



**Cavanaugh Macdonald**  
CONSULTING, LLC

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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, 2014**





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

July 10, 2015

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, 2014 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, 2014 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 12.01% of payroll for Tier I members and 10.82% of payroll for Tier II members for the fiscal year ending September 30, 2017.

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 3.25% 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 set for the disclosures presented in the financial section by Governmental Accounting Standards Board (GASB) Statement No. 27 and those outlined in the Board's funding policy.

We have prepared the Schedule of Funding Progress and Trend Information shown in the financial section of the Comprehensive Annual Financial Report, and all supporting schedules including the Schedule of Active Member Valuation Data, the Solvency Test and the Analysis of Financial Experience shown in the actuarial section of the Comprehensive Annual Financial Report.

The necessary GASB Statement No. 67 disclosure information has been provided in a separate supplemental report.

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July 10, 2015  
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.

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'.

Edward A. Macdonald, ASA, FCA, MAAA  
President

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

Cathy Turcot  
Principal and Managing Director

EAM/mjn



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**TEACHERS' RETIREMENT SYSTEM OF ALABAMA  
REPORT OF THE ACTUARY ON THE ANNUAL VALUATION  
PREPARED AS OF SEPTEMBER 30, 2014**

**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:

<b>VALUATION DATE</b>	<b>September 30, 2014</b>	<b>September 30, 2013</b>
Active members		
Number	135,230	133,919
Annual compensation	\$ 6,214,949,700	\$ 6,065,042,345
Retired members and beneficiaries		
Number	85,209	81,745
Annual allowances	\$ 1,865,549,629	\$ 1,767,433,849
DROP participants		
Number	1,748	3,029
Annual compensation	\$ 120,210,805	\$ 198,322,151
Annual allowances	62,162,236	104,007,504
Assets		
Actuarial value	\$ 20,809,871,128	\$ 19,629,815,869
Market value	22,253,817,957	20,641,739,259
Unfunded actuarial accrued liability	\$ 10,027,958,472	\$ 10,036,026,524
Funded Ratio	67.5%	66.2%
<b>CONTRIBUTIONS FOR FISCAL YEAR ENDING</b>	<b>September 30, 2017</b>	<b>September 30, 2016</b>
<b><u>Tier I</u></b> (first hired prior to January 1, 2013)		
Employer contribution rate		
Normal	2.00%	1.84%
Unfunded actuarial accrued liability	9.65	9.74
Death benefit	0.02	0.02
Term life	0.01	0.01
Administration	<u>0.33</u>	<u>0.33</u>
Total	12.01%	11.94%
<b><u>Tier II</u></b> (first hired on or after January 1, 2013)		
Employer contribution rate		
Normal	0.81%	0.74%
Unfunded actuarial accrued liability	9.65	9.74
Death benefit	0.02	0.02
Term life	0.01	0.01
Administration	<u>0.33</u>	<u>0.33</u>
Total	10.82%	10.84%
Blended Amortization period	29.8 years	29.9 years



2. Comments on the valuation results as of September 30, 2014 are given in Section IV and further discussion of the contribution levels is set out in Section V.
3. Since the previous valuation, the interest smoothing methodology has been modified to add a 1/8% corridor on the amount that the discount rate can change in any year. Schedule D of this report shows the development of the smoothed interest rate used for valuation purposes. Schedule B shows the development of the actuarial value of assets. Schedule E of this report outlines the full set of actuarial assumptions and methods used in the current valuation. There have been no changes since the previous valuation. The Board funding policy is shown in Schedule G.
4. Provisions of the System, as summarized in Schedule I, 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.



**SECTION II - MEMBERSHIP**

1. The following table shows the number of active members and their annual compensation as of September 30, 2014 on the basis of which the valuation was prepared.

**TABLE 1**  
**THE NUMBER AND ANNUAL COMPENSATION OF**  
**ACTIVE MEMBERS AS OF SEPTEMBER 30, 2014**

<b>GROUP</b>	<b>NUMBER</b>	<b>COMPENSATION</b>
Tier I	119,960	\$ 5,700,537,149
Tier II	<u>15,270</u>	<u>514,412,551</u>
Subtotal	135,230	\$ 6,214,949,700
DROP	<u>1,748</u>	<u>120,210,805</u>
Total	136,978	\$ 6,335,160,505

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 15,402 inactive members and contribution balances for 29,841 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**

<b>Valuation Date</b>	<b>Number</b>	<b>Annual Payroll</b>	<b>Annual Average Pay</b>	<b>% Increase in Average Pay</b>
9/30/2014 <sup>1</sup>	135,230	\$ 6,214,949,700	\$ 45,958	1.48%
9/30/2013 <sup>2</sup>	133,919	6,065,042,345	45,289	2.06
9/30/2012 <sup>3</sup>	133,791	5,936,831,043	44,374	3.74
9/30/2011 <sup>4</sup>	135,768	5,807,655,862	42,776	(0.12)
9/30/2010 <sup>5</sup>	136,290	5,836,902,762	42,827	(0.01)
9/30/2009 <sup>6</sup>	137,935	5,908,098,156	42,832	1.55

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> In addition, there are 5,625 employees with annual compensation of \$351,906,404 who are currently participating in the DROP program. Employers of the Retirement System contribute on this payroll.

<sup>5</sup> In addition, there are 5,737 employees with annual compensation of \$346,301,313 who are currently participating in the DROP program. Employers of the Retirement System contribute on this payroll.

