

**South Carolina Retirement System
(SCRS)**

ACTUARIAL VALUATION

July 1, 2002



GABRIEL, ROEDER, SMITH & COMPANY

Consultants & Actuaries

5605 N. MacArthur Blvd. • Suite 870 • Irving, Texas 75038-2631 • 469-524-0000 • fax 469-524-0003

May 15, 2003

State Budget and Control Board
South Carolina Retirement System
P.O. Box 11960
Columbia, SC 29211-1960

Subject: July 1, 2002 Actuarial Valuation for SCRS

This is the July 1, 2002 actuarial valuation for the South Carolina Retirement System (SCRS).

Basic Contribution Requirements

Our valuation finds the SCRS in good actuarial condition. Current contribution levels are (i) employee contributions of 6.0%, and (ii) employer contributions of 7.55% for State employees and teachers, and 6.7% for other employers.

The employer contribution rates are the sum of a 4.61% normal cost contribution and a 2.94% (state employees and teachers) or 2.09% (other employees) contribution intended to amortize the unfunded liability. With these amortization payments, the current unfunded liability will be eliminated in 21 years. The funding period from the July 1, 2001 valuation was 18 years. The increase was mostly due to the 1.3% cost-of-living adjustment effective as of July 1, 2002 and actuarial investment losses.

We have also determined that the Group Life Insurance employer contribution of 0.15% is reasonable and will adequately fund the expected benefit payments. The separate fund for this benefit has built sufficient reserves.

Changes in System Benefits, Actuarial Assumptions and Methods

This actuarial valuation reflects the current provisions of the System as outlined on Table X. No material changes to the benefit structure have been made since the previous valuation.

The actuarial assumptions and methods, outlined in Table IX, remained the same as those used in the July 1, 2001 valuation.

Valuation Data

This valuation was based on 189,166 active members with a payroll of \$6.1 billion. This represents a decrease in the number of active members of 1.2% and an increase of 2.2% in covered payroll since the previous year's valuation. The decrease in the number of active members, and the abnormally small increase in total payroll, are due to the adoption of the TERI provisions. There are about 8,055 members in TERI as of June 2002, and they have been counted as retirees in this report. *

The number of people receiving benefits increased since the last valuation by 6.8%. The annual benefits being paid increased by 10.6%. This reflects the 1.3% COLA that was effective July 1, 2002, as well as the new TERI "retirees."

Valuation Assets

The market value of the SCRS assets as of July 1, 2002 was \$18.4 billion. The comparable figure one year before was \$18.6 billion. The market value rate of investment return on assets for the 2001-2002 year was 0.85%, net of administrative and investment expenses.

For purposes of the actuarial valuation, we are using an actuarial value of assets that each year recognizes 20% of the difference between the expected actuarial value (based on the 7.25% investment return assumption) and actual market value. This actuarial value as of July 1, 2002 was \$19.3 billion as compared to \$18.5 billion the previous year. The estimated rate of return on an actuarial value basis was 6.1%. Note that the actuarial value is now larger than the market value. The actuarial value of assets is 104.4% of market value. The difference will be recognized over the next few years, and this will result in a longer amortization period, in the absence of offsetting actuarial gains.

Unfunded Liability and Experience Factors

After recognizing the actuarial value of assets and the 1.3% COLA, the unfunded liability as of July 1, 2002 was \$3.15 billion. There was an increase in unfunded liability of \$0.47 billion. The factors causing the increase, in millions, are:

| | |
|-------------------------------|--------|
| Required amortization payment | \$ (6) |
| 1.3% COLA | 149 |
| Asset experience | 215 |
| Salary experience | 166 |
| Other experience | (51) |
| Net change | \$ 473 |

Governmental Accounting Standards Board (GASB) Calculations

Our report includes information that is required by GASB. The System's funded ratio has decreased slightly since the previous valuation. As of the last valuation the funded ratio was 87.4%. This has decreased to 86.0%. In addition, the unfunded liability as a percentage of covered payroll has increased from 44.5% to 51.2%. The primary reasons for the changes in both statistics were (i) the 1.3% cost-of-living adjustment effective as of July 1, 2002, and (ii) the actuarial investment losses.

Census Data and System Assets

The Retirement System staff provided the asset information and the member data for retired, active and inactive participants as of June 30, 2002. We have not subjected this data to any auditing procedures, but have examined the data for reasonableness and consistency with the prior year's data.

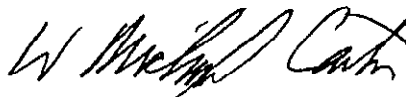
Conclusions

In our opinion, the information contained in this actuarial report fairly represents the actuarial condition of the South Carolina Retirement System.

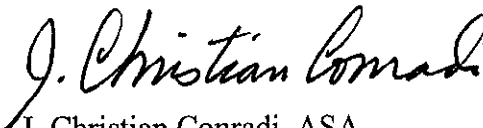
We look forward to reviewing this report with the State Budget and Control Board and the Director and staff of the Retirement System.

