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October 27, 2014

Board of Directors
Connecticut State Teachers' Retirement System
765 Asylum Avenue
Hartford, CT 06105

Members of the Board:

Presented in this report is information to assist the Connecticut State Teachers' Retirement System in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 67. The information is presented for the period ending June 30, 2014.

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of June 30, 2014. The valuation was based on data, provided by the Retirement System staff for active, inactive and retired members along with pertinent financial information.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the System, and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the System. In addition, the calculations were completed in compliance with the laws governing the System and, in our opinion, meet the requirements of GASB 67. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

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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.

Sincerely yours,

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

Cathy Turcot
Principal and Managing Director

Jonathan Craven ASA, EA, FCA, MAAA
Senior Actuary

Ben Mobley ASA, ACA, MAAA
Actuary

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**REPORT OF THE ANNUAL GASB STATEMENT NO. 67**
**REQUIRED INFORMATION FOR THE**
**CONNECTICUT STATE TEACHERS' RETIREMENT SYSTEM**
**PREPARED AS OF JUNE 30, 2014**

## SECTION I – INTRODUCTION

The Governmental Accounting Standards Board issued Statement No. 67 (GASB 67), "*Financial Reporting For Pension Plans*", in June 2012. GASB 67's effective date is for plan years beginning after June 15, 2013. This report, prepared as of June 30, 2014 (the Measurement Date), presents information to assist the Connecticut State Teachers' Retirement System (System) in meeting the requirements of GASB 67. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the System as of June 30, 2014. The results of that valuation were detailed in a report dated October 29, 2014.

GASB 67 replaces GASB 25, and represents a significant departure from the requirements of that older statement. GASB 25 was issued as a funding friendly statement that required pension plans to report items consistent with the results of the plan's actuarial valuations, as long as those valuations met certain parameters. GASB 67 basically divorces accounting and funding, creating disclosure and reporting requirements that may or may not be consistent with the basis used for funding the System.

GASB 67 requires us to determine the Total Pension Liability (TPL) utilizing the Entry Age Normal actuarial funding method. The Net Pension Liability (NPL) is then set equal to the TPL minus the System's Fiduciary Net Position (FNP) (basically the market values of assets) as of the measurement date. The benefit provisions recognized in the calculation of the TPL are summarized in Schedule B.

Among the assumptions needed for the liability calculation is a Single Equivalent Interest Rate (SEIR). To determine the SEIR, the FNP must be projected into the future for as long as there are anticipated benefits payable under the plan's provision applicable to the membership and beneficiaries of the System on the Measurement Date. Future contributions were projected to be made in accordance with the funding requirements of the laws governing the Retirement System. If the FNP is not projected to be depleted at any point in the future, as the results currently indicate, the long term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR.

If, however, at a future measurement date the FNP is projected to be depleted, the SEIR is determined as the single rate that will generate a present value of benefit payments equal to the sum of the present value determined by discounting all projected benefit payments through the date of depletion by the long term expected rate of return, and the present value determined by discounting those benefits after the date of depletion by a 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate. The rate used, if necessary, for this purpose is the General Obligation 20-year Municipal Bond Index published monthly by the Board of Governors of the Federal Reserve System. We have determined that a discount rate of 8.50 percent meets the requirements of GASB 67.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 67 for note disclosure and Required Supplementary Information (RSI).

## SECTION II – FINANCIAL STATEMENT NOTES

The actuarial related information presented herein will follow the order presented in GASB 67. There are other non-actuarial items required which are not included in this report. Paragraph numbers are provided for ease of reference.

**Paragraph 30(a) (4):** The data required regarding the membership of the System were furnished by the Teachers' Retirement Board staff. The following table summarizes the membership of the system as of June 30, 2014, the Valuation Date.