<sup>6</sup> In addition, there are 5,340 employees with annual compensation of \$328,823,442 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, 2014**

<b>GROUP</b>	<b>NUMBER</b>	<b>ANNUAL RETIREMENT ALLOWANCES</b>
Service Retirements	75,467	\$ 1,741,279,376
Disability Retirements	5,338	59,737,231
Beneficiaries of Deceased Members	<u>4,404</u>	<u>64,533,022</u>
Subtotal	85,209	\$ 1,865,549,629
DROP Participants	<u>1,748</u>	<u>62,162,236</u>
Total	86,957	\$ 1,927,711,865

4. Schedule J 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, 2014, which represent the accumulated contributions of active members to that date, including interest, amounted to \$4,589,020,567.

- (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, 2014 the market value of assets credited to this fund amounted to \$17,037,952,400.

- (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, 2014, the market value of assets credited to this Fund amounted to \$626,844,990.

- (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, 2014, the market value of assets credited to this fund amounted to \$49,166,059. 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, 2014, the market value of assets credited to this fund amounted to \$15,311,808. 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, 2014, the market value of assets credited to this fund amounted to \$30,378,160. These assets are not included in the valuation.

2. As of September 30, 2014 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 \$22,253,817,957 as shown in the following table.

**TABLE 4**  
**MARKET VALUE OF ASSETS BY FUND**  
**AS OF SEPTEMBER 30, 2014**

<b>FUND</b>	<b>MARKET VALUE OF ASSETS</b>
Annuity Savings Fund	\$ 4,589,020,567
Pension Accumulation Fund	17,037,952,400
DROP Fund	<u>626,844,990</u>
Total Market Value of Assets	\$ 22,253,817,957

3. The five-year market related actuarial value of assets as of September 30, 2014 was \$20,809,871,128. Schedule B shows the development of the actuarial value of assets as of September 30, 2014.
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, 2014.
2. The valuation balance sheet shows that the System has total prospective liabilities of \$35,246,089,942. Of this amount, \$18,104,369,407 is for the prospective benefits payable on account of present retired members, beneficiaries of deceased members, and DROP participants, \$590,845,109 is for the prospective benefits payable on account of present inactive members and \$16,550,875,426 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 \$20,809,871,128 as of September 30, 2014. The difference of \$14,436,218,814 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, \$3,497,684,585 is the present value of future contributions expected to be made by members to the Annuity Savings Fund, and the balance of \$10,938,534,229 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 2.00% of payroll for Tier I members and 0.81% of payroll for Tier II members are required to provide the benefits of the System.
4. Prospective normal contributions have a present value of \$910,575,757. When this amount is subtracted from \$10,938,534,229 which is the present value of the total future contributions to be made by the employer, there remains \$10,027,958,472 as the amount of future UAAL contributions.
5. The funding policy adopted by the Board, as shown in Schedule G, 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. 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 9.65% 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 3.25% each year. Schedule H of this report shows a projection of the open Transitional UAAL and amortization schedules for all closed bases on September 30, 2014.
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 RATE**

	<u>UAAL</u>	<u>Amortization Period</u>	<u>Amortization Payment</u>
Open Transitional	\$ 7,814,413,175	30	\$501,202,222
Closed Transitional 9/30/2012	650,527,705	28	43,146,203
Closed Transitional 9/30/2013	651,201,098	29	42,450,925
Closed Transitional 9/30/2014	651,201,098	30	41,766,852
New Incremental 9/30/2013	427,199,723	29	27,848,577
New Incremental 9/30/2014	<u>(166,584,327)</u>	30	<u>(10,684,415)</u>
	\$10,027,958,472		\$645,730,364
Estimated Payroll			\$6,689,325,633
UAAL Contribution Rate			9.65%

8. A contribution of 0.02% is required to meet the cost of the pre-retirement death benefit program this year. The assets and liabilities of this program are not included in the valuation. A contribution of 0.01% is required to meet the cost of life insurance premiums. The assets and liabilities of this program are not included in the valuation.
9. An additional contribution of 0.33% of payroll is required to cover the expenses of administering the System.



**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, 2014 it is recommended that the employer make contributions at the following rates beginning October 1, 2016:

**TABLE 6**

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

<b><u>EMPLOYER CONTRIBUTION</u></b>	<b><u>FISCAL YEAR ENDING SEPTEMBER 30, 2017</u></b>	
	<b><u>Tier I</u></b>	<b><u>Tier II</u></b>
Normal	2.00%	0.81%
Unfunded Actuarial Accrued Liability	9.65	9.65
Death Benefit	0.02	0.02
Term-Life	0.01	0.01
Administration	<u>0.33</u>	<u>0.33</u>
Total	12.01%	10.82%

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


<b>UNIT</b>	<b>ADDITIONAL EMPLOYER RATE</b>	<b>THROUGH FISCAL YEAR ENDING SEPTEMBER 30</b>
Alabama State Employees Association	2.66%	2015
Developing Alabama Youth Foundation	2.74	2017
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 29.9 years to 29.8 years. The unfunded actuarial accrued liability rate of 9.65% 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 following table shows the estimated gain or loss from various factors that resulted in a decrease of \$8,068,052 in the unfunded actuarial accrued liability from \$10,036,026,524 to \$10,027,958,472 during the year ending September 30, 2014.