Sincerely,

Gabriel, Roeder, Smith & Company



W. Michael Carter, FSA
Senior Consultant



J. Christian Conradi, ASA
Senior Consultant

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Enclosure

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EXECUTIVE SUMMARY

| Item | 2002 | 2001 |
|---|-----------------|-----------------|
| Membership | | |
| • Number of | | |
| – Active Members | 189,166 | 191,494 |
| – Retirees and Beneficiaries | 79,064 | 74,054 |
| – Inactive Members | <u>141,313</u> | <u>138,434</u> |
| – Total | 409,543 | 403,982 |
| • Payroll (excludes ORP & TERI members) | \$6.1 billion | \$6.0 billion |
| Statutory contribution rate (including group insurance) | | |
| • Member | 6.00% | 6.00% |
| • Employer (state and teacher) | 7.70% | 7.70% |
| • Employer (other) | 6.85% | 6.85% |
| Assets | | |
| • Market value | \$18.4 billion | \$18.6 billion |
| • Actuarial value | 19.3 billion | 18.5 billion |
| • Return on market value | 0.9% | 7.3% |
| • Return on actuarial value | 6.1% | 7.4% |
| • Ratio of actuarial to market value | 104.7% | 99.5% |
| Actuarial Information | | |
| • Employer normal cost % | 4.61% | 4.61% |
| • Unfunded actuarial accrued liability (UAAL) | \$3.148 billion | \$2.675 billion |
| • Funded ratio | 86.0% | 87.4% |
| • Funding period | 21 years | 18 years |
| Gains/(Losses) | | |
| • Asset experience | \$(215) million | \$(25) million |
| • Salary experience | (166) million | (179) million |
| • Other liability experience | 51 million | (16) million |
| • COLA | (149) million | (353) million |
| • Benefit changes | 0 million | 0 million |
| • Assumption/method changes | 0 million | 0 million |
| • Total | \$(479) million | \$(573) million |

SUMMARY OF ACTUARIAL VALUATION RESULTS

| | July 1, 2002 | July 1, 2001 |
|---|---------------|---------------|
| 1. <u>Number of Active Members and Compensation</u> | | |
| a. State Employees | 58,908 | 61,787 |
| b. Compensation | \$ 2,060,141 | \$ 2,097,420 |
| c. Teachers | 83,694 | 83,817 |
| d. Compensation | \$ 2,772,237 | \$ 2,675,546 |
| e. Others | 46,564 | 45,890 |
| f. Compensation | \$ 1,315,334 | \$ 1,244,571 |
| g. Total number of active members | 189,166 | 191,494 |
| h. Total compensation | \$ 6,147,712 | \$ 6,017,537 |
| 2. <u>Number of Persons Receiving Benefits and Benefits</u> | | |
| a. Total number receiving benefits | 79,064 | 74,054 |
| b. Total amount of benefits | \$ 1,201,180 | \$ 1,085,634 |
| 3. <u>Trust Fund Assets</u> | | |
| a. Market value | \$ 18,439,431 | \$ 18,585,912 |
| b. Actuarial value | \$ 19,298,174 | \$ 18,486,773 |
| 4. <u>Unfunded Actuarial Accrued Liability (UAAL)</u> | \$ 3,148,400 | \$ 2,675,374 |
| 5. <u>Remaining Liquidation Period (Years)</u> | 21 | 18 |
| 6. <u>Required Contribution as a Percent of Compensation</u> | | |
| a. State Employees and Teachers | | |
| i) Normal cost contribution | 4.61% | 4.61% |
| ii) UAAL contribution | 2.94% | 2.94% |
| iii) Pre-retirement death contribution | 0.15% | 0.15% |
| iv) Total | 7.70% | 7.70% |
| b. Others | | |
| i) Normal cost contribution | 4.61% | 4.61% |
| ii) UAAL contribution | 2.09% | 2.09% |
| iii) Pre-retirement death contribution | 0.15% | 0.15% |
| iv) Total | 6.85% | 6.85% |