**Membership**

| | Number |
|---|---|
| Inactive Members Or Their Beneficiaries Currently Receiving Benefits | 34,310 |
| Inactive Members Entitled To But Not Yet Receiving Benefits | 13,011 |
| Active Members | 51,433 |
| Total | 98,754 |

**Paragraphs 31(a) (1)-(4):** As stated above, the NPL is equal to the TPL minus the FNP. That result as of June 30, 2014 is presented in the table below ($ thousands).

| | Fiscal Year Ending June 30, 2014 |
|---|---|
| Total Pension Liability | $26,349,209 |
| Fiduciary Net Position | 16,220,889 |
| Net Pension Liability | $10,128,320 |
| Ratio of Fiduciary Net Position to Total Pension Liability | 61.56% |

**Paragraph 31(b) (1)(a)-(f):** This paragraph requires information regarding the actuarial assumptions used to measure the TPL. The actuarial assumptions utilized in developing the TPL are outlined in Schedule C. The total pension liability was determined by an actuarial valuation as of June 30, 2014, using the following actuarial assumptions, applied to all periods included in the measurement:

| | |
|---|---|
| Inflation | 3.00 percent |
| Salary increases | 3.75 -7.00 percent, including inflation |
| Investment rate of return | 8.50 percent, net of pension plan investment expense, including inflation |

Mortality rates were based on the RP-2000 Combined Mortality Table RP-2000 projected 19 years using scale AA, with a two year setback for males and females for the period after service retirement and for dependent beneficiaries. The post-retirement mortality rates are multiplied by 75% for death in active service. The post retirement mortality rates are set forward ten years for the period after disability retirement.

The actuarial assumptions used in the June 30, 2014 valuation were based on the results of an actuarial experience study for the period July 1, 2005 – June 30, 2010.

The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target asset allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

| Asset Class | Target Allocation | Long-Term Expected Real Rate of Return |
|---|---|---|
| Mutual Equity | 25.0% | 7.3% |
| Developed Markets ISF | 20.0% | 7.5% |
| Emerging Markets ISF | 9.0% | 8.6% |
| Core Fixed Income | 13.0% | 1.7% |
| Emerging Market Debt | 4.0% | 4.8% |
| High Yield | 2.0% | 3.7% |
| Inflation Linked Bonds | 6.0% | 1.3% |
| Liquidity Fund | 6.0% | 0.7% |
| Real Estate | 5.0% | 5.9% |
| Private Investment | 10.0% | 10.9% |
| Total | 100.0% | |

*Discount rate.* The discount rate used to measure the total pension liability was 8.50 percent. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that State contributions will be made at the actuarially determined rates in future years. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

**Paragraph 31(b) (1) (g):** This paragraph requires disclosure of the sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability of the System, calculated using the discount rate of 8.50 percent, as well as what the System's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (7.50 percent) or 1-percentage-point higher (9.50 percent) than the current rate ($ thousands):

| | 1% Decrease (7.50%) | Current Discount Rate (8.50%) | 1% Increase (9.50%) |
|---|---|---|---|
| System's net pension liability | $12,928,793 | $10,128,320 | $7,747,835 |

**Paragraph 31(c):** June 30, 2014 is the actuarial valuation date upon which the TPL is based. An expected TPL is determined as of June 30, 2013 using standard roll back techniques. The roll back calculation subtracts the annual normal cost (also called the service cost), adds the actual benefit payments and refunds for the plan year and then applies the expected investment rate of return for the year. The procedure was used to determine the TPL as of June 30, 2013, as shown in the following table:

| TPL Roll-Back<br>($ in thousands) | |
|---|---|
| (a) TPL as of June 30, 2014 | $26,349,209 |
| (b) Entry Age Normal Cost for the Year July 1, 2013 – June 30, 2014 | 347,198 |
| (c) Actual Benefit Payments for the Year July 1, 2013 – June 30, 2014 | 1,732,707 |
| (d) TPL as of June 30, 2013<br>= [ (a) - (b) + ( (c) x 1.0425) )] / 1.085 | $25,629,823 |

## SECTION III – REQUIRED SUPPLEMENTARY INFORMATION

There are several tables of Required Supplementary Information (RSI) that need to be included in the System's financial statements:

**Paragraphs 32(a)-(c):** The required tables are provided in Schedule A.

**Paragraph 34:** In addition the following should be noted regarding the RSI:

***Changes of benefit terms:*** None.

***Changes of assumptions:*** In 2011, rates of withdrawal, retirement and assumed rates of salary increase were adjusted to more closely reflect actual and anticipated experience. These assumptions were recommended as part of the Experience Study for the System for the five year period ended June 30, 2010.

