REPORT ON THE
SIXTY-FIRST ACTUARIAL VALUATION OF THE STATE TEACHERS'
RETIREMENT SYSTEM OF VERMONT
PREPARED AS OF JUNE 30, 2008

# buckconsultants <br> an Acs company 

October 21, 2008

Board of Trustees
State Teachers' Retirement System of Vermont
Montpelier, Vermont 05609

Dear Board Members:
Section 1942, subsection (n), of Title 16, Chapter 55, Vermont Statutes Annotated, relating to the State Teachers' Retirement System of Vermont, provides in part that the actuary shall make annual valuations of the system.

The sixty-first actuarial valuation of the system, prepared as of June 30, 2008, has now been completed and the results are presented in this report, together with our recommendations in regard to contributions payable by the State. The Table of Contents, which immediately follows, outlines the material contained in this report.

On the basis of the current valuation, we recommend that a normal contribution of $3.54 \%$ of covered compensation and a payment of $\$ 20,649,422$ towards the liquidation of the unfunded accrued liability be made. Based on the reported payroll, the total contribution amounts to $\$ 39,612,723$ for the year beginning July 1, 2008. Schedule G provides the estimated contributions for the following two fiscal years.

I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the Academy to render the actuarial opinions contained herein. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions concerning it.

Respectfully submitted,

## Davie Drinule

David L. Driscoll, F.S.A., E.A.

Principal, Consulting Actuary

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## REPORT ON THE SIXTY-FIRST ACTUARIAL VALUATION OF THE STATE TEACHERS' RETIREMENT SYSTEM OF VERMONT <br> PREPARED AS OF JUNE 30, 2008

## SECTION I - SUMMARY OF PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized below:

| Valuation Date | June 30, 2007 | June 30, 2008 |
| :---: | :---: | :---: |
| Active members |  |  |
| Vested | 7,977 | 7,902 |
| Not vested | 2,698 | 2,783 |
| Total | 10,675 | 10,685 |
| Compensation | \$515,572,694 | \$535,807,012 |
| Average age | 46.88 | 46.89 |
| Average service | 13.66 | 13.62 |
| Average compensation | \$48,297 | \$50,146 |
| Retired members and beneficiaries |  |  |
| Number | 5,192 | 5,555 |
| Annual retirement allowances | \$74,726,093 | \$82,480,807 |
| Inactive members | 2,901 | 2,929 |
| Terminated vested members | 741 | 705 |
| Adjusted assets for valuation | \$1,541,859,577 | \$1,605,461,728 |
| Unfunded actuarial accrued liability | \$274,790,333 | \$379,505,069 |
| Annual actuarial accrued liability contribution | \$14,625,964 | \$20,649,422 |
| Normal contribution rate | 5.16\% | 3.54\% |

2. Comments on the results of the valuation are given in Section IV and further discussion of the contribution levels is provided in Section V.
3. As a result of an experience study performed by Buck Consultants and recent decisions by the System's Board of Trustees, changes in the actuarial assumptions used in the valuation have been made effective June 30, 2008. Various decrement tables were changed to more closely reflect the anticipated future experience of the System, and the liability held for inactive members was raised from $150 \%$ to $300 \%$ of member contributions with interest. As a result of these changes, the actuarial accrued liability developed in the valuation increased by $\$ 45,302,660$, while the total normal cost declined by $\$ 8,885,999$. Schedule B outlines the full set of actuarial assumptions and methods employed in the current valuation.
4. Schedule C outlines the benefit provisions that were taken into account in the valuation. The statutes defining benefits payable under the System have been amended since the last valuation to reduce the years of service required for eligibility for an in-service death benefit. This change had a very modest impact on the costs and liabilities developed in the valuation.
5. An analysis of the actuarial experience of the System during the past fiscal year is presented in Section IV of this report. Some aspects of this experience are presented in graphs included in Section VI of this report.
6. Schedule F shows a graph of projected benefit payments over the next ten years.
7. Schedule G shows projected contributions for the two following fiscal years.

## SECTION II - MEMBER DATA

1. Member data were furnished by the Retirement Division of the State Treasurer's Office.
2. Schedule D presents tables that summarize active members, by age and service and service pensioners, disability pensioners and beneficiaries by annual benefit levels.
3. The following tables show a summary of membership of the system:

THE NUMBER AND ANNUAL ALLOWANCES OF RETIRED MEMBERS AND BENEFICIARIES AS OF JUNE 30, 2008

| Group | Number | Annual <br> Allowances |
| :--- | ---: | ---: |
| Service Retirements | 5,106 | $\$ 77,712,375$ |
| Disability Retirements | 141 | $\$ 1,781,709$ |
| Beneficiaries of Deceased <br> Members | 308 | $\$ 2,986,723$ |
| TOTAL | 5,555 | $\$ 82,480,807$ |

THE NUMBER AND ANNUAL COMPENSATION OF ACTIVE MEMBERS AS OF JUNE 30, 2008

|  |  |  |
| :---: | ---: | ---: |
| Group | Number | Annual <br> Allowances |
| Group A | 30 |  |
| Group C |  |  |
| TOTAL | 10,655 | $\$ 1,856,156$ |
| Ty33,950,856 |  |  |



## SECTION III - ASSETS

1. The asset values and cash flow amounts shown below were taken from reports supplied by the Office of the State Treasurer. The information contained in the reports has not yet been audited but is believed to be sufficiently accurate for purposes of this valuation.
2. For actuarial purposes, the assets are valued using a method that reflects the market value of assets through gradual recognition of return on assets that differ from the assumed $8.25 \%$ rate of return, provided the adjusted asset value is within $20 \%$ of the market value. The following shows the development of the valuation assets.

