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May 1, 2014

Mr. Jeffrey L. Ezell
Executive Director
Teachers Retirement System of Georgia
Suite 100, Two Northside 75
Atlanta, GA 30318

Dear Mr. Ezell:

Enclosed are 25 bound copies and one unbound copy of the "Teachers Retirement System of Georgia Report of the Actuary on the Valuation Prepared as of June 30, 2013".

The valuation indicates that employer contributions at the rate of 14.27% of compensation are sufficient to support the benefits of the System. The valuation takes into account the effect of all amendments to the System enacted through the 2013 Session of the General Assembly.

Please let us know if there are any questions concerning the report.

Sincerely yours,

Edward A. Macdonald, ASA, FCA, MAAA
President

EAM:mjn

Enclosure

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Cavanaugh Macdonald
CONSULTING, LLC

*The experience and dedication you deserve*

Teachers Retirement System of Georgia

# TEACHERS RETIREMENT SYSTEM OF GEORGIA

## REPORT OF THE ACTUARY ON THE VALUATION PREPARED AS OF JUNE 30, 2013

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

May 1, 2014

Board of Trustees,
Teachers Retirement System of Georgia
Suite 100, Two Northside 75
Atlanta, GA 30318

Members of the Board:

Section 47-3-23 of the law governing the operation of the Teachers Retirement System of Georgia provides that the actuary shall make annual valuations of the contingent assets and liabilities of the Retirement System on the basis of regular interest and the tables last adopted by the Board of Trustees. We have submitted the report giving the results of the actuarial valuation of the System prepared as of June 30, 2013. The report indicates that annual employer contributions at the rate of 14.27% of compensation for the fiscal year ending June 30, 2016 are sufficient to support the benefits of the System. Our firm, as actuary, is responsible for all of the actuarial trend data in the financial section of the annual report and the supporting schedules in the actuarial section of the annual report.

Since the previous valuation, the Board has adopted a funding policy, which is shown in Schedule G of the Report. In accordance with the funding policy, the actuarial value of assets was set equal to the market value of assets on June 30, 2013. 5-year smoothing of investment gains and losses will commence in subsequent years.

In our opinion, the valuation is complete and accurate, and the methodology and assumptions are reasonable as a basis for the valuation. The valuation takes into account the effect of all amendments to the System enacted through the 2013 Session of the General Assembly. In preparing the valuation, the actuary relied on data provided by the System. While not verifying data at the source, the actuary performed tests for consistency and reasonableness.

The System is funded on an actuarial reserve basis. The actuarial 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 Nos. 25 and 27. The funding objective of the plan is that contribution rates over time will remain level as a percent of payroll. The valuation method used is the entry age normal cost method. The normal contribution rate to cover current cost has been determined as a level percent of payroll. Gains and losses are reflected in the unfunded accrued liability, which is amortized as a level percent of payroll in accordance with the funding policy adopted by the Board.

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The System is being funded in conformity with the minimum funding standard set forth in Code Section 47-20-10 of the Public Retirement Systems Standards Law. 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.

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.

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.

Sincerely yours,

Edward A. Macdonald, ASA, FCA, MAAA
President

Cathy Turcot
Principal and Managing Director

John J. Garrett, ASA, FCA, MAAA
Principal and Consulting Actuary

EAM:mjn

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**TEACHERS RETIREMENT SYSTEM OF GEORGIA**
**REPORT OF THE ACTUARY**
**ON THE VALUATION**
**PREPARED AS OF JUNE 30, 2013**

## 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 (all dollar amounts are in thousands):

| **Valuation Date** | **June 30, 2013** | **June 30, 2012** |
|---|---|---|
| Number of active members | 209,854 | 213,648 |
| Annual earnable compensation | $ 9,924,682 | $ 10,036,023 |
| Number of retired members and beneficiaries | 103,271 | 97,317 |
| Annual allowances | $ 3,608,913 | $ 3,345,513 |
| Assets: | | |
| Market Value | $ 58,594,837 | $ 53,487,149 |
| Actuarial Value* | 58,594,837 | 56,262,332 |
| Unfunded accrued liability | $ 13,626,028 | $ 12,086,346 |
| Amortization period (years) | 30 | 30 |
| Funded Ratio | 81.1% | 82.3% |
| **Contributions for Fiscal Year Ending** | **June 30, 2016** | **June 30, 2015** |
| Member Contribution Rate | 6.00% | 6.00% |
| Annual Required Employer Contribution Rate (ARC): | | |
| Normal** | 6.38% | 6.14% |
| Unfunded accrued liability | 7.89 | 7.01 |
| Total | 14.27% | 13.15% |

* Actuarial value of assets was set equal to market value on June 30, 2013. 5-year smoothing will commence in subsequent years.
**The normal contribution includes administrative expenses of 0.25% of payroll.

2. The valuation takes into account the effect of amendments of the System enacted through the 2013 session of the General Assembly. The major benefit and contribution provisions of the System as reflected in the current valuation are summarized in Schedule H. There have been no changes since the previous valuation.

3. Comments on the valuation results as of June 30, 2013 are given in Section IV and further discussion of the employer contribution levels is set out in Section V.

4. Schedule E of this report outlines the full set of actuarial assumptions and asset method used to prepare the current valuation. Since the previous valuation, the Board has adopted a funding policy, which is shown in Schedule G. In accordance with this funding policy, the actuarial value of assets was set equal to the market value of assets on June 30, 2013. 5-year smoothing of assets will commence in subsequent years.
5. Schedule C of this report shows the development of the smoothed interest rate and describes the application of the corridor.
6. The entry age actuarial cost method was used to prepare the valuation. Schedule F contains a brief description of this method.

## SECTION II - MEMBERSHIP

1. The data we received for the 2013 valuation was provided by the Retirement System. While not verifying the data at its source, we performed tests for consistency and reasonableness.
2. The following table shows the number of teachers and their annual earnable and average compensation as of June 30, 2013 on whose account benefits may be payable under the Retirement System. The annual compensation for each active member was provided by the Retirement System and was used without adjustment.

**THE NUMBER AND ANNUAL EARNABLE AND AVERAGE COMPENSATION OF ACTIVE MEMBERS AS OF JUNE 30, 2013**

| TOTAL NUMBER | ANNUAL COMPENSATION ($1,000's) | AVERAGE COMPENSATION |
|---|---|---|
| 209,854 | $9,924,682 | $47,293 |

The results of the valuation include liabilities for 92,231 terminated employees not yet receiving benefits.

3. The following table shows the number of beneficiaries on the roll as of June 30, 2013, together with the amount of their annual retirement allowances payable under the System as of that date.

**THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES OF BENEFICIARIES ON THE ROLL AS OF JUNE 30, 2013**

| GROUP | NUMBER | ANNUAL RETIREMENT ALLOWANCES ($1,000's) |
|---|---|---|
| Service Retirements | 92,645 | $ 3,385,005 |
| Disability Retirements | 3,945 | 79,945 |
| Beneficiaries of Deceased Active and Retired Members | 6,681 | 143,963 |
| Total | 103,271 | $ 3,608,913 |

## SECTION III - ASSETS

1. The retirement law provides for the maintenance of two funds for the purpose of recording the financial transactions of the System; namely, the Annuity Savings Fund and the Pension Accumulation 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 if a death benefit allowance becomes payable to his beneficiary, his accumulated contributions are transferred from the Annuity Savings Fund to the Pension Accumulation Fund. The annuity which these contributions provide is then paid from the Pension Accumulation Fund. On June 30, 2013 the value of assets credited to the Annuity Savings Fund amounted to $7,480,767,000.

   (b) Pension Accumulation Fund

   The Pension Accumulation Fund is the fund to which all income from investments and all contributions made by employers of members of the System and by the State for members of local retirement funds are credited. All retirement allowance and death benefit allowance payments are disbursed from this fund. Upon the retirement of a member, or upon his death if a death benefit allowance is payable, his accumulated contributions are transferred from the Annuity Savings Fund to this fund to provide the annuity portion of the allowance. On June 30, 2013 the market value of assets credited to the Pension Accumulation Fund amounted to $51,114,070,000.

2. As of June 30, 2013 the total market value of assets amounted to $58,594,837,000 as reported by the auditor of the System. The actuarial value of assets as of June 30, 2013 was determined to be $57,668,120,000 based on a 7-year smoothing of investment gains and losses. In accordance with the funding policy adopted by the Board, the final actuarial value of assets used for the current valuation was set equal to the market value of assets of $58,594,837,000 as of June 30, 2013. 5-year smoothing of investment gains and losses will commence in subsequent years. Schedule B shows the development of the actuarial value of assets

3. Schedule D shows receipts and disbursements of the System for the two years 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 June 30, 2013 (all amounts are in thousands).

2. The valuation balance sheet shows that the System has total prospective liabilities of $82,296,634, of which $43,152,402 is for the prospective benefits payable on account of present retired members and beneficiaries of deceased members and $39,144,232 is for the prospective benefits payable on account of present active and inactive members and members entitled to deferred vested benefits. Against these liabilities, the System has total present assets for valuation purposes of $58,594,837 as of June 30, 2013. The difference of $23,701,797 between the total liabilities and the total present assets represents the present value of contributions to be made in the future. Of this amount, $5,073,018 is the present value of future contributions expected to be made by members to the Annuity Savings Fund, and the balance of $18,628,779 represents the present value of future contributions payable by the employer.

3. The employer's contributions to the System consist of normal contributions and accrued liability contributions. The valuation indicates that employer normal contributions at the rate of 6.38% of payroll are required, in addition to member contributions, to provide the benefits of the System for the average new member.

4. Prospective normal contributions, excluding administrative expenses, have a present value of $5,002,751. When this amount is subtracted from $18,628,779, which is the present value of the total future contributions to be made by the employer, there remains $13,626,028 as the amount of future unfunded accrued liability contributions.

5. The funding policy adopted by the Board, as shown in Schedule G, provides that the unfunded actuarial accrued liability as of June 30, 2013 (Transitional UAAL) will be amortized as a level percent of pay over a closed period equal to the amortization period determined in the valuation preceding the adoption of the funding policy not to exceed 30 years.

## SECTION V – CONTRIBUTIONS PAYABLE BY EMPLOYERS

1. The Teachers Retirement System funding policy provides for periodic employer contributions at rates which, expressed as percents of annual covered payroll, are sufficient to provide resources to pay benefits when due without being increased for future generations of taxpayers.

2. The retirement law provides that the contributions of employers shall be a percentage of the compensation of active members consisting of a normal contribution rate and an unfunded accrued liability contribution rate as determined by actuarial valuation.

3. Normal contributions include 0.25% of compensation that is required to meet the expenses of administering the System.

4. Based on the total employer contribution rate of 14.27% of payroll, the unfunded accrued liability contribution is 7.89% of payroll, which will amortize the unfunded accrued liability in accordance with the Board's funding policy. The interest rate used to amortize the unfunded accrued liability over a 30-year period was equivalent to the smoothed interest rate of 7.96% for 23 years and the ultimate investment rate of return of 7.50% for 7 years.

5. The following table summarizes the employer contribution rates, which were determined by the June 30, 2013 valuation and are recommended for use.

**ANNUAL REQUIRED EMPLOYER CONTRIBUTION RATES**
**FOR FISCAL YEAR ENDING JUNE 30, 2016**

| CONTRIBUTION | PERCENTAGE OF ACTIVE MEMBERS' COMPENSATION |
|---|---|
| Normal | 6.38% |
| Unfunded Accrued Liability | 7.89 |
| Total | 14.27% |

## SECTION VI – ACCOUNTING INFORMATION

1. Governmental Accounting Standards Board Statements 25 and 27 set forth certain items of required supplementary information to be disclosed in the financial statements of the System and the employer. One such item is a distribution of the number of employees by type of membership, as follows:

**NUMBER OF ACTIVE AND RETIRED MEMBERS**
**AS OF JUNE 30, 2013**

| GROUP | NUMBER |
|---|---|
| Retirees and beneficiaries currently receiving benefits | 103,271 |
| Terminated employees not yet receiving benefits | 92,231 |
| Active plan members | 209,854 |
| Total | 405,356 |

2. Another such item is the schedule of funding progress as 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 ) |
|---|---|---|---|---|---|---|
| 6/30/2008 | $54,354,284 | $59,133,777 | $ 4,779,493 | 91.9% | $10,197,584 | 46.9% |
| 6/30/2009 | 53,438,604 | 59,450,116 | 6,011,512 | 89.9 | 10,641,543 | 56.5 |
| 6/30/2010 | 54,529,416 | 63,592,037 | 9,062,621 | 85.7 | 10,437,703 | 86.8 |
| 6/30/2011 | 55,427,716 | 65,978,640 | 10,550,924 | 84.0 | 10,099,278 | 104.5 |
| 6/30/2012 | 56,262,332 | 68,348,678 | 12,086,346 | 82.3 | 10,036,023 | 120.4 |
| 6/30/2013 | 58,594,837 | 72,220,865 | 13,626,028 | 81.1 | 9,924,682 | 137.3 |

3. The following shows the schedule of employer contributions.

| Year Ending | Annual Required Contribution | Percentage Contributed |
|---|---|---|
| 6/30/2008 | $ 986,759 | 100% |
| 6/30/2009 | 1,026,287 | 100 |
| 6/30/2010 | 1,057,416 | 100 |
| 6/30/2011 | 1,089,912 | 100 |
| 6/30/2012 | 1,082,224 | 100 |
| 6/30/2013 | 1,180,469 | 100 |

4. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2013. Additional information as of the latest actuarial valuation follows.

| | |
|---|---|
| Valuation date | 6/30/2013 |
| Actuarial cost method | Entry age |
| Amortization method | Level percent of pay, closed |
| Remaining amortization period | 30 years |
| Asset valuation method* | 5-year smoothed market |
| Actuarial assumptions: | |
| Ultimate investment rate of return (discount rate)** | 7.50% |
| Projected salary increases** | 3.75 – 7.00% |
| Cost-of-living adjustments | 3.00% Annually |

* *Actuarial value of assets was set equal to the market value of assets on June 30, 2013. 5-year smoothing will commence in subsequent years.*
***Includes inflation at 3.00%*

**TREND INFORMATION**
(Dollar amounts in thousands)

| Year Ending | Annual Pension Cost (APC) | Percentage of APC Contributed | Net Pension Obligation |
|---|---|---|---|
| June 30, 2011 | $ 1,089,912 | 100% | $ 0 |
| June 30, 2012 | 1,082,224 | 100 | 0 |
| June 30, 2013 | 1,180,469 | 100 | 0 |

## SECTION VII – EXPERIENCE

1. Section 47-3-23 of the act governing the operation of the System provides that as an aid to the Board in adopting service and mortality tables, the actuary will prepare an experience investigation at least once in each 5-year period. The last investigation was prepared for the 5-year period ending June 30, 2009 and, based on the results of the investigation, new rates of separation, mortality and salary increase were adopted by the Board on November 17, 2010. The next experience investigation will be prepared for the period July 1, 2009 through June 30, 2014.

2. The following table shows the estimated gain or loss from various factors that resulted in an increase of $1,539,682,000 in the unfunded accrued liability from $12,086,346,000 to $13,626,028,000 during the fiscal year ending June 30, 2013.

**ANALYSIS OF THE INCREASE IN UNFUNDED ACCRUED LIABILITY**
(Dollar amounts in millions)

| ITEM | AMOUNT OF INCREASE/ (DECREASE) |
|---|---|
| Interest (8.09%) added to previous unfunded accrued liability | $ 977.8 |
| Accrued liability contribution | (604.7) |
| Experience: | |
| Valuation asset growth | 1,241.1 |
| Pensioners' mortality | 52.7 |
| Turnover and retirements | 378.2 |
| New entrants | 96.2 |
| Salary increases | (715.2) |
| Method changes | (926.7) |
| Interest smoothing | 915.9 |
| Miscellaneous | 124.4 |
| Total | $ 1,539.7 |

3. The following is a brief description of the items contributing to the change in the unfunded accrued liability (UAL) for the year:

Interest: The increase in the UAL due to interest based on the assumed rate in effect for the year was $977.8 million (8.09% assumed for July 1, 2012 through June 30, 2013).

Accrued Liability Contribution: The decrease due to the contribution made during the year that was allocated to amortization of the UAL was $604.7 million. This is the portion of the total employer contribution received during the year in excess of the employer normal cost.

Valuation Asset Growth: The increase in the UAL due to valuation asset growth for the year ending June 30, 2013 is $1,241.1 million. This loss represents the difference between the expected actuarial value of assets and the actuarial value of assets determined based on the asset smoothing methodology used in the June 30, 2012 valuation. The expected actuarial value of assets is determined by adding the actuarial value of assets from the prior valuation, non-investment related cash flow during the year and interest expected to be earned during the year at the assumed rate (8.09%).

Pensioner Mortality: The increase in the UAL due to pensioner mortality for the year is $52.7 million. This is due to fewer members dying during the year than anticipated based on the mortality tables adopted by the Board.

Turnover and Retirements: There was an increase in the UAL due to turnover and retirements during the year of $378.2 million. This loss occurred because the number of actual terminations was less than expected and the number of service retirements and disability retirements were greater than the expected based on the assumed probabilities adopted by the Board. In addition, this item includes the impact of benefits for new retired members that were greater than anticipated based on the prior year's valuation data (this includes unexpected service increases due to sick leave conversion and service purchase and unanticipated salary increases in the year of retirement).

New Entrants: The increase in the UAL due to new entrants was $96.2 million. This represents the accrued liability at the valuation date for new entrants hired during the year. This includes members who returned to service with prior service credit.

Salary Increases: There was a decrease in the UAL of $715.2 million because the salary increases actually received by active members during the year were less than those anticipated based on the assumed salary increase rates adopted by the Board.

Interest Smoothing: There was an increase in the UAL of $915.9 million due to the interest smoothing methodology used to determine liabilities. The decrease in liability occurred because the assumed interest rate during the first 23 years of the look forward period changed from 8.09% to 7.96%.

Asset Method Change: There was a decrease in the UAL of $926.7 million due to the change in the asset smoothing methodology where the final actuarial value of assets used for the current valuation was set equal to the market value of assets as of June 30, 2013. 5-year smoothing of investment gains and losses will commence in subsequent years.

Miscellaneous: Other items contributing to the increase in the UAL totaled $124.4 million. This includes all gains or losses not specified above. One such item is the loss that occurred for members who purchased service at less than full actuarial cost (such as withdrawn service). Another item is a loss that occurred because the data received to prepare the valuation was different than expected from the previous year (items such as birth dates or service for active members and birth dates, options, or benefit amounts for retired members).

## SCHEDULE A

### VALUATION BALANCE SHEET
### SHOWING THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES OF THE TEACHERS RETIREMENT SYSTEM OF GEORGIA
### AS OF JUNE 30, 2013
### (Dollar amounts in thousands)

| | | |
|---|---|---|
| ASSETS | | |
| Actuarial value of assets | | $ 58,594,837 |
| Present value of future member contributions to Annuity Savings Fund | | 5,073,018 |
| Present value of future employer contributions to the Pension Accumulation Fund: | | |
| Normal contributions | $ 5,002,751 | |
| Unfunded accrued liability contributions | 13,626,028 | |
| Total Prospective Employer Contributions | | 18,628,779 |
| Total Assets | | $ 82,296,634 |
| LIABILITIES | | |
| Present value of prospective benefits payable on account of present retired members and beneficiaries of deceased members | | $ 43,152,402 |
| Present value of prospective benefits payable on account of present active and inactive members and members entitled to deferred vested benefits | | 39,144,232 |
| Total Liabilities | | $ 82,296,634 |