All dollar amounts in thousands

Compensation shown excludes amounts for ORP and TERI participants

DETERMINATION AND AMORTIZATION OF UNFUNDED LIABILITY

| | <u>July 1, 2002</u> | <u>July 1, 2001</u> |
|---|---------------------|---------------------|
| 1. <u>Actuarial Present Value of Future Benefits</u> | | |
| a. Present retired members and beneficiaries | \$ 11,600,395 | \$ 10,367,913 |
| b. Present active and inactive members | <u>16,592,030</u> | <u>16,418,215</u> |
| c. Total Actuarial Present Value | \$ 28,192,425 | \$ 26,786,128 |
| 2. <u>Present Value of Future Normal Contributions</u> | | |
| a. Employee at 6.00% | \$ 3,077,754 | \$ 3,010,752 |
| b. Employer at 4.61% | <u>2,668,097</u> | <u>2,613,229</u> |
| c. Total Future Normal Contributions | \$ 5,745,851 | \$ 5,623,981 |
| 3. <u>Actuarial Accrued Liability = 1.c. – 2.c.</u> | \$ 22,446,574 | \$ 21,162,147 |
| 4. <u>Current Actuarial Value of Assets</u> | \$ 19,298,174 | \$ 18,486,773 |
| 5. <u>Unfunded Actuarial Accrued Liability = 3. – 4.</u> | \$ 3,148,400 | \$ 2,675,374 |
| 6. <u>Unfunded Accrued Liability Rates</u> | | |
| a. State Employees and Teachers | 2.94% | 2.94% |
| b. Others | 2.09% | 2.09% |
| 7. <u>Unfunded Accrued Liability Liquidation Period</u> | 21 years | 18 years |

All dollar amounts in thousands

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

| | |
|--|----------------------|
| 1. <u>Actuarial Value of Assets on July 1, 2001</u> | \$ 18,486,773 |
| 2. <u>2001/2002 Net Cash Flow</u> | |
| a. Contributions | 916472 |
| b. Disbursements | <u>1,219,685</u> |
| c. Net Cash Flow | \$ (303,213) |
| 3. <u>Expected Investment Return</u> [1. x .0725] + [2.c. x .03625] | \$ 1,329,300 |
| 4. <u>Expected Actuarial Value of Assets on July 1, 2002</u> (1. + 2.c. + 3.) | \$ 19,512,860 |
| 5. <u>Market Value of Assets on July 1, 2002</u> | \$ 18,439,431 |
| 6. <u>Excess of Market Value over Expected Actuarial Value</u> (5. – 4.) | \$(1,073,429) |
| 7. <u>20% Adjustment towards Market</u> (.20 x 6.) | \$ (214,686) |
| 8. <u>Actuarial Value of Assets on July 1, 2002</u> (4. + 7.) | <u>\$ 19,298,174</u> |

All dollar amounts in thousands

Note: Asset and values exclude Group Insurance subtrust

Note: Actuarial value of assets may not be less than 80% of market value or more than 120% of market value.

ACCOUNTING INFORMATION

1. Number of Active and Retired Members as of July 1, 2002

| Group | Number |
|--|----------------|
| Retiree and Beneficiaries Currently Receiving Benefits | 79,064 |
| Terminated Employees Entitled to Benefits But not yet Receiving Benefits | 141,313 |
| Active Members | <u>189,166</u> |
| Total | <u>409,543</u> |

2. Schedule of Funding Progress

| Actuarial Valuation Date | Actuarial Value of Assets (a) | Actuarial Accrued Liability (AAL) (b) | Unfunded AAL (UAAL) (b - a) (c) | Funded Ratio (a / b) (d) | Covered Payroll (e) | UAAL as a % of Covered Payroll (c / e) (f) |
|--------------------------------|--|---|--|-----------------------------------|---------------------------|--|
| 7/1/02 | \$19,298,174 | \$22,446,574 | \$3,148,400 | 86.0% | \$6,147,712 | 51.2% |
| 7/1/01 | \$18,486,773 | \$21,162,147 | \$2,675,374 | 87.4% | \$6,017,537 | 44.5% |
| 7/1/00 | 17,286,108 | 19,414,972 | 2,128,864 | 89.0% | 5,881,847 | 36.2% |
| 7/1/99 | 16,120,513 | 16,298,438 | 177,925 | 98.9% | 5,473,759 | 3.3% |
| 7/1/98 | 14,946,070 | 15,952,345 | 1,006,275 | 93.7% | 5,191,048 | 19.4% |
| 7/1/97 | 13,621,362 | 14,977,179 | 1,355,817 | 90.9% | 4,927,124 | 27.5% |

All dollar amounts in thousands

3. Assumptions and Methods

| | |
|-------------------------------|------------------------|
| Valuation date | July 1, 2002 |
| Actuarial cost method | Entry Age Normal |
| Amortization method | Level percent open |
| Remaining amortization period | 21 years |
| Asset valuation method | 5 year smoothed market |
| Actuarial assumptions | |
| Investment rate of return* | 7.25% |
| Projected salary increases* | 4.00% - 9.00% |
| *Including inflation at | 3.75% |
| Cost-of-living adjustments | None |