Assets for valuation purposes, June 30, 2007

Cash flow during year (net of investment income)

| Contributions paid | $\$ \quad 64,096,137$ |
| :--- | :---: | ---: |
| Benefit payouts | $83,981,022$ |
| Expenses | $22,119,263$ |


| Net |  |
| :--- | ---: |
| Expected investment income (8.25\%) |  |
|  |  |
| Preliminary asset value |  |
|  | $\$ 1,501,320,179$ |
| Market value, June 30, 2008 | $1,631,497,115$ |
| Preliminary asset value | $\$(130,176,936)$ |
| Unrecognized appreciation | X 20\% |

\$ 1,631,497,115
Expected investment income (8.25\%) 131,641,686
\$ 1,501,320,179
1,631,497,115
\$ $(130,176,936)$
Adjustment
X 20\% \$ $(26,035,387)$

Assets for valuation purposes, June 30, 2008
\$ 1,605,461,728
3. The assets for valuation purposes are $106.9 \%$ of market value.
4. The investment rate of return for the year ending June 30, 2008, is $6.94 \%$, based on the valuation assets.

## SECTION IV - COMMENTS ON VALUATION

1. Schedule A of the report contains the valuation balance sheet, which shows the present and prospective assets and liabilities of the system as of June 30, 2008.
2. The adjusted assets of the system amount to $\$ 1,605,461,728$.
3. The actuarial accrued liability for current retired members, terminated vested members and beneficiaries amounts to $\$ 880,528,729$, and the actuarial accrued liability for current active and inactive members amounts to $\$ 1,104,438,068$, for a total actuarial accrued liability of $\$ 1,984,966,797$. Therefore, after subtracting assets of $\$ 1,605,461,728$, the unfunded actuarial accrued liability is $\$ 379,505,069$.
4. The State's contributions consist of a normal contribution and an accrued liability contribution. The accrued liability contribution represents the amount (assumed to increase by 5\% each year) necessary to liquidate the unfunded accrued liability as of June 30, 2008, over a 28 -year period from that date. Normal contributions represent the contributions needed to fund the benefits earned during the year. Under the Entry Age Normal funding method, the normal contribution as of June 30 , 2008, is $\$ 18,963,301$, or $3.54 \%$ of members' compensation.
5. The expected unfunded actuarial accrued liability as of June 30, 2008, may be compared to the actual actuarial accrued liability to determine the gain or loss during the year. The following table presents a summary of the approximate effects of major experience factors affecting the system's unfunded actuarial accrued liability since June 30, 2007:
6. Unfunded liability, 6/30/2007 \$274,790,333
7. Normal cost 42,871,112
8. Contribution $(64,096,137)$
9. Interest on 1, 2 and 3 23,615,496
10. Expected unfunded liability, 6/30/2008 277,180,804
11. Accrued liability, 6/30/2008 1,984,966,797
12. Actuarial value of assets, $6 / 30 / 2008 \quad 1,605,461,728$
13. Actual unfunded liability, 6. - 7.

379,505,069
9. Total gain/(loss), 5. - 8.

|  |  |
| :--- | ---: |
| Sources of gain/(loss) |  |
|  |  |
| Investment experience | $(26,035,387)$ |
| Expenses other than investment expenses | $(16,876,994)$ |
| Retirement experience | $7,984,293$ |
| Termination experience | $(18,781,694)$ |
| Disability experience | $(723,288)$ |
| Mortality among active participants | $(97,726)$ |
| Mortality among retirees, beneficiaries | 50,422 |
| and terminated vested participants. | $(167,082)$ |
| Salary experience | $1,312,463$ |
| COLA experience | $(2,655,749)$ |
| New entrants with prior service | $(45,302,660)$ |
| Changes in actuarial assumptions | $(120,335)$ |
| Changes in death benefit eligibility provisions | $(910,528)$ |
| Other (Data corrections, service purchases, etc) |  |
| Total | $(\$ 102,324,265)$ |

## SECTION V - CONTRIBUTIONS PAYABLE UNDER THE SYSTEM

1. Section 1942, Subsection (n), of Title 16, Chapter 55, Vermont Statutes Annotated, relating to the State Teachers' Retirement System of Vermont, indicates that the actuary shall submit to the Board of Trustees his recommendation as to the contributions payable by the State based on annual valuations of the assets and liabilities of the system.
2. On the basis of the results of the current valuation, the actuary recommends that the Board of Trustees certify the following contributions for the fiscal year commencing July 1, 2008:

| Normal contribution | $\$ 18,963,301$ |
| :--- | ---: |
| Accrued liability contribution | $\underline{20,649,422}$ |
| Total | $\$ 39,612,723$ |

## SECTION VI - EXPERIENCE

1. Records are maintained whereby the actual experience of the System may be compared with the expected experience based on the tables adopted by the Board of Trustees. This experience is reviewed periodically, in accordance with the applicable statutes, and any change suggested by the cumulative experience of the system will be recommended to the Board.
2. The active service and salary experience for the latest year is summarized in graphs on the following pages.