## SCHEDULE B

### DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS
### (Dollar amounts in thousands)

| | | | |
|---|---|---|---|
| (1) | Actuarial Value Beginning of Year | | $ 56,262,332 |
| (2) | Market Value End of Year | | 58,594,837 |
| (3) | Market Value Beginning of Year | | 53,487,149 |
| (4) | Cash Flow | | |
| | (a) | Contributions | 1,821,214 |
| | (b) | Benefit Payments and Expenses | 3,651,875 |
| | (c) | Investment Expenses | 29,946 |
| | (d) | Net: (4)(a) - (4)(b) - 4(c) | (1,860,607) |
| (5) | Investment Income | | |
| | (a) | Market Total: (2) - (3) - (4)(d) | 6,968,295 |
| | (b) | Assumed Rate | 7.50% |
| | (c) | Amount for Immediate Recognition:<br>[(3) x (5)(b)] + {[(4)(a) - (4)(b)] x (5)(b) x 0.5} + (4)(c) | 3,972,832 |
| | (d) | Amount for Phased-In Recognition: 5(a) - (5)(c) | 2,995,463 |
| (6) | Phased-In Recognition of Investment Income | | |
| | (a) | Current Year: 5(d) / 7 | 427,923 |
| | (b) | First Prior Year | (414,588) |
| | (c) | Second Prior Year | 886,349 |
| | (d) | Third Prior Year | 217,341 |
| | (e) | Fourth Prior Year | (1,473,379) |
| | (f) | Fifth Prior Year | (818,542) |
| | (g) | Sixth Prior Year | 468,459 |
| | (h) | Total Recognized Investment Gain | (706,437) |
| (7) | Preliminary Value End of Year: (1) + (4)(d) + 5(c) + (6)(h) | | $ 57,668,120 |
| (8) | Corridor | | |
| | (a) | 75% of Market Value: 0.75 x (2) | $ 43,946,128 |
| | (b) | 125% of Market Value: 1.25 x (2) | $ 73,243,546 |
| (9) | Actuarial Value End of Year:<br>(7), but not less than (8)(a) and not greater than (8)(b) | | $ 57,668,120 |
| (10) | Final Actuarial Value of Assets on June 30, 2013* | | $ 58,594,837 |
| (11) | Difference Between Market & Actuarial Values: (2) - (10) | | $ 0 |
| (12) | Rate of Return on Actuarial Value | | 7.52% |

*Actuarial value of assets was set equal to market value of assets on June 30, 2013. 5-year smoothing will commence in subsequent years.

## SCHEDULE C

### SMOOTHED INTEREST RATE

**Actual Rate of Return for 7-Year Look Back Period**

| Fiscal Year Ending 6/30 | Actual Rate of Return for Fiscal Year |
|---|---|
| 2007 | 14.61 % |
| 2008 | -3.38 |
| 2009 | -13.06 |
| 2010 | 11.09 |
| 2011 | 21.27 |
| 2012 | 2.16 |
| 2013 | 13.28 |

SMOOTHED INTEREST RATE: The assumed rate of return during the 23-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 7-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 7.50%). On this basis, for the June 30, 2013 valuation, the smoothed interest rate during the 23-year look forward period has been determined to be 7.96%.

ULTIMATE INVESTMENT RATE OF RETURN (DISCOUNT RATE): 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 23-year look forward period and is currently 7.50%.

LONG-TERM INVESTMENT RATE OF RETURN: The average investment rate of return over the 40-year period beginning on the valuation date.

CORRIDOR AROUND LONG-TERM INVESTMENT RATE OF RETURN: Determined such that the long-term investment rate of return is between the $40^{th}$ and $50^{th}$ percentile of expected returns over a 40-year period based on current TRS capital market assumptions. This produces a range between 7.25% and 7.84% as the suggested acceptable range for the long-term investment rate of return.

LIMITED SMOOTHED INTEREST RATE: The assumed rate of return during the 23-year look forward period as limited based on the application of the corridor above and used for valuation purposes. Based on the smoothed interest rate above of 7.96% for the first 23 years after the valuation date and the ultimate investment rate of return of 7.50% for the next 17 years, the calculated long-term investment rate of return of over the 40-year period would be within of the corridor limits shown above.

## SCHEDULE D

### SUMMARY OF RECEIPTS AND DISBURSEMENTS
### (Dollar amounts in thousands)

| | YEAR ENDING | |
|---|---|---|
| Receipts for the Year | June 30, 2013 | June 30, 2012 |
| Contributions: | | |
| Members | $ 640,745 | $ 601,512 |
| Employer | 1,180,469 | 1,082,224 |
| Subtotal | $ 1,821,214 | $ 1,683,736 |
| Investment Income (Net of Investment Expenses) | 1,321,409 | 1,230,478 |
| Unrealized Appreciation/(Depreciation) | 5,616,940 | (139,578) |
| TOTAL | $ 8,759,563 | $ 2,774,636 |
| Disbursements for the Year | | |
| Benefit Payments | $ 3,548,149 | $ 3,277,552 |
| Refunds to Members | 81,142 | 72,157 |
| Administrative Expenses | 22,584 | 21,954 |
| TOTAL | $ 3,651,875 | $ 3,371,663 |
| Excess of Receipts over Disbursements | $ 5,107,688 | $ (597,027) |
| Reconciliation of Asset Balances | | |
| Asset Balance as of the Beginning of Year (Market Value) | $ 53,487,149 | $ 54,084,176 |
| Excess of Receipts over Disbursements | 5,107,688 | (597,027) |
| Asset Balance as of the End of Year (Market Value) | $ 58,594,837 | $ 53,487,149 |

## SCHEDULE E

### OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

Adopted by the Board November 17, 2010 with the exception of the changes in the asset smoothing method and the interest smoothing method which were adopted by the Board on July 27, 2011.

ULTIMATE INVESTMENT RATE OF RETURN (Discount Rate): 7.50% per annum, compounded annually (including inflation of 3.00%).

SALARY INCREASES*:

| Service | Annual Rate | Service | Annual Rate | Service | Annual Rate |
|---|---|---|---|---|---|
| 0 | 7.00 % | 7 | 5.25 % | 14 | 4.75 % |
| 1 | 6.75 | 8 | 5.25 | 15 | 4.50 |
| 2 | 6.63 | 9 | 5.00 | 16 | 4.50 |
| 3 | 6.50 | 10 | 5.00 | 17 | 4.25 |
| 4 | 6.25 | 11 | 4.85 | 18 | 4.25 |
| 5 | 6.00 | 12 | 4.80 | 19 | 4.25 |
| 6 | 5.50 | 13 | 4.75 | 20 | 3.75 |

*includes inflation component of 3.00% and a real rate of salary increase component of 0.75%

SERVICE RETIREMENT:

| | Annual Rate | | | |
|---|---|---|---|---|
| | Male | | Female | |
| AGE | Less than 30 years of service | 30 or more years of service | Less than 30 years of service | 30 or more years of service |
| 50 | 5.00 % | 50.00 % | 5.00 % | 50.00 % |
| 55 | 5.00 | 38.00 | 5.00 | 35.00 |
| 60 | 20.00 | 35.00 | 25.00 | 40.00 |
| 61 | 18.00 | 30.00 | 25.00 | 40.00 |
| 62 | 25.00 | 35.00 | 25.00 | 40.00 |
| 63 | 20.00 | 33.00 | 25.00 | 40.00 |
| 64 | 18.00 | 30.00 | 25.00 | 40.00 |
| 65 | 30.00 | 30.00 | 30.00 | 30.00 |
| 66 | 30.00 | 30.00 | 30.00 | 30.00 |
| 67 | 30.00 | 30.00 | 28.00 | 28.00 |
| 68 | 28.00 | 28.00 | 28.00 | 28.00 |
| 69 | 26.00 | 26.00 | 28.00 | 28.00 |
| 70 | 30.00 | 30.00 | 30.00 | 30.00 |

