

West Virginia Teachers' Retirement System

**Actuarial Valuation
As of July 1, 2009**

Prepared by:



**for the
West Virginia Consolidated Public Retirement Board**

January 2010

January 15, 2010

West Virginia Consolidated Public Retirement Board
4101 MacCorkle Avenue, SE
Charleston, WV 25304

Re: West Virginia Teachers' Retirement System: Actuarial Valuation as of July 1, 2009

Retirement Board Members:

We respectfully present our report on the actuarial valuation of the West Virginia Teachers' Retirement System (TRS) as of July 1, 2009. This valuation presents the liabilities of the plan as of the valuation date and the projected Employer contribution for fiscal year 2011.

Some key highlights are:

- The valuation was prepared based on an assumed interest rate of 7.5%.
- Based on the valuation results, the State contribution to TRS for fiscal year 2011 is \$497,362,000. The State appropriation needed for fiscal year 2011 for the Teachers' Retirement Plans (TRS and TDC) under the School Aid Formula is \$470,759,000.
- The funded percentage of plan assets to the actuarial accrued liability at the valuation date is 41%, compared to 50% for the prior year.

This report contains supporting data and background information pertaining to the development of costs and related liabilities of the plan. The valuation is based on:

- membership data as of June 30, 2009 maintained by the West Virginia Consolidated Public Retirement Board, and
- financial information received from the West Virginia Investment Management Board.

This report presents fairly the actuarial position of the West Virginia Teachers' Retirement System (TRS) as of July 1, 2009, in accordance with generally accepted actuarial principles applied on a basis consistent with that of the preceding valuation. In our opinion, the assumptions used in preparing the liabilities and costs are individually reasonable in respect to TRS experience and represent our best estimate of anticipated experience under TRS.

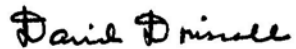
Retirement Board Members

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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 American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions about it.

Respectfully submitted,

A handwritten signature in black ink that reads "David Driscoll". The signature is written in a cursive style with a large initial "D".

David L. Driscoll, FSA, EA
Principal and Consulting Actuary

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This report presents the results of the July 1, 2009, actuarial valuation of the West Virginia Teachers' Retirement System and includes the projected employer contribution requirement for Fiscal Year 2011. In addition, the report includes disclosure information under GASB 25 and GASB 27. A summary of the plan features, a summary of the method, factors and assumptions, and supplementary membership tables used in the valuation are also included.

Valuation Results

The West Virginia Teachers' Retirement System (TRS) is a defined benefit plan covering education employees hired prior to July 1, 1991, or hired on and after July 1, 2005, and prior Teachers' Defined Contribution Plan (TDC) members who elected to transfer from TDC to TRS effective July 1, 2008 or August 1, 2008. The plan provides unreduced monthly benefits to members upon retirement after 35 years of service, or at age 60 after completing 5 years of service. The plan also provides reduced early retirement benefits, benefits in the event of disability or death while active, and deferred benefits to members who terminate prior to retirement, providing plan eligibility conditions are met.

The plan is funded through member contributions of 6% of payroll and employer contributions sufficient to provide for any remaining normal cost (after member contributions are accounted for) and to amortize the unfunded liability as a level-dollar amount starting from Fiscal Year 2009.

The major purpose of this valuation is to determine the amount of appropriation needed for Fiscal Year 2011 for West Virginia's Teachers Retirement Plans under the School Aid Formula (SAF), which is determined to be \$470,759,000. Two components of the SAF determination are calculated in the valuation process: the contributions required from the State for TRS, and a projection of the State's contributions to TDC, both for Fiscal Year 2011.

The State's contribution to TRS is based on an actuarial valuation of the provisions of the State code and the participant data, in consideration of the assets held in trust for TRS. The details of the TRS contribution for Fiscal Year 2011 are shown in Table 1.

The State's TRS contribution for Fiscal Year 2011, assuming a mid-year payment, consists of three separate components:

- The State share of the normal cost,
- The amount needed to fund the unfunded actuarial accrued liability, net of the liability for recent benefit changes, over a 40-year period which began in 1994 (as required by Section 18-9A-6a of the State code), and
- The amount required to separately amortize the liability for recent benefit changes. For Fiscal Year 2011, this includes the retiree improvements under H.B. 4846.

The total State TRS contribution on this basis is \$497,362,000.

Beginning in Fiscal Year 2009, the annual amortization payment toward the unfunded liability is determined as a level-dollar amount that is amortized over a 40-year period from July 1, 1994. In prior years, the amortization was determined as a level percentage of the projected total education payroll. The total amount contributed to the plan from Fiscal Year 2009 forward will fund the normal cost plus interest and principal on the unfunded liability, fully amortizing the unfunded liability by the end of Fiscal Year 2034.

For Fiscal Year 2011, the annual amortization payment toward the unfunded liability for the retiree improvements under H.B. 4846 is \$583,000. Another payment in this amount will be made in Fiscal Year 2012, which will complete the amortization of the unfunded liability created by H. B. 4846..

The remaining balance of the unfunded liability for the retiree improvement under H.B. 103 was fully funded by a contribution of \$978,600 made in Fiscal Year 2009.

Table 2 presents the development of the School Aid Formula, separately identifying the TRS contribution based on the original 40-year amortization, the special payments toward the additional unfunded due to recent plan improvements, and other specific components. Detailed projections of the balance of the 40-year funding program under the level-dollar amortization schedule, net of the separately funded improvements, are shown in Tables 3 and 4.

The projected TDC contribution for FY 2011 for the School Aid Formula is based on projected payroll for that participant population. The split of both the TRS and the TDC contributions is based on information provided by the state Education Department. The projected fire insurance premium tax shown in Table 2 was provided by the Department of Administration.

Comments on Valuation Results

Table 1 presents the development of the valuation results as of July 1, 2009, and, for comparison purposes, July 1, 2008. Based on the prior year's projections, the expected unfunded actuarial accrued liability as of July 1, 2009, was \$4.141 billion. The actual unfunded liability at the valuation date is \$5.053 billion, an increase of \$0.912 billion.

The increase in the unfunded liability was primarily due to the following:

- The return on assets for the year ending June 30, 2009, was approximately -15.4%. This return was well below the prior year's valuation interest assumption of 7.50% and increased the unfunded liability by approximately \$888 million.
- Contributions in excess of those expected decreased the unfunded liability by approximately \$68 million.

- Assets and make-up contributions for the TDC transfers reflected in last year's valuation proved to be lower than expected, which increased the unfunded liability by \$29 million.
- The combined impact from turnover, mortality, and retirement experience increased the unfunded liability by approximately \$63 million.

Tables 3 and 4 present projections of the unfunded accrued liability, net of the separately funded liability, to June 30, 2034. Table 3 illustrates the expected pattern of change in the unfunded liability over the remaining 25-year period. The unfunded liability is expected to decrease steadily to zero at the end of the period. Table 4 presents the expected funding progress toward the unfunded actuarial accrued liability based on the funding policy. This table illustrates the expected dollar amount of change in this component of the unfunded liability from year to year.

Table 5 presents a cash flow projection of expected asset balances, contributions, disbursements, and earnings over the period to FY 2034.

The valuation results were determined using an interest rate of 7.5%, with an underlying inflation assumption of 3.0%.

Funding Progress

The information used to report on the funding status of the Plan for both the State's and the Plan's financial statements is presented in Table 6. This table presents information required under Governmental Accounting Standards Board Statements 25 and 27 (GASB 25 and GASB 27).

Plan Membership

A summary of plan membership, with a comparison to the prior year, follows:

| | <u>July 1, 2009</u> | <u>July 1, 2008</u> |
|--------------------------|---------------------|---------------------|
| Actives | 35,701 | 35,219 |
| Retirees & Beneficiaries | 29,245 | 28,522 |
| Terminated Vested | 1,636 | 1,761 |
| Terminated Non-Vested | <u>1,204</u> | <u>571</u> |
| Total | 67,786 | 66,073 |

Table 9 presents a reconciliation of plan membership during the year. Table 10 presents detailed information on the categories of plan membership.

Tables 11(a) and 11(b) present the number and total annual compensation of actives, separately for Teachers and Non-Teachers (including State), by 5-year age and service groups as of July 1, 2009.

Table 12 presents the number and average monthly benefits of retirees and beneficiaries included in the valuation distributed by 5-year age groups. Table 13 shows a similar distribution for terminated vested participants entitled to deferred benefits.

Table 1

Development of Valuation Results
(000's omitted)

| | Valuation Date | |
|--|---------------------|---------------------|
| | July 1, 2009 | July 1, 2008 |
| 1. Present Value of Future Benefits | | |
| a. Active | \$ 5,147,902 | \$ 5,049,319 |
| b. Inactive - Retirees | 4,071,385 | 3,785,861 |
| - Disabled Retirees | 175,545 | 172,175 |
| - Beneficiaries | 162,306 | 161,881 |
| - Vested Terminated | 96,986 | 98,578 |
| - Non-Vested Terminated | 4,948 | 854 |
| c. Total | <u>\$ 9,659,072</u> | <u>\$ 9,268,668</u> |
| 2. Actuarial Accrued Liability | \$ 8,607,869 | \$ 8,268,578 |
| 3. Assets (Market Value) | 3,554,771 | 4,133,883 |
| 4. Unfunded Actuarial Accrued Liability (UAL) | <u>\$ 5,053,098</u> | <u>\$ 4,134,695</u> |
| | | |
| 5. Annual Normal Cost Rate: Type 1 (Pre 7/1/1991 Group) | | |
| a. Present Value of Future Normal Costs | \$ 273,523 | \$ 298,944 |
| b. Present Value of Future Pay | \$ 3,059,146 | \$ 3,332,093 |
| c. Normal Cost Rate as a % of Payroll | 8.94% | 8.97% |
| d. Employee share | 6.00% | 6.00% |
| e. Employer share | 2.94% | 2.97% |
| | | |
| f. TRS FY 2010 (2009) Normal Cost Payroll | \$ 644,307 | \$ 665,627 |
| g. Employer FY 2010 (2009) Normal Cost (BOY) | \$ 18,943 | \$ 19,769 |
| | | |
| h. TRS FY 2011 (2010) Normal Cost Payroll | \$ 584,837 | \$ 612,290 |
| i. Employer FY 2011 (2010) Normal Cost (BOY) | \$ 17,194 | \$ 18,185 |
| | | |
| 6. Annual Normal Cost Rate: Type 3 (Post 6/30/2005 Group) | | |
| a. Present Value of Future Normal Costs | \$ 777,680 | \$ 701,147 |
| b. Present Value of Future Pay | \$ 8,230,269 | \$ 7,171,902 |
| c. Normal Cost Rate as a % of Payroll | 9.45% | 9.78% |
| d. Employee share | 6.00% | 6.00% |
| e. Employer share | 3.45% | 3.78% |
| | | |
| f. TRS FY 2010 (2009) Normal Cost Payroll | \$ 854,925 | \$ 743,810 |
| g. Employer FY 2010 (2009) Normal Cost (BOY) | \$ 29,495 | \$ 28,116 |
| | | |
| h. TRS FY 2011 (2010) Normal Cost Payroll | \$ 968,343 | \$ 849,520 |
| i. Employer FY 2011 (2010) Normal Cost (BOY) | \$ 33,408 | \$ 32,112 |

Table 1 (continued)

Development of Valuation Results
(000's omitted)

| | Valuation Date | |
|--|----------------|--------------|
| | July 1, 2009 | July 1, 2008 |
| 7. Employer Contribution for FY 2010 and FY 2011, (FY 2009 and FY 2010), assumes mid-year contribution: | | |
| a. FY 2010 (2009) | FY 2010 | FY 2009 |
| i. TRS and TDC Payroll | \$ 1,649,905 | \$ 1,562,485 |
| ii. FY 2010 (2009) TRS Contribution | | |
| A. Normal Cost | 50,222 | 49,648 |
| B. Amortization components: | | |
| - Original UAL over 40 years as a level-dollar amount | 437,081 | 352,058 |
| - H.B. 4846 | 583 | 2,640 |
| - H.B. 103 | - | 201 |
| C. Total | \$ 487,886 | \$ 404,547 |
| iii. FY 2010 (2009) Contribution as a % of Payroll | 29.57% | 25.89% |
| b. FY 2011 (2010) | FY 2011 | FY 2010 |
| i. TRS and TDC Payroll | \$ 1,702,702 | \$ 1,612,484 |
| ii. FY 2011 (2010) TRS Contribution | | |
| A. Normal Cost | 52,465 | 52,149 |
| B. Amortization components: | | |
| - Original UAL over 40 years as a level-dollar amount | 444,314 | 357,651 |
| - H.B. 4846 | 583 | 2,640 |
| - H.B. 103 | - | 201 |
| C. Total | \$ 497,362 | \$ 412,641 |
| iii. FY 2011 (2010) Contribution as a % of Payroll | 29.21% | 25.59% |
| iv. FY 2011 (2010) SAF appropriation ¹ | \$ 470,759 | \$ 383,529 |
| v. FY 2011 (2010) SAF appropriation as a % of Payroll | 27.65% | 23.78% |

¹ The School Aid Formula retirement allocation includes the amount that the State appropriates for the Teachers Defined Contribution Plan and required payments toward the TRS Unfunded Actuarial Accrued Liabilities. It does NOT include amounts contributed to TRS by nonstate groups or the fire premium tax.