VALUATION BALANCE SHEET

| | July 1, 2002 | July 1, 2001 |
|---|----------------------|----------------------|
| 1. <u>Assets</u> | | |
| a. <u>Current Assets (Actuarial Value)</u> | | |
| i) Employee Annuity Savings Fund | \$ 4,512,402 | \$ 4,339,747 |
| ii) Employer Annuity Accumulation Fund | <u>14,785,772</u> | <u>14,147,026</u> |
| iii) Total Current Assets | \$ 19,298,174 | \$ 18,486,773 |
| b. <u>Future Member Contributions to Employee Annuity Savings Fund</u> | \$ 3,077,754 | \$ 3,010,752 |
| c. <u>Prospective Contributions to Employer Annuity Accumulation Fund</u> | | |
| i) Normal Contributions | \$ 2,668,097 | \$ 2,613,229 |
| ii) Accrued Liability Contributions | <u>3,148,400</u> | <u>2,675,374</u> |
| iii) Total Prospective Employer Contributions | \$ 5,816,497 | \$ 5,288,603 |
| d. <u>Total Assets</u> | <u>\$ 28,192,425</u> | <u>\$ 26,786,128</u> |
| 2. <u>Liabilities</u> | | |
| a. <u>Employee Annuity Savings Fund</u> | | |
| i) Past Member Contributions | \$ 4,512,402 | \$ 4,339,747 |
| ii) Future Member Contributions | <u>3,077,754</u> | <u>3,010,752</u> |
| iii) Total Contributions to Employee Annuity Savings Fund | \$ 7,590,156 | \$ 7,350,499 |
| b. <u>Employer Annuity Accumulation Fund</u> | | |
| i) Benefits Currently in Payment | \$ 11,600,395 | \$ 10,367,913 |
| ii) Benefits to be Paid to Current Active Members | <u>9,001,874</u> | <u>9,067,716</u> |
| iii) Total Benefits Payable from Employer Annuity Accumulation Fund | \$ 20,602,269 | \$ 19,435,629 |
| c. <u>Total Liabilities</u> | <u>\$ 28,192,425</u> | <u>\$ 26,786,128</u> |

All dollar amounts in thousands

NUMBER AND ANNUAL RETIREMENT ALLOWANCES OF
BENEFIT RECIPIENTS AS OF JULY 1, 2002

| | <u>Number</u> | <u>Annual Retirement Allowances</u> |
|-------------------------------------|---------------|---|
| 1. <u>Service Retirement</u> | | |
| a. <u>Employees</u> | | |
| Life Annuity | 19,437 | \$271,516 |
| 10 Year Certain and Life | 723 | 9,703 |
| 100% J & S | 1,937 | 33,017 |
| 100 % Pop-Up | 2,647 | 49,322 |
| 50% J & S | 1,272 | 29,833 |
| 50% Pop-Up | 2,845 | 68,338 |
| Level Off | <u>3,339</u> | <u>63,365</u> |
| | 32,200 | \$525,094 |
| b. <u>Teachers</u> | | |
| Life Annuity | 20,982 | \$309,090 |
| 10 Year Certain and Life | 828 | 11,990 |
| 100% J & S | 726 | 9,824 |
| 100 % Pop-Up | 1,226 | 21,210 |
| 50% J & S | 526 | 11,106 |
| 50% Pop-Up | 1,631 | 36,191 |
| Level Off | <u>5,779</u> | <u>126,841</u> |
| | 31,698 | \$526,252 |
| c. <u>Total</u> | | |
| Life Annuity | 40,419 | \$580,606 |
| 10 Year Certain and Life | 1,551 | 21,693 |
| 100% J & S | 2,663 | 42,841 |
| 100 % Pop-Up | 3,873 | 70,532 |
| 50% J & S | 1,798 | 40,939 |
| 50% Pop-Up | 4,476 | 104,529 |
| Level Off | <u>9,118</u> | <u>190,205</u> |
| | 63,898 | \$1,051,345 |

NUMBER AND ANNUAL RETIREMENT ALLOWANCES OF
BENEFIT RECIPIENTS AS OF JULY 1, 2002

| | Number | Annual Retirement Allowances |
|---|---------------|------------------------------------|
| 2. <u>Disability Retirement</u> | | |
| a. <u>Employees</u> | | |
| Life Annuity | 4,087 | \$42,331 |
| 10 Year Certain and Life | 202 | 1,998 |
| 100% J & S | 463 | 3,677 |
| 100 % Pop-Up | 285 | 2,491 |
| 50% J & S | 176 | 2,049 |
| 50% Pop-Up | 254 | 3,337 |
| | 5,467 | \$55,882 |
| b. <u>Teachers</u> | | |
| Life Annuity | 2,958 | \$33,129 |
| 10 Year Certain and Life | 114 | 1,270 |
| 100% J & S | 173 | 1,358 |
| 100 % Pop-Up | 101 | 894 |
| 50% J & S | 71 | 918 |
| 50% Pop-Up | 103 | 1,602 |
| | 3,520 | \$39,171 |
| c. <u>Total</u> | | |
| Life Annuity | 7,045 | \$75,459 |
| 10 Year Certain and Life | 316 | 3,268 |
| 100% J & S | 636 | 5,035 |
| 100 % Pop-Up | 386 | 3,385 |
| 50% J & S | 247 | 2,967 |
| 50% Pop-Up | 357 | 4,939 |
| | 8,987 | \$95,053 |
| 3. <u>Beneficiaries of Deceased Retired Members and Active Members</u> | | |
| a. <u>Employees and Teachers</u> | 6,179 | 54,782 |
| 4. <u>Grand Total</u> | 79,064 | \$1,201,180 |