SEPARATION BEFORE SERVICE RETIREMENT:

| | Annual Rate of | | | | |
|---|---|---|---|---|---|
| Age | Death* | Disability | Withdrawal Years of Service | | |
| | | | 0-4 | 5-9 | 10+ |
| | | **Male** | | | |
| 20 | 0.03% | 0.03% | 31.00% | - | - |
| 25 | 0.04 | 0.03 | 18.00 | 16.00% | - |
| 30 | 0.04 | 0.04 | 14.00 | 8.00 | 11.00% |
| 35 | 0.06 | 0.04 | 14.00 | 6.00 | 3.00 |
| 40 | 0.10 | 0.05 | 13.00 | 6.00 | 2.25 |
| 45 | 0.13 | 0.09 | 12.00 | 6.00 | 2.20 |
| 50 | 0.19 | 0.17 | 11.00 | 5.50 | 2.50 |
| 55 | 0.29 | 0.32 | 11.00 | 5.00 | 2.70 |
| 60 | 0.53 | - | 11.00 | 5.00 | - |
| 64 | 0.88 | - | 11.00 | 5.00 | - |
| | | **Female** | | | |
| 20 | 0.02% | 0.02% | 30.00% | - | - |
| 25 | 0.02 | 0.02 | 14.00 | 25.00% | - |
| 30 | 0.02 | 0.02 | 13.00 | 9.00 | 9.00% |
| 35 | 0.04 | 0.03 | 13.00 | 7.00 | 3.50 |
| 40 | 0.06 | 0.04 | 11.00 | 7.00 | 3.00 |
| 45 | 0.09 | 0.07 | 10.00 | 5.50 | 2.00 |
| 50 | 0.13 | 0.12 | 10.00 | 5.00 | 2.00 |
| 55 | 0.20 | 0.38 | 10.00 | 4.75 | 2.75 |
| 60 | 0.35 | - | 10.00 | 4.75 | - |
| 64 | 0.58 | - | 10.00 | 4.75 | - |

** The RP-2000 Combined Mortality Table (set back two years for males and three years for females) is used for death prior to service retirement.*

DEATHS AFTER RETIREMENT: The RP-2000 Combined Mortality Table (set back two years for males and three years for females) is used for death after service retirement and beneficiaries. The RP-2000 Disabled Mortality Table (set back two years for males) is used for death after disability retirement. There is a margin for future mortality improvement in the tables used by the System. Based on the results of the most recent experience study adopted by the Board on November 17, 2010, the numbers of expected future deaths are 5-14% less than the actual number of deaths that occurred during the study period for healthy retirees and 15-16% less than expected under the selected table for disabled retirees. Representative values of the assumed annual rates of death after service retirement and after disability retirement are shown below:

| | Annual Rate of Death After | | | |
|---|---|---|---|---|
| | Service Retirement | | Disability Retirement | |
| Age | Men | Women | Men | Women |
| 40 | .10% | .06% | 2.26% | 0.75% |
| 45 | .13 | .09 | 2.26 | 0.75 |
| 50 | .19 | .13 | 2.64 | 1.15 |
| 55 | .29 | .20 | 3.29 | 1.65 |
| 60 | .53 | .35 | 3.93 | 2.18 |
| 65 | 1.00 | .67 | 4.66 | 2.80 |
| 70 | 1.79 | 1.22 | 5.69 | 3.76 |
| 75 | 3.04 | 2.07 | 7.33 | 5.22 |
| 80 | 5.21 | 3.41 | 9.76 | 7.23 |
| 85 | 8.97 | 5.63 | 12.83 | 10.02 |
| 90 | 15.06 | 9.63 | 16.22 | 14.00 |
| 95 | 23.37 | 15.76 | 23.37 | 19.45 |

COST OF LIVING: Increases of 1.5% semi-annually.

PAYROLL GROWTH ASSUMPTION: 3.75%

ADMINISTRATIVE EXPENSES: 0.25% of active members' payroll included in normal contribution.

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 market value of assets, based on the ultimate investment rate of return. In accordance with the funding policy adopted by the Board, the actuarial value was set equal to the market value as of June 30, 2013. The amount recognized each year beginning June 30, 2014 will be based on 5-year smoothing of assets, where 20% of the difference between market value and expected market value will be recognized each year. The actuarial value of assets is limited to a range between 75% and 125% of the market value of assets.

PERCENTAGE MARRIED: 85% of males and 60% of female active members were assumed to be married with the husband 4 years older than his wife.

UNUSED SICK LEAVE: 1.75% load on liabilities for members who retire on early retirement, a 2.0% load for members who retire with unreduced retirement before 30 years of service and a 2.5% load for members who retire with 30 or more years of service.

TERMINATING VESTED MEMBERS: Prior to age 50, 50% of active vested members who terminate are assumed to elect a refund in lieu of a benefit; on or after age 50, 25% of active vested members who terminate are assumed to elect a refund in lieu of a benefit. Benefits are assumed to begin at age 60.

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 23 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 7 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 7.50%). The interest rate after the 23-year look forward period is the ultimate investment rate of return of 7.50%.

CORRIDOR LIMIT ON INTEREST RATE SMOOTHING: The smoothed interest rate used during the 23-year look forward period is subject to a corridor which is determined such that the long-term investment rate of return is between the 40$^{th}$ and 50$^{th}$ percentile of expected returns based on TRS capital market assumptions as of June 30, 2009. The interest rate used in the current valuation is described in further detail in Schedule C.

## 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 C and E for a description of the interest rate used), of each active member's expected benefit 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 possibility of his terminating with a service, disability or survivor's benefit. Future salary increases and post-retirement cost-of-living adjustments 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 and inactive members 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 "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 average 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 accrued liability is determined by subtracting the present value of prospective employer normal contributions and member contributions, together with the current actuarial value of assets held, from the present value of expected benefits to be paid from the System.

## SCHEDULE G

### FUNDING POLICY OF THE TRS BOARD OF TRUSTEES

The purpose of the funding policy is to state the overall funding objectives for the Teachers Retirement System of Georgia (the "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. It is intended that the funding policy will remain unchanged until the objectives below 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 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.
- To maintain an increasing funded ratio (ratio of actuarial value of assets to actuarial accrued liabilities) that reflects a trend of improved actuarial condition. The long-term objective is to attain a 100% funded ratio over a reasonable period of future years.
- To maintain adequate asset levels to finance the benefits promised to members and to monitor the future demand for liquidity.
- To promote intergenerational equity for taxpayers with respect to contributions required for the benefits provided by the System.