### ANALYSIS OF FINANCIAL EXPERIENCE (in millions of dollars)

<b>IT EM</b>	<b>AMOUNT OF INCREASE/ (DECREASE) IN UAAL</b>
Interest (8.27%) added to previous UAAL	\$ 830.0
Accrued liability contribution*	(663.3)
Experience:	
Valuation asset growth	(453.3)
Pensioners' mortality	11.2
Turnover and retirements	(2.4)
New entrants	38.1
Salary increases	(135.3)
Method changes	0.0
Amendments	0.0
Interest Smoothing	336.1
Miscellaneous changes	<u>30.8</u>
Total Increase/(Decrease) in UAAL	\$ (8.1)

\*Equal to the total contributions made to the System less the normal cost for the year adjusted for interest to September 30, 2014  $((\$1,197,601,336 \times 1.04135) - (\$539,267,905 \times 1.0827))$ .





**SECTION VIII - ACCOUNTING INFORMATION**

Governmental Accounting Standards Board (GASB) has issued Statement No. 67 which replaces Statement 25 for plan years beginning after June 15, 2013. The information required under GASB 67 was issued in a separate report. The following information is provided for informational purposes and for disclosure in the financial statements of the System and the employer under GASB 27. GASB 68 replaces GASB 27 for the employer's fiscal year beginning after June 15, 2014.

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

**NUMBER OF ACTIVE AND RETIRED MEMBERS  
AS OF SEPTEMBER 30, 2014**

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	85,209
DROP participants	1,748
Terminated employees entitled to benefits but not yet receiving benefits	15,402
Non-vested inactive members who have not contributed for more than 5 years	29,841
Active members	<u>135,230</u>
Total	267,430

- 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)
9/30/2009	\$20,582,348	\$27,537,400	\$6,955,052	74.7%	\$6,236,922	111.5%
9/30/2010	20,132,779	28,299,523	8,166,744	71.1	6,183,204	132.1
9/30/2011 <sup>1</sup>	19,430,135	28,776,316	9,346,181	67.5	6,159,562	151.7
9/30/2012 <sup>2</sup>	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

<sup>1</sup>Reflects changes in assumptions.

<sup>2</sup>Reflects changes in methods.



3. The information presented above was determined as part of the actuarial valuation at September 30, 2014. Additional information as of the latest actuarial valuation follows.

Valuation date	09/30/2014
Actuarial cost method	Entry Age Normal
Amortization method	Level percent closed
Single equivalent remaining amortization period	29.8 years
Asset valuation method	Five-year market related value
Actuarial assumptions:	
Ultimate Investment Rate of Return*	8.00%
Projected salary increases*	3.50 - 8.25%
Cost-of-living adjustments	None
*Includes price inflation at	3.00%

**TREND INFORMATION**  
(\$ in 1,000's)

<u>Period Ending</u>	<u>Annual Pension Cost (APC)</u>	<u>Percentage Of APC Contributed</u>	<u>Net Pension Obligation (NPO)</u>
September 30, 2012	\$594,771	100%	\$0
September 30, 2013	605,465	100	0
September 30, 2014	716,753	100	0



**SCHEDULE A**

**VALUATION BALANCE SHEET  
SHOWING THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES OF  
THE TEACHERS' RETIREMENT SYSTEM OF ALABAMA  
AS OF SEPTEMBER 30, 2014**

	<b>September 30, 2014</b>
<b><u>ASSETS</u></b>	
Actuarial Value of Assets	\$ 20,809,871,128
Present value of future members' contributions to the Annuity Savings Fund	\$ 3,497,684,585
Present value of future employer contributions to the Pension Accumulation Fund	
Normal contributions	\$ 910,575,757
Unfunded actuarial accrued liability contributions	<u>10,027,958,472</u>
Total prospective employer contributions	\$ 10,938,534,229
Total Assets	<u>\$ 35,246,089,942</u>
<b><u>LIABILITIES</u></b>	
Present value of benefits payable on account of retired members, beneficiaries of deceased members now drawing retirement allowances, and DROP participants	
Service Retirements	\$ 16,470,032,334
Disability Retirements	503,177,624
Beneficiaries of Deceased Members	504,314,459
DROP Participant Accounts	<u>626,844,990</u>
Total	\$ 18,104,369,407
Inactive Members	\$ 539,408,324
Inactive T-Section Accounts	\$ 51,436,785
Present value of prospective benefits payable on account of present active members:	
Service retirement allowances	\$ 14,908,551,661
Disability retirement allowances	587,525,751
Death Benefits	101,959,794
Termination Benefits	<u>952,838,220</u>
Total	\$ 16,550,875,426
Total Liabilities	<u>\$ 35,246,089,942</u>



**SCHEDULE A**  
**(continued)**

**SOLVENCY TEST**  
**(\$1000's)**

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)
9/30/2014	\$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 <sup>1</sup>	3,921,179	17,085,972	7,244,216	18,786,008	100	87	0.0
9/30/2011 <sup>2</sup>	3,620,301	17,245,088	7,910,927	19,430,135	100	92	0.0
9/30/2010	3,498,959	16,083,293	8,717,271	20,132,779	100	100	6.3
9/30/2009	3,233,664	15,328,508	8,975,228	20,582,348	100	100	22.5

<sup>1</sup> Reflects changes in methods.

<sup>2</sup> Reflects changes in actuarial assumptions.