***Method and assumptions used in calculations of actuarially determined contributions.*** The actuarially determined contributions in the schedule of employer contributions are calculated as of June 30 each biennium for the fiscal years ending two and three years after the valuation date. The following actuarial methods and assumptions were used to determine the most recent contributions reported in that schedule:

| | |
|---|---|
| Actuarial cost method | Entry age |
| Amortization method | Level percent of pay, closed |
| Single equivalent amortization period | 22.4 years |
| Asset valuation method | 4-year smoothed market |
| Inflation | 3.00 percent |
| Salary increase | 3.75-7.00 percent, including inflation |
| Investment rate of return | 8.50 percent, net of investment related expense |

# SCHEDULE A

## REQUIRED SUPPLEMENTARY INFORMATION

### SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY
### GASB 67 Paragraph 32(a)
### ($ in Thousands)

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total pension liability** | | | | | | | | | | |
| Service Cost | $ 347,198 | | | | | | | | | |
| Interest | 2,104,895 | | | | | | | | | |
| Benefit changes | 0 | | | | | | | | | |
| Difference between expected and actual experience | 0 | | | | | | | | | |
| Changes of assumptions | 0 | | | | | | | | | |
| Benefit payments | (1,732,707) | | | | | | | | | |
| Refunds of contributions | 0 | | | | | | | | | |
| **Net change in total pension liability** | 719,386 | | | | | | | | | |
| **Total pension liability - beginning** | 25,629,823 | | | | | | | | | |
| **Total pension liability - ending (a)** | $26,349,209 | | | | | | | | | |
| **Plan net position** | | | | | | | | | | |
| Contributions - employer | $ 949,209 | | | | | | | | | |
| Contributions - member | 273,038 | | | | | | | | | |
| Net investment income | 2,250,837 | | | | | | | | | |
| Benefit payments | (1,732,707) | | | | | | | | | |
| Administrative expense | 0 | | | | | | | | | |
| Refunds of contributions | 0 | | | | | | | | | |
| Other | 0 | | | | | | | | | |
| **Net change in plan net position** | 1,740,377 | | | | | | | | | |
| **Plan net position - beginning** | 14,480,512 | | | | | | | | | |
| **Plan net position - ending (b)** | $16,220,889 | | | | | | | | | |
| **Net pension liability - ending (a) - (b)** | $10,128,320 | | | | | | | | | |

**SCHEDULE OF THE NET PENSION LIABILITY**
**GASB 67 Paragraph 32(b)**
**($ in Thousands)**

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| Total pension liability | $ 26,349,209 | | | | | | | | | |
| Plan net position | 16,220,889 | | | | | | | | | |
| Net pension liability | $ 10,128,320 | | | | | | | | | |
| Ratio of plan net position to total pension liability | 61.56% | | | | | | | | | |
| Covered-employee payroll | $ 3,831,624 | | | | | | | | | |
| Net pension liability as a percentage of covered-employee payroll | 264.33% | | | | | | | | | |

## SCHEDULE OF EMPLOYER CONTRIBUTIONS
## GASB 67 Paragraph 32(c)
## ($ in Thousands)

| | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 | 2008 | 2007 | 2006 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Actuarially determined employer contribution | $ 948,540 | 787,536 | 757,246 | 581,593 | 559,224 | 539,303 | 518,560 | 412,099 | 396,249 | 281,366 |
| Actual employer contributions | 948,540 | 787,536 | 757,246 | 581,593 | 559,224 | 539,303 | 518,560 | 412,099 | 396,249 | 281,366 |
| Annual contribution deficiency (excess) | $ - | - | - | - | - | - | - | - | - | - |
| Covered-employee payroll | $ 3,930,957 | 4,101,750 | 3,943,990 | 3,823,754 | 3,676,686 | 3,529,470 | 3,393,717 | 3,296,792 | 3,169,992 | 3,035,232 |
| Actual contributions as a percentage of covered-employee payroll | 24.13% | 19.20% | 19.20% | 15.21% | 15.21% | 15.28% | 15.28% | 12.50% | 12.50% | 9.27% |

# SCHEDULE B

## SUMMARY OF BENEFIT PROVISIONS EVALUATED

**Covered Employees**

Any teacher, principal, superintendent or supervisor engaged in service of public schools, plus professional employees at State schools of higher education if they choose to be covered.

**Annual Salary**

Annual Salary rate for service as a Connecticut teacher during a school year excluding amounts paid for extra duty assignments, coaching, unused sick time, unused vacation or terminal pay.