### II. Measures of Funding Progress

To track progress in achieving the System's funding objectives, the following measures will be determined annually as of the actuarial valuation date (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.

**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.
- 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.
- Total UAAL - In each valuation year, this is the sum of the remaining balance of the Transitional UAAL and the remaining balance of each New Incremental UAAL.

**UAAL Amortization Period**

- The Transitional UAAL will be amortized over a closed period equal to the amortization period determined in the valuation preceding the adoption of the funding policy not to exceed 30 years.
- Each New Incremental UAAL shall be amortized over a closed 30-year period.

**Employer Contribution Rates**

- Employer Normal Contribution Rate – the contribution rate determined as of the valuation date each year based on the provisions of Georgia Code Section 47-3-43.

- 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, the amortization rate for the Transitional UAAL and the individual amortization rate for each of the New Incremental UAAL bases.

**Stability of Employer Contribution Rates**
The valuation methodology, including the amortization of the UAAL would be expected to maintain reasonably stable contribution rates. In each valuation, a single equivalent UAAL amortization period will be determined equal to the number of years that the sum of all of the individual amortization payments for the Transitional UAAL and each New Incremental UAAL determined above would be expected to fully amortize the Total UAAL. The employer contribution rate established in the prior valuation can be maintained provided that the payment of this rate results in a reduction from the prior valuation of at least one-year to the single equivalent UAAL amortization period.

## III. Methods and Assumptions

The annual actuarial valuations providing the measures to assess funding progress will utilize the actuarial methods and assumptions last adopted by the Board based upon the advice and recommendation of the System's actuary. These include the following primary methods and assumptions:

- The actuarial cost method used to develop the benchmarks will be the Entry Age Normal actuarial cost method.
- The long-term investment rate of return assumption will be 7.50% net of expenses.
- The actuarial value of assets will be set equal to the market value of assets as of the valuation date immediately preceding the adoption of this funding policy. The actuarial value of assets in subsequent valuations will be determined by recognizing the annual differences between actual and expected market value of assets over a 5-year period.
- The discount rate used in measuring the System's liabilities and required contributions will be based on the smoothed interest rate methodology. This method determines the expected rate for the next 23 years beginning at the valuation date as the annual rate required to average the long-term investment rate of return over the 30-year period beginning 7 years prior to the valuation date and using the historical returns for the prior 7 years. The long-term investment rate of return will be used as the discount rate for periods beyond the 23-year period following valuation date. There will be corridors around the annual expected investment rate of return to limit the extent that the calculated smoothed rate can vary from the long-term investment rate of return.

In order to insure the sufficiency of long-term funding of benefits, the annual employer contribution rate determined in each actuarial valuation shall not be less than the employer normal cost contribution rate plus a contribution rate for administrative expenses.

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 recommended assumptions and methods.

## IV. Funding Policy Progress

The Board will periodically have actuarial projections of the valuation results performed to assess the current and expected future progress towards the overall funding goals of the System. These periodic projections will provide the expected valuation results over at least a 30-year period. The projected measures of funding progress and the recent historical trend provided in valuations will provide important information for the Board's assessment of the System's funding progress.

Adopted by the Board of Trustees November 20, 2013.

## SCHEDULE H

### SUMMARY OF MAIN PLAN PROVISIONS
### AS INTERPRETED FOR VALUATION PURPOSES

The Teachers Retirement System of Georgia began operation as of January 1, 1945. The System is supported by the joint contributions of the members and their employers. All teachers employed by an agency of and within the State of Georgia are eligible for membership in the System. The State makes contributions for certain retired members of local funds and certain benefits are payable by the System to them or on their account.

The following summary describes the main benefit and contribution provisions of the System as interpreted for the valuation.

### 1 - DEFINITIONS

"Prior service" means service rendered prior to January 1, 1945 for which credit is allowed. "Creditable service" means the sum of membership service and prior service. "Earnable compensation" means the full rate of compensation that would be payable to a member teacher if he worked the full normal working time and shall include compensation paid to a member by an employer from grants or contracts made by outside agencies with the employer. "Employer" means the State of Georgia, the county or independent board of education, the State Board of Education, the Board of Regents of the University System of Georgia, or any other agency of and within the State by which a teacher is paid.

### 2 - BENEFITS

#### MEMBERS OF THE RETIREMENT SYSTEM

Service Retirement Benefit

| | |
|---|---|
| Condition for Allowance | Any member may retire on a service retirement allowance upon the attainment of age 60 and the completion of 10 years of creditable service or upon the completion of 25 years of creditable service. |

| | |
|---|---|
| Amount of Allowance | The service retirement allowance consists of: |

(a) An annuity which is the actuarial equivalent of the member's accumulated contributions at the time of his retirement; and

(b) A pension which, together with the annuity, will provide a total annual allowance equal to 2.00% of the member's average annual compensation during the two consecutive years of his creditable service as a contributing member producing the highest such average, multiplied by the number of years of his creditable service limited to 40 years.

If the member has less than 30 years of creditable service and has not attained age 60 at the time of retirement, his allowance is reduced by the lesser of 1/12 of 7% for each month that retirement precedes age 60 or 7% for each year or fraction of a year by which the member has less than 30 years of creditable service at the time of retirement.

The minimum service retirement allowance is $17 per month for each year of creditable service, not to exceed 40 years of such service.

In no event will a teacher who was a member on June 30, 1961 receive a smaller retirement allowance than he would have received under the benefit provisions of the System in effect on that date.

Disability Retirement Benefit

| | |
|---|---|
| Condition for Allowance | A disability retirement allowance is payable to any member who becomes permanently incapacitated, mentally or physically, for the further performance of duty, after having rendered 10 or more years of creditable service. |
| Amount of Allowance | If a member qualifies for either service retirement or disability retirement and a service retirement calculation exceeds the amount that he would receive on disability, he shall receive a service retirement allowance. Otherwise he receives a disability retirement allowance determined as a service retirement allowance on the basis of the member's creditable service and compensation up to the time of disability, but with no reduction for age. |

Death Benefit

| | |
|---|---|
| Condition for Allowance | A death benefit is payable on account of a member who dies after having completed 10 or more years of creditable service provided there is a named living beneficiary. |
| Amount of Allowance | The death benefit is the amount which would have become payable to the member's beneficiary had the member retired on the date of his death on either a service retirement allowance or a disability retirement allowance, whichever is larger, and died after an election of Option 2 had become effective. |