TABLE VII

DISTRIBUTION OF ACTIVE MEMBERS AND AVERAGE COMPENSATION BY AGE GROUPS AND SERVICE GROUPS AS OF JULY 1, 2002

| Age Group | Years of Service | | | | | | | | | Total |
|-----------|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 0 - 4 | 5 - 9 | 10 - 14 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40 & Up | |
| 20 - 24 | 7,204 | 115 | - | - | - | - | - | - | - | 7,319 |
| | \$22,496 | \$23,722 | - | - | - | - | - | - | - | \$22,516 |
| 25 - 29 | 13,852 | 3,233 | 64 | - | - | - | - | - | - | 17,149 |
| | \$27,727 | \$31,415 | \$30,031 | - | - | - | - | - | - | \$28,431 |
| 30 - 34 | 11,012 | 7,914 | 2,624 | 104 | 2 | - | - | - | - | 21,656 |
| | \$26,492 | \$33,891 | \$34,883 | \$32,635 | \$41,500 | - | - | - | - | \$30,244 |
| 35 - 39 | 9,910 | 5,330 | 5,821 | 2,703 | 92 | 3 | - | - | - | 23,859 |
| | \$25,079 | \$30,975 | \$37,104 | \$38,398 | \$34,500 | \$43,667 | - | - | - | \$30,878 |
| 40 - 44 | 9,551 | 5,544 | 5,051 | 5,906 | 2,908 | 169 | - | - | - | 29,129 |
| | \$24,829 | \$29,827 | \$34,839 | \$41,827 | \$40,882 | \$37,130 | - | - | - | \$32,636 |
| 45 - 49 | 8,514 | 5,791 | 5,289 | 4,877 | 5,806 | 3,048 | 59 | 3 | - | 33,387 |
| | \$25,972 | \$30,316 | \$34,558 | \$41,788 | \$45,274 | \$45,944 | \$37,831 | \$43,333 | - | \$35,598 |
| 50 - 54 | 6,448 | 4,779 | 5,113 | 4,410 | 3,602 | 3,208 | 592 | 18 | 3 | 28,173 |
| | \$26,920 | \$31,343 | \$34,703 | \$41,420 | \$44,470 | \$49,143 | \$49,480 | \$42,278 | \$30,000 | \$36,611 |
| 55 - 59 | 4,249 | 3,081 | 3,433 | 3,178 | 2,529 | 1,250 | 409 | 110 | 11 | 18,250 |
| | \$26,664 | \$30,578 | \$33,437 | \$39,031 | \$40,986 | \$46,363 | \$53,088 | \$41,991 | \$40,364 | \$34,779 |
| 60 - 64 | 1,873 | 1,425 | 1,388 | 1,121 | 903 | 501 | 140 | 64 | 29 | 7,444 |
| | \$22,546 | \$28,322 | \$32,465 | \$37,057 | \$39,193 | \$43,343 | \$53,836 | \$50,109 | \$42,966 | \$32,011 |
| 65 - 69 | 710 | 397 | 291 | 181 | 84 | 93 | 29 | 10 | 23 | 1,818 |
| | \$16,252 | \$22,008 | \$25,608 | \$35,238 | \$41,905 | \$36,387 | \$44,069 | \$62,200 | \$46,826 | \$24,195 |
| 70 & Up | 358 | 282 | 139 | 86 | 44 | 36 | 22 | 6 | 9 | 982 |
| | \$12,754 | \$13,121 | \$16,942 | \$26,302 | \$28,295 | \$28,444 | \$37,455 | \$58,833 | \$53,889 | \$17,122 |
| Total | 73,681 | 37,891 | 29,213 | 22,566 | 15,970 | 8,308 | 1,251 | 211 | 75 | 189,166 |
| | \$25,650 | \$31,018 | \$34,754 | \$40,543 | \$43,143 | \$46,723 | \$50,261 | \$45,934 | \$44,560 | \$32,499 |

| | Prior Year | Current Year |
|-----------------|-------------|--------------|
| Average Age | 43.32 years | 43.62 years |
| Average Service | 9.68 years | 9.71 years |
| Average P | \$31,424 | \$32,499 |
| Percent Female | 69.6% | 69.6% |

GABRIEL, ROEDER, SMITH & COMPANY

DISTRIBUTION OF PARTICIPANTS RECEIVING BENEFITS

1. Service Retirement

| Current Age Group | Number | Total Annual Benefit | Average Annual Benefit |
|-------------------|---------------|----------------------|------------------------|
| (1) | (2) | (3) | (4) |
| Under 50 | 699 | \$ 11,995,269 | \$17,161 |
| 50 – 54 | 5,379 | 129,536,561 | 24,082 |
| 55 – 59 | 7,855 | 207,486,023 | 26,415 |
| 60 – 64 | 9,395 | 182,802,318 | 19,457 |
| 65 – 69 | 11,452 | 161,879,181 | 14,135 |
| 70 – 74 | 10,418 | 138,164,045 | 13,262 |
| 75 – 79 | 8,254 | 104,658,554 | 12,680 |
| 80 & Over | <u>10,446</u> | <u>114,822,842</u> | <u>10,992</u> |
| Total | 63,898 | \$1,051,344,792 | \$16,453 |