Table 2

**Development of School Aid Formula Appropriation for Fiscal Year 2011
(000's omitted)**

| | |
|--|--------------|
| TRS Contribution for FY 2011 | \$ 496,779 |
| + 7.50% x School Aid Formula (TDC only) ¹ | 8,720 |
| - 15.0% x County Portion of the Old Group TRS payroll ² | (20,202) |
| - 7.5% x County Portion of the New Group TRS payroll ³ | (16,714) |
| - Fire Tax Per Code Section 33-3-14(d) | (2,567) |
| + State payment equal to TDC forfeitures ⁴ | <u>4,160</u> |
| Subtotal of Standard SAF Appropriation | \$ 470,176 |
| Special Payments for Benefit Improvements under H.B. 4846 | <u>583</u> |
| Total FY 2011 SAF Appropriation | \$ 470,759 |

¹ School Aid Formula for TDC only is 76.54% of FY 2011 TDC pay for County employees plus FY 2011 TDC pay for State employees = $76.54\% \times \$141,765 + \$7,757 = 116,264$.

² County portion of the Old Group TRS payroll is 23.46% of FY 2011 TRS pay for County employees = $23.46\% \times \$574,079 = \$134,679$.

³ County portion of the New Group TRS payroll is 23.46% of FY 2011 TRS pay for County employees = $23.46\% \times \$949,937 = \$222,855$.

⁴ Actual amount to be released from the TDC suspense account at 6/30/2009 per Code Section 18-7A-18a(b).

Table 3
 Projection of Unfunded Accrued Liability and Annual Contributions
 ('000's omitted)

| FY Ending 6/30 | Unfunded AAL BOY ¹ | Employer Normal Cost (MOY) ² | | Projected Payroll | | Total Type 1 Employer Contribution (MOY) ³ | | Total Type 3 Employer Contribution (MOY) | | |
|-------------------|----------------------------------|---|-----------|-------------------|------------|--|--------------|---|--------------|-----------|
| | | Type 1 | Type 3 | Type 1 TRS | Type 3 TRS | TRS+TDC | % of Payroll | Amount | % of Payroll | Amount |
| 2010 | \$ 5,051,525 | \$ 18,855 | \$ 33,294 | \$ 644,307 | \$ 854,925 | \$ 1,649,905 | 22.82% | \$ 376,506 | 2.02% | \$ 33,294 |
| 2011 | 5,059,569 | 17,827 | 38,600 | 584,837 | 968,343 | 1,702,702 | 27.14% | 462,141 | 2.03% | 34,638 |
| 2012 | 4,978,362 | 16,138 | 38,600 | 529,416 | 1,079,109 | 1,757,189 | 26.20% | 460,452 | 2.20% | 38,600 |
| 2013 | 4,891,065 | 14,431 | 42,657 | 473,408 | 1,192,515 | 1,813,419 | 25.30% | 458,745 | 2.35% | 42,657 |
| 2014 | 4,797,220 | 12,715 | 46,803 | 417,121 | 1,308,429 | 1,871,448 | 24.42% | 457,029 | 2.50% | 46,803 |
| 2015 | 4,696,337 | 11,087 | 50,910 | 363,711 | 1,423,259 | 1,931,335 | 23.58% | 455,401 | 2.64% | 50,910 |
| 2016 | 4,587,888 | 9,579 | 54,962 | 314,259 | 1,536,516 | 1,993,137 | 22.77% | 453,893 | 2.76% | 54,962 |
| 2017 | 4,471,305 | 8,190 | 58,964 | 268,691 | 1,648,395 | 2,056,918 | 22.00% | 452,504 | 2.87% | 58,964 |
| 2018 | 4,345,978 | 6,907 | 62,933 | 226,598 | 1,759,356 | 2,122,739 | 21.26% | 451,221 | 2.96% | 62,933 |
| 2019 | 4,211,252 | 5,726 | 66,873 | 187,856 | 1,869,498 | 2,190,667 | 20.54% | 450,040 | 3.05% | 66,873 |
| 2020 | 4,066,421 | 4,691 | 70,727 | 153,888 | 1,977,242 | 2,260,768 | 19.86% | 449,005 | 3.13% | 70,727 |
| 2021 | 3,910,728 | 3,788 | 74,532 | 124,266 | 2,083,626 | 2,333,113 | 19.21% | 448,102 | 3.19% | 74,532 |
| 2022 | 3,743,358 | 3,013 | 78,280 | 98,853 | 2,188,416 | 2,407,772 | 18.58% | 447,327 | 3.25% | 78,280 |
| 2023 | 3,563,435 | 2,361 | 81,987 | 77,463 | 2,292,026 | 2,484,821 | 17.98% | 446,675 | 3.30% | 81,987 |
| 2024 | 3,370,018 | 1,816 | 85,664 | 59,587 | 2,394,846 | 2,564,335 | 17.40% | 446,130 | 3.34% | 85,664 |
| 2025 | 3,162,095 | 1,383 | 89,319 | 45,361 | 2,497,002 | 2,646,394 | 16.84% | 445,697 | 3.38% | 89,319 |
| 2026 | 2,938,578 | 1,040 | 92,969 | 34,115 | 2,599,047 | 2,731,079 | 16.31% | 445,354 | 3.40% | 92,969 |
| 2027 | 2,698,297 | 767 | 96,646 | 25,177 | 2,701,832 | 2,818,473 | 15.79% | 445,081 | 3.43% | 96,646 |
| 2028 | 2,439,995 | 556 | 100,342 | 18,245 | 2,805,173 | 2,908,664 | 15.29% | 444,870 | 3.45% | 100,342 |
| 2029 | 2,162,320 | 396 | 104,092 | 13,003 | 2,910,013 | 3,001,742 | 14.82% | 444,710 | 3.47% | 104,092 |
| 2030 | 1,863,819 | 278 | 107,903 | 9,116 | 3,016,553 | 3,097,797 | 14.35% | 444,592 | 3.48% | 107,903 |
| 2031 | 1,542,931 | 192 | 111,798 | 6,302 | 3,125,424 | 3,196,927 | 13.90% | 444,506 | 3.50% | 111,798 |
| 2032 | 1,197,976 | 129 | 115,775 | 4,237 | 3,236,621 | 3,299,229 | 13.47% | 444,443 | 3.51% | 115,775 |
| 2033 | 827,150 | 84 | 119,854 | 2,762 | 3,350,655 | 3,404,804 | 13.05% | 444,398 | 3.52% | 119,854 |
| 2034 | 428,512 | 53 | 124,036 | 1,750 | 3,467,563 | 3,513,758 | 12.65% | 444,367 | 3.53% | 124,036 |

¹ Net of the separately funded liability for recent benefit increases.

² Net of member contributions.

³ Net of the amortization amounts for separately funded benefit increases.

Table 4

**Funding Progress of Unfunded Actuarial Accrued Liability
Under Current Funding Policy
(000's omitted)**

| FY Ending 6/30 | Unfunded AAL BOY¹ | Interest on Unfunded at 7.50% | MOY Contribution Toward Unfunded² | Unfunded Funding Progress³ |
|---------------------------|---|--|---|--|
| 2010 | \$ 5,051,525 | \$ 378,864 | \$ 357,651 | \$ (8,044) |
| 2011 | 5,059,569 | 379,468 | 444,314 | 81,207 |
| 2012 | 4,978,362 | 373,377 | 444,314 | 87,298 |
| 2013 | 4,891,065 | 366,830 | 444,314 | 93,845 |
| 2014 | 4,797,220 | 359,792 | 444,314 | 100,883 |
| 2015 | 4,696,337 | 352,225 | 444,314 | 108,450 |
| 2016 | 4,587,888 | 344,092 | 444,314 | 116,583 |
| 2017 | 4,471,305 | 335,348 | 444,314 | 125,327 |
| 2018 | 4,345,978 | 325,948 | 444,314 | 134,727 |
| 2019 | 4,211,252 | 315,844 | 444,314 | 144,831 |
| 2020 | 4,066,421 | 304,982 | 444,314 | 155,693 |
| 2021 | 3,910,728 | 293,305 | 444,314 | 167,370 |
| 2022 | 3,743,358 | 280,752 | 444,314 | 179,923 |
| 2023 | 3,563,435 | 267,258 | 444,314 | 193,417 |
| 2024 | 3,370,018 | 252,751 | 444,314 | 207,924 |
| 2025 | 3,162,095 | 237,157 | 444,314 | 223,518 |
| 2026 | 2,938,578 | 220,393 | 444,314 | 240,282 |
| 2027 | 2,698,297 | 202,372 | 444,314 | 258,303 |
| 2028 | 2,439,995 | 183,000 | 444,314 | 277,675 |
| 2029 | 2,162,320 | 162,174 | 444,314 | 298,501 |
| 2030 | 1,863,819 | 139,786 | 444,314 | 320,889 |
| 2031 | 1,542,931 | 115,720 | 444,314 | 344,955 |
| 2032 | 1,197,976 | 89,848 | 444,314 | 370,827 |
| 2033 | 827,150 | 62,036 | 444,314 | 398,639 |
| 2034 | 428,512 | 32,138 | 444,314 | 428,537 |

¹ Net of the separately funded liability for recent benefit increases.

² Net of employer contribution toward normal cost and separately funded benefit increases.