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## SECTION VII - ACCOUNTING INFORMATION

1. Based on our interpretation of Statement No. 25 of the Governmental Accounting Standards Board (GASB), we are providing the following Schedule of Funding Progress for accounting purposes.

## SCHEDULE OF FUNDING PROGRESS

(dollar amounts in thousands)

| Year Ending <br> June 30 | Actuarial <br> Value of Assets <br> (a) | Actuarial Accrued Liability (AAL) (b) | $\begin{aligned} & \text { Unfunded } \\ & \text { AAL } \\ & \text { (UAAL) } \\ & \text { (b-a) } \end{aligned}$ | Funded Ratio (a/b) | Covered <br> Payroll <br> (c) | UAAL as a <br> Percentage of Covered Payroll ((b-a)/c) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2008 | \$1,605,462 | \$1,984,967 | \$379,505 | 80.9\% | \$535,807 | 70.8\% |
| 2007 | 1,541,860 | 1,816,650 | 274,790 | 84.9\% | 515,573 | 53.3\% |
| $2006{ }^{1}$ | 1,427,393 | 1,686,502 | 259,108 | 84.6\% | 499,044 | 51.9\% |
| 2005 | 1,354,006 | 1,492,150 | 138,144 | 90.7\% | 468,858 | 29.5\% |
| 2004 | 1,284,833 | 1,424,662 | 139,829 | 90.2\% | 453,517 | 30.8\% |
| 2003 | 1,218,001 | 1,358,822 | 140,821 | 89.6\% | 437,239 | 32.2\% |
| 2002 | 1,169,294 | 1,307,202 | 137,908 | 89.5\% | 418,904 | 32.9\% |
| 2001 | 1,116,846 | 1,254,341 | 137,496 | 89.0\% | 403,258 | 34.1\% |
| 2000 | 1,037,466 | 1,174,087 | 136,621 | 88.4\% | 387,999 | 35.2\% |
| 1999 | 931,056 | 1,066,400 | 135,343 | 87.3\% | 372,299 | 36.4\% |
| 1998 | 821,977 | 955,694 | 133,717 | 86.0\% | 357,899 | 37.4\% |
| 1997 | 717,396 | 849,179 | 131,783 | 84.5\% | 364,695 | 36.1\% |
| 1996 | 570,776 | 700,377 | 129,601 | 81.5\% | 355,895 | 36.4\% |
| 1995 | 520,850 | 648,052 | 127,202 | 80.4\% | 346,975 | 36.7\% |
| 1994 | 473,229 | 597,851 | 124,622 | 79.2\% | 335,155 | 37.2\% |

[^0]2. GASB Statement No. 27 requires the development of Annual Pension Cost and Net Pension Obligation. This development is shown in the following table.

DEVELOPMENT OF PENSION COST AND NET PENSION OBLIGATION (NPO)

| Year <br> Ending June 30 | Annual <br> Required <br> Contribution | Interest on NPO | Amortization <br> of NPO | Pension Cost $(1)+(2)-(3)$ | Actual Contribution | Change in NPO (4)-(5) | NPO <br> Balance |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| 1994 | 25,805,408 | 2,772,593 | 2,970,742 | 25,607,259 | 20,580,000 | 5,027,259 | 37,646,002 |
| 1995 | 27,451,926 | 3,199,910 | 3,544,821 | 27,107,015 | 18,080,000 | 9,027,015 | 46,673,017 |
| 1996 | 28,711,597 | 3,967,206 | 4,374,228 | 28,304,575 | 11,480,000 | 16,824,575 | 63,497,592 |
| 1997 | 30,721,768 | 5,397,295 | 6,111,414 | 30,007,649 | 18,080,000 | 11,927,649 | 75,425,241 |
| 1998 | 26,927,205 | 6,411,145 | 6,285,437 | 27,052,913 | 18,106,581 | 8,946,332 | 84,371,573 |
| 1999 | 20,723,874 | 7,171,584 | 8,231,373 | 19,664,085 | 18,080,000 | 1,584,085 | 85,955,658 |
| 2000 | 19,936,345 | 7,306,231 | 8,385,918 | 18,856,658 | 18,586,240 | 270,418 | 86,226,076 |
| 2001 | 20,970,278 | 7,329,216 | 8,412,300 | 19,887,194 | 19,143,827 | 743,367 | 86,969,443 |
| 2002 | 22,146,880 | 7,392,403 | 8,484,824 | 21,054,459 | 20,446,282 | 608,177 | 87,577,620 |
| 2003 | 28,279,810 | 7,444,098 | 8,012,591 | 27,711,317 | 20,446,282 | 7,265,035 | 94,842,655 |
| 2004 | 41,658,946 | 7,587,412 | 8,677,279 | 40,569,079 | 24,446,282 | 16,122,797 | 110,965,452 |
| 2005 | 47,714,318 | 8,877,326 | 9,828,765 | 46,762,879 | 24,446,282 | 22,316,507 | 133,282,049 |
| 2006 | 56,627,046 | 10,662,467 | 11,805,450 | 55,484,063 | 24,985,506 | 30,498,557 | 163,780,606 |
| 2007 | 38,929,729 | 13,511,900 | 8,536,948 | 43,904,682 | 38,496,410 | 5,408,272 | 169,188,878 |
| 2008 | 41,204,051 | 13,958,082 | 9,005,231 | 46,156,902 | 25,705,566 | 20,451,336 | 189,640,214 |