2. Disability Retirement

| Current Age Group | Number | Total Annual Benefit | Average Annual Benefit |
|-------------------|------------|----------------------|------------------------|
| (1) | (2) | (3) | (4) |
| Under 50 | 1,359 | \$12,951,923 | \$ 9,530 |
| 50 – 54 | 1,385 | 16,834,869 | 12,155 |
| 55 – 59 | 1,752 | 21,163,408 | 12,080 |
| 60 – 64 | 1,600 | 16,707,346 | 10,442 |
| 65 – 69 | 1,195 | 10,991,218 | 9,198 |
| 70 – 74 | 718 | 6,829,573 | 9,512 |
| 75 – 79 | 504 | 5,092,185 | 10,104 |
| 80 & Over | <u>474</u> | <u>4,482,802</u> | <u>9,457</u> |
| Total | 8,987 | \$95,053,325 | \$10,577 |

3. Beneficiaries

| Current Age Group | Number | Total Annual Benefit | Average Annual Benefit |
|-------------------|--------------|----------------------|------------------------|
| (1) | (2) | (3) | (4) |
| Under 50 | 934 | \$5,615,152 | \$6,012 |
| 50 – 54 | 345 | 2,925,507 | 8,480 |
| 55 – 59 | 468 | 4,449,479 | 9,507 |
| 60 – 64 | 543 | 5,163,197 | 9,509 |
| 65 – 69 | 626 | 6,135,587 | 9,801 |
| 70 – 74 | 782 | 7,810,970 | 9,988 |
| 75 – 79 | 895 | 8,713,394 | 9,736 |
| 80 & Over | <u>1,586</u> | <u>13,969,063</u> | <u>8,808</u> |
| Total | 6,179 | \$54,782,349 | \$8,866 |

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

1. Interest to be Earned by Fund

7.25% per annum, compounded annually, composed of an assumed 3.75% inflation rate and a 3.50% real rate of return.

2. Salary Increases

Salary increases are assumed in accordance with the following representative rates:

| <u>Age</u> | <u>Annual Increases</u> | <u>Age</u> | <u>Annual Increases</u> |
|------------|-----------------------------|------------|-----------------------------|
| 25 | 9.00% | 45 | 4.50% |
| 30 | 7.50% | 50 | 4.25% |
| 35 | 6.00% | 55 | 4.00% |
| 40 | 5.25% | 60 | 4.00% |

3. Decrement Rates

a. Service Retirement

| <u>Age</u> | <u>Annual Rates of</u> | | | | | |
|------------|---|--|---|--|---|--|
| | <u>Reduced Service Retirement</u> | <u>Unreduced Service Retirement*</u> | <u>Reduced Service Retirement</u> | <u>Unreduced Service Retirement*</u> | <u>Reduced Service Retirement</u> | <u>Unreduced Service Retirement*</u> |
| | <u>Male Teachers</u> | | <u>Female Teachers</u> | | <u>Male & Female Employees</u> | |
| 50 | | 10.0% | | 15.0% | | 12.0% |
| 55 | 10.0% | 15.0% | 10.0% | 20.0% | 7.5% | 15.0% |
| 60 | 10.0% | 15.0% | 12.0% | 20.0% | 7.5% | 15.0% |
| 61 | 15.0% | 20.0% | 15.0% | 25.0% | 10.0% | 20.0% |
| 62 | 20.0% | 30.0% | 20.0% | 45.0% | 25.0% | 30.0% |
| 63 | 15.0% | 30.0% | 20.0% | 30.0% | 15.0% | 25.0% |
| 64 | 15.0% | 30.0% | 20.0% | 30.0% | 15.0% | 30.0% |
| 65 | | 30.0% | | 30.0% | | 30.0% |
| 66 | | 20.0% | | 20.0% | | 20.0% |
| 67 | | 10.0% | | 20.0% | | 15.0% |
| 68 | | 10.0% | | 20.0% | | 15.0% |
| 69 | | 10.0% | | 20.0% | | 15.0% |
| 70 | | 100.0% | | 100.0% | | 100.0% |

*Plus 25% in year when first become eligible for unreduced service retirement before age 65.