³ Equals (MOY Contribution) x 1.03682 - (Interest on Unfunded)

Table 5

Cash Flow Projection FY 2010 Through FY 2034
(000's omitted)

| FY Ending 6/30 | Assets Beg. of Year | Expected Contributions | Benefits | Earnings | Net Income | Assets End of Year |
|---------------------------|--------------------------------|-----------------------------------|-----------------|-----------------|-------------------|-------------------------------|
| 2010 | \$ 3,554,771 | \$ 500,337 | \$ 521,353 | \$ 265,834 | \$ 244,818 | \$ 3,799,589 |
| 2011 | 3,799,589 | 590,553 | 556,446 | 286,225 | 320,332 | 4,119,921 |
| 2012 | 4,119,921 | 596,147 | 591,600 | 309,162 | 313,709 | 4,433,630 |
| 2013 | 4,433,630 | 601,357 | 628,272 | 331,531 | 304,616 | 4,738,246 |
| 2014 | 4,738,246 | 607,365 | 664,007 | 353,283 | 296,641 | 5,034,887 |
| 2015 | 5,034,887 | 613,529 | 698,353 | 374,493 | 289,669 | 5,324,556 |
| 2016 | 5,324,556 | 619,902 | 730,276 | 395,278 | 284,904 | 5,609,460 |
| 2017 | 5,609,460 | 626,493 | 760,013 | 415,793 | 282,273 | 5,891,733 |
| 2018 | 5,891,733 | 633,311 | 787,672 | 436,196 | 281,835 | 6,173,568 |
| 2019 | 6,173,568 | 640,354 | 811,853 | 456,703 | 285,204 | 6,458,772 |
| 2020 | 6,458,772 | 647,600 | 832,202 | 477,610 | 293,008 | 6,751,780 |
| 2021 | 6,751,780 | 655,108 | 849,333 | 499,232 | 305,007 | 7,056,787 |
| 2022 | 7,056,787 | 662,843 | 862,428 | 521,910 | 322,325 | 7,379,112 |
| 2023 | 7,379,112 | 670,831 | 871,712 | 546,037 | 345,156 | 7,724,268 |
| 2024 | 7,724,268 | 679,060 | 877,167 | 572,025 | 373,918 | 8,098,186 |
| 2025 | 8,098,186 | 687,558 | 878,882 | 600,319 | 408,995 | 8,507,181 |
| 2026 | 8,507,181 | 696,313 | 877,765 | 631,357 | 449,905 | 8,957,086 |
| 2027 | 8,957,086 | 705,348 | 874,101 | 665,568 | 496,815 | 9,453,901 |
| 2028 | 9,453,901 | 714,617 | 867,989 | 703,395 | 550,023 | 10,003,924 |
| 2029 | 10,003,924 | 724,183 | 860,094 | 745,290 | 609,379 | 10,613,303 |
| 2030 | 10,613,303 | 734,035 | 850,376 | 791,714 | 675,373 | 11,288,676 |
| 2031 | 11,288,676 | 744,208 | 839,766 | 843,132 | 747,574 | 12,036,250 |
| 2032 | 12,036,250 | 754,669 | 828,670 | 899,994 | 825,993 | 12,862,243 |
| 2033 | 12,862,243 | 765,457 | 816,463 | 962,790 | 911,784 | 13,774,027 |
| 2034 | 13,774,027 | 776,562 | 802,797 | 1,032,086 | 1,005,851 | 14,779,878 |

Table 6

GASB 25 and GASB 27 Supplementary Disclosure Information as of June 30, 2009

Government Accounting Standards Board Statements 25 and 27 set forth certain items of required supplementary information to be disclosed in the financial statement of the System and the employer. The following information is intended to be used for this purpose in conjunction with other information prepared by the auditor.

1. Number of Members as of June 30, 2009, and June 30, 2008

| <u>Group</u> | <u>June 30, 2009</u> | <u>June 30, 2008</u> |
|---|----------------------|----------------------|
| Retirees, disabled retirees, and beneficiaries currently receiving benefits | 29,245 | 28,522 |
| Terminated employees entitled to benefits, but not yet receiving benefits | 1,636 | 1,761 |
| Terminated employees entitled to a return of employee contributions | 1,204 | 571 |
| Active Plan members: | | |
| Vested | 25,430 | 25,715 |
| Non-Vested | 10,271 | 9,504 |
| <u>Total</u> | <u>67,786</u> | <u>66,073</u> |

2. Schedule of Funding Progress (000's omitted)

| <u>Actuarial Valuation Date</u> | <u>Actuarial Value of Assets (a)</u> | <u>Actuarial Accrued Liability (Entry Age) (b)</u> | <u>Unfunded Accrued Liability (UAL) (b - a)</u> | <u>Funded Ratio (a / b)</u> | <u>Covered Payroll (c)</u> | <u>UAL as a Percentage of Covered Payroll (b - a) / (c)</u> |
|---------------------------------|--------------------------------------|--|---|-----------------------------|----------------------------|---|
| 6/30/98 | \$ 839,597 | \$ 4,262,797 | \$ 3,423,200 | 19.7% | \$ 878,364 | 389.7% |
| 6/30/99 | 932,501 | 4,629,276 | 3,696,775 | 20.1% | 891,165 | 414.8% |
| 6/30/00 | 1,046,840 | 4,883,064 | 3,836,224 | 21.4% | 874,166 | 438.8% |
| 6/30/01 | 1,090,663 | 5,188,826 | 4,098,163 | 21.0% | 867,018 | 472.7% |
| 6/30/02 | 1,098,441 | 5,709,001 | 4,610,560 | 19.2% | 841,627 | 547.8% |
| 6/30/03* | 1,191,238 | 6,243,834 | 5,052,596 | 19.1% | 832,919 | 606.6% |
| 6/30/04 | 1,427,475 | 6,440,738 | 5,013,263 | 22.2% | 784,415 | 639.1% |
| 6/30/05 | 1,627,355 | 6,617,708 | 4,990,353 | 24.6% | 735,614 | 678.4% |
| 6/30/06 | 2,174,464 | 6,877,872 | 4,703,408 | 31.6% | 759,206 | 619.5% |
| 6/30/07 | 3,665,993 | 7,142,711 | 3,476,718 | 51.3% | 828,939 | 419.4% |
| 6/30/08 | 4,133,883 | 8,268,578 | 4,134,695 | 50.0% | 1,409,437 | 293.4% |
| 6/30/09 | 3,554,771 | 8,607,869 | 5,053,098 | 41.3% | 1,499,232 | 337.0% |

* The 6/30/03 assets were changed to reflect the final audited financial statements, which were unavailable at the issuance of the July 1, 2003, valuation report.

Table 6 (continued)

GASB 25 and GASB 27 Supplementary Disclosure Information as of June 30, 2009

3. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at July 1, 2009. Additional information follows.

| | |
|-------------------------------|---------------------|
| Valuation date | July 1, 2009 |
| Actuarial cost method | Entry age normal |
| Amortization method | Level-dollar amount |
| Remaining amortization period | 25 years |
| Asset valuation method | Market value |
| Actuarial assumptions: | |
| Investment rate of return | 7.50% |
| Projected salary increases: | |
| Teachers | 3.50% - 5.00% |
| Non-Teachers | 3.60% - 5.50% |
| Inflation rate | 3.00% |

Table 7

Valuation Assets as of June 30, 2009
(000's omitted)

| | <u>June 30, 2009</u> | <u>June 30, 2008</u> |
|-------------------------------------|----------------------|----------------------|
| Assets | | |
| Cash with State Treasurer | \$ 2,283 | \$ - |
| Investments at Fair Value | 3,513,007 | 3,347,966 |
| Contributions Receivable | 30,763 | 22,521 |
| Participant Loans Receivable | 8,198 | 7,502 |
| Miscellaneous Revenue Receivable | 628 | 627 |
| Total Assets | <u>\$ 3,554,879</u> | <u>\$ 3,378,616</u> |
| Liabilities | | |
| Accrued Expenses and Other Payables | <u>108</u> | <u>100</u> |
| Net Assets for Pension Benefits | \$ 3,554,771 | \$ 3,378,516 |
| Post Audit Adjustments | | |
| Accrued Make up Contributions | \$ - | \$ 81,030 |
| TDC to TRS Asset Transfer 7/1/2008 | - | 674,337 |
| Net Assets with TDC to TRS Accruals | <u>\$ 3,554,771</u> | <u>\$ 4,133,883</u> |

Table 8

Statement of Changes in Net Assets for Benefits
For Year ended June 30, 2009
(000's omitted)

| | |
|--|---------------------|
| Net Assets for Pension Benefits - Beginning of Year | \$ 3,378,516 |
| Additions: | |
| Contributions: | |
| Member Type 1 | \$ 40,681 |
| Member Type 3 | 48,550 |
| Employer Type 1 | 24,136 |
| Employer Type 3 | 14,600 |
| School Aid Formula | 329,917 |
| Make Up Contributions | 27,518 |
| Special Appropriations | 3,830 |
| Special Contribution 2006 Retiree Increase | 7,987 |
| Special Contribution 2008 13th Check | 979 |
| Special Contribution TDC/TRS UAL | 25,000 |
| §33-3-14(d) Fees | 2,567 |
| Subtotal | <u>\$ 525,765</u> |
| Investment Income: | |
| Net Appreciation in Fair Value ¹ | (650,856) |
| Interest | 75,260 |
| Subtotal | <u>\$ (575,596)</u> |
| Other Income | 453 |
| Total | <u>\$ (49,378)</u> |
| Deductions and Transfers: | |
| Benefit Expense | \$ 463,528 |
| Refunds of Contributions | 5,143 |
| Administrative Expenses | 3,964 |
| TDC to TRS Accounts for Transfers | (698,349) |
| Transfers (to)/from plans | 81 |
| Total | <u>\$ (225,633)</u> |
| Net Increase | \$ 176,255 |
| Net Assets for Pension Benefits - End of Year | \$ 3,554,771 |
| Investment Return for Year: | |
| Valuation purposes (assumes mid-year transactions and offsets investment income by investment and administrative expenses) | -15.42% |
| Per Investment Management Board (time-weighted, excluding administrative expense) | -16.06% |

¹ Net of Investment Expense

Table 9

Reconciliation of Plan Participants

| | <u>Active</u> | <u>Non- Vested Terms</u> | <u>Vested Terms</u> | <u>Service Retirees</u> | <u>Disabled Retirees</u> | <u>Beneficiaries</u> | <u>Total</u> |
|----------------------------------|---------------|----------------------------------|-------------------------|-----------------------------|------------------------------|----------------------|--------------|
| Census as of July 1, 2008 | 35,219 | 571 | 1,761 | 24,114 | 2,097 | 2,311 | 66,073 |
| New Entrants | 2,480 | 115 | - | - | - | 127 | 2,722 |
| TDC Transfers | 117 | 103 | 2 | 12 | 2 | 3 | 239 |
| Returned to Active Status | 134 | (74) | (60) | - | - | - | - |
| Terminated Non-Vested | (517) | 517 | - | - | - | - | - |
| Terminated Vested | (69) | - | 69 | - | - | - | - |
| Withdrew Contributions | (146) | (17) | (14) | - | - | - | (177) |
| Retired | (1,441) | - | (104) | 1,545 | - | - | - |
| Disabled | (58) | - | (14) | - | 72 | - | - |
| Deceased | (7) | - | (4) | (830) | (52) | (143) | (1,036) |
| Certain Period Expired | - | - | - | - | - | (14) | (14) |
| Adjustments | (11) | (11) | - | 5 | (1) | (3) | (21) |
| Census as of July 1, 2009 | 35,701 | 1,204 | 1,636 | 24,846 | 2,118 | 2,281 | 67,786 |

Table 10
Summary of Membership

| | <u>July 1, 2009</u> <u>Valuation</u> | <u>July 1, 2008</u> <u>Valuation</u> |
|--------------------------------|---|---|
| Active Members: | | |
| Teachers | 21,577 | 21,812 |
| Non-Teachers (including State) | 14,124 | 13,407 |
| Total | <u>35,701</u> | <u>35,219</u> |
| Inactive Members: | | |
| Service Retirees | 24,846 | 24,114 |
| Disabled Retirees | 2,118 | 2,097 |
| Beneficiaries | 2,281 | 2,311 |
| Vested Terminated | 1,636 | 1,761 |
| Non-Vested Terminated | 1,204 | 571 |
| Total | <u>32,085</u> | <u>30,854</u> |
| Total Members | 67,786 | 66,073 |