3. The Annual Required Contribution for fiscal year 2008 is derived as follows:
$\$ 26,578,087$ Product of the normal rate from the 2007 valuation report (5.16\%) and payroll $(\$ 515,572,694)$
\$14,625,964 Amortization of unfunded liability (see amortization chart in 2007 valuation report)
\$41,204,051

## SCHEDULE A

VALUATION BALANCE SHEET
SHOWING THE ASSETS AND LIABILITIES OF THE STATE TEACHERS' RETIREMENT SYSTEM OF VERMONT

PREPARED AS OF JUNE 30, 2008


#### Abstract

ASSETS

Adjusted assets of the system \$1,605,461,728


Present value of prospective contributions

Members

State
Accrued liability contributions
379,505,069
Normal contributions

Total prospective contributions

Total assets
\$2,238,759,351

## LIABILITIES

Actuarial present value of benefits payable on account of present retired members, terminated vested members and beneficiaries
\$ 880,528,729
Actuarial present value of benefits expected to become payable on account of active and inactive members

1,358,230,622

Total liabilities
\$2,238,759,351


## LIABILITIES

AS OF JUNE 30, 2008

Actives
61\%


## SCHEDULE B

OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

## OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

INTEREST RATE: 8.25\% per annum, compounded annually.

SEPARATIONS BEFORE NORMAL RETIREMENT: Representative values of the assumed annual rates of withdrawal, vested retirement, early retirement, disability and death are as follows:

| Age | Withdrawal and <br> Vested Retirement |  | Disability |  | Death |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Males | Females | Males | Females | Males | Females |
|  |  |  |  |  |  |  |
| 25 | $20.00 \%$ | $20.00 \%$ | $.010 \%$ | $.015 \%$ | $.02 \%$ | $.02 \%$ |
| 30 | 12.00 | 14.00 | .015 | .015 | .02 | .02 |
| 35 | 8.00 | 11.30 | .020 | .015 | .02 | .02 |
| 40 | 6.50 | 8.60 | .030 | .020 | .05 | .02 |
| 45 | 5.80 | 6.00 | .053 | .045 | .05 | .04 |
| 50 | 5.40 | 5.00 | .180 | .180 | .07 | .06 |
| 55 | 5.40 | 4.84 | .440 | .390 | .07 | .10 |
| 59 | 5.40 | 4.84 | 1.170 | .710 | .09 | .14 |
| 60 | 5.40 | 4.84 | 1.470 | .840 | .09 | .15 |
| 61 | 5.40 | 4.84 | 1.830 | 1.010 | .297 | .17 |


| Age | Reduced Early Retirement |  | Full Early Retirement |  |
| :--- | :---: | :---: | :---: | :---: |
|  | Males | Females | Males | Females |
|  |  |  |  |  |
| 50 | - | - | $40.00 \%$ | $40.00 \%$ |
| 55 | $8.75 \%$ | $8.75 \%$ | 20.00 | 20.00 |
| 56 | 6.25 | 6.25 | 10.00 | 10.00 |
| 57 | 6.25 | 6.25 | 10.00 | 10.00 |
| 58 | 6.25 | 6.25 | 10.00 | 10.00 |
| 59 | 6.25 | 6.25 | 10.00 | 10.00 |
| 60 | 12.50 | 12.50 | 30.00 | 30.00 |
| 61 | 12.50 | 12.50 | 17.00 | 17.00 |

SERVICE RETIREMENTS: Occur between ages 62 (60 for Group A) and 70. The assumed rates of service retirement are as follows:

| Age | Annual Rate of Retirement |  |
| :---: | :---: | :---: |
|  | Male | Female |
|  |  |  |
| 62 | $25.0 \%$ | $25.0 \%$ |
| 63 | 20.0 | 20.0 |
| 64 | 20.0 | 20.0 |
| 65 | 30.0 | 30.0 |
| 66 | 30.0 | 30.0 |
| 67 | 30.0 | 30.0 |
| 68 | 20.0 | 20.0 |
| 69 | 30.0 | 30.0 |
| 70 | 100.0 | 100.0 |

SALARY INCREASES: Representative values of the assumed annual rates of future salary increase are as follows:

| Age | Annual Rate of <br> Salary Increase |
| :---: | :---: |
|  |  |
| 25 | $10.68 \%$ |
| 30 | 8.10 |
| 35 | 7.30 |
| 40 | 6.03 |
| 45 | 5.49 |
| 50 | 4.95 |
| 55 | 4.59 |
| 60 | 4.41 |
| 64 | 4.41 |

DEATHS AFTER RETIREMENT: The 1995 Buck Mortality Tables, set back one year, are used for the period after service retirement, while the RP-2000 Tables for Disabled Retirees are used for the period following disability retirement.

INFLATION: The separately stated assumptions for investment return, salary increases and cost of living adjustments are consistent with an expected annual inflation rate of $3.00 \%$ to $3.25 \%$ per year.

FUTURE EXPENSES: No provision made.

ACTUARIAL COST METHOD: The individual entry age normal actuarial cost method was used. For actuarial valuations prior to June 30, 2006, the entry age normal method with frozen initial liability was used.

SPOUSE'S AGE: Husbands are assumed to be 3 years older than their wives.
PERCENT MARRIED: 85\% of the male members and $35 \%$ of the female members are assumed to be married.