**SCHEDULE B**

**DEVELOPMENT OF SEPTEMBER 30, 2014 ACTUARIAL VALUE OF ASSETS**

(1)	Actuarial Value of Assets on September 30, 2013	\$ 19,629,815,869
(2)	Market Value of Assets on September 30, 2014	22,253,817,957
(3)	Market Value of Assets on September 30, 2013	20,641,739,259
(4)	Net Cash Flow During the Fiscal Year	
	a. Contributions	1,197,601,336
	b. Benefit Payments and DROP Distributions	1,997,877,191
	c. Refunds to Members	50,328,497
	d. Transfer to Expense Fund	5,815,841
	e. Transfer to Plant and Pre-retirement Death Funds	4,652,691
	f. Investment Expenses	8,625,819
	g. Net Cash Flow: (a. - b. - c. - d. - e. - f.)	<u>(869,698,703)</u>
(5)	Actual Investment Return ((2) - (3) - (4)g.)	2,481,777,401
(6)	Assumed Rate of Return on Assets	8.00%
(7)	Amount for Immediate Recognition ((3) * (6)) + (((4)a. - (4)b. - (4)c. - (4)d. - (4)e.) * .5 * (6)) + (4)f.	1,625,522,044
(8)	Investment Gain/(Loss) for the Fiscal Year ((5) - (7))	856,255,357
(9)	Phased-In Recognition of Investment Gain/(Loss)	
	a. Current Fiscal Year: (.2 * (8))	171,251,071
	b. Prior Fiscal Year	252,980,847
	c. Second Prior Fiscal Year	0
	d. Third Prior Fiscal Year	0
	e. Fourth Prior Fiscal Year	0
	f. Total Recognized Investment Gain/(Loss) for Fiscal Year	<u>424,231,918</u>
(10)	Actuarial Value of Assets on September 30, 2014 ((1) + (4)g. + (7) + (9)f.)	\$ 20,809,871,128

<u>Date</u>	<u>Investment Gain/(Loss)</u>	<u>Amount Recognized</u>	<u>Remaining Balance as of September 30, 2014</u>
9/30/2013	\$ 1,264,904,237	\$ 505,961,694	\$ 758,942,543
9/30/2014	\$ 856,255,357	\$ 171,251,071	\$ 685,004,286



**SCHEDULE C**

**SUMMARY OF RECEIPTS AND DISBURSEMENTS  
FOR THE PERIOD ENDING SEPTEMBER 30, 2014**

<u>Receipts for the Period</u>		
Contributions:		
Members	\$ 480,848,671	
Employer	<u>716,752,665</u>	
Total		\$ 1,197,601,336
Investment Income		<u>2,478,883,401*</u>
TOTAL		\$ 3,676,484,737
<u>Disbursements for the Period</u>		
Benefit Payments		\$ 1,766,043,575
Refunds to Members		50,328,497
DROP Distributions		231,833,616
Miscellaneous:		
Transfers to Plant Fund	\$ 194,155	
Transfers to Expense Fund	11,547,660	
Transfers to Pre-retirement Death Benefit Fund	<u>4,458,536</u>	
Total		<u>16,200,351</u>
TOTAL		\$ 2,064,406,039
<u>Excess of Receipts over Disbursements</u>		\$ 1,612,078,698
<u>Reconciliation of Asset Balances</u>		
Market Value of Assets as of September 30, 2013		\$ 20,641,739,259
Excess of Receipts over Disbursements		<u>1,612,078,698</u>
Market Value of Assets as of September 30, 2014		<u>\$ 22,253,817,957</u>

\*Net of \$2,894,000 in investment expenses.



**SCHEDULE D**

**SMOOTHED INTEREST RATE**

**Actual Rate of Return for 5 Year Look Back Period**

<b>Fiscal Year Ending 9/30</b>	<b>Actual Rate of Return for Fiscal Year</b>
2010	8.42 %
2011	1.81
2012	18.30
2013	14.93
2014	12.13

**SMOOTHED INTEREST RATE:** The assumed rate of return during the 25 year look forward period beginning on the valuation date. This is the investment rate of return expected to be earned during this period based on the actual rates earned during the five year look back period shown above such that the average rate of return over the combined 30 year period is equivalent to the ultimate investment rate of return (currently 8.00%). On this basis, for the September 30, 2014 valuation, the smoothed interest rate during the 25 year look forward period has been determined to be 7.42%.

**ULTIMATE INVESTMENT RATE OF RETURN:** The assumed investment rate of return used in determining the smoothed interest rate described above. This is also the assumed investment rate of return after the 25 year look forward period and is currently 8.00%.

**CORRIDOR AROUND SMOOTHED INTEREST RATE:** A corridor of 0.50% around the ultimate investment rate of return is applied in determining the smoothed interest rate. In addition, the limited smoothed interest rate may not increase or decrease by more than 1/8% each year.

**LIMITED SMOOTHED INTEREST RATE:** The assumed rate of return during the 25 year look forward period as limited based on the application of the corridor above and used for valuation purposes. Since the smoothed interest rate is 7.42%, the assumed rate for the first 25 years after the valuation date is outside the corridor. The smoothed interest rate for valuation purposes is limited to 8.15%



**SCHEDULE E**

**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, 2010, submitted to and adopted by the Board on January 27, 2012.

ULTIMATE INVESTMENT RATE OF RETURN: 8.00% per annum, compounded annually, including price inflation at 3%.

