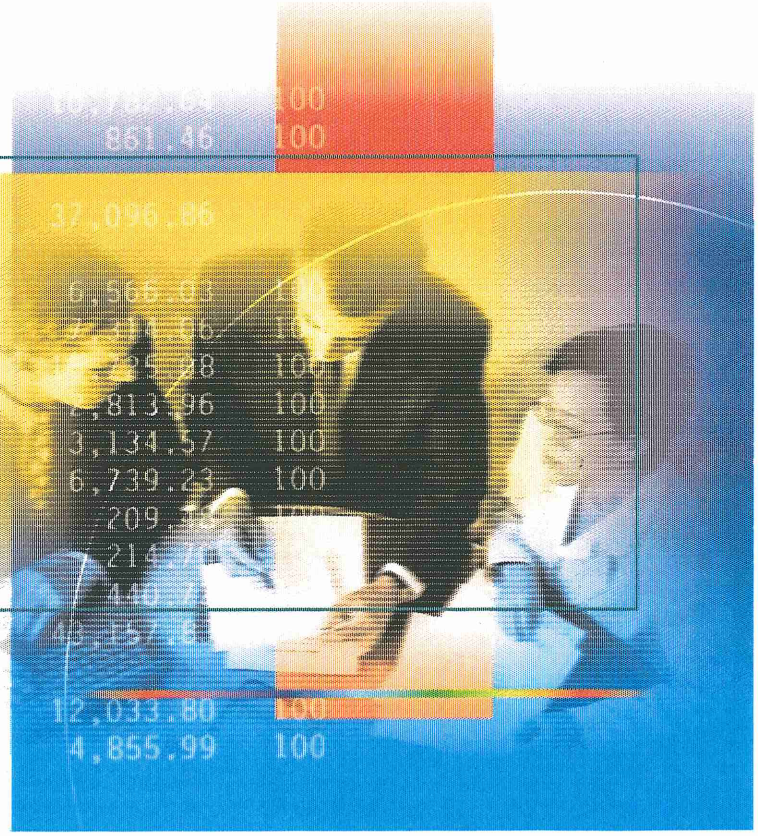
# Annual Valuation Report *for* MSRS

**Minnesota State Retirement Syste**




A MILLIMAN GLOBAL FIRM

**Milliman** USA

*Consultants and Actuaries*

*July 1, 2003*

**State Employees Retirement Fund**
***ACTUARIAL VALUATION REPORT***

**July 1, 2003**

FILE COPY

MILLIMAN USA

A MILLIMAN GLOBAL FIRM

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November 21, 2003

Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

**RE: State Employees Retirement Fund**

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 2003.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. Although we have reviewed the data for reasonableness and consistency, we have relied on the basic employee data and asset figures as submitted by the Minnesota State Retirement System.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission.

We, Thomas K. Custis and William V. Hogan, are actuaries for Milliman USA. We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Milliman USA

Thomas K. Custis

Thomas K. Custis, F.S.A., M.A.A.A.
Consulting Actuary

William V. Hogan

William V. Hogan, F.S.A., M.A.A.A.
Consulting Actuary

TKC/WVH/bh

**State Employees Retirement Fund**

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## ACTUARIAL ASSUMPTIONS



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**State Employees Retirement Fund**

## *Report Highlights*

*(dollars in thousands)*

| | 07/01/02 Valuation | 07/01/03 Valuation |
|---|---|---|
| A. CONTRIBUTIONS (Table 11) | | |
| 1. Statutory Contributions - Chapter 352 % of Payroll | 8.00% | 8.00% |
| 2. Required Contributions - Chapter 356 % of Payroll | 8.34% | 9.43% |
| 3. Sufficiency (Deficiency) | (0.34%) | (1.43%) |
| B. FUNDING RATIOS | | |
| 1. Accrued Benefit Funding Ratio | | |
| a. Current Assets (Table 1) | $ 7,673,028 | $ 7,757,292 |
| b. Current Benefit Obligations (Table 8) | $ 6,880,192 | $ 7,353,692 |
| c. Funding Ratio | 111.52% | 105.49% |
| 2. Accrued Liability Funding Ratio | | |
| a. Current Assets (Table 1) | $ 7,673,028 | $ 7,757,292 |
| b. Actuarial Accrued Liability (Table 9) | $ 7,340,397 | $ 7,830,671 |
| c. Funding Ratio | 104.53% | 99.06% |
| 3. Projected Benefit Funding Ratio (Table 8) | | |
| a. Current and Expected Future Assets | $ 8,802,995 | $ 8,911,232 |
| b. Current and Expected Future Benefit Obligations | $ 8,932,715 | $ 9,467,413 |
| c. Funding Ratio | 98.55% | 94.13% |
| C. PLAN PARTICIPANTS | | |
| 1. Active Members | | |
| a. Number (Table 3) | 49,099 | 48,136 |
| b. Projected Annual Earnings | $ 2,040,390 | $ 2,138,858 |
| c. Average Annual Earnings (Projected $) | $ 41,557 | $ 44,434 |
| d. Average Age | 44.8 | 45.4 |
| e. Average Service | 11.8 | 12.3 |
| 2. Others | | |
| a. Service Retirements (Table 4) | 17,279 | 17,774 |
| c. Survivors (Table 5) | 2,308 | 2,405 |
| b. Disability Retirements (Table 6) | 1,218 | 1,275 |
| d. Deferred Retirements (Table 7) | 11,939 | 12,679 |
| e. Terminated Other Non-Vested (Table 7) | 8,224 | 8,626 |
| f. Total | 40,968 | 42,759 |

State Employees Retirement Fund

# Commentary

### *Purpose*

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

### *Report Highlights*

The financial status of the Plan can be measured by three different funding ratios:

- The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 105.49%. The corresponding ratio for the prior year was 111.52%.
- The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 2003 the ratio is 99.06%, which is a decrease from the 2002 value of 104.53%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 94.13% shows that the current statutory contributions are inadequate.

### *Asset Information (Tables 1 and 2)*

Effective with the July 1, 2000 valuation of the fund, Minnesota Statutes require that the asset value used for actuarial purposes spread differences between actual return (measured on a market-value basis) and expected return on non-MPRIF assets over five years, in a manner similar to that already being used within the MPRIF. The previous method required under Minnesota Statutes recognized one third of the unrealized gains and losses. An Asset Valuation Method requirement exists because market values (which include all unrealized gains and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year. The intent of the change to the current method is to employ a more effective asset smoothing technique which is market-value based and which eliminates artificial bias related to manager style. The effective date of this requirement is July 1, 2000 with full transition to be accomplished as of July 1, 2003.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E.1 to E.4. Actuarial Value of Assets is determined as:

Market Value of Assets at June 30, 2003, *less*

80% of the current year Unrecognized Asset Return at July 1, 2003 (the difference between actual net return on Market Value of Assets between June 30, 2002 and June 30, 2003 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2002 Actuarial Valuation); *less*

60% of the current year Unrecognized Asset Return at July 1, 2002 (the difference between actual net return on Market Value of Assets between June 30, 2001 and June 30, 2002 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2001 Actuarial Valuation); *less*

40% of the current year Unrecognized Asset Return at July 1, 2001 (the difference between actual net return on Market Value of Assets between June 30, 2000 and June 30, 2001 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2000 Actuarial Valuation); *less*

20% of the current year Unrecognized Asset Return at July 1, 2000 (the difference between actual net return on Market Value of Assets between June 30, 1999 and June 30, 2000 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 1999 Actuarial Valuation).

Since its adoption on July 1, 2000, the Asset Valuation Method has functioned effectively to smooth the significant variability in market value returns. It is prudent to note, however, that the deferral of recognition of the large market losses of the last three fiscal years means there has accumulated a significant negative return amount that will be recognized over the next few years. This means that in order for asset returns on a "Current Assets" basis to be at or near the assumed 8.5%, market value returns will need to be substantially above 8.5%; conversely, if market value returns are at or near the assumed 8.5%, returns measured on a "Current Assets" basis will be substantially lower, resulting in actuarial losses.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets," the latter phrase will be used in the remainder of this report.

This plan participates in the Minnesota Post Retirement Investment Fund (i.e., MPRIF). After the MPRIF liability has been calculated for each participating Plan, the State Board of Investments (i.e., SBI) will determine each Plan's portion of the excess earnings for the January benefit increase as well as the Plan's allocated market share of MPRIF.

### *Actuarial Balance Sheet (Table 8)*

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated as follows:

- <u>For Active Members</u> – Salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.

- For Non-Active Members – The discounted value of benefits, including augmentation in cases where benefits have not commenced.

### GASB Disclosure

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superceded by Statement No. 25. Tables 14 and 15 of this report are included to fulfill the requirements of Statement No. 25.

### Actuarial Cost Method (Table 9)

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

### Source of Actuarial Gains and Losses (Table 10)

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectations. For a detailed analysis of the major components, refer to Table 10.

### Contribution Sufficiency (Table 11)

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

Table 11 shows the Plan has a contribution deficiency since the Statutory Contribution Rate is 8.00% compared to the Required Contribution Rate of 9.43%.

### *Changes in Actuarial Assumptions and Methods*

All actuarial assumptions are the same as those used in the prior valuation. Table 12 contains a summary of all actuarial assumptions and methods.

### *Changes in Plan Provisions*

No changes in plan provisions have been reflected in this valuation.

**State Employees Retirement Fund**

## *Statement of Plan Net Assets*

*(dollars in thousands)*

July 1, 2003

| | Market Value | Cost Value |
|---|---|---|
| A. ASSETS IN TRUST | | |
| 1. Cash, Equivalents, Short-Term Securities | $ 41,718 | $ 41,718 |
| 2. Fixed Income | 877,491 | 872,888 |
| 3. Equity | 2,701,497 | 3,059,222 |
| 4. Real Estate | 133,274 | 113,380 |
| 5. Equity in MPRIF* | 3,115,992 | 3,115,992 |
| 6. Other | 6,022 | 6,022 |
| **Subtotal** | $ 6,875,994 | $ 7,209,222 |
| B. ASSETS RECEIVABLE | 15,434 | 15,434 |
| C. LIABILITIES | $ (7,675) | $ (7,675) |
| D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS | | |
| 1. MPRIF Reserves* | 3,115,992 | 3,115,992 |
| 2. Member Reserves | 855,953 | 855,953 |
| 3. Other Non-MPRIF Reserves | 2,911,808 | 3,245,036 |
| 4. Total Assets Available for Benefits | $ 6,883,753 | $ 7,216,981 |

| | | |
|---|---|---|
| E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS | | |
| 1. Market Value of Assets Available for Benefits (D4) | | $ 6,883,753 |
| 2. Unrecognized Asset Returns (UAR) | | |
| a. June 30, 2003 | (239,289) | |
| b. June 30, 2002 | (685,390) | |
| c. June 30, 2001 | (721,038) | |
| d. June 30, 2000 | 87,707 | |
| 3. UAR Adjustment: .80 * 2(a) + .60 * 2(b) + .40 * 2(c) +.20 * 2(d) | | (873,539) |
| 4. Actuarial Value of Assets (E1-E3) (Same as "Current Assets") | | $ 7,757,292 |

* *The number shown is the full MPRIF reserve amount. The actual MPRIF market value of $2,967,798 is not used for funding purposes because this deficiency is accounted for separately and is expected to be recovered from future excess earnings on MPRI funds.*

**State Employees Retirement Fund**

## *Statement of Change In Plan Net Assets*

*(dollars in thousands)*

Year Ending June 30, 2003

| | Non-MPRIF Assets | MPRIF Reserve | Market Value |
|---|---|---|---|
| A. ASSETS AVAILABLE AT BEGINNING OF PERIOD | $ 3,754,390 | $ 3,015,552 | $ 6,769,942 |
| B. ADDITIONS | | | |
| 1. Member Contributions | $ 83,850 | 0 | $ 83,850 |
| 2. Employer Contributions | 80,399 | 0 | 80,399 |
| 3. Contributions From Other Sources | 0 | 0 | 0 |
| 4. MPRIF Income | 0 | 198,806 | 198,806 |
| 5. Net Investment Income | | | |
| a. Interest and Dividends | (134,549) | 0 | (134,549) |
| b. Net Appreciation/(Depreciation) | 206,350 | 0 | 206,350 |
| c. Investment Expenses | (4,781) | 0 | (4,781) |
| **d. Net Subtotal** | 67,020 | 0 | 67,020 |
| 6. Other | 9,767 | 0 | 9,767 |
| 7. Total Additions | $ 241,036 | $ 198,806 | $ 439,842 |
| C. OPERATING EXPENSES | | | |
| 1. Service Retirements | $ 0 | $ 311,472 | $ 311,472 |
| 2. Disability Benefits | 0 | 0 | 0 |
| 3. Survivor Benefits | 0 | 0 | 0 |
| 4. Refunds | 8,196 | 0 | 8,196 |
| 5. Administrative Expenses | 4,191 | 0 | 4,191 |
| 6. Other | 2,172 | 0 | 2,172 |
| 7. Total Disbursements | $ 14,559 | $ 311,472 | $ 326,031 |
| D. OTHER CHANGES IN RESERVES | | | |
| 1. Annuities Awarded | (221,387) | 221,387 | 0 |
| 2. Mortality Gain (Loss) | 8,281 | (8,281) | 0 |
| 3. Change in MPRIF Assumptions | 0 | 0 | 0 |
| 4. Total Other Changes | (213,106) | 213,106 | 0 |
| E. ASSETS AVAILABLE AT END OF PERIOD | $ 3,767,761 | $ 3,115,992 | $ 6,883,753 |

| | |
|---|---|
| F. DETERMINATION OF CURRENT YEAR UNRECOGNIZED ASSET RETURN | |
| 1. Average Balance | |
| (a) Non-MPRIF Assets Available at Beginning of Period | 3,754,390 |
| (b) Non-MPRIF Assets Available at End of Period* | 3,759,480 |
| (c) Average Balance {[F1.a+F1.b-B5.d-B6]/2} | 3,718,542 |
| 2. Expected Return: .085*F1.c | 316,076 |
| 3. Actual Return | 76,787 |
| 4. Current Year UAR: F3-F2 | $ (239,289) |

* Before adjustment for MPRIF mortality gain (loss) and new MPRIF assumptions

State Employees Retirement Fund

## *Active Members as of June 30, 2003*

| Age | Years of Service <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | All |
|---|---|---|---|---|---|---|---|---|---|
| <25 | 748 | 758 | 6 | 0 | 0 | 0 | 0 | 0 | 1,512 |
| 25-29 | 738 | 2,268 | 328 | 0 | 0 | 0 | 0 | 0 | 3,334 |
| 30-34 | 522 | 2,086 | 1,078 | 192 | 6 | 0 | 0 | 0 | 3,884 |
| 35-39 | 447 | 1,756 | 1,276 | 915 | 377 | 29 | 0 | 0 | 4,800 |
| 40-44 | 445 | 1,788 | 1,297 | 1,365 | 1,278 | 732 | 51 | 0 | 6,956 |
| 45-49 | 385 | 1,619 | 1,293 | 1,350 | 1,519 | 1,407 | 949 | 54 | 8,576 |
| 50-54 | 329 | 1,382 | 1,065 | 1,233 | 1,269 | 1,308 | 1,623 | 840 | 9,049 |
| 55-59 | 191 | 754 | 672 | 772 | 931 | 783 | 1,058 | 1,291 | 6,452 |
| 60-64 | 90 | 342 | 321 | 378 | 441 | 348 | 360 | 532 | 2,812 |
| 65+ | 59 | 138 | 98 | 125 | 106 | 73 | 77 | 85 | 761 |
| ALL | 3,954 | 12,891 | 7,434 | 6,330 | 5,927 | 4,680 | 4,118 | 2,802 | 48,136 |

## Average Annual Earnings

| Age | Years of Service <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | All |
|---|---|---|---|---|---|---|---|---|---|
| <25 | 15,503 | 25,921 | 34,145 | 0 | 0 | 0 | 0 | 0 | 20,799 |
| 25-29 | 25,925 | 31,299 | 36,111 | 0 | 0 | 0 | 0 | 0 | 30,582 |
| 30-34 | 22,840 | 33,726 | 39,881 | 41,551 | 33,600 | 0 | 0 | 0 | 34,357 |
| 35-39 | 22,743 | 35,857 | 41,897 | 44,972 | 43,751 | 42,131 | 0 | 0 | 38,636 |
| 40-44 | 23,861 | 36,384 | 43,042 | 46,590 | 48,563 | 43,679 | 38,495 | 0 | 41,847 |
| 45-49 | 23,018 | 35,991 | 43,291 | 46,907 | 48,578 | 48,460 | 47,062 | 46,393 | 43,793 |
| 50-54 | 25,510 | 37,600 | 42,487 | 47,707 | 48,987 | 49,603 | 52,836 | 48,976 | 46,233 |
| 55-59 | 23,688 | 36,154 | 43,634 | 47,088 | 47,261 | 48,162 | 53,653 | 55,300 | 47,632 |
| 60-64 | 18,737 | 34,323 | 41,214 | 46,345 | 46,575 | 45,325 | 50,694 | 55,927 | 45,692 |
| 65+ | 12,986 | 21,670 | 36,824 | 47,088 | 43,727 | 41,874 | 46,212 | 51,655 | 37,966 |
| ALL | 22,171 | 34,227 | 41,930 | 46,544 | 47,897 | 47,606 | 51,226 | 53,240 | 41,590 |

**Prior Fiscal Year Earnings (in MILLIONS) by Years of Service**

| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| All | 87 | 441 | 311 | 294 | 283 | 222 | 210 | 149 | 2,001 |

State Employees Retirement Fund

## *Service Retirements as of June 30, 2003*

| Age | Years Retired | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50-54 | 11 | 8 | 0 | 0 | 0 | 0 | 0 | 19 |
| 55-59 | 482 | 519 | 32 | 0 | 0 | 0 | 0 | 1,033 |
| 60-64 | 646 | 1,218 | 786 | 6 | 0 | 0 | 0 | 2,656 |
| 65-69 | 348 | 1,310 | 1,584 | 546 | 3 | 0 | 0 | 3,791 |
| 70-74 | 42 | 199 | 1,592 | 1,309 | 215 | 0 | 0 | 3,357 |
| 75-79 | 16 | 47 | 291 | 1,532 | 1,002 | 36 | 0 | 2,924 |
| 80-84 | 5 | 8 | 57 | 248 | 1,177 | 590 | 6 | 2,091 |
| 85+ | 0 | 4 | 10 | 23 | 146 | 893 | 827 | 1,903 |
| ALL | 1,550 | 3,313 | 4,352 | 3,664 | 2,543 | 1,519 | 833 | 17,774 |

### Average Annual Benefit

| Age | Years Retired | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50-54 | 11,495 | 9,524 | 0 | 0 | 0 | 0 | 0 | 10,665 |
| 55-59 | 13,626 | 10,718 | 16,436 | 0 | 0 | 0 | 0 | 12,252 |
| 60-64 | 14,404 | 14,803 | 12,715 | 17,101 | 0 | 0 | 0 | 14,093 |
| 65-69 | 12,123 | 13,141 | 14,832 | 17,961 | 14,826 | 0 | 0 | 14,449 |
| 70-74 | 9,069 | 11,181 | 14,584 | 18,159 | 20,221 | 0 | 0 | 16,068 |
| 75-79 | 10,457 | 9,733 | 13,768 | 15,794 | 18,680 | 16,411 | 0 | 16,462 |
| 80-84 | 2,761 | 7,427 | 15,684 | 14,824 | 15,066 | 16,502 | 14,746 | 15,399 |
| 85+ | 0 | 9,698 | 15,847 | 15,575 | 11,410 | 13,986 | 11,284 | 12,634 |
| ALL | 13,406 | 13,179 | 14,313 | 16,896 | 16,715 | 15,020 | 11,308 | 14,818 |

| Age | Total Annual Benefit (in thousands) by Years Retired | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| All | 20,779 | 43,662 | 62,290 | 61,906 | 42,506 | 22,815 | 9,419 | 263,375 |

State Employees Retirement Fund

## *Survivors as of June 30, 2003*

| Age | Years Since Death ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
|---|---|---|---|---|---|---|---|---|
| <50 | 45 | 47 | 36 | 5 | 2 | 0 | 0 | 135 |
| 50-54 | 35 | 36 | 32 | 5 | 2 | 0 | 1 | 111 |
| 55-59 | 33 | 53 | 44 | 12 | 6 | 1 | 0 | 149 |
| 60-64 | 36 | 63 | 76 | 34 | 5 | 2 | 2 | 218 |
| 65-69 | 40 | 72 | 80 | 49 | 12 | 3 | 0 | 256 |
| 70-74 | 52 | 96 | 101 | 78 | 33 | 10 | 1 | 371 |
| 75-79 | 58 | 104 | 119 | 75 | 50 | 33 | 9 | 448 |
| 80-84 | 36 | 67 | 124 | 79 | 26 | 48 | 24 | 404 |
| 85+ | 12 | 43 | 68 | 76 | 12 | 26 | 76 | 313 |
| ALL | 347 | 581 | 680 | 413 | 148 | 123 | 113 | 2,405 |

### Average Annual Benefit

| Age | Years Since Death ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
|---|---|---|---|---|---|---|---|---|
| <50 | 7,469 | 7,947 | 5,581 | 7,545 | 6,692 | 0 | 0 | 7,123 |
| 50-54 | 9,430 | 9,113 | 9,059 | 7,750 | 6,291 | 0 | 899 | 9,011 |
| 55-59 | 10,555 | 12,098 | 11,778 | 9,918 | 8,481 | 6,821 | 0 | 11,305 |
| 60-64 | 12,350 | 10,502 | 12,833 | 12,450 | 10,621 | 14,055 | 12,246 | 11,974 |
| 65-69 | 13,387 | 12,932 | 14,304 | 14,296 | 10,925 | 9,512 | 0 | 13,558 |
| 70-74 | 14,668 | 16,791 | 15,266 | 14,760 | 10,666 | 8,686 | 4,646 | 14,855 |
| 75-79 | 15,531 | 16,773 | 16,547 | 15,250 | 14,372 | 13,410 | 7,775 | 15,600 |
| 80-84 | 12,844 | 14,493 | 14,714 | 11,897 | 16,794 | 14,333 | 9,436 | 13,734 |
| 85+ | 8,960 | 13,898 | 12,873 | 12,638 | 11,771 | 10,630 | 11,124 | 12,153 |
| ALL | 12,184 | 13,529 | 13,734 | 13,352 | 12,902 | 12,660 | 10,370 | 13,130 |

### Total Annual Benefit (in thousands) by Years Since Death

| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
|---|---|---|---|---|---|---|---|---|
| All | 4,227 | 7,860 | 9,339 | 5,514 | 1,909 | 1,557 | 1,171 | 31,577 |

