,584,273	69,172,027	242,042,128	24,564,159
9/30/2033	665,235,028	71,247,188	236,236,233	25,301,084
9/30/2034	645,543,555	73,384,603	229,243,458	26,060,116
9/30/2035	622,188,577	75,586,141	220,949,709	26,841,920
9/30/2036	594,822,050	77,853,726	211,231,392	27,647,177
9/30/2037	563,067,034	80,189,337	199,954,647	28,476,593
9/30/2038	526,515,392	82,595,017	186,974,539	29,330,891
9/30/2039	484,725,317	85,072,868	172,134,176	30,210,817
9/30/2040	437,218,661	87,625,054	155,263,757	31,117,142
9/30/2041	383,478,053	90,253,806	136,179,556	32,050,656
9/30/2042	322,943,797	92,961,420	114,682,816	33,012,176
9/30/2043	255,010,521	95,750,262	90,558,558	34,002,541
9/30/2044	179,023,574	98,622,770	63,574,305	35,022,617
9/30/2045	94,275,131	101,581,453	33,478,697	36,073,296
9/30/2046	0	0	0	0

*Reflects change in interest rate and payroll growth assumption beginning with September 30, 2017 valuation



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	44,995,328	159,688,051	10,397,882
9/30/2019	699,586,178	46,345,187	161,665,994	10,709,818
9/30/2020	707,458,919	47,735,543	163,485,290	11,031,113
9/30/2021	714,551,443	49,167,609	165,124,287	11,362,046
9/30/2022	720,761,570	50,642,638	166,559,373	11,702,907
9/30/2023	725,977,954	52,161,917	167,764,817	12,053,995
9/30/2024	730,079,329	53,726,774	168,712,596	12,415,615
9/30/2025	732,933,703	55,338,577	169,372,208	12,788,083
9/30/2026	734,397,487	56,998,735	169,710,471	13,171,725
9/30/2027	734,314,558	58,708,697	169,691,307	13,566,877
9/30/2028	732,515,239	60,469,958	169,275,506	13,973,884
9/30/2029	728,815,212	62,284,056	168,420,474	14,393,100
9/30/2030	723,014,335	64,152,578	167,079,960	14,824,893
9/30/2031	714,895,368	66,077,155	165,203,764	15,269,640
9/30/2032	704,222,603	68,059,470	162,737,416	15,727,729
9/30/2033	690,740,385	70,101,254	159,621,837	16,199,561
9/30/2034	674,171,511	72,204,292	155,792,968	16,685,548
9/30/2035	654,215,511	74,370,421	151,181,375	17,186,114
9/30/2036	630,546,792	76,601,533	145,711,818	17,701,698
9/30/2037	602,812,636	78,899,579	139,302,786	18,232,749
9/30/2038	570,631,036	81,266,567	131,866,003	18,779,731
9/30/2039	533,588,374	83,704,564	123,305,888	19,343,123
9/30/2040	491,236,910	86,215,701	113,518,971	19,923,417
9/30/2041	443,092,070	88,802,172	102,393,275	20,521,119
9/30/2042	388,629,533	91,466,237	89,807,634	21,136,753
9/30/2043	327,282,086	94,210,224	75,630,973	21,770,855
9/30/2044	258,436,223	97,036,530	59,721,518	22,423,981
9/30/2045	181,428,500	99,947,626	41,925,955	23,096,700
9/30/2046	95,541,583	102,946,055	22,078,516	23,789,601
9/30/2047	0	0	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, 2017
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	1,166	1,499	5								2,670
Avg. Pay	33,004	30,576	30,312								31,636
25 to 29	1,303	7,757	1,605	10	1						10,676
Avg. Pay	33,391	36,271	44,472	33,550	39,581						37,150
30 to 34	967	5,637	5,487	1,864	14						13,969
Avg. Pay	37,056	39,732	48,152	51,583	36,591						44,432
35 to 39	1,075	4,933	3,671	6,167	1,413	10					17,269
Avg. Pay	38,617	41,650	50,503	54,307	57,255	44,440					49,141
40 to 44	679	4,062	3,165	4,218	5,156	1,225	7				18,512
Avg. Pay	36,558	40,407	49,586	54,910	59,614	60,925	61,291				51,855
45 to 49	595	3,619	3,140	4,058	4,039	4,800	943	11			21,205
Avg. Pay	34,902	39,297	45,958	50,896	57,297	63,047	64,221	43,975			52,295
50 to 54	436	2,642	2,406	3,501	3,369	3,120	2,461	476	8		18,419
Avg. Pay	33,197	37,934	45,057	47,354	52,368	59,322	64,700	63,516	63,515		51,055
55 to 59	354	2,131	2,009	3,008	3,215	3,066	1,856	1,053	324	7	17,023
Avg. Pay	31,521	36,963	45,893	45,161	48,515	54,325	62,076	67,107	62,481	61,476	49,759
60 to 64	205	1,489	1,458	1,959	1,950	1,980	1,402	562	293	49	11,347
Avg. Pay	33,536	48,377	44,780	45,311	49,327	52,964	59,202	68,653	67,012	60,390	50,956
65 to 69	55	689	800	756	580	533	405	145	35	20	4,018
Avg. Pay	35,503	49,349	55,566	46,985	51,811	51,886	70,383	72,393	98,504	74,760	54,151
70 & up	21	278	387	417	269	197	157	61	20	26	1,833
Avg. Pay	30,455	50,028	50,268	45,216	48,143	49,206	78,807	71,809	77,548	99,716	52,590
Total	6,856	34,736	24,133	25,958	20,006	14,931	7,231	2,308	680	102	136,941
Avg. Pay	35,010	39,207	47,743	50,632	54,575	58,373	63,519	67,089	66,743	73,307	48,918