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases are as follows and include wage inflation at 3.25% per annum:

Service	Annual Rate	Service	Annual Rate
0	8.25 %	6	5.00 %
1	6.50	7	4.75
2	5.75	8 to 13	4.50
3	5.50	14 to 18	4.00
4	5.25	19 & Over	3.50
5	5.00		

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

Age	Death*	Annual Rate of					
		Disability		Withdrawal			
		Years of Service		Years of Service			
		0-24	25+	0-4	5-9	10-20	20+
<b>Male</b>							
20	0.02%	0.04%		30.00%			
25	0.02	0.05		15.68	10.00%		
30	0.03	0.05		14.25	5.40	5.00%	
35	0.05	0.10		14.25	5.40	3.00	
40	0.07	0.18		14.00	5.40	2.50	1.00%
45	0.09	0.31	0.10%	14.00	5.00	2.50	1.00
50	0.12	0.51	0.10	12.50	4.50	2.50	1.00
55	0.20	0.96	0.10	12.00	4.00	2.50	1.00
60	0.40	0.50	0.10	12.00	4.00		
65	0.77			12.00	6.00		
69	1.20			12.00	6.00		
<b>Female</b>							
20	0.01%	0.10%		28.50%			
25	0.01	0.10		14.00	8.00%		
30	0.01	0.10		14.00	5.80	4.00%	
35	0.02	0.15		14.00	5.00	3.00	
40	0.03	0.16		12.00	4.50	2.10	1.10%
45	0.04	0.33	0.15%	11.50	3.75	2.10	0.75
50	0.06	0.63	0.15	11.00	3.75	2.10	0.75
55	0.11	0.99	0.15	11.00	3.75	2.50	0.75
60	0.21	0.25	0.25	12.00	4.50		
65	0.40			14.00	6.00		
69	0.62			14.00	6.00		

\* Rates of pre-retirement mortality are according to the sex distinct RP-2000 Combined Mortality Table Projected with Scale AA to 2015 set back one year for females with an adjustment of factor of 0.75 for males and 0.50 for females.





SERVICE RETIREMENT:

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

For members first eligible for unreduced benefits upon attaining 25 years of service but before age 65, rates are as follows:

<u>Age Group</u>	<u>Annual Rate</u>	
	<u>Male*</u>	<u>Female**</u>
47 & Under	20.0%	25.0%
48	20.0	17.0
49	20.0	16.0
50 to 52	15.0	16.0
53 to 54	14.0	16.0
55 to 59	15.0	20.0
60	15.0	15.0
61	20.0	25.0
62	35.0	35.0
63	30.0	25.0
64	25.0	30.0

\*Retirement rates are increased by 7% in the year first eligible for unreduced retirement from age 50 through age 54 and by 10% from age 55 through age 60.

\*\*Retirement rates are increased by 7% in the year first eligible for unreduced retirement from age 50 through age 54 and by 20% from age 55 through age 60.

For members first eligible for unreduced benefits before attaining 25 years of service and all members age 65 and over, the rates are as follows:

<u>Age Group</u>	<u>Annual Rate</u>	
	<u>Male</u>	<u>Female</u>
60	13.0%	20.0%
61	12.0	15.0
62	28.0	25.0
63	20.0	20.0
64	15.0	18.0
65	30.0	30.0
66	28.0	30.0
67	20.0	25.0
68	20.0	28.0
69	20.0	22.0
70	20.0	25.0
71 to 74	20.0	22.0
75 & Above	100.0	100.0



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

Age Group	Annual Rate			
	Male		Female	
	<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%	65.0%
63	20.0	30.0	20.0	25.0
64	15.0	25.0	18.0	30.0
65	30.0	30.0	30.0	30.0
66	28.0	28.0	30.0	30.0
67	20.0	20.0	25.0	25.0
68	20.0	20.0	28.0	28.0
69	20.0	20.0	22.0	22.0
70	20.0	20.0	25.0	25.0
71 to 74	20.0	20.0	22.0	22.0
75 & above	100.0	100.0	100.0	100.0

DEATHS AFTER RETIREMENT: Rates of mortality for the period after service retirement are according to the sex distinct RP-2000 Combined Mortality Table Projected with Scale AA to 2015 set back one year for females. Rates of mortality for the period after disability retirement are according to the RP-2000 Disabled Mortality Table, adjusted for males by a factor of 0.85. Representative values of the assumed annual rates of death after retirement are as follows:

Age	Annual Rate			
	After Service Retirement		After Disability Retirement	
	Male	Female	Male	Female
35	0.07%	0.04%	1.92%	0.75%
40	0.10	0.05	1.92	0.75
45	0.12	0.08	1.92	0.75
50	0.16	0.12	2.46	1.15
55	0.27	0.21	3.01	1.65
60	0.53	0.41	3.57	2.18
65	1.03	0.80	4.26	2.80
70	1.77	1.38	5.32	3.76
75	3.06	2.26	6.98	5.22
80	5.54	3.74	9.30	7.23
85	9.97	6.35	12.04	10.02
90	17.27	11.39	15.59	14.00
95	25.96	17.74	22.74	19.45

In our opinion, the projection to 2015 of the RP-2000 mortality rates with Scale AA continues to provide a sufficient margin in the assumed rates of mortality to allow for additional improvement in mortality experience.

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 and included in the liabilities of the System.



**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 and the value of the deferred annuity. Assumed refunds are reduced by 10% to account for interest accumulation adjustments which are less than the “regular” 4% rate adopted by the Board.

**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. Actuarial gains and losses are reflected in the unfunded actuarial accrued liability.