State Employees Retirement Fund

## Disability Retirements as of June 30, 2003

| Age | Years Disabled <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
|---|---|---|---|---|---|---|---|---|
| <50 | 44 | 52 | 51 | 13 | 2 | 0 | 0 | 162 |
| 50-54 | 46 | 73 | 49 | 17 | 1 | 0 | 0 | 186 |
| 55-59 | 62 | 82 | 49 | 29 | 5 | 2 | 0 | 229 |
| 60-64 | 40 | 82 | 87 | 29 | 5 | 2 | 1 | 246 |
| 65-69 | 4 | 31 | 86 | 49 | 3 | 0 | 3 | 176 |
| 70-74 | 0 | 0 | 27 | 53 | 16 | 9 | 1 | 106 |
| 75-79 | 0 | 0 | 0 | 16 | 20 | 13 | 10 | 59 |
| 80-84 | 0 | 0 | 0 | 0 | 9 | 41 | 25 | 75 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 5 | 31 | 36 |
| ALL | 196 | 320 | 349 | 206 | 61 | 72 | 71 | 1,275 |

### Average Annual Benefit

| Age | Years Disabled <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
|---|---|---|---|---|---|---|---|---|
| <50 | 8,344 | 7,202 | 8,235 | 5,636 | 4,585 | 0 | 0 | 7,679 |
| 50-54 | 10,778 | 10,930 | 9,947 | 9,849 | 3,472 | 0 | 0 | 10,494 |
| 55-59 | 13,161 | 11,838 | 11,332 | 11,456 | 7,245 | 10,616 | 0 | 11,928 |
| 60-64 | 10,603 | 10,251 | 13,046 | 12,551 | 10,468 | 10,446 | 10,198 | 11,573 |
| 65-69 | 9,286 | 12,516 | 12,892 | 12,676 | 8,038 | 0 | 5,921 | 12,482 |
| 70-74 | 0 | 0 | 10,967 | 10,745 | 13,027 | 10,118 | 5,337 | 11,041 |
| 75-79 | 0 | 0 | 0 | 10,125 | 9,546 | 14,472 | 8,624 | 10,632 |
| 80-84 | 0 | 0 | 0 | 0 | 9,464 | 11,998 | 7,184 | 10,089 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 10,377 | 8,234 | 8,531 |
| ALL | 10,919 | 10,536 | 11,468 | 11,114 | 9,997 | 12,015 | 7,808 | 10,849 |

### Total Annual Benefit (in thousands) by Years Disabled

| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
|---|---|---|---|---|---|---|---|---|
| All | 2,140 | 3,371 | 4,002 | 2,289 | 609 | 865 | 554 | 13,832 |

**State Employees Retirement Fund**

## *Reconciliation of Members*

| | | | Terminated | |
|---|---|---|---|---|
| | | | Deferred | Other |
| | | Actives | Retirement | Non-Vested |
| A. | ON JUNE 30, 2002 | 49,099 | 11,939 | 8,224 |
| B. | ADDITIONS | 3,699 | 1,337 | 2,141 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | (724) | (316) | (4) |
| | 2. Disability | (117) | (9) | 0 |
| | 3. Death | (62) | (35) | 0 |
| | 4. Terminated - Deferred | (1,203) | 0 | (13) |
| | 5. Terminated - Refund | (985) | (137) | (417) |
| | 6. Terminated - Other Non-Vested | (1,899) | 0 | 0 |
| | 7. Returned as active | 285 | (147) | (138) |
| | 8. Transferred to Other Fund | (1) | (6) | (1,149) |
| D. | DATA ADJUSTMENTS | 44 | 53 | (18) |
| | 1. Vested | 37,113 | | |
| | 2. Non-Vested | 11,023 | | |
| E. | TOTAL ON JUNE 30, 2003 | 48,136 | 12,679 | 8,626 |

| | | Recipients | | |
|---|---|---|---|---|
| | | Retirement | | |
| | | Annuitants | Disabled | Survivors |
| A. | ON JUNE 30, 2002 | 17,279 | 1,218 | 2,308 |
| B. | ADDITIONS | 1,044 | 133 | 189 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 30 | (30) | 0 |
| | 2. Death | (611) | (68) | (84) |
| | 3. Annuity Expired | 0 | 0 | 0 |
| | 4. Returned as Active | (2) | 0 | 0 |
| D. | DATA ADJUSTMENTS | 34 | 22 | (8) |
| E. | TOTAL ON JUNE 30, 2003 | 17,774 | 1,275 | 2,405 |

**State Employees Retirement Fund**

## *Actuarial Balance Sheet*

*(dollars in thousands)*

July 1, 2003

| | | Non-Vested | Vested | Total |
|---|---|---|---|---|
| A. | CURRENT ASSETS (Table 1, Line E4) | | | $ 7,757,292 |
| B. | EXPECTED FUTURE ASSETS | | | |
| | 1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11) | | | (482,802) |
| | 2. Present Value of Future Normal Costs | | | 1,636,742 |
| | 3. Total Expected Future Assets | | | $ 1,153,940 |
| C. | TOTAL CURRENT AND EXPECTED FUTURE ASSETS | | | $ 8,911,232 |
| D. | CURRENT BENEFIT OBLIGATIONS | Non-Vested | Vested | Total |
| | 1. Benefit Recipients | | | |
| | a. Retirement Annuities | | $ 2,674,081 | $ 2,674,081 |
| | b. Disability Benefits | | 150,107 | 150,107 |
| | c. Surviving Spouse and Child Benefits | | 291,820 | 291,820 |
| | 2. Deferred Retirements with Future Augmentation | | 758,719 | 758,719 |
| | 3. Former Members Without Vested Rights | | 12,831 | 12,831 |
| | 4. Active Members | | | |
| | a. Retirement Annuities | $ 25,578 | 2,950,760 | 2,976,338 |
| | b. Disability Benefits | 126,447 | 0 | 126,447 |
| | c. Surviving Spouse and Child Benefits | 70,209 | 0 | 70,209 |
| | d. Deferred Retirements | 7,397 | 267,122 | 274,519 |
| | e. Refund Liability Due to Death or Withdrawal | 0 | 18,621 | 18,621 |
| | 5. Total Current Benefit Obligations | $ 229,631 | $ 7,124,061 | $ 7,353,692 |
| E. | EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $ 2,113,721 |
| F. | TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $ 9,467,413 |
| G. | CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A) | | | $ (403,600) |
| H. | CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C) | | | $ 556,181 |

**State Employees Retirement Fund**

## *Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate*

*(dollars in thousands)*

July 1, 2003

| | Actuarial Present Value of Projected Benefits | Actuarial Present Value of Future Normal Costs | Actuarial Accrued Liability |
|---|---|---|---|
| A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL) | | | |
| 1. Active Members | | | |
| a. Retirement Annuities | $ 4,752,097 | $ 1,121,720 | $ 3,630,377 |
| b. Disability Benefits | 211,301 | 79,959 | 131,342 |
| c. Survivor's Benefits | 116,869 | 42,547 | 74,322 |
| d. Deferred Retirements | 440,567 | 252,818 | 187,749 |
| e. Refunds Due to Death or Withdrawal | 37,262 | 139,698 | (102,436) |
| f. Total | $ 5,558,096 | $ 1,636,742 | $ 3,921,354 |
| 2. Deferred Retirements With Future Augmentation | 758,719 | | 758,719 |
| 3. Former Members Without Vested Rights | 12,831 | | 12,831 |
| 4. Annuitants in MPRIF | 3,115,992 | | 3,115,992 |
| 5. Recipients Not in MPRIF | 16 | | 16 |
| 6. Contingent Liability From Unclassified Plan | 21,759 | | 21,759 |
| 7. Total | $ 9,467,413 | $ 1,636,742 | $ 7,830,671 |
| B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) | | | |
| 1. AAL (A6) | | | $ 7,830,671 |
| 2. Current Assets (Table 1, E4) | | | 7,757,292 |
| 3. UAAL (B1-B2) | | | $ 73,379 |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE | | | |
| 1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2032 | | | 38,935,624 |
| 2. Supplemental Contribution Rate (B3/C1) | | | 0.19% |

**State Employees Retirement Fund**

## *Changes in Unfunded Actuarial Accrued Liability (UAAL)*

*(dollars in thousands)*

Year Ending June 30, 2003

| | | |
|---|---|---|
| A. UAAL AT BEGINNING OF YEAR | $ | (332,631) |
| B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING | | |
| 1. Normal Cost and Expenses | $ | 187,969 |
| 2. Contributions | | (164,249) |
| 3. Interest on A, B1, and B2 | | (27,266) |
| 4. Total (B1+B2+B3) | $ | (3,546) |
| C. EXPECTED UAAL AT END OF YEAR (A+B4) | $ | (336,177) |
| D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED | | |
| 1. Salary Increases | $ | (7,148) |
| 2. Investment Return | $ | 345,598 |
| 3. MPRIF Mortality | $ | (8,281) |
| 4. Mortality of Other Benefit Recipients | $ | (1) |
| 5. Other Items | $ | 79,388 [1] |
| 6. Total | $ | 409,556 |
| E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6) | $ | 73,379 |
| F. CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY DUE TO CHANGE IN ACTUARIAL METHODS | | 0 |
| G. CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY DUE TO CHANGE IN ACTUARIAL ASSUMPTIONS | | 0 |
| H. UAAL AT END OF YEAR (E+F+G) | $ | 73,379 |

[1] *Of the $79 million "other loss" we have been able to identify sources of loss as follows: approximately $17 million from current year retirement experience, approximately $13 million from new entrants and approximately $27 million from a programming refinement affecting Rule of 90 eligibility.*

**State Employees Retirement Fund**

## *Determination of Contribution Sufficiency*

*(dollars in thousands)*

July 1, 2003

| | Percent of Payroll | | Dollar Amount |
|---|---|---|---|
| A. STATUTORY CONTRIBUTIONS - CHAPTER 352 | | | |
| 1. Employee Contributions | 4.00% | $ | 85,554 |
| 2. Employer Contributions | 4.00% | | 85,554 |
| 3. Total | 8.00% | $ | 171,108 |
| B. REQUIRED CONTRIBUTIONS - CHAPTER 356 | | | |
| 1. Normal Cost | | | |
| a. Retirement Benefits | 6.32% | $ | 135,091 |
| b. Disability Benefits | 0.42% | | 8,949 |
| c. Survivors | 0.22% | | 4,808 |
| d. Deferred Retirement Benefits | 1.32% | | 28,211 |
| e. Refunds Due to Death or Withdrawal | 0.75% | | 16,094 |
| f. Total | 9.03% | $ | 193,153 |
| 2. Supplemental Contribution Amortization by July 1, 2032 of UAAL | 0.19% | | 4,064 |
| 3. Allowance for Expenses | 0.21% | | 4,492 |
| 4. Total | 9.43% | $ | 201,709 |
| C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4] | -1.43% | | (30,601) |

Note: Projected Annual Payroll for Fiscal Year Beginning on the Valuation Date: $ 2,138,858

**State Employees Retirement Fund**

## Summary of Actuarial Assumptions and Methods

| | |
|---|---|
| *Interest*: | **Pre-Retirement**: 8.5% per annum<br>**Post-Retirement**: 8.5% per annum |
| *Benefit Increases After Retirement:* | Payment of earnings on retired reserves in excess of 6% accounted for by 6% post-retirement assumptions. |
| *Salary Increases:* | Reported salary for prior fiscal year, with new hires annualized, increased to current fiscal year and annually for each future year according to the ultimate rate table on pages 21 and 22. During a 10-year select period, 0.3% x ( 10 - T ) where T is completed years of service is added to the ultimate rate. |
| *Mortality*: | **Pre-Retirement**:<br>Male - 1983 Group Annuity Mortality Table for males setback five years.<br>Female - 1983 Group Annuity Mortality Table for females set back two years.<br><br>**Post-Retirement**:<br>Male - 1983 Group Annuity Mortality Table for males setback two years.<br>Female - 1983 Group Annuity Mortality Table for females setback one year.<br><br>**Post-Disability**:<br>Male - 1965 RRB rates through age 54. For ages 55 to 64, graded rates between 1965 RRB rates and the Post-Retirement mortality table. For ages 65 and later, the Post-Retirement mortality table.<br><br>Female - 1965 RRB rates through age 54. For ages 55 to 64, graded rates between 1965 RRB rates and the Post-Retirement mortality table. For ages 65 and later, the Post-Retirement mortality table. |
| *Retirement Age*: | Graded rates beginning at age 55 as shown in rate table. Members who have attained the highest assumed retirement age will retire in one year. |

*Separation*: Select and ultimate rates based on recent plan experience. Ultimate rates after the third year are shown in rate table. Select rates are as follows:

| | First Year | Second Year | Third Year |
|---|---|---|---|
| Males | 0.45 | 0.14 | 0.09 |
| Females | 0.48 | 0.15 | 0.10 |

*Disability*: Rates as shown in rate table.

*Allowance for Combined Service Annuity:* Liabilities for active Members are increased by 1.2% and liabilities for former Members are increased by 40% to account for the effect of some participants having eligibility for a Combined Service Annuity.

*Expenses*: Prior year administration expenses expressed as a percentage of prior year payroll.

*Return of Contributions*: All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit.

*Family Composition*: 85% of Members are assumed to be married. Female is three years younger than male.

*Social Security*: N/A

*Special Consideration*: Married Members assumed to elect subsidized joint and survivor form of annuity as follows:

**Males -** 20% elect 50% J&S option
50% elect 100% J&S option

**Females -** 10% elect 50% J&S option
15% elect 100% J&S option

*Actuarial Cost Method*: Entry Age Normal Actuarial Cost Method with normal costs expressed as a level percentage of earnings. Under this method, Actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability.

| | |
|---|---|
| ***Asset Valuation Method:*** | Market Value less a percentage of the Unrecognized Asset Return determined at the close of each of the four preceding fiscal years. Unrecognized Asset Return is the difference between actual net return on Market Value of Assets and the asset return expected during the fiscal year (based on the assumed interest rate employed in the July 1 Actuarial Valuation of the fiscal year). Transition rules apply between July 1, 2000 and July 1, 2003, when the method is fully in effect. |
| ***Payment on the Unfunded Actuarial Accrued Liability*:** | A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5% per annum. If there is a negative Unfunded Actuarial Accrued Liability, the surplus amount shall be amortized over 30 years as a level percentage of payroll. |

### State Employees Retirement Fund

## Summary of Actuarial Assumptions and Methods

***Separation Expressed as Number of Occurrences Per 10,000:***

| | Pre-Retirement Death | | Withdrawal | | Disability | | Retirement | | Salary Increases |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female | Rule of 90 Eligible | Other | |
| 20 | 3 | 2 | 690 | 855 | 1 | 1 | 0 | 0 | 6.75% |
| 21 | 3 | 2 | 670 | 840 | 1 | 1 | 0 | 0 | 6.75 |
| 22 | 3 | 2 | 650 | 825 | 1 | 1 | 0 | 0 | 6.75 |
| 23 | 4 | 2 | 630 | 810 | 1 | 1 | 0 | 0 | 6.75 |
| 24 | 4 | 2 | 610 | 795 | 1 | 1 | 0 | 0 | 6.75 |
| 25 | 4 | 2 | 590 | 780 | 1 | 1 | 0 | 0 | 6.75 |
| 26 | 4 | 2 | 570 | 765 | 1 | 1 | 0 | 0 | 6.75 |
| 27 | 4 | 3 | 550 | 750 | 1 | 1 | 0 | 0 | 6.75 |
| 28 | 4 | 3 | 530 | 735 | 1 | 1 | 0 | 0 | 6.75 |
| 29 | 4 | 3 | 510 | 720 | 1 | 1 | 0 | 0 | 6.75 |
| 30 | 5 | 3 | 490 | 705 | 1 | 1 | 0 | 0 | 6.75 |
| 31 | 5 | 3 | 470 | 690 | 1 | 1 | 0 | 0 | 6.75 |
| 32 | 5 | 3 | 450 | 675 | 1 | 1 | 0 | 0 | 6.75 |
| 33 | 5 | 4 | 430 | 660 | 1 | 1 | 0 | 0 | 6.75 |
| 34 | 6 | 4 | 410 | 645 | 2 | 2 | 0 | 0 | 6.75 |
| 35 | 6 | 4 | 390 | 630 | 3 | 3 | 0 | 0 | 6.75 |
| 36 | 6 | 4 | 370 | 615 | 4 | 4 | 0 | 0 | 6.75 |
| 37 | 7 | 5 | 350 | 600 | 5 | 5 | 0 | 0 | 6.75 |
| 38 | 7 | 5 | 340 | 585 | 6 | 6 | 0 | 0 | 6.75 |
| 39 | 8 | 5 | 330 | 570 | 7 | 7 | 0 | 0 | 6.75 |
| 40 | 9 | 6 | 320 | 555 | 8 | 8 | 0 | 0 | 6.75 |
| 41 | 9 | 6 | 310 | 540 | 9 | 9 | 0 | 0 | 6.75 |
| 42 | 10 | 7 | 300 | 525 | 10 | 10 | 0 | 0 | 6.75 |
| 43 | 10 | 7 | 290 | 510 | 11 | 11 | 0 | 0 | 6.65 |
| 44 | 11 | 8 | 280 | 495 | 12 | 12 | 0 | 0 | 6.55 |
| 45 | 12 | 8 | 270 | 480 | 13 | 13 | 0 | 0 | 6.45 |
| 46 | 14 | 9 | 260 | 465 | 14 | 14 | 0 | 0 | 6.35 |
| 47 | 15 | 10 | 250 | 450 | 15 | 15 | 0 | 0 | 6.25 |
| 48 | 17 | 11 | 240 | 430 | 18 | 18 | 0 | 0 | 6.15 |
| 49 | 19 | 12 | 230 | 410 | 21 | 21 | 0 | 0 | 6.05 |

**State Employees Retirement Fund**

## *Summary of Actuarial Assumptions and Methods*

***Separation Expressed as Number of Occurrences Per 10,000:***

| | Pre-Retirement Death | | Withdrawal | | Disability | | Retirement | | Salary Increases |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female | Rule of 90 Eligible | Other | |
| 50 | 22 | 14 | 220 | 390 | 24 | 24 | 0 | 0 | 5.95% |
| 51 | 25 | 15 | 210 | 370 | 27 | 27 | 0 | 0 | 5.85 |
| 52 | 28 | 16 | 200 | 350 | 30 | 30 | 0 | 0 | 5.75 |
| 53 | 31 | 18 | 190 | 330 | 34 | 32 | 0 | 0 | 5.65 |
| 54 | 35 | 19 | 180 | 310 | 38 | 34 | 0 | 0 | 5.55 |
| 55 | 39 | 21 | 0 | 0 | 42 | 36 | 2,500 | 500 | 5.45 |
| 56 | 43 | 23 | 0 | 0 | 46 | 38 | 2,500 | 500 | 5.35 |
| 57 | 48 | 25 | 0 | 0 | 50 | 40 | 2,500 | 500 | 5.25 |
| 58 | 52 | 28 | 0 | 0 | 55 | 44 | 2,500 | 500 | 5.25 |
| 59 | 57 | 31 | 0 | 0 | 60 | 48 | 2,500 | 500 | 5.25 |
| 60 | 61 | 34 | 0 | 0 | 65 | 52 | 2,500 | 1,000 | 5.25 |
| 61 | 66 | 38 | 0 | 0 | 70 | 56 | 2,500 | 1,000 | 5.25 |
| 62 | 71 | 42 | 0 | 0 | 75 | 60 | 5,000 | 2,500 | 5.25 |
| 63 | 77 | 47 | 0 | 0 | 80 | 64 | 4,000 | 2,000 | 5.25 |
| 64 | 84 | 52 | 0 | 0 | 85 | 68 | 4,000 | 2,000 | 5.25 |
| 65 | 92 | 58 | 0 | 0 | 0 | 0 | 4,500 | 4,500 | 5.25 |
| 66 | 101 | 64 | 0 | 0 | 0 | 0 | 3,000 | 3,000 | 5.25 |
| 67 | 111 | 71 | 0 | 0 | 0 | 0 | 3,000 | 3,000 | 5.25 |
| 68 | 124 | 78 | 0 | 0 | 0 | 0 | 3,000 | 3,000 | 5.25 |
| 69 | 139 | 87 | 0 | 0 | 0 | 0 | 3,000 | 3,000 | 5.25 |
| 70 | 156 | 97 | 0 | 0 | 0 | 0 | 3,000 | 3,000 | 5.25 |
| 71 | 176 | 109 | 0 | 0 | 0 | 0 | 10,000 | 10,000 | 5.25 |

**State Employees Retirement Fund**

## Summary of Plan Provisions

*This summary of provisions reflects the interpretation of applicable Statutes by the Commission Actuary for purposes of preparing this valuation. This interpretation is not intended to create or rescind any benefit rights in conflict with any Minnesota Statutes.*

# GENERAL

| | |
|---|---|
| ***Eligibility*:** | State employees, non-academic staff of the University of Minnesota and employees of certain Metro level governmental units, unless excluded by law. |
| ***Contributions*:** | |
| *Member*: | 4.00% of salary. |
| *Employer*: | 4.00% of salary. |
| ***Allowable Service*:** | Service during which Member contributions were made. May also include certain leaves of absence, military service and periods while temporary Worker's Compensation is paid. Excludes lump sum vacation pay at termination. |
| ***Salary*:** | Includes wages, allowances and fees. Excludes lump-sum payments at separation, employer contributions to deferred compensation and tax-sheltered annuity plans and benevolent vacation and sick leave donation programs. |
| ***Average Salary*:** | Average of the five highest successive years (60 successive months) of salary. Average Salary is based on all Allowable Service if less than five years. |

# RETIREMENT

***Normal Retirement Benefit*:**

| | |
|---|---|
| *Eligibility*: | **First hired before July 1, 1989**:<br>Age 65 and three years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service. |

**First hired after June 30, 1989**:
The greater of age 65 or the age eligible for full Social Security retirement benefits (but not higher than age 66) and three years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service.

*Amount*: 1.7% of Average Salary for each year of Allowable Service.

***Early Retirement Benefit***:

*Eligibility*:

**First hired before July 1, 1989**:
Age 55 and three years of Allowable Service.
Any age with 30 years of Allowable Service.
Rule of 90: Age plus Allowable Service totals 90.

**First hired after June 30, 1989**:
Age 55 with three years of Allowable Service.

*Amount*

**First hired before July 1, 1989**:
The greater of

1.2% of Average Salary for each of the first 10 years of Allowable Service and 1.7% of Average Salary for each subsequent year with reduction of 0.25% for each month the Member is under age 65 at time of retirement or age 62 if 30 years of Allowable Service. No reduction if age plus years of Allowable Service totals 90;

**OR**

1.7% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3% per year and actuarial reduction for each month the Member is under age 65.

**First hired after June 30, 1989**:
1.7% of Average Salary for each year of Allowable Service assuming augmentation to the age eligible for full Social Security retirement benefit (but not higher than age 66) at 3% per year and actuarial reduction for each month the Member is under the Social Security retirement age (but not higher than age 66).

*Form of Payment*: Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are:

50% or 100% joint and survivor with bounce back feature without additional reduction. 15 year certain and life thereafter.

*Benefit Increases*: Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Benefit recipients receiving benefits for at least one full month but less than 12 full months will receive a partial increase.