b. In-service Mortality, Disability and Withdrawal

| MALE TEACHERS | Annual Rates of | | | | | |
|---------------------|-----------------|-----------|------------|------------------|-------|-------|
| | Age | Mortality | Disability | Withdrawal | | |
| | | | | Years of Service | | |
| | | | | 0 – 4 | 5 – 9 | 10 + |
| | 25 | 0.06% | 0.04% | 12.65% | 8.25% | |
| | 30 | 0.07% | 0.06% | 10.95% | 4.95% | 2.80% |
| | 35 | 0.07% | 0.08% | 11.25% | 5.55% | 2.10% |
| | 40 | 0.10% | 0.15% | 8.85% | 5.35% | 1.50% |
| | 45 | 0.18% | 0.25% | 10.15% | 4.75% | 1.50% |
| | 50 | 0.30% | 0.40% | 8.45% | 4.75% | 1.90% |
| | 55 | 0.46% | 0.65% | 8.45% | 4.35% | 2.90% |
| | 60 | 0.65% | 1.00% | | | |
| | 64 | 0.90% | 1.25% | | | |
| | | | | | | |
| FEMALE TEACHERS | | | | | | |
| | 25 | 0.03% | 0.05% | 9.55% | 6.85% | |
| | 30 | 0.04% | 0.07% | 10.05% | 4.95% | 3.15% |
| | 35 | 0.04% | 0.07% | 8.95% | 4.75% | 2.45% |
| | 40 | 0.05% | 0.12% | 7.45% | 4.05% | 2.15% |
| | 45 | 0.08% | 0.25% | 7.05% | 3.65% | 1.95% |
| | 50 | 0.13% | 0.40% | 7.05% | 3.75% | 1.95% |
| | 55 | 0.21% | 0.65% | 7.35% | 3.55% | 2.35% |
| | 60 | 0.33% | 1.00% | | | |
| | 64 | 0.49% | 1.25% | | | |
| | | | | | | |
| MALE EMPLOYEES | | | | | | |
| | 25 | 0.06% | 0.05% | 15.85% | 9.45% | |
| | 30 | 0.07% | 0.10% | 13.25% | 7.15% | 4.35% |
| | 35 | 0.07% | 0.15% | 12.25% | 6.65% | 3.65% |
| | 40 | 0.10% | 0.25% | 11.35% | 6.25% | 3.05% |
| | 45 | 0.18% | 0.35% | 9.95% | 5.35% | 2.75% |
| | 50 | 0.30% | 0.50% | 8.65% | 5.35% | 2.45% |
| | 55 | 0.46% | 0.80% | 8.45% | 4.75% | 2.85% |
| | 60 | 0.65% | 1.00% | | | |
| | 64 | 0.90% | 1.25% | | | |
| | | | | | | |
| FEMALE EMPLOYEES | | | | | | |
| | 25 | 0.03% | 0.05% | 14.15% | 8.65% | |
| | 30 | 0.04% | 0.07% | 12.75% | 7.45% | 4.75% |
| | 35 | 0.04% | 0.14% | 11.85% | 6.15% | 3.45% |
| | 40 | 0.05% | 0.18% | 10.65% | 5.65% | 3.15% |
| | 45 | 0.08% | 0.26% | 9.25% | 5.35% | 2.55% |
| | 50 | 0.13% | 0.44% | 8.95% | 4.75% | 2.85% |
| | 55 | 0.21% | 0.70% | 7.55% | 4.65% | 2.75% |
| | 60 | 0.33% | 1.07% | | | |
| | 64 | 0.49% | 1.49% | | | |

4. Mortality After Retirement

For healthy retirees and beneficiaries, the 1983 Group Annuity Mortality Table rates, with the female rates set forward one year. A separate table of mortality rates is used for disabled retirees. The following are sample rates for the healthy retirees and beneficiaries:

| <u>Age</u> | <u>Male</u> | <u>Female</u> |
|------------|-------------|---------------|
| 50 | 0.39% | 0.18% |
| 55 | 0.61% | 0.28% |
| 60 | 0.92% | 0.47% |
| 65 | 1.56% | 0.78% |
| 70 | 2.75% | 1.41% |
| 75 | 4.46% | 2.72% |
| 80 | 7.41% | 4.77% |
| 85 | 11.48% | 7.66% |

5. Marriage Assumption

100% of all active members are assumed to be married, with female spouses being 3 years younger.

6. Asset Valuation Method

Actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial value of assets, based on the assumed investment rate of return. The amount recognized each year is 20% of the difference between market and expected actuarial value. The actuarial value of assets is limited to a range between 80% and 120% of market value.

7. Cost Methods

a. Normal Retirement, Termination, Death and Disability Benefits

Projected benefit with level percentage entry age normal cost. The gross normal cost rate is based upon the new entrant cohort as of July 1, 2000. The gross normal cost rate will reflect any future changes in benefit provisions, assumptions and significant demographic trends. The gross normal derived in this manner will be updated as part of each future experience study. Gains and losses are reflected in the period remaining to liquidate the unfunded actuarial accrued liability.

b. Group Life Insurance Benefit

One-year term cost method.

8. Unused Annual Leave

To account for the effect of unused annual leave on Annual Final Compensation, liabilities for active members are increased 2.50%.

9. Cost-of-Living Increases

None assumed.