Table 11(b)
 Distribution of the Number and Total Annual Compensation of
 Active Non-Teachers (including State Employees) as of July 1, 2009

| Attained Age | Years of Credited Service | | | | | | | | | | | | | Total Count / Total Comp | |
|--------------|---------------------------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------------|-----------------------|
| | 0 - 4 | 5 - 9 | 10 - 14 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40 & over | | | | | | |
| | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp | Count / Total Comp |
| Under 25 | 67 1,558,169 | 2 52,380 | | | | | | | | | | | | | 69 1,610,549 |
| 25 - 29 | 249 6,066,548 | 14 419,618 | 1 28,255 | | | | | | | | | | | | 264 6,514,421 |
| 30 - 34 | 463 11,225,531 | 104 3,022,365 | 11 374,038 | | | | | | | | | | | | 578 14,621,934 |
| 35 - 39 | 877 19,281,100 | 261 7,020,853 | 59 2,000,165 | 5 202,251 | 2 75,800 | | | | | | | | | | 1,204 28,580,169 |
| 40 - 44 | 867 19,938,685 | 476 12,610,075 | 151 4,808,707 | 76 2,797,221 | 72 2,699,415 | 17 740,227 | | | | | | | | | 1,659 43,594,330 |
| 45 - 49 | 829 18,958,046 | 646 16,621,769 | 293 8,809,308 | 135 4,718,748 | 211 8,085,420 | 254 10,506,520 | 47 1,976,900 | | | | | | | | 2,415 69,676,711 |
| 50 - 54 | 720 16,771,464 | 672 17,486,543 | 409 12,041,770 | 195 6,729,378 | 351 12,845,918 | 334 13,996,073 | 327 14,740,953 | 24 1,001,790 | | | | | | | 3,032 95,613,889 |
| 55 - 59 | 462 10,578,922 | 455 12,024,605 | 413 11,951,062 | 249 8,067,908 | 477 16,493,228 | 390 16,105,999 | 240 10,997,972 | 146 6,908,995 | 6 273,506 | | | | | | 2,838 93,402,197 |
| 60 - 64 | 226 4,888,545 | 213 5,555,817 | 216 6,233,092 | 127 4,118,806 | 276 9,417,542 | 221 8,751,683 | 139 6,168,142 | 81 4,364,594 | 21 761,313 | | | | | | 1,520 50,259,534 |
| 65 - 69 | 55 1,173,008 | 58 1,393,349 | 58 1,561,232 | 40 1,294,821 | 72 2,446,633 | 29 1,116,397 | 44 1,928,978 | 16 629,364 | 22 1,172,279 | | | | | | 394 12,716,061 |
| 70 & over | 16 301,198 | 17 333,810 | 16 359,999 | 14 390,096 | 21 614,795 | 13 414,989 | 18 636,634 | 13 454,010 | 23 1,070,407 | | | | | | 151 4,575,938 |
| Total | 4,831 110,741,216 | 2,918 76,541,184 | 1,627 48,167,628 | 841 28,319,229 | 1,482 52,678,751 | 1,258 51,631,888 | 815 36,449,579 | 280 13,358,753 | 72 3,277,505 | | | | | | 14,124 421,165,733 |

Table 12
Distribution of the Number and Average Monthly Benefits
of Retired Participants as of July 1, 2009

| Current Age | Service Retirees | | | Disabled Retirees | | | Beneficiaries | | | Total | | |
|-----------------------|------------------|----------|------------------|-------------------|----------|------------------|---------------|----------|------------------|--------|----------|------------------|
| | Count | Avg. Age | Avg. Mo. Benefit | Count | Avg. Age | Avg. Mo. Benefit | Count | Avg. Age | Avg. Mo. Benefit | Count | Avg. Age | Avg. Mo. Benefit |
| under 35 | - | - | - | - | - | - | 12 | 26 | 666 | 12 | 26 | 666 |
| 35 - 39 | - | - | - | - | - | - | 17 | 38 | 622 | 17 | 38 | 622 |
| 40 - 44 | - | - | - | 11 | 43 | 418 | 27 | 42 | 790 | 38 | 42 | 682 |
| 45 - 49 | 1 | 47 | 1,616 | 50 | 48 | 775 | 36 | 47 | 863 | 87 | 48 | 821 |
| 50 - 54 | 64 | 53 | 1,988 | 206 | 53 | 948 | 65 | 52 | 857 | 335 | 53 | 1,129 |
| 55 - 59 | 2,194 | 57 | 2,532 | 465 | 57 | 1,034 | 156 | 57 | 1,089 | 2,815 | 57 | 2,205 |
| 60 - 64 | 4,946 | 62 | 2,120 | 590 | 62 | 946 | 185 | 62 | 1,151 | 5,721 | 62 | 1,968 |
| 65 - 69 | 4,674 | 67 | 1,651 | 447 | 67 | 734 | 262 | 67 | 999 | 5,383 | 67 | 1,543 |
| 70 - 74 | 4,091 | 72 | 1,273 | 180 | 72 | 575 | 282 | 72 | 792 | 4,553 | 72 | 1,216 |
| 75 - 79 | 3,470 | 77 | 1,063 | 71 | 77 | 433 | 343 | 77 | 752 | 3,884 | 77 | 1,024 |
| 80 - 84 | 2,728 | 82 | 918 | 52 | 82 | 418 | 383 | 82 | 745 | 3,163 | 82 | 889 |
| 85 - 89 | 1,612 | 87 | 784 | 33 | 87 | 388 | 290 | 87 | 637 | 1,935 | 87 | 755 |
| 90 - 94 | 763 | 92 | 648 | 13 | 92 | 340 | 169 | 92 | 530 | 945 | 92 | 623 |
| 95 & over | 303 | 97 | 571 | - | - | - | 54 | 97 | 467 | 357 | 97 | 555 |
| Total | 24,846 | 71 | 1,498 | 2,118 | 63 | 840 | 2,281 | 74 | 806 | 29,245 | 71 | 1,396 |
| Total Annual Benefits | | | 446,612,688 | | | 21,349,296 | | | 22,051,140 | | | 490,013,124 |

Table 13

**Distribution of the Number and Average Monthly Benefits
of Participants Entitled to Deferred Benefits as of July 1, 2009**

| <u>Current Age</u> | <u>Deferred Vested</u> | | |
|-----------------------|------------------------|---------------------|-----------------------------|
| | <u>Count</u> | <u>Avg. Age</u> | <u>Avg. Mo. Benefit</u> |
| under 35 | 2 | 33 | 231 |
| 35 - 39 | 1 | 35 | 258 |
| 40 - 44 | 75 | 43 | 478 |
| 45 - 49 | 276 | 47 | 465 |
| 50 - 54 | 421 | 52 | 723 |
| 55 - 59 | 558 | 57 | 895 |
| 60 - 64 | 230 | 61 | 619 |
| 65 - 69 | 56 | 67 | 513 |
| 70 - 74 | 14 | 72 | 473 |
| 75 - 79 | 3 | 76 | 438 |
| 80 & over | - | - | - |
| Total | 1,636 | 54 | 702 |
| Total Annual Benefits | | | 13,775,616 |

-
- A. Plan Name:** The State Teachers' Retirement System (TRS)
- B. Effective Date:** Originally enacted effective July 1, 1941.
- C. Member:** Membership includes any employee hired before July 1991, or on or after July 1, 2005, in the public schools, state institutions of higher education, certain state departments, and the Board of Regents, and members of the Teachers' Defined Contribution Plan (TDC) who elected to transfer at July 1 or August 1, 2008. Other members of TDC or TIAA-CREF are not eligible for TRS.
- D. Final Average Salary:** Final Average Salary is the average of the Member's 5 highest fiscal years of total earnings from covered employment during the Member's last 15 years of service.
- E. Credited Service:** Credited Service is granted for each day the Member performs work and contributes to the System. At most one year of Credited Service may be earned in any one school year. Credited Service may be granted under certain guidelines for other State employment, for military service, and for out-of-state teaching service.
- 1. Contributory Service:** Service credited for years in which a Member contributes to the retirement system. Contributory service is counted for both eligibility and benefit determination.
 - 2. Military Service:** Active service in the U.S. military up to 25% of the amount of a Member's Contributory Service (but not more than 10 years) will be counted for both eligibility and benefit determination under the retirement system.
 - 3. Purchased Service:** Service in parochial school or with other states' teacher retirement systems may count for benefits (but not eligibility), provided that the Member pays TRS double the amount contributed during the first year of

employment times the number of years credited plus interest, and cashes out his/her rights to any future benefits under his prior retirement system.

4. **Unused Leave:** A retiring member may choose to receive pension credited service for days of sick or annual leave unused at the time of retirement. Credited Service is granted at the rate of twice the actual number of unused days.

F. Contributions

1. **Member Contributions:** Members contribute 6.0% of their pay to the retirement system.
2. **Employer Contributions:** The State of West Virginia and its counties contribute directly to TRS at the following rates:
 - The State contributes:
 - (1) 15.0% of the payroll of State-employed Members,
 - (2) 15.0% of School Aid Formula (SAF) covered payroll of county-employed Members,
 - (3) 7.5% of SAF-covered payroll of members of the TDC Plan,
 - (4) a certain percentage of fire insurance premiums paid by state residents, and
 - (5) under Code Section 18-9-A-6a, beginning in fiscal year 1996, an amount determined by the State Actuary as being needed to eliminate the TRS Unfunded Liability within 40 years of June 30, 1994.
 - Counties contribute 15.0% of the payroll of TRS Members hired before July 1, 1991 and 7.5% of the payroll for TRS Members hired on or after July 1, 2005, and prior TDC members who transferred into TRS at July 1, 2008, or August 1, 2008, who are employed by county boards of education, which is not covered under the School Aid Formula.

G. Service Retirement

1. **Eligibility:** A Member may retire with an unreduced pension (1) at any age with 35 years of Credited Service, or (2) at age 60 with 5 years of Credited Service. A member may retire with 30 years of Credited Service at any age, with the pension reduced actuarially if the Member retires before age 55.
2. **Benefit:** The normal form of benefit is a single life annuity paid monthly, in an amount equal to 2% of Final Average Salary times years of Credited Service. Other forms of benefit may be elected, subject to actuarial reduction, including a Cash Refund Annuity, 50% or 100% Joint and Survivor Annuities, and a 10-Year Certain and Life Annuity.

H. Disability Retirement

1. **Eligibility:** A Member may be eligible to receive a disability retirement benefit after completing 10 years of Credited Service, if the Member is disabled for 6 months, unable to perform his or her regular occupation and the Retirement Board expects the disability to be permanent.
2. **Benefit:** An annual disability benefit amount, payable monthly as a Cash Refund Annuity, is equal to 2% of the Member's Final Average Salary times the total years of Credited Service to date of disability.

I. Pre-Retirement Death Benefits

1. **Eligibility:** The surviving spouse of a deceased Member who had attained age 50 and completed 25 years of Credited Service is eligible for the Surviving Spouse Benefit. If a member dies prior to attaining age 50 or completing 25 years of Credited Service a Lump Sum Death Benefit is payable to the beneficiary.
2. **Benefit:**

- **Surviving Spouse Benefit:** The surviving spouse receives an annuity payable as if the Member had retired on the date of death with a 100% Joint and Survivor pension.

- **Lump Sum Death Benefit:** The sum of the accumulated Member contributions with interest and accumulated Member contributions without interest is paid to the Member's beneficiary (or estate).

J. Refund of Contributions

1. **Eligibility:** A Member who leaves employment and is not eligible for any other benefit will receive a refund of his or her contributions to the retirement system.

2. **Benefit:** A lump sum of the Member's accumulated contributions, with compound interest computed on any contributed amount from the end of the fiscal year in which contributed to the date of distribution of the lump sum (but in no case beyond 5 years after the end of the fiscal year during which the Member left service). For purposes of this benefit, interest is computed at a 4% annual rate.

K. Deferred Vested Benefit

1. **Eligibility:** A Member leaving employment with 5 years of Contributory Service may elect to receive either a refund of contributions or a deferred pension commencing at age 62. If a Member has 20 years of Contributory Service, the deferral age is age 60.

2. **Benefit:** An annuity defined as described under "Service Retirement."