COST-OF-LIVING ADJUSTMENTS: Assumed to occur on January 1 following one year of retirement at the rate of $3 \%$ per annum for Group A members and $1.5 \%$ per annum for Group C member (beginning at age 62 for Group C members who elect reduced early retirement).

ASSET VALUATION METHOD: The amount of the assets for valuation purposes equals the preliminary asset value plus $20 \%$ of the difference between the market and preliminary asset values. The preliminary asset value is equal to the previous year's asset value (for valuation purposes) adjusted for contributions less benefit payments and expenses and expected investment income. If necessary, a further adjustment is made to ensure that the valuation assets are within $20 \%$ of the market value.

INACTIVE MEMBERS: A liability equal to $300 \%$ of accumulated contributions of inactive members is included in the valuation liabilities.

HEALTH AND MEDICAL BENEFITS FOR RETIREES: Not included in this valuation.

## SCHEDULE C

BRIEF SUMMARY OF PRINCIPAL PLAN PROVISIONS AS INTERPRETED FOR VALUATION PURPOSES

## BRIEF SUMMARY OF PRINCIPAL PLAN PROVISIONS AS INTERPRETED FOR VALUATION PURPOSES

Effective Date
Creditable Service
Average Final Compensation (AFC)

Membership

Service Retirement Allowance

July 1, 1947.
Service as a member plus purchased service.
Average annual compensation during highest 3 successive years.

Immediate upon employment.
GROUP A
GROUP C service allowance using AFC and creditable service at early retirement.

Age 60 or 30 years of creditable service.

Member annuity based on accumulated contributions plus a pension which, with member annuity, equals $1 / 60$ of AFC times creditable service.
\$6,600 after 30 years of N/A creditable service (pro-rata portion if less than 30 years).

None

Age 55.

Actuarial equivalent of
Age 62 or 30 years of creditable service.

Member annuity based on accumulated contributions plus a pension which, with member annuity, equals $1 / 80$ of AFC times creditable service prior to July 1, 1990 plus $1 / 60$ of AFC times creditable service after July 1, 1990.

50\% of AFC.
Early Retirement Allowance Eligibility

Amount of Allowance

|  | GROUP A | GROUP C |
| :---: | :---: | :---: |
| Amount of Allowance | Commencing at age 60 calculated as a service allowance using AFC and creditable service at termination. | Commencing at age 62, calculated as a service allowance using AFC and creditable service at termination. |
| Disability Retirement Allowance |  |  |
| Eligibility | Total and permanent disability after 5 years of creditable service (5 years preceding retirement served in State). | Total and permanent disability after 5 years of creditable service (5 years preceding retirement served in State). |
| Amount of Allowance | Calculated as a service allowance based on AFC and creditable service at disability retirement, subject to a $25 \%$ of AFC minimum. | Calculated as a service allowance based on AFC and creditable service at disability retirement, subject to a $25 \%$ of AFC minimum. |
| Death Benefits |  |  |
| Eligibility | Age 60 or 30 years of creditable service; 10 years of creditable service if in service at death. | Age 55 and 5 years of creditable service or 10 years of creditable service. |
| Amount of Allowance | Accrued allowance paid under 100\% survivorship option. If the eligibility requirements are not met or if beneficiary so elects, the member's accumulated contributions are paid to the beneficiary or estate. Certain children's benefits may also be payable. | Accrued allowance paid under 100\% survivorship option. If the eligibility requirements are not met or if beneficiary so elects, the member's accumulated contributions are paid to the beneficiary or estate. Certain children's benefits may also be payable. |
| Return of Contributions | If no other beneficiary is payable, a terminated member receives his accumulated contributions with interest. | If no other beneficiary is payable, a terminated member receives his accumulated contributions with interest. |
| Options | The allowance may be paid in various optional forms at the election of the member. | The allowance may be paid in various optional forms at the election of the member. |


|  | GROUP A | GROUP C |
| :---: | :--- | :--- |
| Post-retirement Adjustments | On each December 31 <br> allowances in payment for at <br> least one year are adjusted <br> for cost of living based on <br> the consumer price index, <br> but not in excess of 5\%. | On each December 31, <br> allowances in payment for at <br> least one year are adjusted <br> for cost of living based on <br> one-half of the consumer <br> price index, but not in excess <br> of 5\%. For members <br> receiving a reduced early <br> retirement allowance, the <br> adjustment will not apply <br> before age 62. |
| Contributions |  | 5.5\% of earnable <br> compensation. Contributions <br> stop after 25 years of <br> creditable service. | | 3.4\% of earnable |
| :--- |
| compensation. |