Members retired under laws in effect before July 1, 1973 receive an additional lump-sum payment each year. In 1989, this lump-sum payment is the greater of $25 times each full year of Allowable Service or $400 per full year of service less any Social Security benefits received or annuity from a Minnesota public employee pension plan. In each following year, the lump-sum payment will increase by the same percentage increase that is applied to regular annuities paid from MPRIF. Effective January 1, 2002, annual lump sum payment is divided by 12 and paid as a monthly life annuity in the annuity form elected.

# DISABILITY

***Disability Benefit:***

*Eligibility*: Total and permanent disability before normal retirement age with three years of Allowable Service.

*Amount*: Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction for commencement before normal retirement age.

If a Member became disabled prior to July 1, 1997 but was not eligible to commence their benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Payments stop if disability ceases or death occurs. Payments revert to a retirement annuity at normal retirement age. Benefits may be reduced on resumption of partial employment.

*Form of Payment*: Same as for retirement.

*Benefit Increases*: Same as for retirement.

***Retirement After Disability*:**

*Eligibility*: Normal retirement age with continued disability.

*Amount*: Any optional annuity continues. Otherwise, a normal retirement benefit equal to the disability benefit paid before normal retirement age, or an actuarially equivalent optional annuity.

*Benefit Increases*: Same as for retirement.

# DEATH

***Surviving Spouse Optional Benefit*:**

*Eligibility*: Member or former Member who dies before retirement or disability benefits commence with three years of Allowable Service. If a former Member dies before age 55 and has less than 30 years of Allowable Service, benefits commence when the former Member would have been age 55. If an active Member dies, benefits may commence immediately, regardless of age.

*Amount*: Surviving spouse receives the 100% joint and survivor benefit the Member could have elected if terminated. If commencement is prior to age 55, the appropriate early retirement formula described above applies except that one-half the monthly reduction factor is used from age 55 to the commencement age and the Rule of 90 does not apply. In lieu of this benefit, the surviving spouse may elect a refund of contributions with interest or an actuarially equivalent term certain annuity.

If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

*Benefit Increases*: Same as for retirement.

***Surviving Dependent Children's Benefit*:**

*Eligibility*: If no surviving spouse, all dependent children (biological or adopted) below age 20 who are dependent for more than half of their support on deceased Member.

*Amounts*: Actuarially equivalent to surviving spouse 100% joint and survivor annuity payable to the later of age 20 or five years. The amount is to be proportionally divided among surviving children.

If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

***Refund of Contributions*:**

*Eligibility*: Active employee dies and survivor benefits are not payable, or a former employee dies before annuity begins, or a former employee who is not entitled to an annuity dies.

*Amount*: The Member's contributions with 5% interest if death occurred before May 16, 1989, and 6% interest if death occurred on or after May 16, 1989.

*Eligibility*: Retired or disabled annuitant who did not select an optional annuity dies, or the remaining recipient of an option dies.

*Amount*: The excess of the Member's contributions over all benefits paid.

## TERMINATION

***Refund of Contributions***:

*Eligibility*: Termination of state service.

*Amount*: Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest compounded annually if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund.

***Deferred Benefit***:

*Eligibility*: Three years of Allowable Service.

*Amount*: Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/71; 5% from 7/1/71 to 1/1/81; and 3% thereafter until January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

If a Member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

## SIGNIFICANT CHANGES

No significant changes in plan provisions were recognized for this valuation.

**State Employees Retirement Fund**

## *Schedule of Funding Progress*

*(dollars in thousands)*

July 1, 2003

| Actuarial Valuation Date | Actuarial Value of Assets (A) | Actuarial Accrued Liability (B) | Unfunded AAL (UAAL) (B)-(A) | Funded Ratio (A)/(B) | Actual Covered Payroll (Previous FY) (C) | UAAL as % of Covered Payroll ((B)-(A))/(C) |
|---|---|---|---|---|---|---|
| 07/01/91 | $ 2,304,311 | $ 2,883,603 | $ 579,292 | 79.91% | $ 1,370,964 | 42.25% |
| 07/01/92 | 2,613,472 | 3,125,299 | 511,827 | 83.62% | 1,409,108 | 36.32% |
| 07/01/93 | 2,905,578 | 3,563,492 | 657,914 | 81.54% | 1,482,005 | 44.39% |
| 07/01/94 | 3,158,068 | 3,876,584 | 718,516 | 81.47% | 1,536,978 | 46.75% |
| 07/01/95 | 3,462,098 | 3,795,926 | 333,828 | 91.21% | 1,514,177 | 22.05% |
| 07/01/96 | 3,975,832 | 4,087,273 | 111,441 | 97.27% | 1,560,369 | 7.14% |
| 07/01/97 | 4,664,519 | 4,519,542 | (144,977) | 103.21% | 1,568,747 | -9.24% |
| 07/01/98 | 5,390,526 | 5,005,165 | (385,361) | 107.70% | 1,557,880 | -24.74% |
| 07/01/99 | 5,968,692 | 5,464,207 | (504,485) | 109.23% | 1,649,469 | -30.58% |
| 07/01/00 | 6,744,165 | 6,105,703 | (638,462) | 110.46% | 1,733,054 | -36.84% |
| 07/01/01 | 7,366,673 | 6,573,193 | (793,480) | 112.07% | 1,834,042 | -43.26% |
| 07/01/02 | 7,673,028 | 7,340,397 | (332,631) | 104.53% | 1,915,350 | -17.37% |
| 07/01/03 | 7,757,292 | 7,830,671 | 73,379 | 99.06% | 2,009,975 | 3.65% |

**State Employees Retirement Fund**

## *Schedule of Employer Contributions*

*(dollars in thousands)*

July 1, 2003

| Year Ended June 30 | Actuarially Required Contribution Rate (A) | Actual Covered Payroll (B) | Actual Member Contributions (C) | Annual Required Contributions [(A)*(B)]-(C) | Actual Employer Contributions[1] | Percentage Contributed |
|---|---|---|---|---|---|---|
| 1991 | 8.17% | $ 1,370,964 | $ 56,895 | $ 55,113 | $ 57,986 | 105.21% |
| 1992 | 7.86% | 1,409,108 | 58,478 | 52,278 | 59,244 | 113.33% |
| 1993 | 8.27% | 1,482,005 | 59,132 | 63,430 | 58,982 | 92.99% |
| 1994 | 8.93% | 1,536,978 | 62,555 | 74,697 | 60,741 | 81.32% |
| 1995 | 9.15% | 1,514,177 | 61,627 | 76,920 | 63,161 | 82.11% |
| 1996 | 8.05% | 1,560,369 | 63,507 | 62,103 | 65,557 | 105.56% |
| 1997 | 7.21% | 1,568,747 | 63,848 | 49,259 | 66,568 | 135.14% |
| 1998 | 7.13% | 1,557,880 | 62,901 | 48,176 | 62,315 | 129.35% |
| 1999 | 6.48% | 1,649,469 | 66,823 | 40,063 | 65,979 | 164.69% |
| 2000 | 6.12% | 1,733,054 | 70,378 | 35,685 | 69,322 | 194.26% |
| 2001 | 7.12% [2] | 1,834,042 | 74,364 | 56,220 | 73,362 | 130.49% |
| 2002 | 6.79% | 1,915,350 | 79,487 | 50,565 | 76,614 | 151.52% |
| 2003 | 8.34% [3] | 2,009,975 | 83,850 | 83,782 | 80,399 | 95.96% |
| 2004 | 9.43% | | | | | |

[1] Includes contributions from other sources (if applicable.)

[2] Actuarially Required Contribution Rate prior to change in Actuarial Assumptions and Asset Valuation Method is 5.72%.

[3] Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 7.22%.

## State Employees Retirement Fund
## *Military Affairs Calculation*

Section 352.85 of Chapter 352 of Minnesota Statutes provided that certain military affairs personnel may retire, with an unreduced benefit, at age 60. In addition, they may receive disability benefits upon being found disqualified for retention in active military duty. To fund these special benefits, employees and employer contribute an extra 1.6% of payroll.

To recognize the effect of the unreduced early retirement benefit available at age 60, we have assumed that all military affairs personnel will retire at age 60, or if over age 60, one year from the valuation date.

The results of our calculations are as follows:

| | |
|---|---|
| 1. Number of Active Members | 3 |
| 2. Projected Annual Earnings | 72,121 |
| 3. Normal Cost | |
| a. Dollar Amount | 8,413 |
| b. Percent of Payroll | 11.67% |

## State Employees Retirement Fund
## *Pilots Calculation*

Section 352.86 of Chapter 352 of Minnesota Statutes provided that certain transportation department pilots may retire, with an unreduced benefit, at age 62. In addition, they may receive disability benefits upon being found disqualified for retention as pilots. To fund these special benefits, employees and employer contribute an extra 1.6% of payroll.

To recognize the effect of the unreduced early retirement benefit available at age 62, we have have assumed that all pilots will retire at age 62, or if over age 62, one year from the valuation date.

The results of our calculations are as follows:

| | | |
|---|---|---|
| 1. | Number of Active Members | 5 |
| 2. | Projected Annual Earnings | 391,002 |
| 3. | Normal Cost | |
| | a. Dollar Amount | 50,173 |
| | b. Percent of Payroll | 12.83% |

## State Employees Retirement Fund
## *Fire Marshals Calculation*

Section 352.87 of Chapter 352 of Minnesota Statutes provided that deputy state fire marshals may retire, with an unreduced benefit with respect to service after July 1, 1999, at age 55. Credited service after July 1, 1999 accrues retirement benefits at a rate of 2.0% per year, and disability benefits are based on a minimum of 15 years of service (20 years if duty related.) To fund these special benefits, employees contribute and extra 2.78% of payroll, and employers contribute an extra 4.2% of payroll.

To recognize the effect of the unreduced early retirement benefit available at age 55, we have assumed that all fire marshals will retire in accordance with the retirement assumptions which apply to the Members of the Correctional Employees Retirement Fund.

The results of our calculations are as follows:

| | |
|---|---|
| 1. Number of Active Members | 11 |
| 2. Projected Annual Earnings | 603,049 |
| 3. Normal Cost for Post 7/1/99 Benefits | |
| a. Dollar Amount | 71,680 |
| b. Percent of Payroll | 11.89% |

## State Employees Retirement Fund
# *Unclassified Plan Contingent Liability Calculation*

Section 352D.02 of Chapter 352D of Minnesota Statutes provides that employees credited with employee shares in the unclassified program may elect to terminate participation in the unclassified plan and be covered by the regular plan prior to termination of covered employment.

To recognize the effect of the option to elect coverage under the regular plan, we have assumed that all eligible Unclassified Plan Members will elect coverage under the regular plan if such election provides the member with a greater economic present value than the accumulated contribution balance under the Unclassified Plan. The liabilities were measured using the actuarial assumptions which are applied to the State Employees Retirement Fund.

The results of our calculations are as follows:

| | | |
|---|---|---|
| 1. | Number of Active Members | 1,916 |
| 2. | Account Balances for Active Members | 138,920 |
| 3. | Accrued Liability for Active Members | 165,730 |
| 4. | Number of Inactive Members | 1,581 |
| 5. | Account Balances for Inactive Members | 87,192 |
| 6. | Net Assets held in trust for Unclassified Plan pension benefits | 231,163 |
| 7. | Contingent Liability [(3) + (5) - (6)] | 21,759 |
| 8. | Projected Annual Earnings for Active Members | 116,826 |
| 9. | Normal Cost | |
| | a. Dollar Amount | 12,934 |
| | b. Percent of Payroll | 11.07% |

# State Patrol Retirement Fund
## *ACTUARIAL VALUATION REPORT*

**July 1, 2003**



MILLIMAN USA

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November 21, 2003

Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

**RE: State Patrol Retirement Fund**

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 2003.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. Although we have reviewed the data for reasonableness and consistency, we have relied on the basic employee data and asset figures as submitted by the Minnesota State Retirement System.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission.

We, Thomas K. Custis and William V. Hogan, are actuaries for Milliman USA. We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Milliman USA

Thomas K. Custis

Thomas K. Custis, F.S.A., M.A.A.A.
Consulting Actuary

William V. Hogan

William V. Hogan, F.S.A., M.A.A.A.
Consulting Actuary

TKC/WVH/bh

**State Patrol Retirement Fund**

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**State Patrol Retirement Fund**

***Table of Contents***
(Continued)

**State Patrol Retirement Fund**

# *Report Highlights*

*(dollars in thousands)*

| | 07/01/02 Valuation | 07/01/03 Valuation |
|---|---|---|
| A. CONTRIBUTIONS (Table 11) | | |
| 1. Statutory Contributions - Chapter 352B % of Payroll | 21.00% | 21.00% |
| 2. Required Contributions - Chapter 356 % of Payroll | 14.34% | 17.81% |
| 3. Sufficiency (Deficiency) | 6.66% | 3.19% |
| B. FUNDING RATIOS | | |
| 1. Accrued Benefit Funding Ratio | | |
| a. Current Assets (Table 1) | $ 591,383 | $ 591,521 |
| b. Current Benefit Obligations (Table 8) | $ 496,913 | $ 523,898 |
| c. Funding Ratio | 119.01% | 112.91% |
| 2. Accrued Liability Funding Ratio | | |
| a. Current Assets (Table 1) | $ 591,383 | $ 591,521 |
| b. Actuarial Accrued Liability (Table 9) | $ 510,344 | $ 538,980 |
| c. Funding Ratio | 115.88% | 109.75% |
| 3. Projected Benefit Funding Ratio (Table 8) | | |
| a. Current and Expected Future Assets | $ 695,967 | $ 703,980 |
| b. Current and Expected Future Benefit Obligations | $ 632,328 | $ 670,457 |
| c. Funding Ratio | 110.06% | 105.00% |
| C. PLAN PARTICIPANTS | | |
| 1. Active Members | | |
| a. Number (Table 3) | 810 | 805 |
| b. Projected Annual Earnings | $ 51,473 | $ 56,569 |
| c. Average Annual Earnings (Projected $) | $ 63,547 | $ 70,272 |
| d. Average Age | 41.0 | 41.2 |
| e. Average Service | 12.6 | 12.9 |
| 2. Others | | |
| a. Service Retirements (Table 4) | 577 | 592 |
| c. Survivors (Table 5) | 156 | 162 |
| b. Disability Retirements (Table 6) | 29 | 31 |
| d. Deferred Retirements (Table 7) | 27 | 20 |
| e. Terminated Other Non-Vested (Table 7) | 11 | 13 |
| f. Total | 800 | 818 |

# Commentary

## Purpose

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

## Report Highlights

The financial status of the Plan can be measured by three different funding ratios:

- The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 112.91%. The corresponding ratio for the prior year was 119.01%.

- The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 2003 the ratio is 109.75%, which is a decrease from the 2002 value of 115.88%.

- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 105.00% verifies that the current statutory contributions are sufficient.

## Asset Information (Tables 1 and 2)

Effective with the July 1, 2000 valuation of the fund, Minnesota Statutes require that the asset value used for actuarial purposes spread differences between actual return (measured on a market-value basis) and expected return on non-MPRIF assets over five years, in a manner similar to that already being used within the MPRIF. The previous method required under Minnesota Statutes recognized one third of the unrealized gains and losses. An Asset Valuation Method requirement exists because market values (which include all unrealized gains and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year. The intent of the change to the current method is to employ a more effective asset smoothing technique which is market-value based and which eliminates artificial bias related to manager style. The effective date of this requirement is July 1, 2000 with full transition to be accomplished as of July 1, 2003.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E.1 to E.4. Actuarial Value of Assets is determined as:

Market Value of Assets at June 30, 2003, *less*

80% of the current year Unrecognized Asset Return at July 1, 2003 (the difference between actual net return on Market Value of Assets between June 30, 2002 and June 30, 2003 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2002 Actuarial Valuation); *less*

60% of the current year Unrecognized Asset Return at July 1, 2002 (the difference between actual net return on Market Value of Assets between June 30, 2001 and June 30, 2002 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2001 Actuarial Valuation); *less*

40% of the current year Unrecognized Asset Return at July 1, 2001 (the difference between actual net return on Market Value of Assets between June 30, 2000 and June 30, 2001 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2000 Actuarial Valuation); *less*

20% of the current year Unrecognized Asset Return at July 1, 2000 (the difference between actual net return on Market Value of Assets between June 30, 1999 and June 30, 2000 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 1999 Actuarial Valuation).

Since its adoption on July 1, 2000, the Asset Valuation Method has functioned effectively to smooth the significant variability in market value returns. It is prudent to note, however, that the deferral of recognition of the large market losses of the last three fiscal years means there has accumulated a significant negative return amount that will be recognized over the next few years. This means that in order for asset returns on a "Current Assets" basis to be at or near the assumed 8.5%, market value returns will need to be substantially above 8.5%; conversely, if market value returns are at or near the assumed 8.5%, returns measured on a "Current Assets" basis will be substantially lower, resulting in actuarial losses.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets," the latter phrase will be used in the remainder of this report.

This Plan participates in the Minnesota Post Retirement Investment Fund (i.e., MPRIF). After the MPRIF liability has been calculated for each participating Plan, the State Board of Investments, (i.e., SBI), will determine each Plan's portion of the excess earnings for the January benefit increase as well as the Plan's allocated market share of MPRIF.

### *Actuarial Balance Sheet (Table 8)*

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated as follows:

- For Active Members – Salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.

- For Non-Active Members – The discounted value of benefits, including augmentation in cases where benefits have not commenced.

### *GASB Disclosure*

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superceded by Statement No. 25. Tables 14 and 15 of this report are included to fulfill the requirements of Statement No. 25.

### *Actuarial Cost Method (Table 9)*

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

### *Source of Actuarial Gains and Losses (Table 10)*

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectations. For a detailed analysis of the major components, refer to Table 10.

### *Contribution Sufficiency (Table 11)*

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

Table 11 shows the Plan has a contribution sufficiency since the Statutory Contribution Rate is 21.00% compared to the Required Contribution Rate of 17.81%.

### *Changes in Actuarial Assumptions and Methods*

All actuarial assumptions and methods listed in Table 12 are the same as those used in the prior valuation.

### *Changes in Plan Provisions*

No changes in plan provisions have been reflected in this valuation.

## State Patrol Retirement Fund
## *Statement of Plan Net Assets*
*(dollars in thousands)*

July 1, 2003

| | Market Value | Cost Value |
|---|---|---|
| A. ASSETS IN TRUST | | |
| 1. Cash, Equivalents, Short-Term Securities | $ 5,168 | $ 5,168 |
| 2. Fixed Income | 48,298 | 48,135 |
| 3. Equity | 148,693 | 167,978 |
| 4. Real Estate | 7,336 | 6,207 |
| 5. Equity in MPRIF* | 333,092 | 333,092 |
| 6. Other | 0 | 0 |
| **Subtotal** | $ 542,587 | $ 560,580 |
| B. ASSETS RECEIVABLE | 363 | 363 |
| C. LIABILITIES | $ (3,487) | $ (3,487) |
| D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS | | |
| 1. MPRIF Reserves* | 333,092 | 333,092 |
| 2. Member Reserves | 40,619 | 40,619 |
| 3. Other Non-MPRIF Reserves | 165,752 | 183,745 |
| 4. Total Assets Available for Benefits | $ 539,463 | $ 557,456 |

E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS

| | | |
|---|---|---|
| 1. Market Value of Assets Available for Benefits (D4) | | $ 539,463 |
| 2. Unrecognized Asset Returns (UAR) | | |
| a. June 30, 2003 | (15,300) | |
| b. June 30, 2002 | (39,184) | |
| c. June 30, 2001 | (43,283) | |
| d. June 30, 2000 | 5,030 | |
| 3. UAR Adjustment: .80 * 2(a) + .60 * 2(b) + .40 * 2(c) +.20 * 2(d) | | (52,058) |
| 4. Actuarial Value of Assets (E1-E3) (Same as "Current Assets") | | $ 591,521 |

* *The number shown is the full MPRIF reserve amount. The actual MPRIF market value of $311,923 is not used for funding purposes because this deficiency is accounted for separately and is expected to be recovered from future excess earnings on MPRI funds.*

**State Patrol Retirement Fund**

## *Statement of Change In Plan Net Assets*

*(dollars in thousands)*

Year Ending June 30, 2003

| | Non-MPRIF Assets | MPRIF Reserve | Market Value |
|---|---|---|---|
| A. ASSETS AVAILABLE AT BEGINNING OF PERIOD | $ 213,988 | $ 324,743 | $ 538,731 |
| B. ADDITIONS | | | |
| 1. Member Contributions | $ 4,555 | 0 | $ 4,555 |
| 2. Employer Contributions | 6,826 | 0 | 6,826 |
| 3. Contributions From Other Sources | 0 | 0 | 0 |
| 4. MPRIF Income | 0 | 21,310 | 21,310 |
| 5. Net Investment Income | | | |
| a. Interest and Dividends | (9,802) | 0 | (9,802) |
| b. Net Appreciation/(Depreciation) | 12,663 | 0 | 12,663 |
| c. Investment Expenses | (265) | 0 | (265) |
| **d. Net Subtotal** | 2,596 | 0 | 2,596 |
| 6. Other | 0 | 0 | - |
| 7. Total Additions | $ 13,977 | $ 21,310 | $ 35,287 |
| C. OPERATING EXPENSES | | | |
| 1. Service Retirements | $ 60 | $ 34,256 | $ 34,316 |
| 2. Disability Benefits | 0 | 0 | 0 |
| 3. Survivor Benefits | 0 | 0 | 0 |
| 4. Refunds | 11 | 0 | 11 |
| 5. Administrative Expenses | 94 | 0 | 94 |
| 6. Other | 134 | 0 | 134 |
| 7. Total Disbursements | $ 299 | $ 34,256 | $ 34,555 |
| D. OTHER CHANGES IN RESERVES | | | |
| 1. Annuities Awarded | (17,971) | 17,971 | 0 |
| 2. Mortality Gain (Loss) | (3,324) | 3,324 | 0 |
| 3. Total Other Changes | (21,295) | 21,295 | 0 |
| E. ASSETS AVAILABLE AT END OF PERIOD | $ 206,371 | $ 333,092 | $ 539,463 |
| F. DETERMINATION OF CURRENT YEAR UNRECOGNIZED ASSET RETURN | | | |
| 1. Average Balance | | | |
| (a) Non-MPRIF Assets Available at Beginning of Period | | | 213,988 |
| (b) Non-MPRIF Assets Available at End of Period* | | | 209,695 |
| (c) Average Balance {[F1.a+F1.b-B5.d-B6]/2} | | | 210,544 |
| 2. Expected Return: .085*F1.c | | | 17,896 |
| 3. Actual Return | | | 2,596 |
| 4. Current Year UAR: F3-F2 | | | $ (15,300) |

* Before adjustment for MPRIF mortality gain (loss)