L. Post-Retirement Cost-of-Living Adjustments

Ad hoc cost-of-living increases in pensions are periodically granted by the State Legislature. However, the statutes governing the retirement system make no automatic provision for such increases.

Effective July 1, 2001, retirees age 65 and over who were retired for at least 5 years received a percentage increase in benefits as follows:

- Eligible retirees age 65 to age 70 received a 5% increase, and
- Eligible retirees over age 70 received a 10% increase.

However, if the retiree originally retired under an early retirement window, the percentage increase was limited to 3%.

Effective July 1, 2006, retirees age 70 and over who were retired for at least 5 years received a 3% increase in retirement benefits.

Effective July 1, 2008, all retirees and applicable beneficiaries thereof who retired with 20 or more years of service and were receiving a primary retiree pension of \$600 or less per month received a thirteenth check single payment of \$600.

A. Valuation Date

July 1, 2009

B. Funding Method

The valuation is prepared under the Entry Age Normal Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate. Entry age is based on adjusted date of hire (i.e. valuation date minus known past service).

C. Interest Rate and Expenses

The valuation interest assumption is 7.5 % per annum, with no loading for plan expenses.

D. Mortality

Mortality rates are shown in the Appendix and were chosen on the basis of the results of the 2002-2006 experience study. The mortality tables are as follows:

Healthy males: 1983 GAM Male Table

Healthy females: 1983 GAM Female Table set forward 1 year

Disabled males: Revenue Ruling 96-7 Disabled Male Table set back 3 years

Disabled females: Revenue Ruling 96-7 Disabled Female Table set back 3 years

E. Withdrawal from Service

Withdrawal rates are shown in the Appendix and are based on the 2002-2006 experience study. Withdrawal rates are assumed to cease upon eligibility for retirement. All withdrawal is assumed to result in refund of contributions if non-vested or a deferred annuity if vested.

F. Disablement Rates

Disablement rates are shown in the Appendix and are based on the 2002-2006 experience study.

G. Retirement Rates

Retirement rates are shown in the Appendix and are based on the 2002-2006 experience study.

H. Salary Scales

Salary scales are shown in the Appendix and are based on the 2002-2006 experience study. Projected salary increases are in the following ranges by group, with an underlying inflation rate of 3.0%:

| <u>Group</u> | <u>Range of Projected Salary Increases</u> |
|--------------|--|
| Teachers | 3.5% - 5.0% |
| Non-Teachers | 3.6% - 5.5% |

I. Accrual of Future Service

Future service accrual factors are based on the 2002-2006 experience study. Active members will accrue the following service for each future year of employment:

| <u>Group</u> | <u>Male</u> | <u>Female</u> |
|--------------|-------------|---------------|
| Teachers | 0.990 | 0.985 |
| Non-Teachers | 0.990 | 0.990 |

J. Non-Contributory Service Loadings

The load factor assumptions for non-contributory service (military, parochial or out-of-state teaching, transferred PERS service, and unused sick leave) are based on the 2002-2006 experience study and are as follows:

| <u>Group</u> | <u>Male</u> | <u>Female</u> |
|--------------|-------------|---------------|
| Teachers | 1.0950 | 1.0375 |
| Non-Teachers | 1.0775 | 1.0300 |

K. Family Composition

It is assumed that 85% of males and 80% of females are married, with husbands 3 years older than wives. Remarriage rates are not used.

L. Asset Valuation Method

Assets for valuation purposes are included at Market Value.

M. Plan Contribution

Plan Contributions, both employee and employer, are assumed to be paid in the middle of the year.

Pre & Post-Retirement Healthy Mortality

1983 Group Annuity Mortality Male
1983 Group Annuity Mortality Female set forward 1 year

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.00037 | 0.00019 | 65 | 0.01559 | 0.00782 |
| 20 | 0.00038 | 0.00020 | 66 | 0.01758 | 0.00868 |
| 21 | 0.00039 | 0.00021 | 67 | 0.01980 | 0.00970 |
| 22 | 0.00041 | 0.00023 | 68 | 0.02223 | 0.01092 |
| 23 | 0.00042 | 0.00024 | 69 | 0.02482 | 0.01239 |
| 24 | 0.00044 | 0.00025 | 70 | 0.02753 | 0.01413 |
| 25 | 0.00046 | 0.00027 | 71 | 0.03035 | 0.01616 |
| 26 | 0.00049 | 0.00028 | 72 | 0.03337 | 0.01848 |
| 27 | 0.00051 | 0.00030 | 73 | 0.03668 | 0.02109 |
| 28 | 0.00054 | 0.00032 | 74 | 0.04039 | 0.02399 |
| 29 | 0.00057 | 0.00034 | 75 | 0.04460 | 0.02719 |
| 30 | 0.00061 | 0.00036 | 76 | 0.04939 | 0.03067 |
| 31 | 0.00065 | 0.00039 | 77 | 0.05476 | 0.03446 |
| 32 | 0.00069 | 0.00041 | 78 | 0.06068 | 0.03855 |
| 33 | 0.00073 | 0.00044 | 79 | 0.06713 | 0.04295 |
| 34 | 0.00079 | 0.00048 | 80 | 0.07407 | 0.04766 |
| 35 | 0.00086 | 0.00050 | 81 | 0.08148 | 0.05269 |
| 36 | 0.00091 | 0.00054 | 82 | 0.08932 | 0.05807 |
| 37 | 0.00097 | 0.00057 | 83 | 0.09753 | 0.06381 |
| 38 | 0.00104 | 0.00062 | 84 | 0.10605 | 0.06992 |
| 39 | 0.00113 | 0.00067 | 85 | 0.11484 | 0.07657 |
| 40 | 0.00124 | 0.00072 | 86 | 0.12417 | 0.08387 |
| 41 | 0.00137 | 0.00078 | 87 | 0.13387 | 0.09194 |
| 42 | 0.00153 | 0.00084 | 88 | 0.14407 | 0.10135 |
| 43 | 0.00172 | 0.00092 | 89 | 0.15486 | 0.11175 |
| 44 | 0.00193 | 0.00101 | 90 | 0.16631 | 0.12308 |
| 45 | 0.00218 | 0.00112 | 91 | 0.17821 | 0.13563 |
| 46 | 0.00247 | 0.00124 | 92 | 0.19046 | 0.14958 |
| 47 | 0.00279 | 0.00137 | 93 | 0.20301 | 0.16510 |
| 48 | 0.00314 | 0.00151 | 94 | 0.21790 | 0.18242 |
| 49 | 0.00351 | 0.00165 | 95 | 0.23409 | 0.20176 |
| 50 | 0.00391 | 0.00179 | 96 | 0.24844 | 0.22204 |
| 51 | 0.00432 | 0.00195 | 97 | 0.26395 | 0.24390 |
| 52 | 0.00476 | 0.00212 | 98 | 0.28080 | 0.26819 |
| 53 | 0.00520 | 0.00232 | 99 | 0.29915 | 0.29519 |
| 54 | 0.00566 | 0.00254 | 100 | 0.31919 | 0.32523 |
| 55 | 0.00613 | 0.00280 | 101 | 0.34109 | 0.35890 |
| 56 | 0.00662 | 0.00310 | 102 | 0.36505 | 0.39584 |
| 57 | 0.00714 | 0.00344 | 103 | 0.39310 | 0.43836 |
| 58 | 0.00772 | 0.00382 | 104 | 0.42726 | 0.48782 |
| 59 | 0.00838 | 0.00424 | 105 | 0.46953 | 0.54589 |
| 60 | 0.00916 | 0.00470 | 106 | 0.52195 | 0.61431 |
| 61 | 0.01006 | 0.00521 | 107 | 0.58652 | 0.69489 |
| 62 | 0.01113 | 0.00577 | 108 | 0.66527 | 0.78947 |
| 63 | 0.01239 | 0.00639 | 109 | 0.76022 | 1.00000 |
| 64 | 0.01387 | 0.00706 | 110 | 1.00000 | 1.00000 |

Post-Retirement Disabled Mortality

Revenue Ruling 96-7 Disabled Mortality Table set back 3 years

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.02250 | 0.00812 | 65 | 0.06023 | 0.04040 |
| 20 | 0.02300 | 0.00848 | 66 | 0.06130 | 0.04165 |
| 21 | 0.02352 | 0.00885 | 67 | 0.06243 | 0.04295 |
| 22 | 0.02404 | 0.00924 | 68 | 0.06367 | 0.04429 |
| 23 | 0.02458 | 0.00965 | 69 | 0.06508 | 0.04567 |
| 24 | 0.02513 | 0.01008 | 70 | 0.06672 | 0.04683 |
| 25 | 0.02570 | 0.01052 | 71 | 0.06864 | 0.04807 |
| 26 | 0.02627 | 0.01098 | 72 | 0.07083 | 0.04958 |
| 27 | 0.02686 | 0.01147 | 73 | 0.07328 | 0.05133 |
| 28 | 0.02746 | 0.01197 | 74 | 0.07598 | 0.05327 |
| 29 | 0.02807 | 0.01250 | 75 | 0.07890 | 0.05536 |
| 30 | 0.02870 | 0.01306 | 76 | 0.08207 | 0.05757 |
| 31 | 0.02935 | 0.01363 | 77 | 0.08561 | 0.05998 |
| 32 | 0.03000 | 0.01423 | 78 | 0.08892 | 0.06257 |
| 33 | 0.03066 | 0.01484 | 79 | 0.09221 | 0.06548 |
| 34 | 0.03133 | 0.01547 | 80 | 0.09563 | 0.06869 |
| 35 | 0.03201 | 0.01610 | 81 | 0.09922 | 0.07224 |
| 36 | 0.03269 | 0.01660 | 82 | 0.10303 | 0.07616 |
| 37 | 0.03341 | 0.01712 | 83 | 0.10711 | 0.08048 |
| 38 | 0.03418 | 0.01765 | 84 | 0.11152 | 0.08524 |
| 39 | 0.03498 | 0.01820 | 85 | 0.11628 | 0.09048 |
| 40 | 0.03580 | 0.01877 | 86 | 0.12146 | 0.09622 |
| 41 | 0.03663 | 0.01936 | 87 | 0.12711 | 0.10251 |
| 42 | 0.03749 | 0.01996 | 88 | 0.13326 | 0.10937 |
| 43 | 0.03837 | 0.02058 | 89 | 0.13997 | 0.11684 |
| 44 | 0.03927 | 0.02122 | 90 | 0.14729 | 0.12495 |
| 45 | 0.04019 | 0.02188 | 91 | 0.15527 | 0.13374 |
| 46 | 0.04112 | 0.02256 | 92 | 0.16394 | 0.14323 |
| 47 | 0.04207 | 0.02326 | 93 | 0.17336 | 0.15348 |
| 48 | 0.04303 | 0.02399 | 94 | 0.18359 | 0.16450 |
| 49 | 0.04401 | 0.02473 | 95 | 0.19465 | 0.17633 |
| 50 | 0.04499 | 0.02550 | 96 | 0.20662 | 0.18901 |
| 51 | 0.04599 | 0.02630 | 97 | 0.21952 | 0.20257 |
| 52 | 0.04699 | 0.02712 | 98 | 0.23409 | 0.21705 |
| 53 | 0.04800 | 0.02796 | 99 | 0.24844 | 0.23247 |
| 54 | 0.04902 | 0.02883 | 100 | 0.26395 | 0.24887 |
| 55 | 0.05004 | 0.02973 | 101 | 0.28080 | 0.26629 |
| 56 | 0.05107 | 0.03066 | 102 | 0.29915 | 0.28476 |
| 57 | 0.05209 | 0.03161 | 103 | 0.31919 | 0.30343 |
| 58 | 0.05312 | 0.03259 | 104 | 0.34109 | 0.32739 |
| 59 | 0.05414 | 0.03361 | 105 | 0.36505 | 0.35902 |
| 60 | 0.05509 | 0.03466 | 106 | 0.39310 | 0.39584 |
| 61 | 0.05607 | 0.03573 | 107 | 0.42726 | 0.43836 |
| 62 | 0.05708 | 0.03685 | 108 | 0.46953 | 0.48782 |
| 63 | 0.05812 | 0.03799 | 109 | 0.52195 | 0.54589 |
| 64 | 0.05917 | 0.03918 | 110 | 0.58652 | 0.61431 |