## SCHEDULE D

SUMMARY TABLES OF MEMBER DATA AS OF JUNE 30, 2008

TABLE 1
THE NUMBER AND ANNUAL COMPENSATION OF ACTIVE MEMBERS DISTRIBUTED BY AGE AND SERVICE

AS OF JUNE 30, 2008

| AGE | 0 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 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary |
| Under 20 | 1 | 32,699 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 32,699 |
| 20 to 24 | 127 | 3,864,454 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 127 | 3,864,454 |
| 25 to 29 | 610 | 21,517,414 | 121 | 4,893,209 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 731 | 26,410,623 |
| 30 to 34 | 539 | 20,113,075 | 483 | 20,924,242 | 69 | 3,323,368 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,091 | 44,360,685 |
| 35 to 39 | 384 | 14,606,442 | 401 | 18,303,758 | 374 | 19,197,431 | 50 | 2,730,325 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,209 | 54,837,956 |
| 40 to 44 | 324 | 12,493,319 | 313 | 14,585,700 | 257 | 13,649,594 | 222 | 12,491,043 | 65 | 3,828,397 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,181 | 57,048,053 |
| 45 to 49 | 304 | 12,131,594 | 292 | 13,762,928 | 266 | 14,067,639 | 238 | 13,277,009 | 278 | 16,347,682 | 67 | 3,985,785 | 1 | 71,026 | 0 | 0 | 0 | 0 | 1,446 | 73,643,663 |
| 50 to 54 | 235 | 9,002,103 | 291 | 13,933,381 | 292 | 15,188,643 | 251 | 14,591,356 | 309 | 18,941,376 | 336 | 20,921,711 | 96 | 6,203,130 | 0 | 0 | 0 | 0 | 1,810 | 98,781,700 |
| 55 to 59 | 168 | 7,101,586 | 248 | 12,078,441 | 273 | 14,252,707 | 330 | 18,598,211 | 341 | 20,636,513 | 327 | 20,676,465 | 314 | 20,105,013 | 70 | 4,523,895 | 0 | 0 | 2,071 | 117,972,831 |
| 60 to 64 | 72 | 3,370,050 | 93 | 4,422,623 | 89 | 4,789,162 | 132 | 7,647,943 | 171 | 9,970,006 | 133 | 8,519,890 | 99 | 6,362,234 | 90 | 5,926,655 | 7 | 403,423 | 886 | 51,411,986 |
| 65 to 69 | 14 | 571,803 | 17 | 921,588 | 10 | 531,133 | 16 | 869,179 | 16 | 1,069,466 | 17 | 1,100,458 | 13 | 904,103 | 8 | 467,456 | 6 | 373,279 | 117 | 6,808,465 |
| 70 \& up | 5 | 129,858 | 4 | 133,601 | 2 | 108,678 | 0 | 0 | 2 | 144,460 | 0 | 0 | 0 | 0 | 2 | 117,300 | 0 | 0 | 15 | 633,897 |
| TOTAL | 2,783 | 104,934,397 | 2,263 | 103,959,471 | 1,632 | 85,108,355 | 1,239 | 70,205,066 | 1,182 | 70,937,900 | 880 | 55,204,309 | 523 | 33,645,506 | 170 | 11,035,306 | 13 | 776,702 | 10,685 | 535,807,012 |

TABLE 2
THE NUMBER AND ANNUAL COMPENSATION OF ACTIVE MEMBERS DISTRIBUTED BY AGE AND SERVICE

## AS OF JUNE 30, 2008

GROUP A

| AGE | 0 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 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary |
| Under 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 to 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 to 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 to 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 to 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40 to 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 to 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 53,453 | 1 | 47,765 | 1 | 71,026 | 0 | 0 | 0 | 0 | 3 | 172,244 |
| 50 to 54 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 46,938 | 2 | 111,974 | 4 | 250,543 | 1 | 71,026 | 0 | 0 | 0 | 0 | 8 | 480,481 |
| 55 to 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 49,020 | 4 | 265,357 | 5 | 266,065 | 1 | 82,157 | 0 | 0 | 11 | 662,599 |
| 60 to 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 194,673 | 2 | 132,417 | 2 | 138,623 | 0 | 0 | 7 | 465,713 |
| 65 to 69 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 75,119 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 75,119 |
| 70 \& up | 0 | 0 | 0 | , | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 46,938 | 4 | 214,447 | 13 | 833,457 | 9 | 540,534 | 3 | 220,780 | 0 | 0 | 30 | 1,856,156 |