10. Administrative and Investment Expenses

The investment return assumption represents the expected return net of all administrative and investment expenses.

11. Payroll Growth Rate

4.00% per annum.

12. Valuation of Teachers and Employees Retention Incentive (TERI)

In conjunction with the change to the Cost Method, we have made additional assumptions in the course of developing plan liabilities in consideration of the TERI. We have assumed all members elect TERI coverage when they are first eligible for an unreduced retirement benefit. We assume members in the TERI are exposed to the current retirement rates during TERI coverage and we assume 100% terminate employment at the end of the TERI period (5 years).

13. Adoption Date

The current actuarial assumptions were adopted by the State Budget and Control Board on March 9, 1999.

SUMMARY OF PRINCIPAL PLAN PROVISIONS

1. **Effective Date**

July 1, 1945.

2. **Eligibility Requirements**

All full-time, part-time, or temporary personnel who fill a permanent position as a public school employee, public higher education personnel, state employees, and city, county and other local public employees of participating employers must join as a condition of employment as of the effective date of employment, unless they elect to participate in one of the Optional Retirement Plans (ORP).

Employees in non-permanent positions may choose to join.

3. **Creditable Service**

The sum of "prior service" and "membership service." Prior service means service rendered prior to membership for which credit is allowed. Membership service means service during which contributions have been made. This is counted in years, months, and days.

There are a number of different types of services that may be purchased by an employee under special rules, such as military service.

4. **Average Final Compensation (AFC)**

The total of the highest 12 consecutive quarters of compensation earned divided by 3. Compensation generally includes gross salary or wages, overtime, sick pay, wage deferrals, and termination pay for unused annual leave. The unused annual leave is added to the sum of the highest 12 consecutive quarters prior to dividing by 3. For member who joined the system on or after January 1, 1997, compensation for benefit and contribution purposes is limited. The 2002 limit is \$200,000, and this limit will be increased in the future as cost-of-living increases occur.

5. **Normal Retirement**

- | | |
|------------------------------|--|
| a. <u>Eligibility</u> | Attainment of age 65, or completion of 28 years of creditable service. |
| b. <u>Benefit</u> | 1.82% of AFC times creditable service. |

6. **Early Retirement**

- a. **Eligibility** Attainment of age 60, or attainment of age 55 with 25 years of creditable service.
- b. **Benefit** Benefit accrued to date of retirement, reduced 5% for each year prior to 65 (for age 60 eligibility), or 4% for each year prior to 28 years (for age 55 with 25 years eligibility).

7. **Teachers and Employees Retention Incentive (TERI)**

Upon meeting normal retirement eligibility, a member can elect to enter the TERI for a maximum of five (5) years, after which employment will cease. The retirement benefits will be accumulated in TERI accounts and will be paid to the members upon the earlier of actual retirement or the end of participation period. The amount credited to the TERI account is based upon the calculation and form of benefit selected by the member at TERI entry. No interest is credited to the TERI account. Member contributions cease, but employer contributions continue during TERI participation.

8. **Disability Retirement**

- a. **Eligibility** Disability prior to normal retirement age with at least 5 years of creditable service. The service requirement is waived for job related disability.
- b. **Benefit** Benefit equal to the amount that would have been payable at age 65 assuming continued employment and AFC at date of disability, less the equivalent benefit that would have been provided by the employee contributions that would have been made until age 65.

9. **Death Benefits**

- a. **Death prior to age 60 or 15 years of creditable service**

Refund of employee contributions with interest plus Group Life Insurance in a lump sum equal to annual earnable compensation at death of death. Group life Insurance only payable to those with at least 1 year of creditable service, unless death is job related, and whose employer participates.

- b. **Death after age 60 or with 15 years of creditable service**

Same as above, however, instead of the refund of employee contributions with interest, the beneficiary may elect to receive an annuity equal to the amount that would have been payable had the employee retired the day before death under Option B described below.

10. Employee Contributions

6% of earnable compensation.

11. Vested Benefit upon Termination

- a. Eligibility 100% vesting upon completion of 5 years of creditable service.
- b. Benefit Accrued benefit as of date of termination payable as of age 60.

12. Termination Benefit

- a. Eligibility Elect return of accumulated employee contributions.
- b. Benefit Return of employee contributions plus interest.

13. Optional Forms of Retirement Income

- Option A Monthly life annuity with guaranteed return of employee contributions plus interest. (This is the normal form of payment.)
- Option B Monthly life annuity with 100% of reduced benefit continued to beneficiary upon death with revert to maximum option if beneficiary predeceases retiree.
- Option C Monthly life annuity with 50% of reduced benefit continued to beneficiary upon death with revert to maximum option if beneficiary predeceases retiree.

Other optional payment forms were available in the past, and some retirees are still receiving benefits under these options.

14. Cost of Living Adjustment

Granted upon approval of State Budget and Control Board if funding objectives are met. The amount is the increase in the calendar year CPI not in excess of 4%.