State Patrol Retirement Fund

## *Active Members as of June 30, 2003*

| | Years of Service | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | All |
| <25 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 25-29 | 9 | 46 | 14 | 0 | 0 | 0 | 0 | 0 | 69 |
| 30-34 | 3 | 65 | 57 | 2 | 0 | 0 | 0 | 0 | 127 |
| 35-39 | 1 | 36 | 43 | 49 | 14 | 0 | 0 | 0 | 143 |
| 40-44 | 0 | 17 | 36 | 31 | 56 | 12 | 0 | 0 | 152 |
| 45-49 | 0 | 9 | 11 | 22 | 36 | 72 | 8 | 0 | 158 |
| 50-54 | 0 | 5 | 3 | 13 | 10 | 36 | 38 | 8 | 113 |
| 55-59 | 0 | 2 | 3 | 3 | 2 | 7 | 7 | 7 | 31 |
| 60-64 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 5 |
| 65+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALL | 19 | 181 | 167 | 121 | 118 | 128 | 54 | 17 | 805 |

### Average Annual Earnings

| | Years of Service | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | All |
| <25 | 22,345 | 55,029 | 0 | 0 | 0 | 0 | 0 | 0 | 27,014 |
| 25-29 | 16,243 | 53,811 | 61,658 | 0 | 0 | 0 | 0 | 0 | 50,502 |
| 30-34 | 14,888 | 55,835 | 60,618 | 65,669 | 0 | 0 | 0 | 0 | 57,169 |
| 35-39 | 9,559 | 57,446 | 65,114 | 66,850 | 73,948 | 0 | 0 | 0 | 64,254 |
| 40-44 | 0 | 62,308 | 64,948 | 68,652 | 72,498 | 72,582 | 0 | 0 | 68,792 |
| 45-49 | 0 | 69,763 | 69,491 | 71,559 | 74,199 | 73,758 | 79,554 | 0 | 73,321 |
| 50-54 | 0 | 74,069 | 73,028 | 73,147 | 72,102 | 71,717 | 75,680 | 80,365 | 73,999 |
| 55-59 | 0 | 61,638 | 78,784 | 74,669 | 61,717 | 83,765 | 74,712 | 81,728 | 77,048 |
| 60-64 | 0 | 0 | 0 | 85,793 | 0 | 78,729 | 77,357 | 75,575 | 78,605 |
| 65+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALL | 17,604 | 57,504 | 63,929 | 69,175 | 72,972 | 73,659 | 76,159 | 80,362 | 66,219 |

| | Prior Fiscal Year Earnings (in THOUSANDS) by Years of Service | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
| All | 334 | 10,408 | 10,676 | 8,370 | 8,610 | 9,428 | 4,112 | 1,366 | 53,306 |

State Patrol Retirement Fund

## Service Retirements as of June 30, 2003

| | Years Retired | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50-54 | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 22 |
| 55-59 | 30 | 82 | 19 | 0 | 0 | 0 | 0 | 131 |
| 60-64 | 0 | 12 | 110 | 2 | 0 | 0 | 0 | 124 |
| 65-69 | 0 | 3 | 21 | 58 | 0 | 0 | 0 | 82 |
| 70-74 | 0 | 0 | 2 | 19 | 60 | 0 | 0 | 81 |
| 75-79 | 0 | 0 | 4 | 3 | 36 | 39 | 0 | 82 |
| 80-84 | 0 | 0 | 0 | 1 | 5 | 22 | 15 | 43 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 5 | 22 | 27 |
| ALL | 41 | 108 | 156 | 83 | 101 | 66 | 37 | 592 |

### Average Annual Benefit

| | Years Retired | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50-54 | 37,444 | 42,943 | 0 | 0 | 0 | 0 | 0 | 40,193 |
| 55-59 | 44,075 | 45,909 | 46,042 | 0 | 0 | 0 | 0 | 45,508 |
| 60-64 | 0 | 40,917 | 52,129 | 48,618 | 0 | 0 | 0 | 50,987 |
| 65-69 | 0 | 31,568 | 60,661 | 54,252 | 0 | 0 | 0 | 55,063 |
| 70-74 | 0 | 0 | 62,333 | 59,116 | 50,991 | 0 | 0 | 53,176 |
| 75-79 | 0 | 0 | 48,511 | 32,172 | 55,038 | 48,654 | 0 | 50,846 |
| 80-84 | 0 | 0 | 0 | 51,922 | 50,903 | 52,290 | 41,884 | 48,490 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 41,392 | 36,298 | 37,241 |
| ALL | 42,295 | 44,653 | 52,574 | 54,403 | 52,429 | 49,315 | 38,562 | 49,409 |

### Total Annual Benefit (in thousands) by Years Retired

| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
|---|---|---|---|---|---|---|---|---|
| All | 1,734 | 4,822 | 8,201 | 4,515 | 5,295 | 3,254 | 1,426 | 29,250 |

State Patrol Retirement Fund

## Survivors as of June 30, 2003

| | Years Since Death | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 13 | 4 | 3 | 0 | 0 | 0 | 0 | 20 |
| 50-54 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 4 |
| 55-59 | 2 | 4 | 3 | 0 | 1 | 0 | 0 | 10 |
| 60-64 | 3 | 1 | 5 | 0 | 0 | 0 | 0 | 9 |
| 65-69 | 0 | 3 | 2 | 5 | 1 | 0 | 0 | 11 |
| 70-74 | 3 | 8 | 3 | 4 | 0 | 4 | 6 | 28 |
| 75-79 | 3 | 7 | 3 | 5 | 1 | 3 | 4 | 26 |
| 80-84 | 1 | 2 | 3 | 8 | 1 | 2 | 9 | 26 |
| 85+ | 2 | 0 | 6 | 5 | 1 | 0 | 14 | 28 |
| ALL | 28 | 29 | 30 | 27 | 5 | 9 | 34 | 162 |

### Average Annual Benefit

| | Years Since Death | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 7,219 | 17,887 | 29,466 | 0 | 0 | 0 | 0 | 12,689 |
| 50-54 | 21,313 | 0 | 40,706 | 0 | 0 | 0 | 10,024 | 28,187 |
| 55-59 | 24,096 | 32,034 | 21,869 | 0 | 25,681 | 0 | 0 | 26,761 |
| 60-64 | 27,395 | 62,197 | 31,696 | 0 | 0 | 0 | 0 | 33,651 |
| 65-69 | 0 | 31,274 | 37,383 | 14,552 | 32,535 | 0 | 0 | 24,898 |
| 70-74 | 24,838 | 33,615 | 39,101 | 19,702 | 0 | 43,766 | 20,155 | 29,840 |
| 75-79 | 35,748 | 28,077 | 31,465 | 26,063 | 46,188 | 56,684 | 31,028 | 33,417 |
| 80-84 | 22,630 | 16,708 | 20,220 | 20,010 | 35,790 | 46,449 | 23,643 | 23,779 |
| 85+ | 22,890 | 0 | 21,163 | 20,953 | 37,697 | 0 | 23,005 | 22,760 |
| ALL | 17,703 | 29,468 | 28,933 | 20,249 | 35,578 | 48,668 | 23,233 | 25,745 |

| | Total Annual Benefit (in thousands) by Years Since Death | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| All | 495 | 854 | 867 | 546 | 177 | 438 | 789 | 4,170 |

**State Patrol Retirement Fund**

## *Disability Retirements as of June 30, 2003*

| | Years Disabled | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 5 |
| 50-54 | 1 | 3 | 1 | 1 | 0 | 0 | 0 | 6 |
| 55-59 | 2 | 3 | 1 | 2 | 0 | 0 | 0 | 8 |
| 60-64 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 4 |
| 65-69 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| 70-74 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| 75-79 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 |
| 80-84 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALL | 4 | 7 | 5 | 7 | 1 | 2 | 5 | 31 |

**Average Annual Benefit**

| | Years Disabled | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 33,073 | 24,274 | 24,560 | 0 | 0 | 0 | 0 | 26,205 |
| 50-54 | 34,206 | 24,342 | 37,799 | 33,871 | 0 | 0 | 0 | 29,817 |
| 55-59 | 22,562 | 51,342 | 48,931 | 43,805 | 0 | 0 | 0 | 41,961 |
| 60-64 | 0 | 0 | 0 | 35,640 | 36,251 | 34,609 | 0 | 35,535 |
| 65-69 | 0 | 0 | 0 | 50,071 | 0 | 0 | 0 | 50,071 |
| 70-74 | 0 | 0 | 0 | 0 | 0 | 0 | 36,236 | 36,236 |
| 75-79 | 0 | 0 | 0 | 0 | 0 | 59,147 | 34,000 | 42,382 |
| 80-84 | 0 | 0 | 0 | 0 | 0 | 0 | 19,697 | 19,697 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALL | 28,100 | 35,903 | 32,082 | 41,843 | 36,251 | 46,878 | 32,033 | 35,716 |

| | Total Annual Benefit (actual dollars) by Years Disabled | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| All | 112 | 251 | 160 | 292 | 36 | 93 | 160 | 1,107 |

**State Patrol Retirement Fund**

# *Reconciliation of Members*

| | | | Terminated | |
|---|---|---|---|---|
| | | Actives | Deferred Retirement | Other Non-Vested |
| A. | ON JUNE 30, 2002 | 810 | 27 | 11 |
| B. | ADDITIONS | 22 | 1 | 2 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | (24) | (6) | 0 |
| | 2. Disability | (1) | (1) | 0 |
| | 3. Death | 0 | 0 | 0 |
| | 4. Terminated - Deferred | (1) | 0 | 0 |
| | 5. Terminated - Refund | (2) | 0 | 0 |
| | 6. Terminated - Other Non-Vested | (2) | 0 | 0 |
| | 7. Returned as active | 1 | (1) | 0 |
| | 8. Transferred to Other Fund | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | 2 | 0 | 0 |
| | 1. Vested | 720 | | |
| | 2. Non-Vested | 85 | | |
| E. | TOTAL ON JUNE 30, 2003 | 805 | 20 | 13 |

| | | Recipients | | |
|---|---|---|---|---|
| | | Retirement Annuitants | Disabled | Survivors |
| A. | ON JUNE 30, 2002 | 577 | 29 | 156 |
| B. | ADDITIONS | 30 | 2 | 12 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 0 | 0 | 0 |
| | 2. Death | (15) | 0 | (5) |
| | 3. Annuity Expired | 0 | 0 | 0 |
| | 4. Returned as Active | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | 0 | 0 | (1) |
| E. | TOTAL ON JUNE 30, 2003 | 592 | 31 | 162 |

**State Patrol Retirement Fund**

## *Actuarial Balance Sheet*

*(dollars in thousands)*

July 1, 2003

| | Non-Vested | Vested | Total |
|---|---|---|---|
| A. CURRENT ASSETS (Table 1, Line E4) | | | $ 591,521 |
| B. EXPECTED FUTURE ASSETS | | | |
| 1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11) | | | (19,018) |
| 2. Present Value of Future Normal Costs | | | 131,477 |
| 3. Total Expected Future Assets | | | $ 112,459 |
| C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS | | | $ 703,980 |
| D. CURRENT BENEFIT OBLIGATIONS | Non-Vested | Vested | Total |
| 1. Benefit Recipients | | | |
| a. Retirement Annuities | | $ 288,071 | $ 288,071 |
| b. Disability Benefits | | 10,617 | 10,617 |
| c. Surviving Spouse and Child Benefits | | 35,381 | 35,381 |
| 2. Deferred Retirements with Future Augmentation | | 3,128 | 3,128 |
| 3. Former Members Without Vested Rights | | 32 | 32 |
| 4. Active Members | | | |
| a. Retirement Annuities | $ 1,478 | 162,980 | 164,458 |
| b. Disability Benefits | 13,647 | 0 | 13,647 |
| c. Surviving Spouse and Child Benefits | 5,541 | 0 | 5,541 |
| d. Deferred Retirements | 66 | 2,841 | 2,907 |
| e. Refund Liability Due to Death or Withdrawal | 0 | 116 | 116 |
| 5. Total Current Benefit Obligations | $ 20,732 | $ 503,166 | $ 523,898 |
| E. EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $ 146,559 |
| F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $ 670,457 |
| G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A) | | | $ (67,623) |
| H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C) | | | $ (33,523) |

**State Patrol Retirement Fund**

## *Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate*

*(dollars in thousands)*

July 1, 2003

| | Actuarial Present Value of Projected Benefits | Actuarial Present Value of Future Normal Costs | Actuarial Accrued Liability |
|---|---|---|---|
| A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL) | | | |
| 1. Active Members | | | |
| a. Retirement Annuities | $ 294,087 | $ 107,871 | $ 186,216 |
| b. Disability Benefits | 24,122 | 13,806 | 10,316 |
| c. Survivor's Benefits | 9,748 | 5,227 | 4,521 |
| d. Deferred Retirements | 5,081 | 3,802 | 1,279 |
| e. Refunds Due to Death or Withdrawal | 190 | 771 | (581) |
| f. Total | $ 333,228 | $ 131,477 | $ 201,751 |
| 2. Deferred Retirements With Future Augmentation | 3,128 | | 3,128 |
| 3. Former Members Without Vested Rights | 32 | | 32 |
| 4. Annuitants in MPRIF | 333,092 | | 333,092 |
| 5. Recipients Not in MPRIF | 977 | | 977 |
| 6. Total | $ 670,457 | $ 131,477 | $ 538,980 |
| B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) | | | |
| 1. AAL (A6) | | | $ 538,980 |
| 2. Current Assets (Table 1, E4) | | | 591,521 |
| 3. UAAL (B1-B2) | | | $ (52,541) |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE | | | |
| 1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2033 | | | 1,050,696 |
| 2. Supplemental Contribution Rate (B3/C1) | | | -5.00% |

**State Patrol Retirement Fund**

## *Changes in Unfunded Actuarial Accrued Liability (UAAL)*

*(dollars in thousands)*

Year Ending June 30, 2003

| | | |
|---|---|---|
| A. UAAL AT BEGINNING OF YEAR | $ | (81,039) |
| B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING | | |
| 1. Normal Cost and Expenses | $ | 11,752 |
| 2. Contributions | | (11,381) |
| 3. Interest on A, B1, and B2 | | (6,873) |
| 4. Total (B1+B2+B3) | $ | (6,502) |
| C. EXPECTED UAAL AT END OF YEAR (A+B4) | $ | (87,541) |
| D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED | | |
| 1. Salary Increases | $ | 10,717 |
| 2. Investment Return | | 20,370 |
| 3. MPRIF Mortality | | 3,324 |
| 4. Mortality of Other Benefit Recipients | | (43) |
| 5. Other Items | | 632 |
| 6. Total | $ | 35,000 |
| E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6) | $ | (52,541) |
| F. CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY DUE TO CHANGE IN ACTUARIAL METHODS | | 0 |
| G. CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS | | 0 |
| H. UAAL AT END OF YEAR (E+F+G) | $ | (52,541) |

**State Patrol Retirement Fund**

## *Determination of Contribution Sufficiency*

*(dollars in thousands)*

July 1, 2003

| | Percent of Payroll | Dollar Amount |
|---|---|---|
| A. STATUTORY CONTRIBUTIONS - CHAPTER 352B | | |
| 1. Employee Contributions | 8.40% | $ 4,752 |
| 2. Employer Contributions | 12.60% | 7,128 |
| 3. Total | 21.00% | $ 11,880 |
| B. REQUIRED CONTRIBUTIONS - CHAPTER 356 | | |
| 1. Normal Cost | | |
| a. Retirement Benefits | 18.50% | $ 10,465 |
| b. Disability Benefits | 2.43% | 1,373 |
| c. Survivors | 0.95% | 535 |
| d. Deferred Retirement Benefits | 0.62% | 353 |
| e. Refunds Due to Death or Withdrawal | 0.13% | 71 |
| f. Total | 22.63% | $ 12,797 |
| 2. Supplemental Contribution Amortization by July 1, 2033 of UAAL | -5.00% | (2,828) |
| 3. Allowance for Expenses | 0.18% | 102 |
| 4. Total | 17.81% | $ 10,071 |
| C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4] | 3.19% | 1,809 |

Note: Projected Annual Payroll for Fiscal Year Beginning on the Valuation Date: $ 56,569

**State Patrol Retirement Fund**

# *Summary of Actuarial Assumptions and Methods*

| | |
|---|---|
| *Interest*: | **Pre-Retirement**: 8.5% per annum<br>**Post-Retirement**: 8.5% per annum |
| *Benefit Increases After Retirement*: | Payment of earnings on retired reserves in excess of 6% accounted for by using a 6% post-retirement assumption. |
| *Salary Increases*: | Reported salary at valuation date increased according to the rate table on pages 18 and 19 to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for new Members. |
| *Mortality*: | **Pre-Retirement**:<br>Male - 1983 GAM (Males -1)<br>Female - 1983 GAM (Females)<br>**Post-Retirement**:<br>Male - 1983 GAM (Males +2)<br>Female - 1983 GAM (Females +2)<br>**Post-Disability**:<br>Male - Combined Annuity Mortality<br>Female - Combined Annuity Mortality |
| *Retirement Age*: | Age-related table as follows: |

| | Ages: | |
|---|---|---|
| | 50-53 | 2% |
| | 54 | 20 |
| | 55 | 60 |
| | 56-61 | 20 |
| | 62-64 | 50 |
| | 65+ | 100 |

| | |
|---|---|
| *Separation*: | Graded rates starting at .022 at age 20 and decreasing to .003 at age 49. |
| *Disability*: | Rates adopted by MSRS as shown in rate table. |
| *Allowance for Combined Service Annuity:* | Liabilities for active Members are increased by 0% and liabilities for former Members are increased by 30% to account for the effect of some participants having eligibility for a Combined Service Annuity. |
| *Administrative Expenses:* | Prior year expenses expressed as percentage of prior year payroll. |

| | |
|---|---|
| ***Return of Contributions*:** | All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit. |
| ***Family Composition*:** | 100% of Members are married. Female is three years younger than male. Each Member is assumed to have two children whose ages are dependent upon the Member's age. Assumed first child is born at Member's age 28 and second child is born at Member's age 31. |
| ***Social Security*:** | N/A |
| ***Special Consideration*:** | Married Members assumed to elect subsidized joint and survivor form of annuity as follows:<br><br>Males - 25% elect 50% J&S option<br>25% elect 100% J&S option<br><br>Females - 5% elect 50% J&S option<br>5% elect 100% J&S option |
| ***Actuarial Cost Method*:** | Entry Age Normal Actuarial Cost Method based on earnings and the date the employee entered the plan is applied to all plan benefits. Under this method, Actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability.<br><br>The actuarial cost method was changed as of July 1, 1997 to permit negative amortization of supplemental contribution surpluses. |
| ***Asset Valuation Method:*** | Market Value less a percentage of the Unrecognized Asset Return determined at the close of each of the four preceding fiscal years. Unrecognized Asset Return is the difference between actual net return on Market Value of Assets and the asset return expected during that fiscal year (based on the assumed interest rate employed in the July 1 Actuarial Valuation of the fiscal year). Transition rules apply between July 1, 2000 and July 1, 2003, when the method is fully in effect. |
| ***Payment on the Unfunded Actuarial Accrued Liability*:** | A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5.0% per annum. If there is a negative Unfunded Actuarial Accrued Liability, the surplus amount shall be amortized over 30 years as a level percentage of payroll. |

**State Patrol Retirement Fund**

## *Summary of Actuarial Assumptions and Methods*

***Separation Expressed as Number of Occurrences Per 10,000:***

| | Death | | Withdrawal | | Disability | | Retirement | | Salary |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female | Male | Female | Increases |
| 20 | 4 | 2 | 220 | 220 | 4 | 4 | 0 | 0 | 7.75% |
| 21 | 4 | 2 | 210 | 210 | 4 | 4 | 0 | 0 | 7.1454 |
| 22 | 4 | 2 | 200 | 200 | 5 | 5 | 0 | 0 | 7.1094 |
| 23 | 4 | 2 | 190 | 190 | 5 | 5 | 0 | 0 | 7.0725 |
| 24 | 4 | 2 | 180 | 180 | 6 | 6 | 0 | 0 | 7.0363 |
| 25 | 4 | 3 | 170 | 170 | 6 | 6 | 0 | 0 | 7 |
| 26 | 5 | 3 | 160 | 160 | 6 | 6 | 0 | 0 | 7 |
| 27 | 5 | 3 | 150 | 150 | 7 | 7 | 0 | 0 | 7 |
| 28 | 5 | 3 | 140 | 140 | 7 | 7 | 0 | 0 | 7 |
| 29 | 5 | 3 | 130 | 130 | 8 | 8 | 0 | 0 | 7 |
| 30 | 6 | 3 | 120 | 120 | 8 | 8 | 0 | 0 | 7 |
| 31 | 6 | 4 | 110 | 110 | 9 | 9 | 0 | 0 | 7 |
| 32 | 6 | 4 | 100 | 100 | 9 | 9 | 0 | 0 | 7 |
| 33 | 7 | 4 | 90 | 90 | 10 | 10 | 0 | 0 | 7 |
| 34 | 7 | 4 | 80 | 80 | 10 | 10 | 0 | 0 | 7 |
| 35 | 8 | 5 | 70 | 70 | 11 | 11 | 0 | 0 | 7 |
| 36 | 9 | 5 | 60 | 60 | 12 | 12 | 0 | 0 | 6.9019 |
| 37 | 9 | 5 | 60 | 60 | 13 | 13 | 0 | 0 | 6.8074 |
| 38 | 10 | 6 | 60 | 60 | 15 | 15 | 0 | 0 | 6.7125 |
| 39 | 10 | 6 | 60 | 60 | 16 | 16 | 0 | 0 | 6.6054 |
| 40 | 11 | 7 | 60 | 60 | 18 | 18 | 0 | 0 | 6.5 |
| 41 | 12 | 7 | 60 | 60 | 20 | 20 | 0 | 0 | 6.354 |
| 42 | 14 | 8 | 60 | 60 | 22 | 22 | 0 | 0 | 6.2087 |
| 43 | 15 | 8 | 60 | 60 | 24 | 24 | 0 | 0 | 6.0622 |
| 44 | 17 | 9 | 60 | 60 | 26 | 26 | 0 | 0 | 5.9048 |
| 45 | 19 | 10 | 60 | 60 | 29 | 29 | 0 | 0 | 5.75 |
| 46 | 22 | 11 | 60 | 60 | 32 | 32 | 0 | 0 | 5.6940 |
| 47 | 25 | 12 | 60 | 60 | 36 | 36 | 0 | 0 | 5.6375 |
| 48 | 28 | 14 | 60 | 60 | 41 | 41 | 0 | 0 | 5.5822 |
| 49 | 31 | 15 | 30 | 30 | 46 | 46 | 0 | 0 | 5.5405 |

**State Patrol Retirement Fund**

# *Summary of Actuarial Assumptions and Methods*

***Separation Expressed as Number of Occurrences Per 10,000:***

| | Death | | Withdrawal | | Disability | | Retirement | | Salary |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female | Male | Female | Increases |
| 50 | 35 | 16 | 0 | 0 | 50 | 50 | 200 | 200 | 5.5% |
| 51 | 39 | 18 | 0 | 0 | 57 | 57 | 200 | 200 | 5.4384 |
| 52 | 43 | 19 | 0 | 0 | 64 | 64 | 200 | 200 | 5.3776 |
| 53 | 48 | 21 | 0 | 0 | 72 | 72 | 200 | 200 | 5.3167 |
| 54 | 52 | 23 | 0 | 0 | 80 | 80 | 2,000 | 2,000 | 5.2826 |
| 55 | 57 | 25 | 0 | 0 | 88 | 88 | 6,000 | 6,000 | 5.25 |
| 56 | 61 | 28 | 0 | 0 | 98 | 98 | 2,000 | 2,000 | 5.25 |
| 57 | 66 | 31 | 0 | 0 | 108 | 108 | 2,000 | 2,000 | 5.25 |
| 58 | 71 | 34 | 0 | 0 | 118 | 118 | 2,000 | 2,000 | 5.25 |
| 59 | 77 | 38 | 0 | 0 | 129 | 129 | 2,000 | 2,000 | 5.25 |
| 60 | 84 | 42 | 0 | 0 | 141 | 141 | 2,000 | 2,000 | 5.25 |
| 61 | 92 | 47 | 0 | 0 | 154 | 154 | 2,000 | 2,000 | 5.25 |
| 62 | 101 | 52 | 0 | 0 | 167 | 167 | 5,000 | 5,000 | 5.25 |
| 63 | 111 | 58 | 0 | 0 | 0 | 0 | 5,000 | 5,000 | 5.25 |
| 64 | 124 | 64 | 0 | 0 | 0 | 0 | 5,000 | 5,000 | 5.25 |
| 65 | 129 | 71 | 0 | 0 | 0 | 0 | 10,000 | 10,000 | 5.25 |
| 66 | 156 | 78 | 0 | 0 | 0 | 0 | 0 | 0 | 5.25 |
| 67 | 176 | 87 | 0 | 0 | 0 | 0 | 0 | 0 | 5.25 |
| 68 | 198 | 97 | 0 | 0 | 0 | 0 | 0 | 0 | 5.25 |
| 69 | 222 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 5.25 |
| 70 | 248 | 124 | 0 | 0 | 0 | 0 | 0 | 0 | 5.25 |

**State Patrol Retirement Fund**

## *Summary of Plan Provisions*

*This summary of provisions reflects the interpretation of applicable Statutes by the Commission Actuary for purposes of preparing this valuation. This interpretation is not intended to create or rescind any benefit rights in conflict with any Minnesota Statutes.*

# GENERAL

***Eligibility***: State trooper, conservation officers and certain crime bureau officers.

***Contributions***:

*Member*: 8.40% of salary.