TABLE 3
THE NUMBER AND ANNUAL COMPENSATION OF ACTIVE MEMBERS DISTRIBUTED BY AGE AND SERVICE

AS OF JUNE 30, 2008
GROUP C

| AGE | 0 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 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary | No. | Salary |
| Under 20 | 1 | 32,699 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 32,699 |
| 20 to 24 | 127 | 3,864,454 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 127 | 3,864,454 |
| 25 to 29 | 610 | 21,517,414 | 121 | 4,893,209 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 731 | 26,410,623 |
| 30 to 34 | 539 | 20,113,075 | 483 | 20,924,242 | 69 | 3,323,368 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,091 | 44,360,685 |
| 35 to 39 | 384 | 14,606,442 | 401 | 18,303,758 | 374 | 19,197,431 | 50 | 2,730,325 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,209 | 54,837,956 |
| 40 to 44 | 324 | 12,493,319 | 313 | 14,585,700 | 257 | 13,649,594 | 222 | 12,491,043 | 65 | 3,828,397 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,181 | 57,048,053 |
| 45 to 49 | 304 | 12,131,594 | 292 | 13,762,928 | 266 | 14,067,639 | 238 | 13,277,009 | 277 | 16,294,229 | 66 | 3,938,020 | 0 | 0 | 0 | 0 | 0 | 0 | 1,443 | 73,471,419 |
| 50 to 54 | 235 | 9,002,103 | 291 | 13,933,381 | 292 | 15,188,643 | 250 | 14,544,418 | 307 | 18,829,402 | 332 | 20,671,168 | 95 | 6,132,104 | 0 | 0 | 0 | 0 | 1,802 | 98,301,219 |
| 55 to 59 | 168 | 7,101,586 | 248 | 12,078,441 | 273 | 14,252,707 | 330 | 18,598,211 | 340 | 20,587,493 | 323 | 20,411,108 | 309 | 19,838,948 | 69 | 4,441,738 | 0 | 0 | 2,060 | 117,310,232 |
| 60 to 64 | 72 | 3,370,050 | 93 | 4,422,623 | 89 | 4,789,162 | 132 | 7,647,943 | 171 | 9,970,006 | 130 | 8,325,217 | 97 | 6,229,817 | 88 | 5,788,032 | 7 | 403,423 | 879 | 50,946,273 |
| 65 to 69 | 14 | 571,803 | 17 | 921,588 | 10 | 531,133 | 16 | 869,179 | 16 | 1,069,466 | 16 | 1,025,339 | 13 | 904,103 | 8 | 467,456 | 6 | 373,279 | 116 | 6,733,346 |
| 70 \& up | 5 | 129,858 | 4 | 133,601 | 2 | 108,678 | 0 | 0 | 2 | 144,460 | 0 | 0 | 0 | 0 | 2 | 117,300 | 0 | 0 | 15 | 633,897 |
| TOTAL | 2,783 | 104,934,397 | 2,263 | 103,959,471 | 1,632 | 85,108,355 | 1,238 | 70,158,128 | 1,178 | 70,723,453 | 867 | 54,370,852 | 514 | 33,104,972 | 167 | 10,814,526 | 13 | 776,702 | 10,655 | 533,950,856 |

TABLE 4

## SUMMARY OF RETIRED MEMBER AND BENEFICIARY DATA BY LEVEL OF ANNUAL ALLOWANCE AS OF JUNE 30, 2008

ALL TEACHERS

|  | Service Pensioners |  | Disability Pensioners |  | Beneficiaries |  |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: |
|  |  | Annual |  | Annual |  | Annual |
| Allowance Level | Number | Allowance | Number | Allowance | Number | Allowance |
| $0-500$ | 7 | $\$$ | 2,303 | - | $\$$ | - |

TABLE 4, continued
SUMMARY OF RETIRED MEMBER AND BENEFICIARY DATA BY LEVEL OF ANNUAL ALLOWANCE AS OF JUNE 30, 2008

ALL TEACHERS

| Allowance Level | Service Pensioners |  | Disability Pensioners |  | Beneficiaries |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number | Annual Allowance | Number | Annual Allowance | Number | Annual Allowance |
| 21,001-21,500 | 112 | 2,379,958 | - | - | 3 | 63,515 |
| 21,501-22,000 | 105 | 2,279,454 | 1 | 21,845 | - | - |
| 22,001-22,500 | 80 | 1,780,604 | 1 | 22,092 | 1 | 22,498 |
| 22,501-23,000 | 97 | 2,205,498 | - | - | 1 | 22,652 |
| 23,001-23,500 | 72 | 1,672,180 | - | - | - | - |
| 23,501-24,000 | 67 | 1,592,577 | - | - | 1 | 23,615 |
| 24,001-24,500 | 75 | 1,818,190 | - | - | - | - |
| 24,501-25,000 | 76 | 1,883,349 | - | - | - | - |
| 25,001-25,500 | 61 | 1,540,670 | - | - | 1 | 25,273 |
| 25,501-26,000 | 59 | 1,519,115 | - | - | 1 | 25,812 |
| 26,001-26,500 | 60 | 1,576,015 | 1 | 26,273 | 1 | 26,387 |
| 26,501-27,000 | 52 | 1,392,989 | - | - | - | - |
| 27,001-27,500 | 46 | 1,252,958 | - | - | - | - |
| 27,501-28,000 | 37 | 1,026,388 | - | - | - | - |
| 28,001-28,500 | 35 | 988,047 | - | - | - | - |
| 28,501-29,000 | 28 | 803,952 | 1 | 28,732 | - | - |
| 29,001-29,500 | 35 | 1,023,830 | 1 | 29,491 | - | - |
| 29,501-30,000 | 24 | 713,668 | - | - | 1 | 29,745 |
| 30,001-30,500 | 25 | 755,880 | - | - | - | - |
| 30,501-31,000 | 33 | 1,014,471 | - | - | - | - |
| 31,001-31,500 | 21 | 656,752 | - | - | - | - |
| 31,501-32,000 | 16 | 508,507 | - | - | - | - |
| 32,001-32,500 | 18 | 579,540 | - | - | 1 | 32,115 |
| 32,501-33,000 | 11 | 360,587 | - | - | - | - |
| 33,001-33,500 | 11 | 366,264 | - | - | 1 | 33,499 |
| 33,501-34,000 | 13 | 438,703 | - | - | - | - |
| 34,001-34,500 | 16 | 547,250 | - | - | - | - |
| 34,501-35,000 | 5 | 174,320 | - | - | - | - |
| 35,001-35,500 | 7 | 246,522 | - | - | - | - |
| 35,501-36,000 | 12 | 428,295 | - | - | - | - |
| 36,001-36,500 | 4 | 145,073 | - | - | - | - |
| 36,501-37,000 | 6 | 220,489 | - | - | - | - |
| 37,001-37,500 | 3 | 112,030 | - | - | - | - |
| 37,501-38,000 | 11 | 414,944 | - | - | - | - |
| 38,001-38,500 | 4 | 153,111 | - | - | - | - |
| 38,501-39,000 | 4 | 154,703 | - | - | - | - |
| 39,001-39,500 | 2 | 78,914 | - | - | 1 | 39,256 |
| 39,501-40,000 | 5 | 198,768 | - | - | - | - |
| Over 40,000 | 58 | 2,632,247 | - | - | 1 | 47,390 |
| Total | 5,106 | \$ 77,712,375 | 141 | \$ 1,781,709 | 308 | \$ 2,986,723 |