**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.

**VALUATION INTEREST RATE SMOOTHING:** The valuation liabilities are calculated using a smoothed interest rate method. The interest rate assumed during the look forward period (currently 25 years from the valuation date) is the investment rate of return expected to be earned during the look forward period based on the actual rate of return earned during the look back period (currently 5 years) such that the average assumed rate of return over the combined 30 year period is equivalent to the assumed ultimate investment rate of return (currently 8.00%). The interest rate after the 25 year look forward period is the ultimate investment rate of return of 8.00%.

**CORRIDOR LIMIT ON INTEREST SMOOTHING:** A corridor of 0.50% around the ultimate investment rate of return is applied in determining the smoothed interest rate. In addition, the limited smoothed interest rate may not increase or decrease by more than 1/8% each year.



## **SCHEDULE F**

### **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 (see Schedules D and E for a description of the interest rate used), 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 G

### **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. For that reason, it is critical that this funding policy remain unchanged until its objectives are met.

#### **I. Funding Objectives**

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

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

#### **II. Benchmarks**

To track progress in achieving the previously outlined funding objectives, the following benchmarks will be measured annually as of the valuation date. The valuation date is the date that the annual actuarial valuation of the System's assets and liabilities is prepared. This date is currently September 30<sup>th</sup> 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 1/15<sup>th</sup> 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 including the Interest Smoothing methodology. The actuary shall conduct an investigation into the system's experience at least every five years and utilize the results of the investigation to form the basis for those recommendations which shall include the Interest Smoothing Methodology.

### **IV. Funding Policy Progress**

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



**SCHEDULE H**

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

**PROJECTION OF THE OPEN TRANSITIONAL UAAL**

<b>Valuation Date</b>	<b>Transitional UAAL Beginning of Year (1)</b>	<b>Transitional Closed (2)</b>	<b>Transitional Remaining Open (3)=(1)-(2)</b>	<b>8% Interest (4)=(3)*.08</b>	<b>Amortization Payment (5)</b>	<b>Transitional Open UAAL End of Year (6)=(3)+(4)-(5)</b>
9/30/2012	\$9,465,359,317	\$631,023,954	\$8,834,335,363	\$706,746,829	\$566,618,173	\$8,974,464,019
9/30/2013	8,974,464,019	641,033,144	8,333,430,875	666,674,470	534,491,072	8,465,614,273
9/30/2014	8,465,614,273	651,201,098	7,814,413,175	625,153,054	501,202,222	7,938,364,007
9/30/2015	7,938,364,007	661,530,334	7,276,833,673	582,146,694	466,722,853	7,392,257,515
9/30/2016	7,392,257,515	672,023,410	6,720,234,104	537,618,728	431,023,570	6,826,829,262
9/30/2017	6,826,829,262	682,682,926	6,144,146,336	491,531,707	394,074,351	6,241,603,692
9/30/2018	6,241,603,692	693,511,521	5,548,092,171	443,847,374	355,844,523	5,636,095,022
9/30/2019	5,636,095,022	704,511,878	4,931,583,144	394,526,652	316,302,757	5,009,807,039
9/30/2020	5,009,807,039	715,686,720	4,294,120,319	343,529,626	275,417,053	4,362,232,892
9/30/2021	4,362,232,892	727,038,815	3,635,194,077	290,815,526	233,154,724	3,692,854,879
9/30/2022	3,692,854,879	738,570,976	2,954,283,903	236,342,712	189,482,386	3,001,144,229
9/30/2023	3,001,144,229	750,286,057	2,250,858,172	180,068,654	144,365,942	2,286,560,884
9/30/2024	2,286,560,884	762,186,961	1,524,373,923	121,949,914	97,770,566	1,548,553,271
9/30/2025	1,548,553,271	774,276,635	774,276,636	61,942,131	49,660,693	786,558,074
9/30/2026	786,558,074	786,558,074	0	0	0	0



**SCHEDULE H**  
**(continued)**

**AMORTIZATION SCHEDULE FOR CLOSED BASE**  
**AS OF SEPTEMBER 30, 2012**

<b>Valuation Date</b>	<b>Balance of Transitional Closed 9/30/2012</b>	<b>Annual Amortization Payment</b>
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	45,996,280
9/30/2017	675,043,214	47,491,159
9/30/2018	681,555,513	49,034,621
9/30/2019	687,045,333	50,628,246
9/30/2020	691,380,713	52,273,664
9/30/2021	694,417,505	53,972,559
9/30/2022	695,998,347	55,726,667
9/30/2023	695,951,548	57,537,783
9/30/2024	694,089,889	59,407,761
9/30/2025	690,209,318	61,338,514
9/30/2026	684,087,550	63,332,015
9/30/2027	675,482,539	65,390,306
9/30/2028	664,130,836	67,515,491
9/30/2029	649,745,812	69,709,744
9/30/2030	632,015,733	71,975,311
9/30/2031	610,601,681	74,314,508
9/30/2032	585,135,307	76,729,730
9/30/2033	555,216,402	79,223,446
9/30/2034	520,410,267	81,798,208
9/30/2035	480,244,881	84,456,650
9/30/2036	434,207,821	87,201,491
9/30/2037	381,742,956	90,035,540
9/30/2038	322,246,853	92,961,695
9/30/2039	255,064,906	95,982,950
9/30/2040	179,487,149	99,102,396
9/30/2041	94,743,725	102,323,223
9/30/2042	0	0