**Average Annual Salary**

Average of Annual Salary received during three years of highest salary.

**Credited Service**

One month for each month of service as a teacher in Connecticut public schools, maximum 10 months for each school year. Ten months of credited service constitutes one year of Credited Service. Certain other types of teaching service, State employment, or war-time military service may be purchased prior to retirement, if the Member pays one-half the cost.

**Normal Retirement**

Eligibility - Age 60 with 20 years of Credited Service in Connecticut, or 35 years of Credited Service including at least 25 years of service in Connecticut.

Benefit - 2% of Average Annual Salary times years of Credited Service (maximum benefit is 75% of Average Annual Salary)

In addition, amounts derived from the accumulation of 6% contributions made prior to July 1, 1989 and voluntary contributions by the teacher are payable.

Minimum Benefit: Effective January 1, 1999, Public Act 98-251 provides a minimum monthly retirement benefit of $1,200 to teachers who retire under the Normal Retirement provisions and who have completed at least 25 years of full time Connecticut service at retirement.

**Early Retirement**

Eligibility - 25 years of Credited Service including 20 years of Connecticut service, or age 55 with 20 years of Credited Service including 15 years of Connecticut service.

Benefit - Reduced normal retirement benefit. The early retirement factors currently in effect are 6% per year for the first five years by which early retirement precedes the minimum normal retirement age and 4% per year for the next five years by which early retirement precedes the minimum normal retirement age. Effective July 1, 1999, the reduction for individuals with 30 or more years of service is 3% for each year by which early retirement precedes the minimum retirement age.

**Proratable Retirement**

Eligibility - Age 60 with 10 years of Credited Service.

Benefit - 2% less 0.1% for each year less than 20 years of Average Annual Salary times years of Credited Service in Connecticut, plus 1% of Average Annual Salary times years of additional Credited Service time.

**Disability Retirement**

Eligibility - 5 years of Credited Service in Connecticut if not incurred in the performance of duty and no service requirement if incurred in the performance of duty.

Benefit - 2% of Average Annual Salary times Credited Service to date of disability, but not less than 15% of Average Annual Salary, nor more than 50% of Average Annual Salary. In addition, disability benefit under this plan (without regard to any cost-of-living adjustments) plus any initial award of Social Security benefits and workers' compensation cannot exceed Average Annual Salary.

**Termination of Employment**

Less than 5 years of Credited Service - Return 6% contributions with interest.

5 or more years of Credited Service - Return 6% contributions with interest and 1% contributions made prior to July 1, 1989 without interest.

10 or more years of Credited Service - Member is 100% vested in the accrued benefit based on Credited Service and Average Annual Salary as of the date of termination of covered employment. Benefits are payable at age 60 and early retirement reductions are based on the number of years service the member would have had if they had continued to work until age 60.

Member may elect return of all contributions plus interest on 6% contributions in lieu of vested benefit.

**Pre-Retirement Death Benefits**

A lump sum plus one of the following: survivor's benefit, return of all contributions with interest, or surviving spouse's benefit.

- Lump Sum: $1,000 for the first 5 years of Connecticut service plus $200 per year thereafter. Maximum benefit: $2,000.
- Survivor's Benefit: For active teachers who die while in service, the family maximum benefit payable to survivors is $1,500 per month. Each minor child is entitled to $300 per month. The surviving spouse's benefit is $300 per month if the member has 12 or less years of service. For each additional year of service, the surviving spouse's monthly benefit is increased $25, up to a maximum of $600.
- Accumulated contributions with interest plus dependent children's benefits as described in the "Survivor's Benefit" paragraph.
- Surviving Spouse's Benefit: An active member who is eligible for immediate retirement and who has named his or her spouse as primary beneficiary will be covered by a 100% Plan D co-participant option in the event of his or her death prior to retirement.

**Benefit Options**

Normal form: Partial Refund Option – 75% of total benefit is paid as a life annuity. If 25% of the benefits paid prior to death do not exceed the Member's 6% contributions plus interest frozen at the date of the benefit commencement, the difference is paid to the Member's beneficiary.

Optional Forms: 5-, 10-, 20-, or 25-year certain and life and 33-1/3%, 50%, 66-2/3%, 75%, or 100% co-participant annuity (if co-participant dies first, benefit reverts to unreduced amount).