**Withdrawal Rates
Teachers (less than 1 year)**

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.15000 | 0.15000 | 36 | 0.11800 | 0.11800 | 53 | 0.08400 | 0.08400 |
| 20 | 0.15000 | 0.15000 | 37 | 0.11600 | 0.11600 | 54 | 0.08200 | 0.08200 |
| 21 | 0.14800 | 0.14800 | 38 | 0.11400 | 0.11400 | 55 | 0.08000 | 0.08000 |
| 22 | 0.14600 | 0.14600 | 39 | 0.11200 | 0.11200 | 56 | 0.07800 | 0.07800 |
| 23 | 0.14400 | 0.14400 | 40 | 0.11000 | 0.11000 | 57 | 0.07600 | 0.07600 |
| 24 | 0.14200 | 0.14200 | 41 | 0.10800 | 0.10800 | 58 | 0.07400 | 0.07400 |
| 25 | 0.14000 | 0.14000 | 42 | 0.10600 | 0.10600 | 59 | 0.07200 | 0.07200 |
| 26 | 0.13800 | 0.13800 | 43 | 0.10400 | 0.10400 | 60 | 0.07000 | 0.07000 |
| 27 | 0.13600 | 0.13600 | 44 | 0.10200 | 0.10200 | 61 | 0.07000 | 0.07000 |
| 28 | 0.13400 | 0.13400 | 45 | 0.10000 | 0.10000 | 62 | 0.07000 | 0.07000 |
| 29 | 0.13200 | 0.13200 | 46 | 0.09800 | 0.09800 | 63 | 0.07000 | 0.07000 |
| 30 | 0.13000 | 0.13000 | 47 | 0.09600 | 0.09600 | 64 | 0.07000 | 0.07000 |
| 31 | 0.12800 | 0.12800 | 48 | 0.09400 | 0.09400 | 65 | 0.07000 | 0.07000 |
| 32 | 0.12600 | 0.12600 | 49 | 0.09200 | 0.09200 | 66 | 0.07000 | 0.07000 |
| 33 | 0.12400 | 0.12400 | 50 | 0.09000 | 0.09000 | 67 | 0.07000 | 0.07000 |
| 34 | 0.12200 | 0.12200 | 51 | 0.08800 | 0.08800 | 68 | 0.07000 | 0.07000 |
| 35 | 0.12000 | 0.12000 | 52 | 0.08600 | 0.08600 | 69 | 0.07000 | 0.07000 |

**Withdrawal Rates
Teachers (1 to 2 years)**

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.13000 | 0.13000 | 36 | 0.09600 | 0.09600 | 53 | 0.06000 | 0.06000 |
| 20 | 0.13000 | 0.13000 | 37 | 0.09200 | 0.09200 | 54 | 0.06000 | 0.06000 |
| 21 | 0.12800 | 0.12800 | 38 | 0.08800 | 0.08800 | 55 | 0.06000 | 0.06000 |
| 22 | 0.12600 | 0.12600 | 39 | 0.08400 | 0.08400 | 56 | 0.05800 | 0.05800 |
| 23 | 0.12400 | 0.12400 | 40 | 0.08000 | 0.08000 | 57 | 0.05600 | 0.05600 |
| 24 | 0.12200 | 0.12200 | 41 | 0.07800 | 0.07800 | 58 | 0.05400 | 0.05400 |
| 25 | 0.12000 | 0.12000 | 42 | 0.07600 | 0.07600 | 59 | 0.05200 | 0.05200 |
| 26 | 0.11800 | 0.11800 | 43 | 0.07400 | 0.07400 | 60 | 0.05000 | 0.05000 |
| 27 | 0.11600 | 0.11600 | 44 | 0.07200 | 0.07200 | 61 | 0.05000 | 0.05000 |
| 28 | 0.11400 | 0.11400 | 45 | 0.07000 | 0.07000 | 62 | 0.05000 | 0.05000 |
| 29 | 0.11200 | 0.11200 | 46 | 0.06800 | 0.06800 | 63 | 0.05000 | 0.05000 |
| 30 | 0.11000 | 0.11000 | 47 | 0.06600 | 0.06600 | 64 | 0.05000 | 0.05000 |
| 31 | 0.10800 | 0.10800 | 48 | 0.06400 | 0.06400 | 65 | 0.05000 | 0.05000 |
| 32 | 0.10600 | 0.10600 | 49 | 0.06200 | 0.06200 | 66 | 0.05000 | 0.05000 |
| 33 | 0.10400 | 0.10400 | 50 | 0.06000 | 0.06000 | 67 | 0.05000 | 0.05000 |
| 34 | 0.10200 | 0.10200 | 51 | 0.06000 | 0.06000 | 68 | 0.05000 | 0.05000 |
| 35 | 0.10000 | 0.10000 | 52 | 0.06000 | 0.06000 | 69 | 0.05000 | 0.05000 |

**Withdrawal Rates
Teachers (2 to 3 years)**

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.10000 | 0.10000 | 36 | 0.06700 | 0.06700 | 53 | 0.04000 | 0.04000 |
| 20 | 0.10000 | 0.10000 | 37 | 0.06400 | 0.06400 | 54 | 0.04000 | 0.04000 |
| 21 | 0.10000 | 0.10000 | 38 | 0.06100 | 0.06100 | 55 | 0.04000 | 0.04000 |
| 22 | 0.10000 | 0.10000 | 39 | 0.05800 | 0.05800 | 56 | 0.04000 | 0.04000 |
| 23 | 0.10000 | 0.10000 | 40 | 0.05500 | 0.05500 | 57 | 0.04000 | 0.04000 |
| 24 | 0.10000 | 0.10000 | 41 | 0.05200 | 0.05200 | 58 | 0.04000 | 0.04000 |
| 25 | 0.10000 | 0.10000 | 42 | 0.04900 | 0.04900 | 59 | 0.04000 | 0.04000 |
| 26 | 0.09700 | 0.09700 | 43 | 0.04600 | 0.04600 | 60 | 0.04000 | 0.04000 |
| 27 | 0.09400 | 0.09400 | 44 | 0.04300 | 0.04300 | 61 | 0.04000 | 0.04000 |
| 28 | 0.09100 | 0.09100 | 45 | 0.04000 | 0.04000 | 62 | 0.04000 | 0.04000 |
| 29 | 0.08800 | 0.08800 | 46 | 0.04000 | 0.04000 | 63 | 0.04000 | 0.04000 |
| 30 | 0.08500 | 0.08500 | 47 | 0.04000 | 0.04000 | 64 | 0.04000 | 0.04000 |
| 31 | 0.08200 | 0.08200 | 48 | 0.04000 | 0.04000 | 65 | 0.04000 | 0.04000 |
| 32 | 0.07900 | 0.07900 | 49 | 0.04000 | 0.04000 | 66 | 0.04000 | 0.04000 |
| 33 | 0.07600 | 0.07600 | 50 | 0.04000 | 0.04000 | 67 | 0.04000 | 0.04000 |
| 34 | 0.07300 | 0.07300 | 51 | 0.04000 | 0.04000 | 68 | 0.04000 | 0.04000 |
| 35 | 0.07000 | 0.07000 | 52 | 0.04000 | 0.04000 | 69 | 0.04000 | 0.04000 |

**Withdrawal Rates
Teachers (3 to 4 years)**

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.08000 | 0.08000 | 36 | 0.05200 | 0.05200 | 53 | 0.03000 | 0.03000 |
| 20 | 0.08000 | 0.08000 | 37 | 0.04900 | 0.04900 | 54 | 0.03000 | 0.03000 |
| 21 | 0.08000 | 0.08000 | 38 | 0.04600 | 0.04600 | 55 | 0.03000 | 0.03000 |
| 22 | 0.08000 | 0.08000 | 39 | 0.04300 | 0.04300 | 56 | 0.03000 | 0.03000 |
| 23 | 0.08000 | 0.08000 | 40 | 0.04000 | 0.04000 | 57 | 0.03000 | 0.03000 |
| 24 | 0.08000 | 0.08000 | 41 | 0.03800 | 0.03800 | 58 | 0.03000 | 0.03000 |
| 25 | 0.08000 | 0.08000 | 42 | 0.03600 | 0.03600 | 59 | 0.03000 | 0.03000 |
| 26 | 0.07600 | 0.07600 | 43 | 0.03400 | 0.03400 | 60 | 0.03000 | 0.03000 |
| 27 | 0.07200 | 0.07200 | 44 | 0.03200 | 0.03200 | 61 | 0.03000 | 0.03000 |
| 28 | 0.06800 | 0.06800 | 45 | 0.03000 | 0.03000 | 62 | 0.03000 | 0.03000 |
| 29 | 0.06400 | 0.06400 | 46 | 0.03000 | 0.03000 | 63 | 0.03000 | 0.03000 |
| 30 | 0.06000 | 0.06000 | 47 | 0.03000 | 0.03000 | 64 | 0.03000 | 0.03000 |
| 31 | 0.05900 | 0.05900 | 48 | 0.03000 | 0.03000 | 65 | 0.03000 | 0.03000 |
| 32 | 0.05800 | 0.05800 | 49 | 0.03000 | 0.03000 | 66 | 0.03000 | 0.03000 |
| 33 | 0.05700 | 0.05700 | 50 | 0.03000 | 0.03000 | 67 | 0.03000 | 0.03000 |
| 34 | 0.05600 | 0.05600 | 51 | 0.03000 | 0.03000 | 68 | 0.03000 | 0.03000 |
| 35 | 0.05500 | 0.05500 | 52 | 0.03000 | 0.03000 | 69 | 0.03000 | 0.03000 |

**Withdrawal Rates
Teachers (4 to 5 years)**

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.06000 | 0.06000 | 36 | 0.03200 | 0.03200 | 53 | 0.01500 | 0.01500 |
| 20 | 0.06000 | 0.06000 | 37 | 0.02900 | 0.02900 | 54 | 0.01500 | 0.01500 |
| 21 | 0.06000 | 0.06000 | 38 | 0.02600 | 0.02600 | 55 | 0.01500 | 0.01500 |
| 22 | 0.06000 | 0.06000 | 39 | 0.02300 | 0.02300 | 56 | 0.01500 | 0.01500 |
| 23 | 0.06000 | 0.06000 | 40 | 0.02000 | 0.02000 | 57 | 0.01500 | 0.01500 |
| 24 | 0.06000 | 0.06000 | 41 | 0.02000 | 0.02000 | 58 | 0.01500 | 0.01500 |
| 25 | 0.06000 | 0.06000 | 42 | 0.02000 | 0.02000 | 59 | 0.01500 | 0.01500 |
| 26 | 0.05600 | 0.05600 | 43 | 0.02000 | 0.02000 | 60 | 0.01500 | 0.01500 |
| 27 | 0.05200 | 0.05200 | 44 | 0.02000 | 0.02000 | 61 | 0.01500 | 0.01500 |
| 28 | 0.04800 | 0.04800 | 45 | 0.02000 | 0.02000 | 62 | 0.01500 | 0.01500 |
| 29 | 0.04400 | 0.04400 | 46 | 0.01900 | 0.01900 | 63 | 0.01500 | 0.01500 |
| 30 | 0.04000 | 0.04000 | 47 | 0.01800 | 0.01800 | 64 | 0.01500 | 0.01500 |
| 31 | 0.03900 | 0.03900 | 48 | 0.01700 | 0.01700 | 65 | 0.01500 | 0.01500 |
| 32 | 0.03800 | 0.03800 | 49 | 0.01600 | 0.01600 | 66 | 0.01500 | 0.01500 |
| 33 | 0.03700 | 0.03700 | 50 | 0.01500 | 0.01500 | 67 | 0.01500 | 0.01500 |
| 34 | 0.03600 | 0.03600 | 51 | 0.01500 | 0.01500 | 68 | 0.01500 | 0.01500 |
| 35 | 0.03500 | 0.03500 | 52 | 0.01500 | 0.01500 | 69 | 0.01500 | 0.01500 |