Average Age: 45.59

Average Service: 11.06



SCHEDULE I
(continued)

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

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	315	\$ 9,624,209	\$ 30,553
50 – 54	1,890	58,032,288	30,705
55 – 59	4,512	138,893,133	30,783
60 – 64	14,030	371,113,095	26,451
65 – 69	20,587	493,736,188	23,983
70 – 74	17,328	394,046,512	22,740
75 – 79	11,151	247,912,605	22,232
80 – 84	6,946	143,856,857	20,711
85 – 89	4,112	79,535,021	19,342
90 – 94	1,621	29,030,660	17,909
95 & Over	546	8,644,331	15,832
Total	83,038	\$ 1,974,424,899	\$ 23,777

Average Age: 70.3

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

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	385	\$ 4,467,862	\$ 11,605
50 – 54	173	1,884,324	10,892
55 – 59	284	3,362,885	11,841
60 – 64	462	6,774,082	14,663
65 – 69	616	9,870,305	16,023
70 – 74	787	13,821,423	17,562
75 – 79	717	12,323,369	17,187
80 – 84	717	12,505,798	17,442
85 – 89	525	8,258,626	15,731
90 – 94	289	4,169,610	14,428
95 & Over	95	1,081,407	11,383
Total	5,050	\$ 78,519,691	\$ 15,548

Average Age: 72.0



SCHEDULE I
(continued)

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

Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	360	\$ 4,447,288	\$ 12,354
50 – 54	505	5,876,553	11,637
55 – 59	925	11,195,664	12,103
60 – 64	1,371	16,033,360	11,695
65 – 69	1,148	12,653,758	11,022
70 – 74	794	8,680,980	10,933
75 – 79	419	4,658,722	11,119
80 – 84	147	1,462,124	9,946
85 – 89	71	832,776	11,729
90 – 94	19	162,884	8,573
95 & Over	3	33,752	11,251
Total	5,762	\$ 66,037,861	\$ 11,461

Average Age: 63.3