Amounts payable under the optional forms are determined on an actuarially equivalent basis. Actuarial equivalence is determined using mortality as described in Section F of the report, 8.5% interest, and 2% compound COLA. A unisex mortality blend of 60% male was used for certain benefit forms, and a blend of 80% male was used for co-participant annuity forms.

**Cost-of-Living Allowance**

For teachers who retired prior to September 1, 1992, pension benefit adjustments are made in accordance with increases in the Consumer Price Index, with a minimum of 3% and a maximum of 5% per annum.

For teachers who were members of the Teachers' Retirement System before July 1, 2007, and retire on or after September 1, 1992, pension benefit adjustments are made that are consistent with those provided for Social Security benefits on January 1 of the year granted, with a maximum of 6% per annum. If the return on assets in the previous year was less than 8.5%, the maximum increase is 1.5%.

For teachers who were members of the Teachers' Retirement System after July 1, 2007, pension benefit adjustments are made that are consistent with those provided for Social Security benefits on January 1 of the year granted, with a maximum of 5% per annum. If the return on assets in the previous year was less than 11.5%, the maximum increase is 3%, and if the return on the assets in the previous year was less than 8.5%, the maximum increase is 1.0%

**Teachers' Required Contribution**

Effective July 1, 1992, each teacher is required to contribute 6% of annual salary for the pension benefit.

**State Contribution**

The State's contribution requirement is determined in accordance with Section 10-183z (which reflects Public Act 79-436 as amended).

**Early Retirement Incentive**

A local or regional board of education may establish a retirement incentive plan. The plan shall provided for purchase of additional credited service by a board of education and a member of the system who chooses to participate in the plan, of additional credited service for such member and for payment by the board of education of not less than fifty per cent of the entire cost of such total cost. Any such plan shall specify a maximum number of years to be purchased, not to exceed five. Members must have attained age 50 and be eligible for retirement with the additional purchased service. The amount of service purchased cannot exceed the lesser of five years and one-fifth of the member's credited service.

<u>**SCHEDULE C**</u>

# STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

**Investment Rate of Return**

Assumed annual rate of 8.50% net of investment expenses.

**Rates of Annual Salary Increase**

| Rates of Annual Salary Increase Assumption | |
|---|---|
| **Years of Service** | |
| **0** | 7.00% |
| **1** | 7.00 |
| **2** | 7.00 |
| **3** | 7.00 |
| **4** | 7.00 |
| **5** | 7.00 |
| **6** | 7.00 |
| **7** | 7.00 |
| **8** | 7.00 |
| **9** | 7.00 |
| **10** | 5.50 |
| **11** | 5.50 |
| **12** | 5.50 |
| **13** | 5.50 |
| **14** | 5.50 |
| **15** | 4.00 |
| **16** | 4.00 |
| **17** | 4.00 |
| **18** | 4.00 |
| **19** | 4.00 |
| **20+** | 3.75 |

**Active Member Decrement Rates**

a. Table below provides a summary of the assumed rates of service retirement.

| Annual Rates of Retirement | | | | | | |
|---|---|---|---|---|---|---|
| Age | Unreduced | | Proratable | | Reduced | |
| | Male | Female | Male | Female | Male | Female |
| 50 | 27.5% | 15.0% | | | 2.0% | 2.0% |
| 55 | 38.5% | 30.0% | | | 4.5% | 6.0% |
| 60 | 22.0% | 20.0% | 6.0% | 5.4% | | |
| 65 | 36.3% | 30.0% | 20.0% | 13.5% | | |
| 70 | 100.0% | 40.0% | 35.0% | 10.8% | | |
| 75 | 100.0% | 40.0% | 40.0% | 18.0% | | |
| 80 | 100.0% | 100.0% | 100.0% | 100.0% | | |

b. Table below provides a summary of the assumed rates of mortality while actively employed and disability.