**Withdrawal Rates
Teachers (greater than 5 years)**

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.04000 | 0.04000 | 36 | 0.02676 | 0.02400 | 53 | 0.01800 | 0.01300 |
| 20 | 0.04000 | 0.04000 | 37 | 0.02602 | 0.02300 | 54 | 0.01900 | 0.01400 |
| 21 | 0.03900 | 0.03900 | 38 | 0.02528 | 0.02200 | 55 | 0.02000 | 0.01500 |
| 22 | 0.03800 | 0.03800 | 39 | 0.02454 | 0.02100 | 56 | 0.02000 | 0.01500 |
| 23 | 0.03700 | 0.03700 | 40 | 0.02380 | 0.02000 | 57 | 0.02000 | 0.01500 |
| 24 | 0.03600 | 0.03600 | 41 | 0.02304 | 0.01900 | 58 | 0.02000 | 0.01500 |
| 25 | 0.03500 | 0.03500 | 42 | 0.02228 | 0.01800 | 59 | 0.02000 | 0.01500 |
| 26 | 0.03400 | 0.03400 | 43 | 0.02152 | 0.01700 | 60 | 0.02000 | 0.01500 |
| 27 | 0.03300 | 0.03300 | 44 | 0.02076 | 0.01600 | 61 | 0.02000 | 0.01500 |
| 28 | 0.03200 | 0.03200 | 45 | 0.02000 | 0.01500 | 62 | 0.02000 | 0.01500 |
| 29 | 0.03100 | 0.03100 | 46 | 0.01900 | 0.01400 | 63 | 0.02000 | 0.01500 |
| 30 | 0.03000 | 0.03000 | 47 | 0.01800 | 0.01300 | 64 | 0.02000 | 0.01500 |
| 31 | 0.02950 | 0.02900 | 48 | 0.01700 | 0.01200 | 65 | 0.02000 | 0.01500 |
| 32 | 0.02900 | 0.02800 | 49 | 0.01600 | 0.01100 | 66 | 0.02000 | 0.01500 |
| 33 | 0.02850 | 0.02700 | 50 | 0.01500 | 0.01000 | 67 | 0.02000 | 0.01500 |
| 34 | 0.02800 | 0.02600 | 51 | 0.01600 | 0.01100 | 68 | 0.02000 | 0.01500 |
| 35 | 0.02750 | 0.02500 | 52 | 0.01700 | 0.01200 | 69 | 0.02000 | 0.01500 |

Withdrawal Rates
Non-Teachers and State (less than 1 year)

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.15000 | 0.15000 | 36 | 0.11800 | 0.11800 | 53 | 0.08400 | 0.08400 |
| 20 | 0.15000 | 0.15000 | 37 | 0.11600 | 0.11600 | 54 | 0.08200 | 0.08200 |
| 21 | 0.14800 | 0.14800 | 38 | 0.11400 | 0.11400 | 55 | 0.08000 | 0.08000 |
| 22 | 0.14600 | 0.14600 | 39 | 0.11200 | 0.11200 | 56 | 0.07800 | 0.07800 |
| 23 | 0.14400 | 0.14400 | 40 | 0.11000 | 0.11000 | 57 | 0.07600 | 0.07600 |
| 24 | 0.14200 | 0.14200 | 41 | 0.10800 | 0.10800 | 58 | 0.07400 | 0.07400 |
| 25 | 0.14000 | 0.14000 | 42 | 0.10600 | 0.10600 | 59 | 0.07200 | 0.07200 |
| 26 | 0.13800 | 0.13800 | 43 | 0.10400 | 0.10400 | 60 | 0.07000 | 0.07000 |
| 27 | 0.13600 | 0.13600 | 44 | 0.10200 | 0.10200 | 61 | 0.07000 | 0.07000 |
| 28 | 0.13400 | 0.13400 | 45 | 0.10000 | 0.10000 | 62 | 0.07000 | 0.07000 |
| 29 | 0.13200 | 0.13200 | 46 | 0.09800 | 0.09800 | 63 | 0.07000 | 0.07000 |
| 30 | 0.13000 | 0.13000 | 47 | 0.09600 | 0.09600 | 64 | 0.07000 | 0.07000 |
| 31 | 0.12800 | 0.12800 | 48 | 0.09400 | 0.09400 | 65 | 0.07000 | 0.07000 |
| 32 | 0.12600 | 0.12600 | 49 | 0.09200 | 0.09200 | 66 | 0.07000 | 0.07000 |
| 33 | 0.12400 | 0.12400 | 50 | 0.09000 | 0.09000 | 67 | 0.07000 | 0.07000 |
| 34 | 0.12200 | 0.12200 | 51 | 0.08800 | 0.08800 | 68 | 0.07000 | 0.07000 |
| 35 | 0.12000 | 0.12000 | 52 | 0.08600 | 0.08600 | 69 | 0.07000 | 0.07000 |

Withdrawal Rates
Non-Teachers and State (1 to 2 years)

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.13000 | 0.13000 | 36 | 0.09600 | 0.09600 | 53 | 0.06000 | 0.06000 |
| 20 | 0.13000 | 0.13000 | 37 | 0.09200 | 0.09200 | 54 | 0.06000 | 0.06000 |
| 21 | 0.12800 | 0.12800 | 38 | 0.08800 | 0.08800 | 55 | 0.06000 | 0.06000 |
| 22 | 0.12600 | 0.12600 | 39 | 0.08400 | 0.08400 | 56 | 0.05800 | 0.05800 |
| 23 | 0.12400 | 0.12400 | 40 | 0.08000 | 0.08000 | 57 | 0.05600 | 0.05600 |
| 24 | 0.12200 | 0.12200 | 41 | 0.07800 | 0.07800 | 58 | 0.05400 | 0.05400 |
| 25 | 0.12000 | 0.12000 | 42 | 0.07600 | 0.07600 | 59 | 0.05200 | 0.05200 |
| 26 | 0.11800 | 0.11800 | 43 | 0.07400 | 0.07400 | 60 | 0.05000 | 0.05000 |
| 27 | 0.11600 | 0.11600 | 44 | 0.07200 | 0.07200 | 61 | 0.05000 | 0.05000 |
| 28 | 0.11400 | 0.11400 | 45 | 0.07000 | 0.07000 | 62 | 0.05000 | 0.05000 |
| 29 | 0.11200 | 0.11200 | 46 | 0.06800 | 0.06800 | 63 | 0.05000 | 0.05000 |
| 30 | 0.11000 | 0.11000 | 47 | 0.06600 | 0.06600 | 64 | 0.05000 | 0.05000 |
| 31 | 0.10800 | 0.10800 | 48 | 0.06400 | 0.06400 | 65 | 0.05000 | 0.05000 |
| 32 | 0.10600 | 0.10600 | 49 | 0.06200 | 0.06200 | 66 | 0.05000 | 0.05000 |
| 33 | 0.10400 | 0.10400 | 50 | 0.06000 | 0.06000 | 67 | 0.05000 | 0.05000 |
| 34 | 0.10200 | 0.10200 | 51 | 0.06000 | 0.06000 | 68 | 0.05000 | 0.05000 |
| 35 | 0.10000 | 0.10000 | 52 | 0.06000 | 0.06000 | 69 | 0.05000 | 0.05000 |

**Withdrawal Rates
Non-Teachers and State (2 to 3 years)**

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.10000 | 0.10000 | 36 | 0.06700 | 0.06700 | 53 | 0.04000 | 0.04000 |
| 20 | 0.10000 | 0.10000 | 37 | 0.06400 | 0.06400 | 54 | 0.04000 | 0.04000 |
| 21 | 0.10000 | 0.10000 | 38 | 0.06100 | 0.06100 | 55 | 0.04000 | 0.04000 |
| 22 | 0.10000 | 0.10000 | 39 | 0.05800 | 0.05800 | 56 | 0.04000 | 0.04000 |
| 23 | 0.10000 | 0.10000 | 40 | 0.05500 | 0.05500 | 57 | 0.04000 | 0.04000 |
| 24 | 0.10000 | 0.10000 | 41 | 0.05200 | 0.05200 | 58 | 0.04000 | 0.04000 |
| 25 | 0.10000 | 0.10000 | 42 | 0.04900 | 0.04900 | 59 | 0.04000 | 0.04000 |
| 26 | 0.09700 | 0.09700 | 43 | 0.04600 | 0.04600 | 60 | 0.04000 | 0.04000 |
| 27 | 0.09400 | 0.09400 | 44 | 0.04300 | 0.04300 | 61 | 0.04000 | 0.04000 |
| 28 | 0.09100 | 0.09100 | 45 | 0.04000 | 0.04000 | 62 | 0.04000 | 0.04000 |
| 29 | 0.08800 | 0.08800 | 46 | 0.04000 | 0.04000 | 63 | 0.04000 | 0.04000 |
| 30 | 0.08500 | 0.08500 | 47 | 0.04000 | 0.04000 | 64 | 0.04000 | 0.04000 |
| 31 | 0.08200 | 0.08200 | 48 | 0.04000 | 0.04000 | 65 | 0.04000 | 0.04000 |
| 32 | 0.07900 | 0.07900 | 49 | 0.04000 | 0.04000 | 66 | 0.04000 | 0.04000 |
| 33 | 0.07600 | 0.07600 | 50 | 0.04000 | 0.04000 | 67 | 0.04000 | 0.04000 |
| 34 | 0.07300 | 0.07300 | 51 | 0.04000 | 0.04000 | 68 | 0.04000 | 0.04000 |
| 35 | 0.07000 | 0.07000 | 52 | 0.04000 | 0.04000 | 69 | 0.04000 | 0.04000 |

**Withdrawal Rates
Non-Teachers and State (3 to 4 years)**

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.08000 | 0.08000 | 36 | 0.05200 | 0.05200 | 53 | 0.03000 | 0.03000 |
| 20 | 0.08000 | 0.08000 | 37 | 0.04900 | 0.04900 | 54 | 0.03000 | 0.03000 |
| 21 | 0.08000 | 0.08000 | 38 | 0.04600 | 0.04600 | 55 | 0.03000 | 0.03000 |
| 22 | 0.08000 | 0.08000 | 39 | 0.04300 | 0.04300 | 56 | 0.03000 | 0.03000 |
| 23 | 0.08000 | 0.08000 | 40 | 0.04000 | 0.04000 | 57 | 0.03000 | 0.03000 |
| 24 | 0.08000 | 0.08000 | 41 | 0.03800 | 0.03800 | 58 | 0.03000 | 0.03000 |
| 25 | 0.08000 | 0.08000 | 42 | 0.03600 | 0.03600 | 59 | 0.03000 | 0.03000 |
| 26 | 0.07600 | 0.07600 | 43 | 0.03400 | 0.03400 | 60 | 0.03000 | 0.03000 |
| 27 | 0.07200 | 0.07200 | 44 | 0.03200 | 0.03200 | 61 | 0.03000 | 0.03000 |
| 28 | 0.06800 | 0.06800 | 45 | 0.03000 | 0.03000 | 62 | 0.03000 | 0.03000 |
| 29 | 0.06400 | 0.06400 | 46 | 0.03000 | 0.03000 | 63 | 0.03000 | 0.03000 |
| 30 | 0.06000 | 0.06000 | 47 | 0.03000 | 0.03000 | 64 | 0.03000 | 0.03000 |
| 31 | 0.05900 | 0.05900 | 48 | 0.03000 | 0.03000 | 65 | 0.03000 | 0.03000 |
| 32 | 0.05800 | 0.05800 | 49 | 0.03000 | 0.03000 | 66 | 0.03000 | 0.03000 |
| 33 | 0.05700 | 0.05700 | 50 | 0.03000 | 0.03000 | 67 | 0.03000 | 0.03000 |
| 34 | 0.05600 | 0.05600 | 51 | 0.03000 | 0.03000 | 68 | 0.03000 | 0.03000 |
| 35 | 0.05500 | 0.05500 | 52 | 0.03000 | 0.03000 | 69 | 0.03000 | 0.03000 |