SERVICE PENSIONERS
AGE/SERVICE DISTRIBUTION WITH AVERAGE ALLOWANCE AS OF JUNE 30, 2008


AGE/SERVICE DISTRIBUTION WITH AVERAGE ALLOWANCE AS OF JUNE 30, 2008


## SCHEDULE E

## AMORTIZATION SCHEDULE FOR THE UNFUNDED ACTUARIAL ACCRUED LIABILITY

AMORTIZATION SCHEDULE FOR THE UNFUNDED ACTUARIAL ACCRUED LIABILITY

| Date | Balance | Contribution <br> (Year Following) |
| :---: | :---: | :---: |
| $6 / 30 / 2008$ | $379,505,069$ | $20,649,422$ |
| $6 / 30 / 2009$ | $389,329,905$ | $21,681,893$ |
| $6 / 30 / 2010$ | $398,891,074$ | $22,765,988$ |
| $6 / 30 / 2011$ | $408,113,111$ | $23,904,287$ |
| $6 / 30 / 2012$ | $416,911,644$ | $25,099,501$ |
| $6 / 30 / 2013$ | $425,192,515$ | $26,354,476$ |
| $6 / 30 / 2014$ | $432,850,841$ | $27,672,200$ |
| $6 / 30 / 2015$ | $439,769,977$ | $29,055,810$ |
| $6 / 30 / 2016$ | $445,820,388$ | $30,508,601$ |
| $6 / 30 / 2017$ | $450,858,427$ | $32,034,031$ |
| $6 / 30 / 2018$ | $454,724,997$ | $33,635,733$ |
| $6 / 30 / 2019$ | $457,244,096$ | $35,317,520$ |
| $6 / 30 / 2020$ | $458,221,234$ | $37,083,396$ |
| $6 / 30 / 2021$ | $457,441,712$ | $38,937,566$ |
| $6 / 30 / 2022$ | $454,668,740$ | $40,884,444$ |
| $6 / 30 / 2023$ | $449,641,403$ | $42,928,666$ |
| $6 / 30 / 2024$ | $442,072,435$ | $45,075,099$ |
| $6 / 30 / 2025$ | $431,645,808$ | $47,328,854$ |
| $6 / 30 / 2026$ | $418,014,105$ | $49,695,297$ |
| $6 / 30 / 2027$ | $400,795,661$ | $52,180,062$ |
| $6 / 30 / 2028$ | $379,571,465$ | $54,789,065$ |
| $6 / 30 / 2029$ | $353,881,782$ | $57,528,518$ |
| $6 / 30 / 2030$ | $323,222,483$ | $60,404,944$ |
| $6 / 30 / 2031$ | $287,041,065$ | $63,425,191$ |
| $6 / 30 / 2032$ | $244,732,316$ | $66,596,451$ |
| $6 / 30 / 2033$ | $195,633,613$ | $69,926,274$ |
| $6 / 30 / 2034$ | $139,019,811$ | $73,422,588$ |
| $6 / 30 / 2035$ | $74,097,691$ | $77,093,654$ |
| $6 / 30 / 2036$ |  | 0 |
|  |  | 0 |
|  |  |  |
|  |  |  |

## SCHEDULE F

PROJECTED BENEFIT PAYOUTS AND CONTRIBUTIONS FOR THE PERIOD JULY 1, 2008 THROUGH JUNE 30, 2018


## SCHEDULE G

PROJECTION OF CONTRIBUTIONS FOR FOLLOWING TWO FISCAL YEARS

## PROJECTION OF CONTRIBUTIONS FOR FOLLOWING TWO FISCAL YEARS

On the basis of the June 30, 2008, actuarial valuation, the recommended contribution for the fiscal year ending June 30 , 2009, is $\$ 39,612,723$, based on the following:

Payroll
\$535,807,012
Normal rate
Accrued liability contribution
3.54\%
\$20,649,422

On this basis, the projected contributions for the following two fiscal years are as follows:

|  |  |  | CONTRIBUTIONS |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Fiscal <br> Year | Projected Payroll | Normal Rate | Normal | Accrued <br> Liability | Total |
|  |  |  |  |  |  |
| 2010 | $\$ 559,918,328$ | $3.54 \%$ | $\$ 19,821,109$ | $\$ 21,681,893$ | $\$ 41,503,002$ |
| 2011 | $\$ 585,114,652$ | $3.54 \%$ | $\$ 20,713,059$ | $\$ 22,765,988$ | $\$ 43,479,047$ |

In these projections, we assumed that total payroll would increase by $412 \%$ each year.


[^0]:    ${ }^{1}$ The System's funding method was changed from Entry Age Normal with Frozen Initial Liability to Entry Age Normal effective with the 2006 actuarial valuation.