Vesting Benefit

| | |
|---|---|
| Condition for Allowance | A member who withdraws from service prior to attaining age 60 after having rendered at least 10 years of creditable service and who elects to leave his accumulated contributions in the System is eligible for a vesting retirement allowance upon application therefore upon the attainment of age 60 or at any time thereafter. |
| Amount of Allowance | The vesting allowance is determined as a service retirement allowance on the basis of the member's creditable service and compensation up to the time of withdrawal from service and on the basis of his age at the time the allowance commences. |

| | |
|---|---|
| Return of Contributions Prior to Retirement | Upon a member's withdrawal from service or death prior to retirement, his accumulated contributions together with the accumulated interest are returned to him, or are paid to his designated beneficiary or estate, provided no other benefit is payable under the Retirement System. |
| Return of Contributions After Retirement Under Maximum Plan | Benefits are payable to a member retired on service or disability for the remainder of his lifetime under the maximum plan. In the event total monthly benefits paid at the time of death are less than the contributions which the member made to the System, the difference between the benefits paid and the amount of contributions is refunded to the member's designated beneficiary or estate, provided no optional allowance has been selected. |

Optional Allowances

Upon retirement, any member may elect to convert the retirement allowance otherwise payable to him, except any additional pension payable under the minimum provision, to a reduced retirement allowance of equivalent actuarial value in one of the following optional forms:

Option 1. If he dies before receiving in annuity payments the amount of his accumulated contributions at retirement, the balance is paid to his designated beneficiary or to his estate; or

Option 2. Upon his death his reduced retirement allowance is continued throughout the life of and paid to his designated beneficiary; or

Option 2 Pop-up. A member may elect Option 2 with the added provision that in the event the designated beneficiary predeceases the member, the retirement allowance payable to the member after the designated beneficiary's death shall be equal to the retirement allowance which would have been payable had the member not elected the option; or

Option 3. Upon his death one-half of his reduced retirement allowance is continued throughout the life of and paid to his designated beneficiary; or

Option 3 Pop-up. A member may elect Option 3 with the added provision that in the event the designated beneficiary predeceases the member, the retirement allowance payable to the member after the designated beneficiary's death shall be equal to the retirement allowance which would have been payable had the member not elected the option; or

Option 4. A reduced retirement allowance payable during the life of the retired member, with the provision that upon his death some other benefit shall be payable; provided that the total value of such benefits is the actuarial equivalent of the retirement allowance he would have received without optional modification and provided the benefit is approved by the Board of Trustees; or

Option 5. A reduced retirement allowance together with a partial lump sum distribution not to exceed the sum of 36 months of the member’s monthly retirement allowance that would have been payable if this option was not elected. This option may be elected with any other option described above. This option is not available to disability retirements or members subject to the minimum benefit formula.

| | |
|---|---|
| Cost-of-Living Adjustment | The retirement allowances of members or of any beneficiary of a member who died in service will be subject to adjustment as of each January 1 and July 1 based upon the change in the average CPI during the previous six-month period. The maximum increase in retirement allowances for any such six-month period will be 1-1/2%. If the CPI decreases, no reduction in allowance will be made for the first 2-1/2% of a reduction and retirement allowances will not be reduced below the amounts initially paid upon retirement. |
| | In addition, for members who retired prior to January 1, 2013, a one-time 3% increase on the first $37,500 of members' allowances is made at retirement. Members who retire on or after January 1, 2013 do not receive this increase. |
| | A member who retires prior to age 60 with less than 30 years of creditable service is not eligible for post-retirement adjustments until such time as the member reaches age 60 or would have obtained 30 years of creditable service, whichever occurs earlier. |

## 3 - CONTRIBUTIONS

| | |
|---|---|
| By Members | Each member contributes 6.00% of his earnable compensation. However, no contributions are payable after the attainment of age 65 and the completion of 40 years of creditable service unless the member elects to continue to make contributions. Members may elect to cease making contributions after the completion of 40 years of creditable service. |
| By Employer | The employer contributes at a specified percentage of active member payroll determined annually by actuarial valuation. |

## SCHEDULE I

### THE NUMBER AND AVERAGE ANNUAL COMPENSATION OF ACTIVE MEMBERS BY AGE AND SERVICE AS OF JUNE 30, 2013

| Age | Years of Service | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Under 1 | 1 to 4 | 5 to 9 | 10 to 14 | 15 to 19 | 20 to 24 | 25 to 29 | 30 to 34 | 35 to 39 | 40 & Up | Total |
| Under 25 | 270 | 2,602 | 21 | | | | | | | | 2,893 |
| Avg. Pay | 20,849 | 29,173 | 25,540 | | | | | | | | 28,370 |
| 25 to 29 | 380 | 11,499 | 4,528 | 12 | | | | | | | 16,419 |
| Avg. Pay | 22,521 | 34,725 | 41,552 | 31,654 | | | | | | | 36,323 |
| 30 to 34 | 315 | 6,753 | 13,711 | 3,331 | 10 | | | | | | 24,120 |
| Avg. Pay | 25,026 | 36,493 | 44,917 | 51,798 | 41,118 | | | | | | 43,247 |
| 35 to 39 | 241 | 5,466 | 9,429 | 10,110 | 2,355 | 14 | | | | | 27,615 |
| Avg. Pay | 25,595 | 37,134 | 44,548 | 54,265 | 58,411 | 46,652 | | | | | 47,656 |
| 40 to 44 | 307 | 5,443 | 9,084 | 7,722 | 8,576 | 2,248 | 22 | | | | 33,402 |
| Avg. Pay | 27,698 | 36,021 | 43,000 | 51,725 | 61,128 | 64,357 | 44,040 | | | | 49,832 |
| 45 to 49 | 209 | 4,405 | 7,910 | 6,233 | 5,036 | 5,327 | 1,910 | 22 | | | 31,052 |
| Avg. Pay | 27,741 | 35,314 | 40,491 | 47,223 | 56,022 | 64,954 | 64,375 | 50,876 | | | 49,214 |
| 50 to 54 | 187 | 3,277 | 6,495 | 6,024 | 4,968 | 3,826 | 4,573 | 855 | 20 | | 30,225 |
| Avg. Pay | 28,631 | 37,154 | 39,781 | 45,220 | 50,190 | 58,356 | 65,249 | 67,620 | 45,160 | | 49,218 |
| 55 to 59 | 116 | 2,243 | 4,595 | 4,951 | 4,803 | 4,268 | 3,339 | 1,286 | 299 | 5 | 25,905 |
| Avg. Pay | 28,269 | 37,621 | 40,425 | 45,129 | 49,551 | 54,307 | 58,981 | 70,511 | 68,334 | 35,448 | 49,213 |
| 60 to 64 | 43 | 936 | 2,641 | 2,652 | 2,438 | 2,137 | 1,705 | 665 | 348 | 55 | 13,620 |
| Avg. Pay | 36,241 | 37,733 | 41,716 | 46,431 | 49,942 | 54,528 | 58,794 | 75,081 | 78,502 | 73,077 | 50,659 |
| 65 to 69 | 9 | 246 | 845 | 746 | 549 | 490 | 437 | 205 | 154 | 24 | 3,705 |
| Avg. Pay | 36,131 | 36,260 | 41,866 | 47,885 | 52,093 | 56,104 | 60,937 | 73,462 | 102,102 | 86,735 | 52,882 |
| 70 & up | 2 | 64 | 178 | 177 | 154 | 119 | 75 | 55 | 48 | 26 | 898 |
| Avg. Pay | 22,300 | 38,537 | 32,438 | 40,430 | 48,876 | 64,729 | 60,721 | 76,578 | 86,550 | 94,456 | 51,277 |
| Total Count | 2,079 | 42,934 | 59,437 | 41,958 | 28,889 | 18,429 | 12,061 | 3,088 | 869 | 110 | 209,854 |
| Avg. Pay | 25,542 | 35,615 | 42,582 | 49,505 | 55,023 | 59,586 | 62,240 | 70,859 | 78,863 | 79,400 | 47,293 |