| Annual Rates of Death and Disability | | | | |
|---|---|---|---|---|
| Age | Pre-Retirement Mortality | | Disability | |
| | Male | Female | Male | Female |
| 20 | 0.0164% | 0.0108% | 0.0455% | 0.0500% |
| 25 | 0.0210% | 0.0109% | 0.0455% | 0.0500% |
| 30 | 0.0268% | 0.0140% | 0.0455% | 0.0410% |
| 35 | 0.0431% | 0.0249% | 0.0455% | 0.0410% |
| 40 | 0.0645% | 0.0343% | 0.0715% | 0.0720% |
| 45 | 0.0790% | 0.0527% | 0.1625% | 0.1200% |
| 50 | 0.1027% | 0.0761% | 0.3250% | 0.2630% |
| 55 | 0.1490% | 0.1316% | 0.7150% | 0.4380% |
| 60 | 0.2911% | 0.2675% | 1.2805% | 0.5000% |
| 64 | 0.4928% | 0.4539% | 1.2805% | 0.5000% |

c. Table below provides a summary of the assumed rates of withdrawal for active members prior to eligibility for retirement.

| Annual Rates of Withdrawal | | | | | |
|---|---|---|---|---|---|
| | | | 10 or more years of service | | |
| Years of Service | Male | Female | Age | Male | Female |
| 0-1 | 14.00% | 12.00% | 25 | 1.20% | 3.50% |
| 1-2 | 8.50 | 9.00 | 30 | 1.20 | 3.50 |
| 2-3 | 5.50 | 7.00 | 35 | 1.20 | 3.50 |
| 3-4 | 4.50 | 6.00 | 40 | 1.20 | 2.30 |
| 4-5 | 3.50 | 5.50 | 45 | 1.26 | 1.30 |
| 5-6 | 2.50 | 5.00 | 50 | 1.96 | 1.25 |
| 6-7 | 2.40 | 4.50 | 55 | 2.76 | 1.60 |
| 7-8 | 2.30 | 3.50 | 59 | 3.00 | 1.90 |
| 8-9 | 2.20 | 3.00 | | | |
| 9-10 | 2.10 | 2.50 | | | |

**Post-Retirement Mortality**

For healthy retirees and beneficiaries, the RP-2000 Combined Mortality Table projected forward 19 years using scale AA, with a two-year setback for males and females. A separate table of mortality rates is used for disabled retirees. The following are sample rates for the retirees and beneficiaries:

| Annual Rates of Death | | | | |
|---|---|---|---|---|
| | Healthy | | Disabled | |
| Age | Male | Female | Male | Female |
| 50 | 0.1369% | 0.1015% | 0.3881% | 0.3567% |
| 55 | 0.1986% | 0.1755% | 0.7659% | 0.6953% |
| 60 | 0.3881% | 0.3567% | 1.3671% | 1.2224% |
| 65 | 0.7659% | 0.6953% | 2.2802% | 2.0100% |
| 70 | 1.3671% | 1.2224% | 4.1439% | 3.2898% |
| 75 | 2.2802% | 2.0100% | 7.7020% | 5.4696% |
| 80 | 4.1439% | 3.2898% | 13.6910% | 9.9435% |
| 85 | 7.7020% | 5.4696% | 22.0697% | 16.4072% |

**Marriage Assumption**

85% of males and 75% of females assumed to be married, with female spouses being 3 years younger than males.

**Asset Valuation Method**

Market value of assets is used for GASB 67 disclosure purposes.

### Actuarial Cost Method

The Entry Age Normal actuarial cost method allocates the plan's actuarial present value of future benefits to various periods based upon service. The portion of the present value of future benefits allocated to years of service prior to the valuation date is the actuarial accrued liability, and the portion allocated to years following the valuation date is the present value of future normal costs. The normal cost is determined for each active member as the level percent of payroll necessary to fully fund the expected benefits to be earned over the career of each individual active member. The normal cost is partially funded with active member contributions with the remainder funded by employer contributions.

The unfunded accrued liability is determined by subtracting the actuarial value of assets from the actuarial accrued liability.

### Future Cost-of-living Increases

Members who retired prior to September 1, 1992 are assumed to receive an annual Cost-of-Living Adjustment (COLA) of 3.0%. Members who retired on or after September 1, 1992 are assumed to receive an annual Cost-of-Living Adjustment (COLA) of 2.0%.

### Administrative and Investment Expenses

The investment return assumption represents the expected return net of all investment expenses. Administrative expenses are paid from the State's General Fund.

### Payroll Growth Rate

The total annual payroll of active members is assumed to increase at an annual rate of 3.75%. This rate does not anticipate increases in the number of members.