*Employer*: 12.60% of salary.

***Allowable Service***: Service during which Member contributions were deducted. Includes period receiving temporary Workers' Compensation.

***Salary***: Salaries excluding lump-sum payments at separation.

***Average Salary***: Average of the five highest successive years of salary. Average Salary is based on all Allowable Service if less than five years.

# RETIREMENT

***Normal Retirement Benefit***:

*Eligibility*: Age 55 and three years of Allowable Service.

*Amount*: 3.0% of Average Salary for each year of Allowable Service.

***Early Retirement Benefit***:

*Eligibility*: Age 50 and three years of Allowable Service.

*Amount*: Normal Retirement Benefit based on Allowable Service and Average Salary at retirement reduced by 1/10% for each month that the member is under age 55.

*Form of Payment*: Life annuity.

Actuarially equivalent options are:

50% or 100% joint and survivor with bounce back feature without additional reduction.

*Benefit Increases*: Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Benefit recipients receiving benefits for at least one full month but less than 12 full months will receive a partial increase.

For members retired under laws in effect before June 1, 1973 receive an additional 6% supplement through July 1, 1994. For each of those years, the supplement increases by 6% of the total annuity which includes both MPRIF and supplemental amounts. Thereafter, regular MPRIF increases apply.

Members retired under law in effect before June 1, 1973 receive an additional lump-sum payment each year. In 1989, this lump-sum payment is $25 times each full year of Allowable Service or $400 per year of service less any Social Security benefits received or annuity from a Minnesota public employee pension plan. In each following year, the lump-sum payment will increase by the same percentage increase that is applied to regular annuities paid from MPRIF. Effective January 1, 2002, annual lump sum payment is divided by 12 and paid as a monthly life annuity in the annuity form elected.

## DISABILITY

***Occupational Disability Benefit*:**

*Eligibility*: Member who cannot perform his duties because of a disability directly resulting from an act of duty.

*Amount*: 60% of Average Salary plus 3.0% of Average Salary for each year in excess of 20 years of Allowable Service (pro rata for completed months).

Payments cease at age 65 or earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability.

If a Member became disabled prior to July 1, 1997 but was not eligible to commence their benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

***Non-Duty Disability Benefit***:

*Eligibility*: At least one year of Allowable Service and disability not related to covered employment.

*Amount*: Normal Retirement Benefit based on Allowable Service (minimum of 15 years) and Average Salary at disability without reduction for commencement before age 55.

Payments cease at age 65 or earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability.

If a Member became disabled prior to July 1, 1997 but was not eligible to commence their benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

*Form of Payment*: Same as for retirement.

*Benefit Increases*: Adjusted by MSRS to provide same increase as MPRIF.

***Retirement After Disability*:**

| | |
|---|---|
| *Eligibility*: | Age 65 with continued disability. |
| *Amount*: | Optional annuity continues. Otherwise, a normal retirement annuity equal to disability benefit paid, or an actuarially equivalent option. |
| *Form of Payment*: | Same as for retirement. |
| *Benefit Increases*: | Same as for retirement. |

# DEATH

***Surviving Spouse Benefit*:**

| | |
|---|---|
| *Eligibility*: | Member who is active or receiving a disability benefit. |
| *Amount*: | 50% of Annual Salary if member was active or occupational disability and either had less than three years of Allowable Service or was under age 55. Payment for life.<br><br>Surviving spouse receives the 100% joint and survivor benefit commencing on the Member's 55th birthday if Member was active or a disability with three years of Allowable Service. A spouse who had been receiving the 50% benefit shall be entitled to the larger of the two. Payment for life.<br><br>If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%. |
| *Benefit Increases*: | Adjusted by MSRS to provide same increase as MPRIF. |

***Surviving Dependent Children's Benefit*:**

*Eligibility*: Member who is active or receiving a disability benefit. Child must be unmarried, under age 18 (or 23 if full-time student) and dependent upon the Member.

*Amount*: 10% of Average Salary for each child and $20 per month prorated among all dependent children. Benefit must not be less than 50% nor exceed 70% of Average Salary.

If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

***Refund of Contributions*:**

*Eligibility*: Member dies before receiving any retirement benefits and survivor benefits are not payable.

*Amount*: Member's contributions with 5% interest if death occurred before May 16, 1989 and 6% interest if death occurred on or after May 16, 1989.

## TERMINATION

***Refund of Contributions*:**

*Eligibility*: Termination of state service.

*Amount*: Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest if termination occurred on or after May 16, 1989.

***Deferred Benefit*:**

| | |
|---|---|
| *Eligibility*: | Three years of Allowable Service. |
| *Amount*: | Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/71; 5% from 7/1/71 to 1/1/81; and 3% thereafter until the annuity begins. Amount is payable as a normal or early retirement.<br><br>If a Member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%. |

## SIGNIFICANT CHANGES

No significant changes in plan provisions were recognized for this valuation.

**State Patrol Retirement Fund**

## *Schedule of Funding Progress*

*(dollars in thousands)*

July 1, 2003

| Actuarial Valuation Date | Actuarial Value of Assets (A) | Actuarial Accrued Liability (B) | Unfunded AAL (UAAL) (B)-(A) | Funded Ratio (A)/(B) | Actual Covered Payroll (Previous FY) (C) | UAAL as % of Covered Payroll ((B)-(A))/(C) |
|---|---|---|---|---|---|---|
| 07/01/91 | $ 200,068 | $ 224,033 | $ 23,965 | 89.30% | $ 32,365 | 74.05% |
| 07/01/92 | 222,314 | 233,656 | 11,342 | 95.15% | 32,882 | 34.49% |
| 07/01/93 | 244,352 | 258,202 | 13,850 | 94.64% | 35,765 | 38.73% |
| 07/01/94 | 262,570 | 275,377 | 12,807 | 95.35% | 35,341 | 36.24% |
| 07/01/95 | 284,918 | 283,078 | (1,840) | 100.65% | 37,518 | -4.90% |
| 07/01/96 | 323,868 | 303,941 | (19,927) | 106.56% | 41,476 | -48.04% |
| 07/01/97 | 375,650 | 332,427 | (43,223) | 113.00% | 41,996 | -102.92% |
| 07/01/98 | 430,011 | 371,369 | (58,642) | 115.79% | 43,456 | -134.95% |
| 07/01/99 | 472,687 | 406,215 | (66,472) | 116.36% | 45,333 | -146.63% |
| 07/01/00 | 528,573 | 458,384 | (70,189) | 115.31% | 48,167 | -145.72% |
| 07/01/01 | 572,815 | 489,483 | (83,332) | 117.02% | 48,935 | -170.29% |
| 07/01/02 | 591,383 | 510,344 | (81,039) | 115.88% | 49,278 | -164.45% |
| 07/01/03 | 591,521 | 538,980 | (52,541) | 109.75% | 54,175 | -96.98% |

**State Patrol Retirement Fund**

## *Schedule of Employer Contributions*

*(dollars in thousands)*

July 1, 2003

| Year Ended June 30 | Actuarially Required Contribution Rate (A) | Actual Covered Payroll (B) | Actual Member Contributions (C) | Annual Required Contributions [(A)*(B)]-(C) | Actual Employer Contributions[1] | Percentage Contributed |
|---|---|---|---|---|---|---|
| 1991 | 22.15% | $ 32,365 | $ 2,751 | $ 4,418 | $ 4,825 | 109.21% |
| 1992 | 22.58% | 32,882 | 2,795 | 4,630 | 4,893 | 105.68% |
| 1993 | 22.27% | 35,765 | 3,040 | 4,925 | 5,288 | 107.37% |
| 1994 | 21.94% | 35,341 | 3,004 | 4,750 | 5,159 | 108.61% |
| 1995 | 21.79% | 37,518 | 3,189 | 4,986 | 5,583 | 111.97% |
| 1996 | 21.34% | 41,476 | 3,484 | 5,367 | 5,742 | 106.99% |
| 1997 | 21.33% | 41,996 | 3,746 | 5,212 | 6,151 | 118.02% |
| 1998 | 15.67% | 43,456 | 3,634 | 3,176 | 5,475 | 172.39% |
| 1999 | 14.14% | 45,333 | 3,850 | 2,560 | 5,712 | 223.13% |
| 2000 | 15.17% [2] | 48,167 | 4,044 | 3,263 | 6,069 | 185.99% |
| 2001 | 15.48% [3] | 48,935 | 4,145 | 3,430 | 6,166 | 179.77% |
| 2002 | 14.00% | 49,278 | 4,215 | 2,684 | 6,209 | 231.33% |
| 2003 | 14.34% [4] | 54,175 | 4,555 | 3,214 | 6,826 | 212.38% |
| 2004 | 17.81% | | | | | |

[1] Includes contributions from other sources (if applicable)

[2] Actuarially Required Contribution Rate calculated according to parameters of GASB 25 using a 30-year amortization of the negative unfunded accrued liability.

[3] Actuarially Required Contribution Rate Prior to change in Asset Valuation Method is 15.15%

[4] Actuarially Required Contribution Rate Prior to change in Actuarial Assumptions is 14.20%

# Correctional Employees Retirement Fund
## *ACTUARIAL VALUATION REPORT*

**July 1, 2003**

A MILLIMAN GLOBAL FIRM
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November 21, 2003

Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

**RE: Correctional Employees Retirement Fund**

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 2003.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. Although we have reviewed the data for reasonableness and consistency, we have relied on the basic employee data and asset figures as submitted by the Minnesota State Retirement System.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission.

We, Thomas K. Custis and William V. Hogan, are actuaries for Milliman USA. We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Milliman USA

Thomas K. Custis

Thomas K. Custis, F.S.A., M.A.A.A.
Consulting Actuary

William V. Hogan

William V. Hogan, F.S.A., M.A.A.A.
Consulting Actuary

TKC/WVH/bh

**Correctional Employees Retirement Fund**

## *Table of Contents*

# *Table of Contents*
(Continued)

**Correctional Employees Retirement Fund**

## *Report Highlights*

*(dollars in thousands)*

| | 07/01/02 Valuation | 07/01/03 Valuation |
|---|---|---|
| A. CONTRIBUTIONS (Table 11) | | |
| 1. Statutory Contributions - Chapter 352 % of Payroll | 13.67% | 13.67% |
| 2. Required Contributions - Chapter 356 % of Payroll | 14.73% | 15.83% |
| 3. Sufficiency (Deficiency) | (1.06%) | (2.16%) |
| B. FUNDING RATIOS | | |
| 1. Accrued Benefit Funding Ratio | | |
| a. Current Assets (Table 1) | $ 457,416 | $ 470,716 |
| b. Current Benefit Obligations (Table 8) | $ 409,388 | $ 445,683 |
| c. Funding Ratio | 111.73% | 105.62% |
| 2. Accrued Liability Funding Ratio | | |
| a. Current Assets (Table 1) | $ 457,416 | $ 470,716 |
| b. Actuarial Accrued Liability (Table 9) | $ 446,426 | $ 484,974 |
| c. Funding Ratio | 102.46% | 97.06% |
| 3. Projected Benefit Funding Ratio (Table 8) | | |
| a. Current and Expected Future Assets | $ 558,596 | $ 576,148 |
| b. Current and Expected Future Benefit Obligations | $ 584,412 | $ 630,499 |
| c. Funding Ratio | 95.58% | 91.38% |
| C. PLAN PARTICIPANTS | | |
| 1. Active Members | | |
| a. Number (Table 3) | 3,249 | 3,262 |
| b. Projected Annual Earnings | $ 131,232 | $ 138,518 |
| c. Average Annual Earnings (Projected $) | $ 40,392 | $ 42,464 |
| d. Average Age | 40.7 | 41.1 |
| e. Average Service | 8.0 | 8.2 |
| 2. Others | | |
| a. Service Retirements (Table 4) | 754 | 843 |
| c. Survivors (Table 5) | 69 | 82 |
| b. Disability Retirements (Table 6) | 115 | 135 |
| d. Deferred Retirements (Table 7) | 550 | 601 |
| e. Terminated Other Non-Vested (Table 7) | 268 | 340 |
| f. Total | 1,756 | 2,001 |

# Commentary

## *Purpose*

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

## *Report Highlights*

The financial status of the Plan can be measured by three different funding ratios:

- The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 105.62%. The corresponding ratio for the prior year was 111.73%.
- The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 2003 the ratio is 97.06%, which is a decrease from the 2002 value of 102.46%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 91.38% shows that the current statutory contributions are modestly inadequate.

## *Asset Information (Tables 1 and 2)*

Effective with the July 1, 2000 valuation of the fund, Minnesota Statutes require that the asset value used for actuarial purposes spread differences between actual return (measured on a market-value basis) and expected return on non-MPRIF assets over five years, in a manner similar to that already being used within the MPRIF. The previous method required under Minnesota Statutes recognized one third of the unrealized gains and losses. An Asset Valuation Method requirement exists because market values (which include all unrealized gains and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year. The intent of the change to the current method is to employ a more effective asset smoothing technique which is market-value based and which eliminates artificial bias related to manager style. The effective date of this requirement is July 1, 2000 with full transition to be accomplished as of July 1, 2003.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E.1 to E.4. Actuarial Value of Assets is determined as:

Market Value of Assets at June 30, 2003, *less*

80% of the current year Unrecognized Asset Return at July 1, 2003 (the difference between actual net return on Market Value of Assets between June 30, 2002 and June 30, 2003 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2002 Actuarial Valuation); *less*

60% of the current year Unrecognized Asset Return at July 1, 2002 (the difference between actual net return on Market Value of Assets between June 30, 2001 and June 30, 2002 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2001 Actuarial Valuation); *less*

40% of the current year Unrecognized Asset Return at July 1, 2001 (the difference between actual net return on Market Value of Assets between June 30, 2000 and June 30, 2001 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2000 Actuarial Valuation); *less*

20% of the current year Unrecognized Asset Return at July 1, 2000 (the difference between actual net return on Market Value of Assets between June 30, 1999 and June 30, 2000 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 1999 Actuarial Valuation).

Since its adoption on July 1, 2000, the Asset Valuation Method has functioned effectively to smooth the significant variability in market value returns. It is prudent to note, however, that the deferral of recognition of the large market losses of the last three fiscal years means there has accumulated a significant negative return amount that will be recognized over the next few years. This means that in order for asset returns on a "Current Assets" basis to be at or near the assumed 8.5%, market value returns will need to be substantially above 8.5%; conversely, if market value returns are at or near the assumed 8.5%, returns measured on a "Current Assets" basis will be substantially lower, resulting in actuarial losses.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets," the latter phrase will be used in the remainder of this report.

This Plan participates in the Minnesota Post Retirement Investment Fund (i.e., MPRIF). After the MPRIF liability has been calculated for each participating Plan, the State Board of Investments, (i.e., SBI), will determine each Plan's portion of the excess earnings for the January benefit increase as well as the Plan's allocated market share of MPRIF.

## *Actuarial Balance Sheet (Table 8)*

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated as follows:

- For Active Members – Salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- For Non-Active Members – The discounted value of benefits, including augmentation in cases where benefits have not commenced.

## *GASB Disclosure*

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superceded by Statement No. 25. Tables 14 and 15 of this report are included to fulfill the requirements of Statement No. 25.

## *Actuarial Cost Method (Table 9)*

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

## *Source of Actuarial Gains and Losses (Table 10)*

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectations. For a detailed analysis of the major components, refer to Table 10.

### *Contribution Sufficiency (Table 11)*

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

Table 11 shows the Plan has a contribution deficiency since the Statutory Contribution Rate is 13.67% compared to the Required Contribution Rate of 15.83%.

### *Changes in Actuarial Assumptions and Methods*

All actuarial assumptions and methods listed in Table 12 are the same as those used in the prior valuation.

### *Changes in Plan Provisions*

All plan provisions are the same as those used in the prior actuarial valuation of the Fund.

**Correctional Employees Retirement Fund**

## *Statement of Plan Net Assets*

*(dollars in thousands)*

July 1, 2003

| | Market Value | Cost Value |
|---|---|---|
| A. ASSETS IN TRUST | | |
| 1. Cash, Equivalents, Short-Term Securities | $ 6,439 | $ 6,439 |
| 2. Fixed Income | 51,992 | 51,733 |
| 3. Equity | 160,072 | 182,400 |
| 4. Real Estate | 7,897 | 6,751 |
| 5. Equity in MPRIF* | 192,732 | 192,732 |
| 6. Other | 0 | 0 |
| **Subtotal** | $ 419,132 | $ 440,055 |
| B. ASSETS RECEIVABLE | 635 | 635 |
| C. LIABILITIES | $ (1,023) | $ (1,023) |
| D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS | | |
| 1. MPRIF Reserves* | 192,732 | 192,732 |
| 2. Member Reserves | 55,441 | 55,441 |
| 3. Other Non-MPRIF Reserves | 170,571 | 191,494 |
| 4. Total Assets Available for Benefits | $ 418,744 | $ 439,667 |

| E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS | | |
|---|---|---|
| 1. Market Value of Assets Available for Benefits (D4) | | $ 418,744 |
| 2. Unrecognized Asset Returns (UAR) | | |
| a. June 30, 2003 | (15,234) | |
| b. June 30, 2002 | (41,435) | |
| c. June 30, 2001 | (43,375) | |
| d. June 30, 2000 | 12,132 | |
| 3. UAR Adjustment: .80 * 2(a) + .60 * 2(b) + .40 * 2(c) +.20 * 2(d) | | (51,972) |
| 4. Actuarial Value of Assets (E1-E3) (Same as "Current Assets") | | $ 470,716 |

* *The number shown is the full MPRIF reserve amount. The actual MPRIF market value of $185,285 is not used for funding purposes because this deficiency is accounted for separately and is expected to be recovered from future excess earnings on MPRI funds.*

**Correctional Employees Retirement Fund**

## *Statement of Change In Plan Net Assets*

*(dollars in thousands)*

Year Ending June 30, 2003

| | Non-MPRIF Assets | MPRIF Reserve | Market Value |
|---|---|---|---|
| A. ASSETS AVAILABLE AT BEGINNING OF PERIOD | $ 232,784 | $ 172,606 | $ 405,390 |
| B. ADDITIONS | | | |
| 1. Member Contributions | $ 7,610 | 0 | $ 7,610 |
| 2. Employer Contributions | 10,480 | 0 | 10,480 |
| 3. Contributions From Other Sources | 0 | 0 | 0 |
| 4. MPRIF Income | 0 | 11,622 | 11,622 |
| 5. Net Investment Income | | | |
| a. Interest and Dividends | (9,738) | 0 | (9,738) |
| b. Net Appreciation/(Depreciation) | 13,616 | 0 | 13,616 |
| c. Investment Expenses | (289) | 0 | (289) |
| **d. Net Subtotal** | 3,589 | 0 | 3,589 |
| 6. Other | 529 | 0 | 529 |
| 7. Total Additions | $ 22,208 | $ 11,622 | $ 33,830 |
| C. OPERATING EXPENSES | | | |
| 1. Service Retirements | 0 | $ 19,256 | $ 19,256 |
| 2. Disability Benefits | 0 | 0 | 0 |
| 3. Survivor Benefits | 0 | 0 | 0 |
| 4. Refunds | 607 | 0 | 607 |
| 5. Administrative Expenses | 286 | 0 | 286 |
| 6. Other | 327 | 0 | 327 |
| 7. Total Disbursements | $ 1,220 | $ 19,256 | $ 20,476 |
| D. OTHER CHANGES IN RESERVES | | | |
| 1. Annuities Awarded | (27,096) | 27,096 | 0 |
| 2. Mortality Gain (Loss) | (664) | 664 | 0 |
| 3. Total Other Changes | (27,760) | 27,760 | 0 |
| E. ASSETS AVAILABLE AT END OF PERIOD | $ 226,012 | $ 192,732 | $ 418,744 |

| | |
|---|---|
| F. DETERMINATION OF CURRENT YEAR UNRECOGNIZED ASSET RETURN | |
| 1. Average Balance | |
| (a) Non-MPRIF Assets Available at Beginning of Period | 232,784 |
| (b) Non-MPRIF Assets Available at End of Period* | 226,676 |
| (c) Average Balance {[F1.a+F1.b-B5.d-B6]/2} | 227,671 |
| 2. Expected Return: .085*F1.c | 19,352 |
| 3. Actual Return | 4,118 |
| 4. Current Year UAR: F3-F2 | $ (15,234) |

* Before adjustment for MPRIF mortality gain (loss)