Average Age: 44.65 Average Service: 11.21

**NUMBER OF RETIRED MEMBERS**
**AND THEIR BENEFITS BY AGE**

| Age | Number of Members | Total Annual Benefits | Average Annual Benefits |
|---|---|---|---|
| Under 50 | 53 | $ 1,444,599 | $ 27,257 |
| 50 – 54 | 1,398 | 55,061,335 | 39,386 |
| 55 – 59 | 6,856 | 300,544,167 | 43,837 |
| 60 – 64 | 21,585 | 794,084,485 | 36,789 |
| 65 – 69 | 24,417 | 875,359,734 | 35,850 |
| 70 – 74 | 16,249 | 586,439,937 | 36,091 |
| 75 – 79 | 10,013 | 358,943,147 | 35,848 |
| 80 – 84 | 6,654 | 238,551,560 | 35,851 |
| 85 – 89 | 3,465 | 117,774,391 | 33,990 |
| 90 – 94 | 1,446 | 43,619,749 | 30,166 |
| 95 & Over | 509 | 13,181,801 | 25,897 |
| Total | 92,645 | $ 3,385,004,905 | $ 36,537 |

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

| Age | Number of Members | Total Annual Benefits | Average Annual Benefits |
|---|---|---|---|
| Under 50 | 1,426 | $ 16,827,313 | $ 11,800 |
| 50 – 54 | 358 | 5,392,660 | 15,063 |
| 55 – 59 | 507 | 9,385,273 | 18,511 |
| 60 – 64 | 677 | 14,510,784 | 21,434 |
| 65 – 69 | 781 | 18,269,843 | 23,393 |
| 70 – 74 | 772 | 19,757,107 | 25,592 |
| 75 – 79 | 744 | 20,063,815 | 26,967 |
| 80 – 84 | 662 | 17,644,633 | 26,654 |
| 85 – 89 | 450 | 13,934,043 | 30,965 |
| 90 – 94 | 233 | 6,456,232 | 27,709 |
| 95 & Over | 71 | 1,720,881 | 24,238 |
| Total | 6,681 | $ 143,962,584 | $ 21,548 |

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

| Age | Number of Members | Total Annual Benefits | Average Annual Benefits |
|---|---|---|---|
| Under 50 | 272 | $ 4,251,247 | $ 15,630 |
| 50 – 54 | 391 | 7,073,265 | 18,090 |
| 55 – 59 | 846 | 16,448,154 | 19,442 |
| 60 – 64 | 952 | 20,283,205 | 21,306 |
| 65 – 69 | 729 | 16,035,803 | 21,997 |
| 70 – 74 | 391 | 8,317,831 | 21,273 |
| 75 – 79 | 168 | 3,546,328 | 21,109 |
| 80 – 84 | 105 | 2,183,478 | 20,795 |
| 85 – 89 | 62 | 1,262,716 | 20,366 |
| 90 – 94 | 24 | 440,617 | 18,359 |
| 95 & Over | 5 | 102,718 | 20,544 |
| Total | 3,945 | $ 79,945,362 | $ 20,265 |

## SCHEDULE J

## CAFR SCHEDULES

| Active Members | | | | |
|---|---|---|---|---|
| Fiscal Year | Number of Members | Annual Payroll (000's) | Average Pay (000's) | % Increase |
| 2004 | 198,572 | $ 8,083,118 | $ 40,706 | 1.20 % |
| 2005 | 199,088 | 8,252,598 | 41,452 | 1.80 |
| 2006 | 206,592 | 8,785,985 | 42,528 | 2.60 |
| 2007 | 215,566 | 9,492,003 | 44,033 | 3.50 |
| 2008 | 224,993 | 10,197,584 | 45,324 | 2.90 |
| 2009 | 226,537 | 10,641,543 | 46,975 | 3.60 |
| 2010 | 222,020 | 10,437,703 | 47,012 | 0.10 |
| 2011 | 216,137 | 10,099,278 | 46,726 | -0.60 |
| 2012 | 213,648 | 10,036,023 | 46,975 | 0.50 |
| 2013 | 209,854 | 9,924,682 | 47,293 | 0.70 |

| Retirants and Beneficiaries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Fiscal Year | Added to Roll | | Removed from Roll | | Roll – End of Year | | % Increase In Annual Allowances | Average Annual Income |
| | Number of Members | Annual Allowances (000's) | Number of Members | Annual Allowances (000's) | Number of Members | Annual Allowances (000's) | | |
| 2004 | 5,381 | $ 206,251 | 1,483 | $ 29,525 | 61,590 | $ 1,656,445 | 11.9 % | $ 26,895 |
| 2005 | 6,176 | 230,973 | 1,594 | 33,139 | 66,172 | 1,854,279 | 11.9 | 28,022 |
| 2006 | 5,691 | 223,279 | 1,644 | 37,087 | 70,219 | 2,040,471 | 10.0 | 29,059 |
| 2007 | 5,858 | 230,924 | 1,656 | 39,293 | 74,421 | 2,232,102 | 9.4 | 29,993 |
| 2008 | 5,817 | 238,137 | 1,655 | 39,808 | 78,583 | 2,430,431 | 8.9 | 30,928 |
| 2009 | 5,543 | 245,006 | 1,768 | 45,116 | 82,358 | 2,630,321 | 8.2 | 31,938 |
| 2010 | 6,383 | 279,009 | 1,763 | 46,853 | 86,978 | 2,862,477 | 8.8 | 32,910 |
| 2011 | 7,136 | 295,192 | 1,937 | 55,062 | 92,177 | 3,102,607 | 8.4 | 33,659 |
| 2012 | 7,055 | 298,471 | 1,915 | 55,565 | 97,317 | 3,345,513 | 7.8 | 34,377 |
| 2013 | 7,937 | 322,853 | 1,983 | 59,453 | 103,271 | 3,608,913 | 7.9 | 34,946 |