**SCHEDULE H**  
**(continued)**

**AMORTIZATION SCHEDULE FOR CLOSED BASES**  
**AS OF SEPTEMBER 30, 2013**

<b>Valuation Date</b>	<b>Balance of Transitional Closed 9/30/2013</b>	<b>Annual Amortization Payment</b>	<b>Balance of New Incremental UAAL 9/30/2013</b>	<b>Annual Amortization Payment</b>
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	45,255,074	439,455,639	29,688,149
9/30/2017	678,218,976	46,725,864	444,923,941	30,653,014
9/30/2018	685,750,630	48,244,455	449,864,842	31,649,237
9/30/2019	692,366,225	49,812,400	454,204,793	32,677,837
9/30/2020	697,943,124	51,431,303	457,863,339	33,739,867
9/30/2021	702,347,271	53,102,820	460,752,540	34,836,412
9/30/2022	705,432,232	54,828,662	462,776,330	35,968,596
9/30/2023	707,038,149	56,610,593	463,829,841	37,137,575
9/30/2024	706,990,608	58,450,438	463,798,653	38,344,546
9/30/2025	705,099,419	60,350,077	462,557,999	39,590,744
9/30/2026	701,157,296	62,311,454	459,971,894	40,877,443
9/30/2027	694,938,425	64,336,576	455,892,203	42,205,960
9/30/2028	686,196,923	66,427,515	450,157,619	43,577,654
9/30/2029	674,665,162	68,586,409	442,592,574	44,993,928
9/30/2030	660,051,965	70,815,468	433,006,052	46,456,230
9/30/2031	642,040,655	73,116,970	421,190,306	47,966,058
9/30/2032	620,286,936	75,493,272	406,919,473	49,524,955
9/30/2033	594,416,619	77,946,803	389,948,076	51,134,516
9/30/2034	564,023,146	80,480,074	370,009,406	52,796,388
9/30/2035	528,664,923	83,095,677	346,813,771	54,512,270
9/30/2036	487,862,440	85,796,286	320,046,603	56,283,919
9/30/2037	441,095,149	88,584,666	289,366,412	58,113,146
9/30/2038	387,798,095	91,463,667	254,402,579	60,001,824
9/30/2039	327,358,275	94,436,237	214,752,962	61,951,883
9/30/2040	259,110,700	97,505,414	169,981,316	63,965,319
9/30/2041	182,334,142	100,674,340	119,614,502	66,044,192
9/30/2042	96,246,534	103,946,256	63,139,470	68,190,628
9/30/2043	0	0	0	0



**SCHEDULE H**  
**(continued)**

**AMORTIZATION SCHEDULE FOR CLOSED BASES**  
**AS OF SEPTEMBER 30, 2014**

<b>Valuation Date</b>	<b>Balance of Transitional Closed 9/30/2014</b>	<b>Annual Amortization Payment</b>	<b>Balance of New Incremental UAAL 9/30/2014</b>	<b>Annual Amortization Payment</b>
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	44,525,813	(171,733,132)	(11,390,188)
9/30/2017	680,508,952	45,972,902	(174,081,595)	(11,760,369)
9/30/2018	688,976,765	47,467,022	(176,247,754)	(12,142,581)
9/30/2019	696,627,885	49,009,700	(178,204,993)	(12,537,215)
9/30/2020	703,348,416	50,602,515	(179,924,178)	(12,944,674)
9/30/2021	709,013,774	52,247,097	(181,373,439)	(13,365,376)
9/30/2022	713,487,779	53,945,128	(182,517,938)	(13,799,751)
9/30/2023	716,621,673	55,698,344	(183,319,622)	(14,248,243)
9/30/2024	718,253,063	57,508,540	(183,736,949)	(14,711,310)
9/30/2025	718,204,768	59,377,568	(183,724,595)	(15,189,428)
9/30/2026	716,283,581	61,307,339	(183,233,134)	(15,683,084)
9/30/2027	712,278,929	63,299,827	(182,208,701)	(16,192,785)
9/30/2028	705,961,415	65,357,072	(180,592,612)	(16,719,050)
9/30/2029	697,081,257	67,481,177	(178,320,971)	(17,262,419)
9/30/2030	685,366,581	69,674,315	(175,324,229)	(17,823,448)
9/30/2031	670,521,592	71,938,730	(171,526,720)	(18,402,710)
9/30/2032	652,224,589	74,276,739	(166,846,147)	(19,000,798)
9/30/2033	630,125,818	76,690,733	(161,193,041)	(19,618,324)
9/30/2034	603,845,150	79,183,182	(154,470,160)	(20,255,920)
9/30/2035	572,969,581	81,756,635	(146,571,854)	(20,914,237)
9/30/2036	537,050,512	84,413,726	(137,383,365)	(21,593,950)
9/30/2037	495,600,827	87,157,172	(126,780,085)	(22,295,753)
9/30/2038	448,091,721	89,989,780	(114,626,738)	(23,020,365)
9/30/2039	393,949,279	92,914,448	(100,776,512)	(23,768,527)
9/30/2040	332,550,774	95,934,167	(85,070,107)	(24,541,004)
9/30/2041	263,220,668	99,052,028	(67,334,711)	(25,338,587)
9/30/2042	185,226,294	102,271,219	(47,382,902)	(26,162,091)
9/30/2043	97,773,179	105,595,033	(25,011,443)	(27,012,359)
9/30/2044	0	0	0	0