Correctional Employees Retirement Fund

## Active Members as of June 30, 2003

| | Years of Service | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | All |
| <25 | 45 | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 100 |
| 25-29 | 53 | 230 | 29 | 0 | 0 | 0 | 0 | 0 | 312 |
| 30-34 | 41 | 230 | 184 | 14 | 0 | 0 | 0 | 0 | 469 |
| 35-39 | 41 | 171 | 186 | 112 | 17 | 1 | 0 | 0 | 528 |
| 40-44 | 31 | 155 | 157 | 139 | 93 | 24 | 0 | 0 | 599 |
| 45-49 | 40 | 130 | 141 | 88 | 58 | 93 | 22 | 0 | 572 |
| 50-54 | 30 | 85 | 111 | 78 | 48 | 61 | 80 | 6 | 499 |
| 55-59 | 13 | 34 | 34 | 17 | 11 | 9 | 7 | 1 | 126 |
| 60-64 | 2 | 16 | 19 | 6 | 3 | 1 | 0 | 0 | 47 |
| 65+ | 1 | 0 | 4 | 1 | 2 | 0 | 2 | 0 | 10 |
| ALL | 297 | 1,106 | 865 | 455 | 232 | 189 | 111 | 7 | 3,262 |

### Average Annual Earnings

| | Years of Service | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | All |
| <25 | 20,083 | 30,722 | 0 | 0 | 0 | 0 | 0 | 0 | 25,934 |
| 25-29 | 22,167 | 32,234 | 37,793 | 0 | 0 | 0 | 0 | 0 | 31,040 |
| 30-34 | 23,040 | 33,244 | 39,221 | 45,366 | 0 | 0 | 0 | 0 | 35,058 |
| 35-39 | 21,148 | 34,028 | 41,648 | 46,025 | 49,743 | 48,482 | 0 | 0 | 38,790 |
| 40-44 | 29,125 | 34,480 | 42,064 | 46,772 | 48,566 | 48,601 | 0 | 0 | 41,795 |
| 45-49 | 27,745 | 37,631 | 43,322 | 46,266 | 49,790 | 51,221 | 54,509 | 0 | 43,762 |
| 50-54 | 35,504 | 40,093 | 44,456 | 46,205 | 50,274 | 48,904 | 53,299 | 60,723 | 46,164 |
| 55-59 | 38,910 | 38,956 | 46,574 | 49,737 | 46,897 | 49,090 | 46,562 | 48,456 | 44,376 |
| 60-64 | 34,519 | 52,374 | 47,097 | 48,757 | 58,073 | 46,395 | 0 | 0 | 49,255 |
| 65+ | 17,529 | 0 | 39,691 | 43,164 | 57,038 | 0 | 88,998 | 0 | 51,152 |
| ALL | 25,456 | 34,697 | 42,015 | 46,478 | 49,428 | 49,998 | 53,757 | 58,970 | 40,074 |

| | Prior Fiscal Year Earnings (in THOUSANDS) by Years of Service | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
| All | 7,560 | 38,374 | 36,342 | 21,147 | 11,467 | 9,449 | 5,967 | 412 | 130,721 |

Correctional Employees Retirement Fund

## *Service Retirements as of June 30, 2003*

| | Years Retired | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50-54 | 18 | 23 | 0 | 0 | 0 | 0 | 0 | 41 |
| 55-59 | 106 | 163 | 20 | 0 | 0 | 0 | 0 | 289 |
| 60-64 | 13 | 30 | 117 | 2 | 0 | 0 | 0 | 162 |
| 65-69 | 5 | 26 | 49 | 60 | 0 | 0 | 0 | 140 |
| 70-74 | 2 | 3 | 8 | 19 | 48 | 0 | 0 | 80 |
| 75-79 | 0 | 0 | 1 | 4 | 17 | 40 | 0 | 62 |
| 80-84 | 0 | 0 | 0 | 0 | 1 | 6 | 26 | 33 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 3 | 33 | 36 |
| ALL | 144 | 245 | 195 | 85 | 66 | 49 | 59 | 843 |

### Average Annual Benefit

| | Years Retired | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50-54 | 16,191 | 19,045 | 0 | 0 | 0 | 0 | 0 | 17,792 |
| 55-59 | 18,717 | 20,841 | 26,991 | 0 | 0 | 0 | 0 | 20,487 |
| 60-64 | 17,257 | 12,158 | 24,074 | 16,552 | 0 | 0 | 0 | 21,227 |
| 65-69 | 14,960 | 16,363 | 14,914 | 22,898 | 0 | 0 | 0 | 18,606 |
| 70-74 | 4,229 | 6,178 | 10,002 | 17,745 | 21,750 | 0 | 0 | 18,602 |
| 75-79 | 0 | 0 | 24,840 | 11,102 | 18,621 | 24,925 | 0 | 22,303 |
| 80-84 | 0 | 0 | 0 | 0 | 18,421 | 16,404 | 16,654 | 16,662 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 31,937 | 11,018 | 12,761 |
| ALL | 17,937 | 18,954 | 21,498 | 21,041 | 20,893 | 24,310 | 13,501 | 19,660 |

### Total Annual Benefit (in thousands) by Years Retired

| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
|---|---|---|---|---|---|---|---|---|
| All | 2,582 | 4,643 | 4,192 | 1,788 | 1,378 | 1,191 | 796 | 16,573 |

Correctional Employees Retirement Fund

## *Survivors as of June 30, 2003*

| | Years Since Death | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 8 | 6 | 3 | 0 | 0 | 0 | 0 | 17 |
| 50-54 | 5 | 5 | 2 | 1 | 0 | 0 | 0 | 13 |
| 55-59 | 2 | 2 | 5 | 0 | 0 | 0 | 0 | 9 |
| 60-64 | 1 | 5 | 4 | 1 | 1 | 0 | 0 | 12 |
| 65-69 | 2 | 4 | 4 | 1 | 0 | 1 | 0 | 12 |
| 70-74 | 2 | 2 | 1 | 1 | 1 | 1 | 0 | 8 |
| 75-79 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 4 |
| 80-84 | 0 | 0 | 3 | 0 | 0 | 0 | 3 | 6 |
| 85+ | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| ALL | 20 | 26 | 23 | 6 | 2 | 2 | 3 | 82 |

### Average Annual Benefit

| | Years Since Death | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 5,496 | 8,525 | 11,007 | 0 | 0 | 0 | 0 | 7,537 |
| 50-54 | 9,033 | 12,052 | 2,239 | 13,214 | 0 | 0 | 0 | 9,470 |
| 55-59 | 7,281 | 14,543 | 14,133 | 0 | 0 | 0 | 0 | 12,701 |
| 60-64 | 12,694 | 17,115 | 12,903 | 7,601 | 13,977 | 0 | 0 | 14,288 |
| 65-69 | 12,351 | 12,907 | 8,367 | 5,245 | 0 | 35,709 | 0 | 12,562 |
| 70-74 | 12,444 | 3,531 | 6,614 | 10,543 | 5,241 | 14,061 | 0 | 8,551 |
| 75-79 | 0 | 7,100 | 22,281 | 6,913 | 0 | 0 | 0 | 10,848 |
| 80-84 | 0 | 0 | 10,030 | 0 | 0 | 0 | 8,673 | 9,351 |
| 85+ | 0 | 0 | 0 | 677 | 0 | 0 | 0 | 677 |
| ALL | 8,298 | 11,498 | 10,966 | 7,365 | 9,609 | 24,885 | 8,673 | 10,443 |

| | Total Annual Benefit (actual dollars) by Years Since Death | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| All | 165,960 | 298,948 | 252,218 | 44,190 | 19,218 | 49,770 | 26,019 | 856,326 |

Correctional Employees Retirement Fund

## *Disability Retirements as of June 30, 2003*

| | Years Disabled | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 20 | 25 | 15 | 2 | 0 | 0 | 0 | 62 |
| 50-54 | 7 | 12 | 7 | 3 | 0 | 0 | 0 | 29 |
| 55-59 | 5 | 12 | 9 | 5 | 0 | 0 | 0 | 31 |
| 60-64 | 0 | 3 | 2 | 2 | 0 | 0 | 0 | 7 |
| 65-69 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 3 |
| 70-74 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 75-79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80-84 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALL | 32 | 53 | 33 | 13 | 1 | 1 | 2 | 135 |

### Average Annual Benefit

| | Years Disabled | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 13,683 | 15,492 | 21,095 | 19,550 | 0 | 0 | 0 | 16,394 |
| 50-54 | 18,994 | 14,527 | 21,667 | 24,916 | 0 | 0 | 0 | 18,403 |
| 55-59 | 10,486 | 15,451 | 21,002 | 22,930 | 0 | 0 | 0 | 17,468 |
| 60-64 | 0 | 16,468 | 32,863 | 17,199 | 0 | 0 | 0 | 21,361 |
| 65-69 | 0 | 15,673 | 0 | 16,564 | 19,704 | 0 | 0 | 17,313 |
| 70-74 | 0 | 0 | 0 | 0 | 0 | 16,627 | 0 | 16,627 |
| 75-79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80-84 | 0 | 0 | 0 | 0 | 0 | 0 | 6,002 | 6,002 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALL | 14,345 | 15,322 | 21,904 | 21,496 | 19,704 | 16,627 | 6,002 | 17,197 |

Total Annual Benefit (actual dollars) by Years Disabled

| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
|---|---|---|---|---|---|---|---|---|
| All | 459,040 | 812,066 | 722,832 | 279,448 | 19,704 | 16,627 | 12,004 | 2,321,595 |

**Correctional Employees Retirement Fund**

## *Reconciliation of Members*

| | | Actives | Terminated Deferred Retirement | Terminated Other Non-Vested |
|---|---|---|---|---|
| A. | ON JUNE 30, 2002 | 3,249 | 550 | 268 |
| B. | ADDITIONS | 336 | 90 | 115 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | (89) | (12) | 0 |
| | 2. Disability | (15) | (6) | (2) |
| | 3. Death | (3) | 0 | 0 |
| | 4. Terminated - Deferred | (78) | 0 | (2) |
| | 5. Terminated - Refund | (77) | (9) | (21) |
| | 6. Terminated - Other Non-Vested | (87) | 0 | 0 |
| | 7. Returned as active | 17 | (12) | (5) |
| | 8. Transferred to Fund | (3) | 0 | (14) |
| D. | DATA ADJUSTMENTS | 12 | 0 | 1 |
| | 1. Vested | 2,360 | | |
| | 2. Non-Vested | 902 | | |
| E. | TOTAL ON JUNE 30, 2003 | 3,262 | 601 | 340 |

| | | Recipients Retirement Annuitants | Recipients Disabled | Recipients Survivors |
|---|---|---|---|---|
| A. | ON JUNE 30, 2002 | 754 | 115 | 69 |
| B. | ADDITIONS | 106 | 23 | 14 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 0 | 0 | 0 |
| | 2. Death | (14) | (2) | (1) |
| | 3. Annuity Expired | 0 | 0 | 0 |
| | 4. Returned as Active | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | (3) | (1) | 0 |
| E. | TOTAL ON JUNE 30, 2003 | 843 | 135 | 82 |

**Correctional Employees Retirement Fund**

## *Actuarial Balance Sheet*

*(dollars in thousands)*

July 1, 2003

| | Non-Vested | Vested | Total |
|---|---|---|---|
| A. CURRENT ASSETS (Table 1, Line E4) | | | $ 470,716 |
| B. EXPECTED FUTURE ASSETS | | | |
| 1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11) | | | (40,093) |
| 2. Present Value of Future Normal Costs | | | 145,525 |
| 3. Total Expected Future Assets | | | $ 105,432 |
| C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS | | | $ 576,148 |
| D. CURRENT BENEFIT OBLIGATIONS | Non-Vested | Vested | Total |
| 1. Benefit Recipients | | | |
| a. Retirement Annuities | | $ 155,871 | $ 155,871 |
| b. Disability Benefits | | 27,495 | 27,495 |
| c. Surviving Spouse and Child Benefits | | 9,366 | 9,366 |
| 2. Deferred Retirements with Future Augmentation | | 29,869 | 29,869 |
| 3. Former Members Without Vested Rights | | 834 | 834 |
| 4. Active Members | | | |
| a. Retirement Annuities | $ 3,639 | 180,900 | 184,539 |
| b. Disability Benefits | 13,505 | 0 | 13,505 |
| c. Surviving Spouse and Child Benefits | 4,004 | 0 | 4,004 |
| d. Deferred Retirements | 527 | 15,221 | 15,748 |
| e. Refund Liability Due to Death or Withdrawal | 0 | 4,452 | 4,452 |
| 5. Total Current Benefit Obligations | $ 21,675 | $ 424,008 | $ 445,683 |
| E. EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $ 184,816 |
| F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $ 630,499 |
| G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A) | | | $ (25,033) |
| H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C) | | | $ 54,351 |

**Correctional Employees Retirement Fund**

## Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate

*(dollars in thousands)*

July 1, 2003

| | Actuarial Present Value of Projected Benefits | Actuarial Present Value of Future Normal Costs | Actuarial Accrued Liability |
|---|---|---|---|
| A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL) | | | |
| 1. Active Members | | | |
| a. Retirement Annuities | $ 340,809 | $ 103,005 | $ 237,804 |
| b. Disability Benefits | 24,280 | 11,995 | 12,285 |
| c. Survivor's Benefits | 7,060 | 2,811 | 4,249 |
| d. Deferred Retirements | 26,910 | 13,719 | 13,191 |
| e. Refunds Due to Death or Withdrawal | 8,005 | 13,995 | (5,990) |
| f. Total | $ 407,064 | $ 145,525 | $ 261,539 |
| 2. Deferred Retirements With Future Augmentation | 29,869 | | 29,869 |
| 3. Former Members Without Vested Rights | 834 | | 834 |
| 4. Annuitants in MPRIF | 192,732 | | 192,732 |
| 5. Recipients Not in MPRIF | 0 | | 0 |
| 7. Total | $ 630,499 | $ 145,525 | $ 484,974 |

| | |
|---|---|
| B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) | |
| 1. AAL (A6) | $ 484,974 |
| 2. Current Assets (Table 1, E4) | 470,716 |
| 3. UAAL (B1-B2) | $ 14,258 |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE | |
| 1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2032 | 2,521,572 |
| 2. Supplemental Contribution Rate (B3/C1) | 0.57% |

**Correctional Employees Retirement Fund**

## *Changes in Unfunded Actuarial Accrued Liability (UAAL)*

*(dollars in thousands)*

Year Ending June 30, 2003

| | | |
|---|---|---|
| A. UAAL AT BEGINNING OF YEAR | $ | (10,990) |
| B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING | | |
| 1. Normal Cost and Expenses | $ | 19,922 |
| 2. Contributions | | (18,090) |
| 3. Interest on A, B1, and B2 | | (856) |
| 4. Total (B1+B2+B3) | $ | 976 |
| C. EXPECTED UAAL AT END OF YEAR (A+B4) | $ | (10,014) |
| D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED | | |
| 1. Salary Increases | $ | (3,155) |
| 2. Investment Return | | 19,710 |
| 3. MPRIF Mortality | | 664 |
| 4. Mortality of Other Benefit Recipients | | 0 |
| 5. Other Items | | 7,053 |
| 6. Total | $ | 24,272 |
| E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6) | $ | 14,258 |
| F. CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY DUE TO CHANGE IN ACTUARIAL METHODS | | 0 |
| G. CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS | | 0 |
| H. UAAL AT END OF YEAR (E+F+G) | $ | 14,258 |

**Correctional Employees Retirement Fund**

## *Determination of Contribution Sufficiency*

*(dollars in thousands)*

July 1, 2003

| | Percent of Payroll | Dollar Amount |
|---|---|---|
| A. STATUTORY CONTRIBUTIONS - CHAPTER 352 | | |
| 1. Employee Contributions | 5.69% | $ 7,882 |
| 2. Employer Contributions | 7.98% | 11,054 |
| 3. Total | 13.67% | $ 18,936 |
| B. REQUIRED CONTRIBUTIONS - CHAPTER 356 | | |
| 1. Normal Cost | | |
| a. Retirement Benefits | 10.95% | $ 15,172 |
| b. Disability Benefits | 1.25% | 1,738 |
| c. Survivors | 0.26% | 366 |
| d. Deferred Retirement Benefits | 1.29% | 1,793 |
| e. Refunds Due to Death or Withdrawal | 1.29% | 1,788 |
| f. Total | 15.04% | $ 20,857 |
| 2. Supplemental Contribution Amortization by July 1, 2032 of UAAL | 0.57% | 790 |
| 3. Allowance for Expenses | 0.22% | 305 |
| 4. Total | 15.83% | $ 21,952 |
| C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4] | (2.16%) | (3,016) |

Note: Projected Annual Payroll for Fiscal Year Beginning on the Valuation Date: $ 138,518

**Correctional Employees Retirement Fund**

## *Summary of Actuarial Assumptions and Methods*

*Interest*: **Pre-Retirement**: 8.5% per annum
**Post-Retirement**: 8.5% per annum

*Benefit Increases After Retirement*: Payment of earnings on retired reserves in excess of 6% accounted for by using a 6% post-retirement assumption.

*Salary Increases*: Reported salary at valuation date increased according to the rate table on pages 18 and 19 to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for new Members.

*Mortality*:

**Pre-Retirement**:

| | |
|---|---|
| Male - | 1983 GAM (Males -1) |
| Female - | 1983 GAM (Females) |

**Post-Retirement**:

| | |
|---|---|
| Male - | 1983 GAM (Males +2) |
| Female - | 1983 GAM (Females +2) |

**Post-Disability**:

| | |
|---|---|
| Male - | Combined Annuity Mortality Table |
| Female - | Combined Annuity Mortality Table |

*Retirement Age*: Age-related table as follows:

| | | |
|---|---|---|
| Ages: | 50-53 | 2% |
| | 54 | 20 |
| | 55 | 60 |
| | 56-61 | 20 |
| | 62-64 | 50 |
| | 65+ | 100 |

*Separation*: Graded rates based on actual experience developed by the June 30, 1997 experience analysis. Rates are shown in rate table.

*Disability*: Rates as shown in rate table.

*Allowance for Combined Service Annuity:* Liabilities for active Members are increased by 0% and liabilities for former Members are increased by 30% to account for the effect of some participants having eligibility for a Combined Service Annuity.

| | |
|---|---|
| ***Administrative Expenses:*** | Prior year administration expenses expressed as percentage of prior year payroll. |
| ***Return of Contributions:*** | All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit. |
| ***Family Composition:*** | 85% of Members are assumed to be married. Female is three years younger than male. |
| ***Social Security:*** | Based on the present law and 6.0% retroactive salary scale. Only earnings history while in state service is used. Future Social Security benefits replace the same proportion of salary as at present. |
| ***Special Consideration:*** | Married Members assumed to elect subsidized joint and survivor form of annuity as follows:<br>**Males -** 25% elect 50% J&S option<br>25% elect 100% J&S option<br>**Females -** 5% elect 50% J&S option<br>5% elect 100% J&S option |
| ***Actuarial Cost Method:*** | Entry Age Normal Actuarial Cost Method with normal costs expressed as a level percentage of earnings. Under this method, Actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability.<br><br>The actuarial cost method was changed as of July 1, 1997 to permit negative amortization of supplemental contribution surpluses. |
| ***Asset Valuation Method:*** | Market Value less a percentage of the Unrecognized Asset Return determined at the close of each of the four preceding fiscal years. Unrecognized Asset Return is the difference between actual net return on Market Value of Assets and the asset return expected during that fiscal year (based on the assumed interest rate employed in the July 1 Actuarial Valuation of the fiscal year). Transition rules apply between July 1, 2000 and July 1, 2003, when the method is fully in effect. |
| ***Payment on the Unfunded Actuarial Accrued Liability:*** | A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5% per annum. If there is a negative Unfunded Actuarial Accrued Liability, the surplus amount shall be amortized over 30 years as a level percentage of payroll. |

Correctional Employees Retirement Fund

## *Summary of Actuarial Assumptions and Methods*

***Separation Expressed as Number of Occurrences Per 10,000:***

| | Death | | Withdrawal | | Disability | | Retirement | | Salary |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female | Male | Female | Increases |
| 20 | 4 | 2 | 2,400 | 1,600 | 4 | 4 | 0 | 0 | 7.75% |
| 21 | 4 | 2 | 2,200 | 1,560 | 4 | 4 | 0 | 0 | 7.1454 |
| 22 | 4 | 2 | 2,000 | 1,520 | 5 | 5 | 0 | 0 | 7.1094 |
| 23 | 4 | 2 | 1,810 | 1,480 | 5 | 5 | 0 | 0 | 7.0725 |
| 24 | 4 | 2 | 1,630 | 1,450 | 6 | 6 | 0 | 0 | 7.0363 |
| 25 | 4 | 3 | 1,470 | 1,420 | 6 | 6 | 0 | 0 | 7 |
| 26 | 5 | 3 | 1,330 | 1,400 | 6 | 6 | 0 | 0 | 7 |
| 27 | 5 | 3 | 1,210 | 1,380 | 7 | 7 | 0 | 0 | 7 |
| 28 | 5 | 3 | 1,100 | 1,370 | 7 | 7 | 0 | 0 | 7 |
| 29 | 5 | 3 | 1,000 | 1,360 | 8 | 8 | 0 | 0 | 7 |
| 30 | 6 | 3 | 910 | 1,350 | 8 | 8 | 0 | 0 | 7 |
| 31 | 6 | 4 | 830 | 1,340 | 9 | 9 | 0 | 0 | 7 |
| 32 | 6 | 4 | 760 | 1,330 | 9 | 9 | 0 | 0 | 7 |
| 33 | 7 | 4 | 700 | 1,320 | 10 | 10 | 0 | 0 | 7 |
| 34 | 7 | 4 | 650 | 1,310 | 10 | 10 | 0 | 0 | 7 |
| 35 | 8 | 5 | 600 | 1,290 | 11 | 11 | 0 | 0 | 7 |
| 36 | 9 | 5 | 560 | 1,260 | 12 | 12 | 0 | 0 | 6.9019 |
| 37 | 9 | 5 | 520 | 1,220 | 13 | 13 | 0 | 0 | 6.8074 |
| 38 | 10 | 6 | 490 | 1,170 | 15 | 15 | 0 | 0 | 6.7125 |
| 39 | 10 | 6 | 460 | 1,110 | 16 | 16 | 0 | 0 | 6.6054 |
| 40 | 11 | 7 | 440 | 1,040 | 18 | 18 | 0 | 0 | 6.5 |
| 41 | 12 | 7 | 420 | 960 | 20 | 20 | 0 | 0 | 6.354 |
| 42 | 14 | 8 | 400 | 870 | 22 | 22 | 0 | 0 | 6.2087 |
| 43 | 15 | 8 | 380 | 780 | 24 | 24 | 0 | 0 | 6.0622 |
| 44 | 17 | 9 | 360 | 700 | 26 | 26 | 0 | 0 | 5.9048 |
| 45 | 19 | 10 | 340 | 640 | 29 | 29 | 0 | 0 | 5.75 |
| 46 | 22 | 11 | 320 | 590 | 32 | 32 | 0 | 0 | 5.6940 |
| 47 | 25 | 12 | 300 | 560 | 36 | 36 | 0 | 0 | 5.6375 |
| 48 | 28 | 14 | 280 | 530 | 41 | 41 | 0 | 0 | 5.5822 |
| 49 | 31 | 15 | 260 | 500 | 46 | 46 | 0 | 0 | 5.5405 |