**Withdrawal Rates
Non-Teachers and State (4 to 5 years)**

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.06000 | 0.06000 | 36 | 0.03800 | 0.03800 | 53 | 0.02000 | 0.02000 |
| 20 | 0.06000 | 0.06000 | 37 | 0.03600 | 0.03600 | 54 | 0.02000 | 0.02000 |
| 21 | 0.05800 | 0.05800 | 38 | 0.03400 | 0.03400 | 55 | 0.02000 | 0.02000 |
| 22 | 0.05600 | 0.05600 | 39 | 0.03200 | 0.03200 | 56 | 0.01900 | 0.01900 |
| 23 | 0.05400 | 0.05400 | 40 | 0.03000 | 0.03000 | 57 | 0.01800 | 0.01800 |
| 24 | 0.05200 | 0.05200 | 41 | 0.02900 | 0.02900 | 58 | 0.01700 | 0.01700 |
| 25 | 0.05000 | 0.05000 | 42 | 0.02800 | 0.02800 | 59 | 0.01600 | 0.01600 |
| 26 | 0.05000 | 0.05000 | 43 | 0.02700 | 0.02700 | 60 | 0.01500 | 0.01500 |
| 27 | 0.05000 | 0.05000 | 44 | 0.02600 | 0.02600 | 61 | 0.01500 | 0.01500 |
| 28 | 0.05000 | 0.05000 | 45 | 0.02500 | 0.02500 | 62 | 0.01500 | 0.01500 |
| 29 | 0.05000 | 0.05000 | 46 | 0.02400 | 0.02400 | 63 | 0.01500 | 0.01500 |
| 30 | 0.05000 | 0.05000 | 47 | 0.02300 | 0.02300 | 64 | 0.01500 | 0.01500 |
| 31 | 0.04800 | 0.04800 | 48 | 0.02200 | 0.02200 | 65 | 0.01500 | 0.01500 |
| 32 | 0.04600 | 0.04600 | 49 | 0.02100 | 0.02100 | 66 | 0.01500 | 0.01500 |
| 33 | 0.04400 | 0.04400 | 50 | 0.02000 | 0.02000 | 67 | 0.01500 | 0.01500 |
| 34 | 0.04200 | 0.04200 | 51 | 0.02000 | 0.02000 | 68 | 0.01500 | 0.01500 |
| 35 | 0.04000 | 0.04000 | 52 | 0.02000 | 0.02000 | 69 | 0.01500 | 0.01500 |

**Withdrawal Rates
Non-Teachers and State (greater than 5 years)**

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.04000 | 0.04000 | 36 | 0.02150 | 0.03100 | 53 | 0.01400 | 0.01952 |
| 20 | 0.04000 | 0.04000 | 37 | 0.02050 | 0.02950 | 54 | 0.01450 | 0.01976 |
| 21 | 0.03900 | 0.03950 | 38 | 0.01950 | 0.02800 | 55 | 0.01500 | 0.02000 |
| 22 | 0.03800 | 0.03900 | 39 | 0.01850 | 0.02650 | 56 | 0.01500 | 0.02000 |
| 23 | 0.03700 | 0.03850 | 40 | 0.01750 | 0.02500 | 57 | 0.01500 | 0.02000 |
| 24 | 0.03600 | 0.03800 | 41 | 0.01700 | 0.02400 | 58 | 0.01500 | 0.02000 |
| 25 | 0.03500 | 0.03750 | 42 | 0.01650 | 0.02300 | 59 | 0.01500 | 0.02000 |
| 26 | 0.03400 | 0.03700 | 43 | 0.01600 | 0.02200 | 60 | 0.01500 | 0.02000 |
| 27 | 0.03300 | 0.03650 | 44 | 0.01550 | 0.02100 | 61 | 0.01500 | 0.02000 |
| 28 | 0.03200 | 0.03600 | 45 | 0.01500 | 0.02000 | 62 | 0.01500 | 0.02000 |
| 29 | 0.03100 | 0.03550 | 46 | 0.01450 | 0.01976 | 63 | 0.01500 | 0.02000 |
| 30 | 0.03000 | 0.03500 | 47 | 0.01400 | 0.01952 | 64 | 0.01500 | 0.02000 |
| 31 | 0.02850 | 0.03450 | 48 | 0.01350 | 0.01928 | 65 | 0.01500 | 0.02000 |
| 32 | 0.02700 | 0.03400 | 49 | 0.01300 | 0.01904 | 66 | 0.01500 | 0.02000 |
| 33 | 0.02550 | 0.03350 | 50 | 0.01250 | 0.01880 | 67 | 0.01500 | 0.02000 |
| 34 | 0.02400 | 0.03300 | 51 | 0.01300 | 0.01904 | 68 | 0.01500 | 0.02000 |
| 35 | 0.02250 | 0.03250 | 52 | 0.01350 | 0.01928 | 69 | 0.01500 | 0.02000 |

Disability Rates

| <u>Age</u> | <u>Male</u> | <u>Female</u> | <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|------------|-------------|---------------|
| 19 | 0.00000 | 0.00000 | 40 | 0.00250 | 0.00250 |
| 20 | 0.00010 | 0.00010 | 41 | 0.00260 | 0.00260 |
| 21 | 0.00018 | 0.00018 | 42 | 0.00270 | 0.00270 |
| 22 | 0.00026 | 0.00026 | 43 | 0.00280 | 0.00280 |
| 23 | 0.00034 | 0.00034 | 44 | 0.00290 | 0.00290 |
| 24 | 0.00042 | 0.00042 | 45 | 0.00300 | 0.00300 |
| 25 | 0.00050 | 0.00050 | 46 | 0.00336 | 0.00334 |
| 26 | 0.00060 | 0.00060 | 47 | 0.00372 | 0.00368 |
| 27 | 0.00070 | 0.00070 | 48 | 0.00408 | 0.00402 |
| 28 | 0.00080 | 0.00080 | 49 | 0.00444 | 0.00436 |
| 29 | 0.00090 | 0.00090 | 50 | 0.00480 | 0.00470 |
| 30 | 0.00100 | 0.00100 | 51 | 0.00524 | 0.00516 |
| 31 | 0.00120 | 0.00120 | 52 | 0.00568 | 0.00562 |
| 32 | 0.00140 | 0.00140 | 53 | 0.00612 | 0.00608 |
| 33 | 0.00160 | 0.00160 | 54 | 0.00656 | 0.00654 |
| 34 | 0.00180 | 0.00180 | 55 | 0.00700 | 0.00700 |
| 35 | 0.00200 | 0.00200 | 56 | 0.00780 | 0.00780 |
| 36 | 0.00210 | 0.00210 | 57 | 0.00860 | 0.00860 |
| 37 | 0.00220 | 0.00220 | 58 | 0.00940 | 0.00940 |
| 38 | 0.00230 | 0.00230 | 59 | 0.01020 | 0.01020 |
| 39 | 0.00240 | 0.00240 | 60 | 0.01100 | 0.01100 |
| | | | 61+ | 0.00000 | 0.00000 |

Retirement Rates

| <u>Age</u> | <u>Teachers</u> | | <u>Non-Teachers & State</u> | |
|------------|-----------------|---------------|---------------------------------|---------------|
| | <u>Male</u> | <u>Female</u> | <u>Male</u> | <u>Female</u> |
| 54 | 0.000 | 0.000 | 0.000 | 0.000 |
| 55 | 0.250 | 0.225 | 0.200 | 0.200 |
| 56 | 0.150 | 0.175 | 0.150 | 0.150 |
| 57 | 0.150 | 0.175 | 0.150 | 0.150 |
| 58 | 0.150 | 0.175 | 0.150 | 0.150 |
| 59 | 0.150 | 0.175 | 0.150 | 0.150 |
| 60 | 0.300 | 0.250 | 0.150 | 0.250 |
| 61 | 0.350 | 0.200 | 0.150 | 0.275 |
| 62 | 0.400 | 0.250 | 0.400 | 0.300 |
| 63 | 0.250 | 0.200 | 0.200 | 0.200 |
| 64 | 0.250 | 0.250 | 0.200 | 0.200 |
| 65 | 0.400 | 0.300 | 0.400 | 0.300 |
| 66 | 0.300 | 0.300 | 0.200 | 0.200 |
| 67 | 0.300 | 0.300 | 0.200 | 0.200 |
| 68 | 0.300 | 0.300 | 0.200 | 0.200 |
| 69 | 0.300 | 0.300 | 0.200 | 0.200 |
| 70+ | 1.000 | 1.000 | 1.000 | 1.000 |

Salary Scales

| <u>Age</u> | <u>Teachers</u> | <u>Non-Teachers and State</u> | <u>Age</u> | <u>Teachers</u> | <u>Non-Teachers and State</u> |
|------------|-----------------|-----------------------------------|------------|-----------------|-----------------------------------|
| 19 | 1.05000 | 1.05500 | 45 | 1.03800 | 1.04720 |
| 20 | 1.05000 | 1.05500 | 46 | 1.03760 | 1.04664 |
| 21 | 1.04950 | 1.05475 | 47 | 1.03720 | 1.04608 |
| 22 | 1.04900 | 1.05450 | 48 | 1.03680 | 1.04552 |
| 23 | 1.04850 | 1.05425 | 49 | 1.03640 | 1.04496 |
| 24 | 1.04800 | 1.05400 | 50 | 1.03600 | 1.04400 |
| 25 | 1.04750 | 1.05375 | 51 | 1.03600 | 1.04384 |
| 26 | 1.04700 | 1.05350 | 52 | 1.03600 | 1.04328 |
| 27 | 1.04650 | 1.05325 | 53 | 1.03600 | 1.04272 |
| 28 | 1.04600 | 1.05300 | 54 | 1.03600 | 1.04216 |
| 29 | 1.04550 | 1.05275 | 55 | 1.03600 | 1.04160 |
| 30 | 1.04500 | 1.05250 | 56 | 1.03600 | 1.04104 |
| 31 | 1.04450 | 1.05225 | 57 | 1.03600 | 1.04048 |
| 32 | 1.04400 | 1.05200 | 58 | 1.03600 | 1.03992 |
| 33 | 1.04350 | 1.05175 | 59 | 1.03600 | 1.03936 |
| 34 | 1.04300 | 1.05150 | 60 | 1.03600 | 1.03880 |
| 35 | 1.04250 | 1.05125 | 61 | 1.03600 | 1.03824 |
| 36 | 1.04200 | 1.05100 | 62 | 1.03600 | 1.03768 |
| 37 | 1.04150 | 1.05075 | 63 | 1.03600 | 1.03712 |
| 38 | 1.04100 | 1.05050 | 64 | 1.03600 | 1.03656 |
| 39 | 1.04050 | 1.05025 | 65 | 1.03600 | 1.03600 |
| 40 | 1.04000 | 1.05000 | 66 | 1.03580 | 1.03600 |
| 41 | 1.03960 | 1.04944 | 67 | 1.03560 | 1.03600 |
| 42 | 1.03920 | 1.04888 | 68 | 1.03540 | 1.03600 |
| 43 | 1.03880 | 1.04832 | 69 | 1.03520 | 1.03600 |
| 44 | 1.03840 | 1.04776 | 70 | 1.03500 | 1.03600 |