## **SCHEDULE I**

### **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 J**  
**SCHEDULE OF MEMBERSHIP DATA**  
**AS OF SEPTEMBER 30, 2014**  
**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	1,098	1,417	11								2,526
Avg. Pay	30,926	30,450	33,122								30,668
25 to 29	1,502	7,355	1,741	11							10,609
Avg. Pay	32,380	35,385	42,112	29,736							36,058
30 to 34	1,024	4,761	6,454	1,856	11						14,106
Avg. Pay	34,577	38,325	45,784	48,965	39,571						42,866
35 to 39	837	4,039	4,550	5,711	1,516	13					16,666
Avg. Pay	34,752	40,198	46,141	51,534	54,386	46,753					46,727
40 to 44	761	3,606	4,246	4,037	5,395	1,296	11				19,352
Avg. Pay	33,570	37,035	45,041	49,888	56,163	57,689	52,989				48,061
45 to 49	577	2,934	3,749	3,623	3,816	4,057	945	12			19,713
Avg. Pay	32,397	36,318	43,197	46,148	52,713	59,081	58,939	46,027			48,267
50 to 54	438	2,425	3,220	3,563	3,743	3,010	2,227	533	21		19,180
Avg. Pay	31,437	36,027	41,104	43,069	47,745	56,015	58,267	58,934	45,456		46,735
55 to 59	289	1,794	2,532	2,936	3,414	3,084	1,966	1,071	351		17,437
Avg. Pay	31,712	38,886	40,455	43,261	46,548	52,584	57,816	62,545	60,847		47,684
60 to 64	273	1,499	1,655	1,711	1,893	1,851	1,150	125	57	13	10,227
Avg. Pay	49,211	49,952	41,035	43,524	45,506	51,489	58,022	73,761	65,372	69,293	48,178
65 to 69	79	637	963	700	526	496	343	38	23	11	3,816
Avg. Pay	44,355	51,957	50,001	45,303	45,480	52,883	63,311	76,747	76,295	76,863	50,799
70 & up	37	205	472	339	215	160	109	25	20	16	1,598
Avg. Pay	42,782	47,856	47,240	35,641	41,984	55,876	65,145	56,190	69,916	118,188	47,268
Total	6,915	30,672	29,593	24,487	20,529	13,967	6,751	1,804	472	40	135,230
Avg. Pay	33,663	37,925	44,113	47,080	50,843	55,582	58,547	62,356	61,846	90,933	45,958

Average Age: 45.29

Average Service: 10.98





**SCHEDULE J**  
**(continued)**

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

<b>Age</b>	<b>Number of Members</b>	<b>Total Annual Benefits</b>	<b>Average Annual Benefits</b>
Under 50	272	\$ 7,835,377	\$ 28,807
50 – 54	1,881	54,292,939	28,864
55 – 59	5,272	153,346,913	29,087
60 – 64	14,755	370,238,272	25,092
65 – 69	18,785	437,152,859	23,271
70 – 74	13,389	299,688,136	22,383
75 – 79	9,327	196,803,357	21,100
80 – 84	6,286	124,282,006	19,771
85 – 89	3,568	66,200,582	18,554
90 – 94	1,443	24,134,013	16,725
95 & Over	489	7,304,922	14,938
Total	75,467	\$ 1,741,279,376	\$ 23,073

Average Age: 69.9

**NUMBER OF DROP PARTICIPANTS  
AND THEIR BENEFITS BY AGE**

<b>Age</b>	<b>Number of Members</b>	<b>Total Annual Benefits</b>	<b>Average Annual Benefits</b>
55 – 59	587	\$ 21,326,484	\$ 36,331
60 – 64	907	31,751,967	35,008
65 – 69	208	7,290,361	35,050
70 – 74	34	1,302,289	38,303
75 – 79	12	491,135	40,928
80 – 84			
85 & Over			
Total	1,748	\$ 62,162,236	\$ 35,562

Average Age: 61.3



**SCHEDULE J**  
(continued)

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

<b>Age</b>	<b>Number of Members</b>	<b>Total Annual Benefits</b>	<b>Average Annual Benefits</b>
Under 50	328	\$ 3,555,598	\$ 10,840
50 – 54	178	1,873,555	10,526
55 – 59	261	3,153,210	12,081
60 – 64	397	5,921,985	14,917
65 – 69	545	8,832,611	16,207
70 – 74	620	10,485,277	16,912
75 – 79	641	10,029,675	15,647
80 – 84	614	9,375,129	15,269
85 – 89	500	7,347,261	14,695
90 – 94	253	3,240,545	12,808
95 & Over	67	718,176	10,719
<b>Total</b>	<b>4,404</b>	<b>\$ 64,533,022</b>	<b>\$ 14,653</b>

Average Age: 71.7

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

<b>Age</b>	<b>Number of Members</b>	<b>Total Annual Benefits</b>	<b>Average Annual Benefits</b>
Under 50	367	\$ 4,104,546	\$ 11,184
50 – 54	542	6,129,332	11,309
55 – 59	983	11,300,583	11,496
60 – 64	1,278	14,582,749	11,411
65 – 69	1,068	11,510,403	10,778
70 – 74	610	6,682,294	10,955
75 – 79	269	3,013,461	11,202
80 – 84	146	1,535,717	10,519
85 – 89	55	621,868	11,307
90 – 94	14	176,384	12,599
95 & Over	6	79,894	13,316
<b>Total</b>	<b>5,338</b>	<b>\$ 59,737,231</b>	<b>\$ 11,191</b>

Average Age: 62.7