**Correctional Employees Retirement Fund**

## *Summary of Actuarial Assumptions and Methods*

***Separation Expressed as Number of Occurrences Per 10,000:***

| | Death | | Withdrawal | | Disability | | Retirement | | Salary |
|---|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female | Male | Female | Increases |
| 50 | 35 | 16 | 240 | 470 | 50 | 50 | 200 | 200 | 5.5% |
| 51 | 39 | 18 | 220 | 440 | 57 | 57 | 200 | 200 | 5.4384 |
| 52 | 43 | 19 | 200 | 410 | 64 | 64 | 200 | 200 | 5.3776 |
| 53 | 48 | 21 | 180 | 390 | 72 | 72 | 200 | 200 | 5.3167 |
| 54 | 52 | 23 | 160 | 360 | 80 | 80 | 2,000 | 2,000 | 5.2826 |
| 55 | 57 | 25 | 140 | 330 | 88 | 88 | 6,000 | 6,000 | 5.25 |
| 56 | 61 | 28 | 120 | 290 | 98 | 98 | 2,000 | 2,000 | 5.25 |
| 57 | 66 | 31 | 100 | 230 | 108 | 108 | 2,000 | 2,000 | 5.25 |
| 58 | 71 | 34 | 70 | 170 | 118 | 118 | 2,000 | 2,000 | 5.25 |
| 59 | 77 | 38 | 40 | 90 | 129 | 129 | 2,000 | 2,000 | 5.25 |
| 60 | 84 | 42 | 0 | 0 | 141 | 141 | 2,000 | 2,000 | 5.25 |
| 61 | 92 | 47 | 0 | 0 | 154 | 154 | 2,000 | 2,000 | 5.25 |
| 62 | 101 | 52 | 0 | 0 | 167 | 167 | 5,000 | 5,000 | 5.25 |
| 63 | 111 | 58 | 0 | 0 | 0 | 0 | 5,000 | 5,000 | 5.25 |
| 64 | 124 | 64 | 0 | 0 | 0 | 0 | 5,000 | 5,000 | 5.25 |
| 65 | 129 | 71 | 0 | 0 | 0 | 0 | 10,000 | 10,000 | 5.25 |
| 66 | 156 | 78 | 0 | 0 | 0 | 0 | 0 | 0 | 5.25 |
| 67 | 176 | 87 | 0 | 0 | 0 | 0 | 0 | 0 | 5.25 |
| 68 | 198 | 97 | 0 | 0 | 0 | 0 | 0 | 0 | 5.25 |
| 69 | 222 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 5.25 |
| 70 | 248 | 124 | 0 | 0 | 0 | 0 | 0 | 0 | 5.25 |

**Correctional Employees Retirement Fund**

## *Summary of Plan Provisions*

*This summary of provisions reflects the interpretation of applicable Statutes by the Commission Actuary for purposes of preparing this valuation. This interpretation is not intended to create or rescind any benefit rights in conflict with any Minnesota Statutes.*

# GENERAL

| | |
|---|---|
| ***Eligibility***: | State employees in covered correctional service. |
| ***Contributions***: | |
| *Member*: | 5.69% of salary. |
| *Employer*: | 7.98% of salary. |
| ***Allowable Service***: | Service during which Member contributions were made. May also include certain leaves of absence, military service and periods while temporary Worker's Compensation is paid. |
| ***Salary***: | Includes wages, allowances and fees. Excludes lump-sum payments at separation and reduced salary while receiving Worker's Compensation benefits. |
| ***Average Salary***: | Average of the five highest successive years of salary. Average Salary is based on all Allowable Service if less than five years. |

# RETIREMENT

| | |
|---|---|
| ***Normal Retirement Benefit***: | |
| *Eligibility*: | Age 55 and three years of Allowable Service under the Correctional and General Plans. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service. |
| *Amount*: | 2.4% of Average Salary for each year of Allowable Service, pro rata for completed months. |

***Early Retirement Benefit*:**

| | |
|---|---|
| *Eligibility*: | Age 50 and three years of Allowable Service. |
| *Amount*: | Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date reduced by 2/10% per month for each month that the Member is under age 55. |
| *Form of Payment*: | Life annuity. Actuarially equivalent options are:<br><br>50% or 100% joint and survivor with bounce back feature without additional reduction. 15 year certain and life benefits. Level Social Security option either to age 62 or Social Security Retirement Age. |
| *Benefit Increases*: | Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one full month but less than 12 full months will receive a partial increase. |

# DISABILITY

***Occupational Disability*:**

| | |
|---|---|
| *Eligibility*: | Member who cannot perform his duties as a direct result of a disability related to an act of duty. |
| *Amount*: | 50% of Average Salary plus 2.4% of Average Salary for each year in excess of 20 years and 10 months of Allowable Service (pro rata for completed months). Maximum of 75% of Average Salary. |

Payment begins at disability and stops at age 65 or the five-year anniversary of the effective date of the disability benefit, whichever is later. Payments stop earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability.

***Non-Occupational Disability*:**

*Eligibility*: At least one year of Correctional service and disability not related to covered employment.

*Amount*: Normal Retirement Benefit based on Allowable Service (minimum of 15 years) and Average Salary at disability.

Payment begins at disability and ends at age 65 or the five-year anniversary of the effective date of the disability benefit, whichever is later. Payments stop earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability.

*Form of Payment*: Same as for retirement.

*Benefit Increases*: Adjusted by MSRS to provide same increase as MPRIF.

***Retirement Benefits*:**

*Eligibility*: Age 62 with continued disability.

*Amount*: Benefit computed as a normal retirement benefit under General Plan based on same Allowable Service and without reduction for age.

*Form of Payment*: Same as for retirement.

*Benefit Increases*: Same as for retirement.

# DEATH

***Surviving Spouse Benefit*:**

| | |
|---|---|
| *Eligibility*: | Member at any age or former Member age 50 or older who dies before retirement or disability benefits commence with three years of Allowable Service. If a former Member dies before age 55 and has less than 30 years of Allowable Service, benefits commence when the former Member would have been age 55. If an active member dies, benefits may commence immediately, regardless of age. |
| *Amount*: | Surviving spouse receives the 100% joint and survivor benefit using the Normal Retirement formula above. If commencement is prior to age 55, the appropriate early retirement formula described above applies except that one-half the monthly reduction factor is used from age 55 to the commencement age and the Rule of 90 does not apply. In lieu of this benefit, the surviving spouse may elect a refund of contributions with interest or an actuarially equivalent term certain annuity (lump sum payable to estate at death). |
| *Benefit Increases*: | Adjusted by MSRS to provide same income as MPRIF. |

***Surviving Dependent Children's Benefit*:**

| | |
|---|---|
| *Eligibility*: | If no surviving spouse, all dependent children (biological or adopted) below age 20 who are dependent for more than half of their support on deceased Member. |
| *Amount*: | Actuarially equivalent to surviving spouse 100% joint and survivor annuity payable to the later of age 20 or five years. The amount is to be proportionally divided among surviving children. |

***Refund of Contributions With Interest*:**

| | |
|---|---|
| *Eligibility*: | Active employee dies and survivor benefits are not payable or a former employee dies before annuity begins. If accumulated contributions with interest exceed total payments to the surviving spouse and children, then the remainder is paid out. |
| *Amount*: | The Member's contributions with 5% interest if death occurred before May 16, 1989 and 6% interest if death occurred on or after May 16, 1989. |

## TERMINATION

***Refund of Contributions*:**

| | |
|---|---|
| *Eligibility*: | Termination of state service. |
| *Amount*: | Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund if three or more years of Allowable Service. |

***Deferred Annuity*:**

| | |
|---|---|
| *Eligibility*: | Three years of Correctional and General Service. |
| *Amount*: | Benefit computed under law in effect at termination. |

## SIGNIFICANT CHANGES

No significant changes in plan provisions were recognized for this valuation.

**Correctional Employees Retirement Fund**

## *Schedule of Funding Progress*

*(dollars in thousands)*

July 1, 2003

| Actuarial Valuation Date | Actuarial Value of Assets (A) | Actuarial Accrued Liability (B) | Unfunded AAL (UAAL) (B)-(A) | Funded Ratio (A)/(B) | Actual Covered Payroll (Previous FY) (C) | UAAL as % of Covered Payroll ((B)-(A))/(C) |
|---|---|---|---|---|---|---|
| 07/01/91 | $ 105,925 | $ 112,171 | $ 6,246 | 94.43% | $ 43,429 | 14.38% |
| 07/01/92 | 121,051 | 123,515 | 2,464 | 98.01% | 47,592 | 5.18% |
| 07/01/93 | 135,939 | 134,280 | (1,659) | 101.24% | 52,122 | -3.18% |
| 07/01/94 | 148,163 | 152,702 | 4,539 | 97.03% | 54,673 | 8.30% |
| 07/01/95 | 165,427 | 153,491 | (11,936) | 107.78% | 66,939 | -17.83% |
| 07/01/96 | 193,833 | 170,959 | (22,874) | 113.38% | 72,959 | -31.35% |
| 07/01/97 | 241,916 | 212,638 | (29,278) | 113.77% | 112,408 | -26.05% |
| 07/01/98 | 295,291 | 261,869 | (33,422) | 112.76% | 105,796 | -31.59% |
| 07/01/99 | 335,408 | 307,408 | (28,000) | 109.11% | 106,131 | -26.38% |
| 07/01/00 | 386,964 | 359,885 | (27,079) | 107.52% | 112,587 | -24.05% |
| 07/01/01 | 431,134 | 398,633 | (32,501) | 108.15% | 120,947 | -26.87% |
| 07/01/02 | 457,416 | 446,426 | (10,990) | 102.46% | 124,373 | -8.84% |
| 07/01/03 | 470,716 | 484,974 | 14,258 | 97.06% | 131,328 | 10.86% |

**Correctional Employees Retirement Fund**

## *Schedule of Employer Contributions*

*(dollars in thousands)*

July 1, 2003

| Year Ended June 30 | Required Contribution Rate (A) | Actual Covered Payroll (B) | Actual Member Contributions (C) | Annual Required Contributions [(A)*(B)]-(C) | Actual Employer Contributions[(1)] | Percentage Contributed |
|---|---|---|---|---|---|---|
| 1991 | 10.73% | $ 43,429 | $ 2,128 | $ 2,532 | $ 2,731 | 107.86% |
| 1992 | 10.82% | 47,592 | 2,332 | 2,817 | 2,955 | 104.90% |
| 1993 | 11.41% | 52,122 | 2,554 | 3,393 | 3,217 | 94.81% |
| 1994 | 10.97% | 54,673 | 2,679 | 3,319 | 3,355 | 101.08% |
| 1995 | 11.30% | 66,939 | 3,280 | 4,284 | 4,195 | 97.92% |
| 1996 | 11.11% | 72,959 | 3,575 | 4,531 | 4,559 | 100.62% |
| 1997 | 11.21% | 112,408 | 5,508 | 7,093 | 9,129 | 128.70% |
| 1998 | 12.49% | 105,796 | 5,954 | 7,260 | 8,146 | 112.20% |
| 1999 | 12.99% | 106,131 | 6,378 | 7,408 | 8,172 | 110.31% |
| 2000 | 13.66% [(2)] | 112,587 | 6,526 | 8,853 | 8,984 | 101.48% |
| 2001 | 13.72% [(3)] | 120,947 | 6,996 | 9,598 | 9,652 | 100.56% |
| 2002 | 13.81% | 124,373 | 7,207 | 9,969 | 9,925 | 99.56% |
| 2003 | 14.73% [(4)] | 131,328 | 7,610 | 11,735 | 10,480 | 89.31% |
| 2004 | 15.83% | | | | | |

[(1)] Includes contributions from other sources (if applicable)

[(2)] Actuarially Required Contribution Rate calculated according to parameters of GASB 25 using a 30-year amortization of the negative unfunded accrued liability.

[(3)] Actuarially Required Contribution Rate Prior to change in Asset Valuation Method is 13.34%

[(4)] Actuarially Required Contribution Rate Prior to change in Actuarial Assumptions is 14.46%

**The July 1, 2003 Actuarial Valuation Report for the Legislators Retirement Fund has been intentionally omitted.**

**The July 1, 2003 Actuarial Valuation Report for the Elective State Officers Retirement Fund has been intentionally omitted.**

# Judges Retirement Fund
## *ACTUARIAL VALUATION REPORT*

**July 1, 2003**



MILLIMAN USA

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November 21, 2003

Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

**RE: Judges Retirement Fund**

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 2003.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. Although we have reviewed the data for reasonableness and consistency, we have relied on the basic employee data and asset figures as submitted by the Minnesota State Retirement System.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission.

We, Thomas K. Custis and William V. Hogan, are actuaries for Milliman USA. We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Milliman USA

Thomas K. Custis

Thomas K. Custis, F.S.A., M.A.A.A.
Consulting Actuary

William V. Hogan

William V. Hogan, F.S.A., M.A.A.A.
Consulting Actuary

TKC/WVH/bh

**Judges Retirement Fund**

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**Judges Retirement Fund**

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(Continued)

**Judges Retirement Fund**

## *Report Highlights*

*(dollars in thousands)*

| | 07/01/02 Valuation | 07/01/03 Valuation |
|---|---|---|
| **A. CONTRIBUTIONS (Table 11)** | | |
| 1. Statutory Contributions - Chapter 490 % of Payroll | 28.50% | 28.42% |
| 2. Required Contributions - Chapter 356 % of Payroll | 26.82% | 26.73% |
| 3. Sufficiency (Deficiency) | 1.68% | 1.69% |
| **B. FUNDING RATIOS** | | |
| 1. Accrued Benefit Funding Ratio | | |
| a. Current Assets (Table 1) | $ 131,379 | $ 134,142 |
| b. Current Benefit Obligations (Table 8) | $ 164,539 | $ 168,378 |
| c. Funding Ratio | 79.85% | 79.67% |
| 2. Accrued Liability Funding Ratio | | |
| a. Current Assets (Table 1) | $ 131,379 | $ 134,142 |
| b. Actuarial Accrued Liability (Table 9) | $ 171,921 | $ 176,291 |
| c. Funding Ratio | 76.42% | 76.09% |
| 3. Projected Benefit Funding Ratio (Table 8) | | |
| a. Current and Expected Future Assets | $ 225,879 | $ 234,217 |
| b. Current and Expected Future Benefit Obligations | $ 218,981 | $ 226,882 |
| c. Funding Ratio | 103.15% | 103.23% |
| **C. PLAN PARTICIPANTS** | | |
| 1. Active Members | | |
| a. Number (Table 3) | 283 | 288 |
| b. Projected Annual Earnings | $ 31,057 | $ 34,270 |
| c. Average Annual Earnings (Projected $) | $ 109,742 | $ 118,993 |
| d. Average Age | 54.1 | 54.7 |
| e. Average Service | 9.9 | 10.2 |
| 2. Others | | |
| a. Service Retirements (Table 4) | 164 | 160 |
| c. Survivors (Table 5) | 87 | 87 |
| b. Disability Retirements (Table 6) | 5 | 6 |
| d. Deferred Retirements (Table 7) | 24 | 26 |
| e. Terminated Other Non-Vested (Table 7) | 1 | 1 |
| f. Total | 281 | 280 |

# *Commentary*

### *Purpose*

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

### *Report Highlights*

The financial status of the Plan can be measured by three different funding ratios:

- The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 79.67%. The corresponding ratio for the prior year was 79.85%
- The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 2003 the ratio is 76.09%, which is a decrease from the 2002 ratio of 76.42%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 103.23% verifies that the current statutory contributions are sufficient.

### *Asset Information (Tables 1 and 2)*

Effective with the July 1, 2000 valuation of the fund, Minnesota Statutes require that the asset value used for actuarial purposes spread differences between actual return (measured on a market-value basis) and expected return on non-MPRIF assets over five years, in a manner similar to that already being used within the MPRIF. The previous method required under Minnesota Statutes recognized one third of the unrealized gains and losses. An Asset Valuation Method requirement exists because market values (which include all unrealized gains and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year. The intent of the change to the current method is to employ a more effective asset smoothing technique which is market-value based and which eliminates artificial bias related to manager style. The effective date of this requirement is July 1, 2000 with full transition to be accomplished as of July 1, 2003.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E.1 to E.4. Actuarial Value of Assets is determined as:

Market Value of Assets at June 30, 2003, *less*

80% of the current year Unrecognized Asset Return at July 1, 2003 (the difference between actual net return on Market Value of Assets between June 30, 2002 and June 30, 2003 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2002 Actuarial Valuation); *less*

60% of the current year Unrecognized Asset Return at July 1, 2002 (the difference between actual net return on Market Value of Assets between June 30, 2001 and June 30, 2002 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2001 Actuarial Valuation); *less*

40% of the current year Unrecognized Asset Return at July 1, 2001 (the difference between actual net return on Market Value of Assets between June 30, 2000 and June 30, 2001 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2000 Actuarial Valuation); *less*

20% of the current year Unrecognized Asset Return at July 1, 2000 (the difference between actual net return on Market Value of Assets between June 30, 1999 and June 30, 2000 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 1999 Actuarial Valuation).

Since its adoption on July 1, 2000, the Asset Valuation Method has functioned effectively to smooth the significant variability in market value returns. It is prudent to note, however, that the deferral of recognition of the large market losses of the last three fiscal years means there has accumulated a significant negative return amount that will be recognized over the next few years. This means that in order for asset returns on a "Current Assets" basis to be at or near the assumed 8.5%, market value returns will need to be substantially above 8.5%; conversely, if market value returns are at or near the assumed 8.5%, returns measured on a "Current Assets" basis will be substantially lower, resulting in actuarial losses.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets," the latter phrase will be used in the remainder of this report.

This Plan participates in the Minnesota Post Retirement Investment Fund (i.e., MPRIF). After the MPRIF liability has been calculated for each participating Plan, the State Board of Investments, (i.e., SBI), will determine each Plan's portion of the excess earnings for the January benefit increase as well as the Plan's allocated market share of MPRIF.

### *Actuarial Balance Sheet (Table 8)*

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated as follows:

- For Active Members – Salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- For Non-Active Members – The discounted value of benefits, including augmentation in cases where benefits have not commenced.

### *GASB Disclosure*

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superceded by Statement No. 25. Tables 14 and 15 of this report are included to fulfill the requirements of Statement No. 25.

### *Actuarial Cost Method (Table 9)*

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

The payments will increase 5.00% each year because that is the assumed rate of increase in payroll. Although the payment schedule will be adequate to amortize the existing unfunded, the lower payments in the earlier years will not be sufficient to cover the interest on the unfunded liability. After a few years, the annual payment will cover the interest and also repay a portion of the unfunded.

### *Source of Actuarial Gains and Losses (Table 10)*

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectations. For a detailed analysis of the major components, refer to Table 10.

### *Contribution Sufficiency (Table 11)*

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

Table 11 shows the Plan has a contribution sufficiency since the Statutory Contribution Rate is 28.42% compared to the Required Contribution Rate of 26.73%.

## *Changes in Actuarial Assumptions and Methods*

All actuarial assumptions and methods listed in Table 12 are the same as those used in the prior valuation.

## *Changes in Plan Provisions*

All plan provisions are the same as those used in the prior actuarial valuation of the Fund.

**Judges Retirement Fund**

## *Statement of Plan Net Assets*

*(dollars in thousands)*

July 1, 2003

| | Market Value | Cost Value |
|---|---|---|
| A. ASSETS IN TRUST | | |
| 1. Cash, Equivalents, Short-Term Securities | $ 5,192 | $ 5,192 |
| 2. Fixed Income | 6,183 | 6,151 |
| 3. Equity | 19,036 | 21,669 |
| 4. Real Estate | 939 | 824 |
| 5. Equity in MPRIF* | 95,112 | 95,112 |
| 6. Other | 0 | 0 |
| **Subtotal** | $ 126,462 | $ 128,948 |
| B. ASSETS RECEIVABLE | 1,755 | 1,755 |
| C. LIABILITIES | $ (53) | $ (53) |
| D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS | | |
| 1. MPRIF Reserves* | 95,112 | 95,112 |
| 2. Member Reserves | 18,313 | 18,313 |
| 3. Other Non-MPRIF Reserves | 14,739 | 17,225 |
| 4. Total Assets Available for Benefits | $ 128,164 | $ 130,650 |

E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS

| | | |
|---|---|---|
| 1. Market Value of Assets Available for Benefits (D4) | | $ 128,164 |
| 2. Unrecognized Asset Returns (UAR) | | |
| a. June 30, 2003 | (1,912) | |
| b. June 30, 2002 | (4,777) | |
| c. June 30, 2001 | (4,168) | |
| d. June 30, 2000 | 426 | |
| 3. UAR Adjustment: .80 * 2(a) + .60 * 2(b) + .40 * 2(c) +.20 * 2(d) | | (5,978) |
| 4. Actuarial Value of Assets (E1-E3) (Same as "Current Assets") | | $ 134,142 |

* *The number shown is the full MPRIF reserve amount. The actual MPRIF market value of $91,507 is not used for funding purposes because this deficiency is accounted for separately and is expected to be recovered from future excess earnings on MPRI funds.*

**Judges Retirement Fund**

## *Statement of Change In Plan Net Assets*

*(dollars in thousands)*

Year Ending June 30, 2003

| | Non-MPRIF Assets | MPRIF Reserve | Market Value |
|---|---|---|---|
| A. ASSETS AVAILABLE AT BEGINNING OF PERIOD | $ 27,323 | $ 98,109 | $ 125,432 |
| B. ADDITIONS | | | |
| 1. Member Contributions | $ 2,574 | 0 | $ 2,574 |
| 2. Employer Contributions | 6,923 | 0 | 6,923 |
| 3. Contributions From Other Sources | 0 | 0 | 0 |
| 4. MPRIF Income | 0 | 6,311 | 6,311 |
| 5. Net Investment Income | | | |
| a. Interest and Dividends | (737) | 0 | (737) |
| b. Net Appreciation/(Depreciation) | 1,318 | 0 | 1,318 |
| c. Investment Expenses | (34) | 0 | (34) |
| **d. Net Subtotal** | 547 | 0 | 547 |
| 6. Other | 10 | 0 | 10 |
| 7. Total Additions | $ 10,054 | $ 6,311 | $ 16,365 |
| C. OPERATING EXPENSES | | | |
| 1. Service Retirements | $ 1,933 | $ 11,625 | $ 13,558 |
| 2. Disability Benefits | 0 | 0 | 0 |
| 3. Survivor Benefits | 0 | 0 | 0 |
| 4. Refunds | 0 | 0 | 0 |
| 5. Administrative Expenses | 37 | 0 | 37 |
| 6. Other | 38 | 0 | 38 |
| 7. Total Disbursements | $ 2,008 | $ 11,625 | $ 13,633 |
| D. OTHER CHANGES IN RESERVES | | | |
| 1. Annuities Awarded | (4,032) | 4,032 | 0 |
| 2. Mortality Gain (Loss) | 1,715 | (1,715) | 0 |
| 3. Total Other Changes | (2,317) | 2,317 | 0 |
| E. ASSETS AVAILABLE AT END OF PERIOD | $ 33,052 | $ 95,112 | $ 128,164 |

F. DETERMINATION OF CURRENT YEAR UNRECOGNIZED ASSET RETURN

| | |
|---|---|
| 1. Average Balance | |
| (a) Non-MPRIF Assets Available at Beginning of Period | 27,323 |
| (b) Non-MPRIF Assets Available at End of Period* | 31,337 |
| (c) Average Balance {[F1.a+F1.b-B5.d-B6]/2} | 29,052 |
| 2. Expected Return: .085*F1.c | 2,469 |
| 3. Actual Return | 557 |
| 4. Current Year UAR: F3-F2 | $ (1,912) |

* Before adjustment for MPRIF mortality gain (loss)

## Judges Retirement Fund

# *Active Members as of June 30, 2003*

| Age | Years of Service <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | All |
|---|---|---|---|---|---|---|---|---|---|
| <25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30-34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-39 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 40-44 | 2 | 10 | 5 | 0 | 0 | 0 | 0 | 0 | 17 |
| 45-49 | 1 | 24 | 10 | 2 | 0 | 0 | 0 | 0 | 37 |
| 50-54 | 6 | 15 | 20 | 22 | 8 | 2 | 0 | 0 | 73 |
| 55-59 | 1 | 17 | 20 | 22 | 24 | 12 | 0 | 0 | 96 |
| 60-64 | 0 | 4 | 12 | 11 | 14 | 11 | 0 | 0 | 52 |
| 65+ | 0 | 0 | 3 | 1 | 4 | 3 | 0 | 0 | 11 |
| ALL | 10 | 72 | 70 | 58 | 50 | 28 | 0 | 0 | 288 |

## Average Annual Earnings

| Age | Years of Service <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | All |
|---|---|---|---|---|---|---|---|---|---|
| <25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30-34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-39 | 0 | 116,099 | 0 | 0 | 0 | 0 | 0 | 0 | 116,099 |
| 40-44 | 100,548 | 113,030 | 113,030 | 0 | 0 | 0 | 0 | 0 | 111,561 |
| 45-49 | 98,111 | 113,762 | 116,635 | 115,855 | 0 | 0 | 0 | 0 | 114,228 |
| 50-54 | 98,980 | 112,959 | 113,030 | 113,091 | 114,442 | 113,030 | 0 | 0 | 112,033 |
| 55-59 | 102,226 | 112,161 | 114,050 | 114,561 | 113,485 | 113,030 | 0 | 0 | 113,440 |
| 60-64 | 0 | 118,253 | 113,644 | 116,103 | 113,556 | 115,064 | 0 | 0 | 114,795 |
| 65+ | 0 | 0 | 113,030 | 118,680 | 113,030 | 113,030 | 0 | 0 | 113,543 |
| ALL | 99,531 | 113,429 | 113,941 | 114,411 | 113,621 | 113,829 | 0 | 0 | 113,340 |

Prior Fiscal Year Earnings (in THOUSANDS) by Years of Service

| Age | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| All | 995 | 8,166 | 7,975 | 6,635 | 5,681 | 3,187 | 0 | 0 | 32,641 |

**Judges Retirement Fund**

## *Service Retirements as of June 30, 2003*

| | Years Retired | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50-54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55-59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60-64 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 6 |
| 65-69 | 8 | 16 | 6 | 0 | 0 | 0 | 0 | 30 |
| 70-74 | 5 | 9 | 13 | 5 | 0 | 0 | 0 | 32 |
| 75-79 | 0 | 0 | 25 | 18 | 3 | 0 | 0 | 46 |
| 80-84 | 0 | 0 | 0 | 15 | 9 | 2 | 0 | 26 |
| 85+ | 0 | 0 | 0 | 0 | 7 | 7 | 6 | 20 |
| ALL | 16 | 28 | 44 | 38 | 19 | 9 | 6 | 160 |

**Average Annual Benefit**

| | Years Retired | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50-54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55-59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60-64 | 45,054 | 31,274 | 0 | 0 | 0 | 0 | 0 | 38,164 |
| 65-69 | 56,262 | 47,654 | 75,939 | 0 | 0 | 0 | 0 | 55,606 |
| 70-74 | 39,682 | 36,643 | 66,315 | 53,584 | 0 | 0 | 0 | 51,819 |
| 75-79 | 0 | 0 | 59,960 | 70,121 | 51,206 | 0 | 0 | 63,365 |
| 80-84 | 0 | 0 | 0 | 62,580 | 71,271 | 34,859 | 0 | 63,456 |
| 85+ | 0 | 0 | 0 | 0 | 73,176 | 96,366 | 57,992 | 76,737 |
| ALL | 48,979 | 42,359 | 64,016 | 64,968 | 68,804 | 82,697 | 57,992 | 60,342 |

| | Total Annual Benefit (in thousands) by Years Retired | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| All | 783 | 1,186 | 2,816 | 2,468 | 1,307 | 744 | 347 | 9,654 |

## Judges Retirement Fund

## *Survivors as of June 30, 2003*

| | Years Since Death | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 50-54 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 4 |
| 55-59 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 4 |
| 60-64 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| 65-69 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 3 |
| 70-74 | 2 | 2 | 5 | 0 | 1 | 0 | 0 | 10 |
| 75-79 | 4 | 4 | 5 | 3 | 1 | 2 | 5 | 24 |
| 80-84 | 0 | 0 | 3 | 1 | 1 | 2 | 2 | 9 |
| 85+ | 1 | 4 | 7 | 3 | 1 | 2 | 12 | 30 |
| ALL | 7 | 13 | 25 | 9 | 8 | 6 | 19 | 87 |

## Average Annual Benefit

| | Years Since Death | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 23,372 | 0 | 0 | 0 | 0 | 0 | 23,372 |
| 50-54 | 0 | 0 | 38,313 | 0 | 46,238 | 0 | 0 | 42,275 |
| 55-59 | 0 | 36,736 | 0 | 39,838 | 68,751 | 0 | 0 | 45,515 |
| 60-64 | 0 | 0 | 37,985 | 39,517 | 0 | 0 | 0 | 38,751 |
| 65-69 | 0 | 0 | 53,584 | 0 | 37,337 | 0 | 0 | 48,168 |
| 70-74 | 40,479 | 18,449 | 32,323 | 0 | 19,171 | 0 | 0 | 29,864 |
| 75-79 | 30,522 | 28,620 | 44,207 | 47,925 | 44,858 | 35,078 | 25,549 | 35,172 |
| 80-84 | 0 | 0 | 40,380 | 44,502 | 50,364 | 49,729 | 44,312 | 44,898 |
| 85+ | 24,920 | 56,781 | 45,698 | 37,971 | 16,889 | 46,907 | 26,925 | 37,321 |
| ALL | 32,566 | 36,565 | 41,818 | 42,393 | 41,230 | 43,904 | 28,393 | 37,505 |

| | Total Annual Benefit (actual dollars) by Years Since Death | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| All | 227,962 | 475,345 | 1,045,450 | 381,537 | 329,840 | 263,424 | 539,467 | 3,262,935 |

## Judges Retirement Fund

# *Disability Retirements as of June 30, 2003*

| | Years Disabled | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50-54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55-59 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 60-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65-69 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 70-74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75-79 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 3 |
| 80-84 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALL | 1 | 1 | 0 | 1 | 2 | 0 | 1 | 6 |

## Average Annual Benefit

| | Years Disabled | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| <50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50-54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55-59 | 32,624 | 0 | 0 | 0 | 0 | 0 | 0 | 32,624 |
| 60-64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65-69 | 0 | 71,240 | 0 | 0 | 0 | 0 | 0 | 71,240 |
| 70-74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75-79 | 0 | 0 | 0 | 66,444 | 81,337 | 0 | 56,699 | 68,160 |
| 80-84 | 0 | 0 | 0 | 0 | 110,215 | 0 | 0 | 110,215 |
| 85+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALL | 32,624 | 71,240 | 0 | 66,444 | 95,776 | 0 | 56,699 | 69,759 |

| | Total Annual Benefit (actual dollars) by Years Disabled | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | All |
| All | 32,624 | 71,240 | 0 | 66,444 | 191,552 | 0 | 56,699 | 418,554 |

## Judges Retirement Fund
## *Reconciliation of Members*

| | | Actives | Terminated: Deferred Retirement | Terminated: Other Non-Vested |
|---|---|---|---|---|
| A. | ON JUNE 30, 2002 | 283 | 24 | 1 |
| B. | ADDITIONS | 14 | 3 | 0 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | (4) | (2) | 0 |
| | 2. Disability | (1) | 0 | 0 |
| | 3. Death | 0 | 0 | 0 |
| | 4. Terminated - Deferred | (3) | 0 | 0 |
| | 5. Terminated - Refund | 0 | 0 | 0 |
| | 6. Terminated - Other Non-Vested | 0 | 0 | 0 |
| | 7. Returned as active | 0 | 0 | 0 |
| | 8. Transferred to Fund | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | (1) | 1 | 0 |
| | 1. Vested | 161 | | |
| | 2. Non-Vested | 127 | | |
| E. | TOTAL ON JUNE 30, 2003 | 288 | 26 | 1 |

| | | Recipients: Retirement Annuitants | Recipients: Disabled | Recipients: Survivors |
|---|---|---|---|---|
| A. | ON JUNE 30, 2002 | 164 | 5 | 87 |
| B. | ADDITIONS | 6 | 1 | 4 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 0 | 0 | 0 |
| | 2. Death | (10) | 0 | (4) |
| | 3. Annuity Expired | 0 | 0 | 0 |
| | 4. Returned as Active | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | 0 | 0 | 0 |
| E. | TOTAL ON JUNE 30, 2003 | 160 | 6 | 87 |

**Judges Retirement Fund**

## *Actuarial Balance Sheet*

*(dollars in thousands)*

July 1, 2003

| | | | | |
|---|---|---|---|---|
| A. CURRENT ASSETS (Table 1, Line E4) | | | | $ 134,142 |
| B. EXPECTED FUTURE ASSETS | | | | |
| 1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11) | | | | 49,484 |
| 2. Present Value of Future Normal Costs | | | | 50,591 |
| 3. Total Expected Future Assets | | | | $ 100,075 |
| C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS | | | | $ 234,217 |
| D. CURRENT BENEFIT OBLIGATIONS | Non-Vested | Vested | Total | |
| 1. Benefit Recipients | | | | |
| a. Retirement Annuities | | $ 78,789 | $ 78,789 | |
| b. Disability Benefits | | 3,098 | 3,098 | |
| c. Surviving Spouse and Child Benefits | | 24,786 | 24,786 | |
| 2. Deferred Retirements with Future Augmentation | | 1,354 | 1,354 | |
| 3. Former Members Without Vested Rights | | 2 | 2 | |
| 4. Active Members | | | | |
| a. Retirement Annuities | $ 3,234 | 50,638 | 53,872 | |
| b. Disability Benefits | 3,387 | 0 | 3,387 | |
| c. Surviving Spouse and Child Benefits | 2,837 | 0 | 2,837 | |
| d. Deferred Retirements | 0 | 0 | 0 | |
| e. Refund Liability Due to Death or Withdrawal | 0 | 253 | 253 | |
| 5. Total Current Benefit Obligations | $ 9,458 | $ 158,920 | $ 168,378 | |
| E. EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $ 58,504 | |
| F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $ 226,882 | |
| G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A) | | | $ 34,236 | |
| H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C) | | | $ (7,335) | |

**Judges Retirement Fund**

## *Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate*

*(dollars in thousands)*

July 1, 2003

| | Actuarial Present Value of Projected Benefits | Actuarial Present Value of Future Normal Costs | Actuarial Accrued Liability |
|---|---|---|---|
| A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL) | | | |
| 1. Active Members | | | |
| a. Retirement Annuities | $ 107,503 | $ 44,622 | $ 62,881 |
| b. Disability Benefits | 5,826 | 2,993 | 2,833 |
| c. Survivor's Benefits | 5,107 | 2,746 | 2,361 |
| d. Deferred Retirements | 0 | 0 | 0 |
| e. Refunds Due to Death or Withdrawal | 417 | 230 | 187 |
| f. Total | $ 118,853 | $ 50,591 | $ 68,262 |
| 2. Deferred Retirements With Future Augmentation | 1,354 | | 1,354 |
| 3. Former Members Without Vested Rights | 2 | | 2 |
| 4. Annuitants in MPRIF | 95,112 | | 95,112 |
| 5. Recipients Not in MPRIF | 11,561 | | 11,561 |
| 6. Total | $ 226,882 | $ 50,591 | $ 176,291 |
| B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) | | | |
| 1. AAL (A6) | | | $ 176,291 |
| 2. Current Assets (Table 1, E4) | | | 134,142 |
| 3. UAAL (B1-B2) | | | $ 42,149 |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE | | | |
| 1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020 | | | 434,450 |
| 2. Supplemental Contribution Rate (B3/C1) | | | 9.70% |

**Judges Retirement Fund**

## *Changes in Unfunded Actuarial Accrued Liability (UAAL)*

*(dollars in thousands)*

Year Ending June 30, 2003

| | | |
|---|---|---|
| A. UAAL AT BEGINNING OF YEAR | $ | 40,542 |
| B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING | | |
| 1. Normal Cost and Expenses | $ | 5,263 |
| 2. Contributions | | (9,497) |
| 3. Interest on A, B1, and B2 | | 3,266 |
| 4. Total (B1+B2+B3) | $ | (968) |
| C. EXPECTED UAAL AT END OF YEAR (A+B4) | $ | 39,574 |
| D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED | | |
| 1. Salary Increases | $ | 1,007 |
| 2. Investment Return | | 2,387 |
| 3. MPRIF Mortality | | (1,715) |
| 4. Mortality of Other Benefit Recipients | | 120 |
| 5. Other Items | | 776 |
| 6. Total | $ | 2,575 |
| E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6) | $ | 42,149 |
| F. CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY DUE TO CHANGE IN ACTUARIAL METHODS | | 0 |
| G. CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS | | 0 |
| H. UAAL AT END OF YEAR (E+F+G) | $ | 42,149 |

**Judges Retirement Fund**

## *Determination of Contribution Sufficiency*

*(dollars in thousands)*

July 1, 2003

| | Percent of Payroll | Dollar Amount | |
|---|---|---|---|
| A. STATUTORY CONTRIBUTIONS - CHAPTER 490 | | | |
| 1. Employee Contributions * | 7.92% | $ | 2,713 |
| 2. Employer Contributions | 20.50% | | 7,025 |
| 3. Total | 28.42% | $ | 9,738 |
| B. REQUIRED CONTRIBUTIONS - CHAPTER 356 | | | |
| 1. Normal Cost | | | |
| a. Retirement Benefits | 14.94% | $ | 5,120 |
| b. Disability Benefits | 0.96% | | 330 |
| c. Survivors | 0.93% | | 318 |
| d. Deferred Retirement Benefits | 0.00% | | 0 |
| e. Refunds Due to Death or Withdrawal | 0.08% | | 29 |
| f. Total | 16.91% | $ | 5,797 |
| 2. Supplemental Contribution Amortization by July 1, 2020 of UAAL | 9.70% | | 3,324 |
| 3. Allowance for Expenses | 0.12% | | 41 |
| 4. Total | 26.73% | $ | 9,162 |
| C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4] | 1.69% | | 576 |

Note: Projected Annual Payroll for Fiscal Year Beginning on the Valuation Date: $ 34,270

* *Reflects expected employee contributions prior to Member reaching Maximum Benefit*

**Judges Retirement Fund**

# SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| *Interest*: | **Pre-Retirement:** 8.5% per annum<br>**Post-Retirement:** 8.5% per annum |
| *Benefit Increases After Retirement*: | Payment of earnings on retired reserves in excess of 6% accounted for by using a 6% post-retirement assumption. |
| *Salary Increases*: | 5% annually |
| *Mortality*: | **Pre-Retirement:**<br>Male - 1983 GAM (Males -4)<br>Female - 1983 GAM (Females -2)<br>**Post-Retirement:**<br>Male - 1983 GAM (Males)<br>Female - 1983 GAM (Females)<br>**Post-Disability:**<br>Male - Combined Annuity Mortality<br>Female - Combined Annuity Mortality |
| *Retirement Age*: | Age-related table as follows:<br>Ages: 62-64 10%<br>65-67 20<br>68-70 30<br>71+ 100 |
| *Separation*: | None |
| *Disability*: | Rates adopted by MSRS based on actual experience, most recently adjusted in 1979, as shown in rate table. |
| *Allowance for Combined Service Annuity:* | Liabilities for active Members are increased by 0% and liabilities for former Members are increased by 30% to account for the effect of some participants having eligibility for a Combined Service Annuity. |
| *Expenses*: | Prior year administration expenses expressed as percentage of prior year payroll. |

| | |
|---|---|
| ***Return of Contributions*:** | N/A |
| ***Family Composition*:** | Marital status as indicated by data. Female is three years younger than male. |
| ***Social Security*:** | N/A |
| ***Actuarial Cost Method*:** | Entry Age Normal Actuarial Cost Method based on earnings and the date the employee entered the plan is applied to all plan benefits. Under this method, Actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability. |
| ***Asset Valuation Method:*** | Market Value less of a percentage of the Unrecognized Asset Return determined at the close of each of the four preceding fiscal years. Unrecognized Asset Return is the difference between actual net return on Market Value of Assets and the asset return expected during that fiscal year (based on the assumed interest rate employed in the July 1 Actuarial Valuation of the fiscal year). Transition rules apply between July 1, 2001 and July 1, 2003, when the method is fully in effect. |
| ***Payment on the Unfunded Actuarial Accrued Liability*:** | A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5.0% per annum. If there is a negative Unfunded Actuarial Accrued Liability, the surplus amount shall be amortized over 30 years as a level percent of payroll. |

**Judges Retirement Fund**

# *Summary of Actuarial Assumptions and Methods*

***Separation Expressed as Number of Occurrences Per 10,000:***

| | Death | | Withdrawal | | Disability | | Retirement | |
|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female | Male | Female |
| 20 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | 5 | 3 | 0 | 0 | 2 | 0 | 0 | 0 |
| 31 | 5 | 3 | 0 | 0 | 2 | 0 | 0 | 0 |
| 32 | 5 | 3 | 0 | 0 | 2 | 0 | 0 | 0 |
| 33 | 6 | 4 | 0 | 0 | 2 | 0 | 0 | 0 |
| 34 | 6 | 4 | 0 | 0 | 2 | 0 | 0 | 0 |
| 35 | 6 | 4 | 0 | 0 | 2 | 1 | 0 | 0 |
| 36 | 7 | 4 | 0 | 0 | 2 | 1 | 0 | 0 |
| 37 | 7 | 5 | 0 | 0 | 2 | 1 | 0 | 0 |
| 38 | 8 | 5 | 0 | 0 | 2 | 1 | 0 | 0 |
| 39 | 9 | 5 | 0 | 0 | 2 | 2 | 0 | 0 |
| 40 | 9 | 6 | 0 | 0 | 2 | 2 | 0 | 0 |
| 41 | 10 | 6 | 0 | 0 | 2 | 2 | 0 | 0 |
| 42 | 10 | 7 | 0 | 0 | 2 | 4 | 0 | 0 |
| 43 | 11 | 7 | 0 | 0 | 3 | 4 | 0 | 0 |
| 44 | 12 | 8 | 0 | 0 | 3 | 4 | 0 | 0 |
| 45 | 14 | 8 | 0 | 0 | 3 | 5 | 0 | 0 |
| 46 | 15 | 9 | 0 | 0 | 5 | 6 | 0 | 0 |
| 47 | 17 | 10 | 0 | 0 | 7 | 7 | 0 | 0 |
| 48 | 19 | 11 | 0 | 0 | 9 | 7 | 0 | 0 |
| 49 | 22 | 12 | 0 | 0 | 11 | 10 | 0 | 0 |

**Judges Retirement Fund**

# *Summary of Actuarial Assumptions and Methods*

*Separation Expressed as Number of Occurrences Per 10,000:*

| | Death | | Withdrawal | | Disability | | Retirement | |
|---|---|---|---|---|---|---|---|---|
| Age | Male | Female | Male | Female | Male | Female | Male | Female |
| 50 | 25 | 14 | 0 | 0 | 14 | 10 | 0 | 0 |
| 51 | 28 | 15 | 0 | 0 | 16 | 12 | 0 | 0 |
| 52 | 31 | 16 | 0 | 0 | 20 | 14 | 0 | 0 |
| 53 | 35 | 18 | 0 | 0 | 24 | 16 | 0 | 0 |
| 54 | 39 | 19 | 0 | 0 | 28 | 20 | 0 | 0 |
| 55 | 43 | 21 | 0 | 0 | 34 | 24 | 0 | 0 |
| 56 | 48 | 23 | 0 | 0 | 40 | 30 | 0 | 0 |
| 57 | 52 | 25 | 0 | 0 | 46 | 36 | 0 | 0 |
| 58 | 57 | 28 | 0 | 0 | 56 | 44 | 0 | 0 |
| 59 | 61 | 31 | 0 | 0 | 66 | 52 | 0 | 0 |
| 60 | 66 | 34 | 0 | 0 | 76 | 62 | 0 | 0 |
| 61 | 71 | 38 | 0 | 0 | 90 | 74 | 0 | 0 |
| 62 | 77 | 42 | 0 | 0 | 110 | 88 | 1,000 | 1,000 |
| 63 | 84 | 47 | 0 | 0 | 136 | 104 | 1,000 | 1,000 |
| 64 | 92 | 52 | 0 | 0 | 174 | 122 | 1,000 | 1,000 |
| 65 | 101 | 58 | 0 | 0 | 0 | 0 | 2,000 | 2,000 |
| 66 | 111 | 64 | 0 | 0 | 0 | 0 | 2,000 | 2,000 |
| 67 | 124 | 71 | 0 | 0 | 0 | 0 | 2,000 | 2,000 |
| 68 | 139 | 78 | 0 | 0 | 0 | 0 | 3,000 | 3,000 |
| 69 | 156 | 87 | 0 | 0 | 0 | 0 | 3,000 | 3,000 |
| 70 | 176 | 97 | 0 | 0 | 0 | 0 | 3,000 | 3,000 |

**Judges Retirement Fund**

# *Summary of Plan Provisions*

*This summary of provisions reflects the interpretation of applicable Statutes by the Commission Actuary for purposes of preparing this valuation. This interpretation is not intended to create or rescind any benefit rights in conflict with any Minnesota Statutes.*

## GENERAL

***Eligibility***: A judge or justice of any court who is not covered under the Social Security Act. If the Member was active prior to 1/1/74, benefits may be computed according to provisions of the prior plan.

***Contributions***:

*Member*: 8.15% of salary. Members who were active prior to 1/1/74 may contribute 4% to a special survivor retirement account. Contributions after maximum benefit is reached are redirected to the Unclassified Plan.

*Employer*: 20.5% of salary.

*Allowable Service*: Service as a judge. Half credit is received for service not compensated at an annual salary or for service while entitled to practice law. Credit may also be earned for uncredited judicial service if the appropriate employee contributions, with interest, are made.

*Salary*: Salary set by law.

*Average Salary*: Average of the five highest years of salary of the last 10 years prior to retirement.

## RETIREMENT

***Normal Retirement Benefit***:

*Eligibility*: Age 65 and five years of Allowable Service. Age 70.

*Amount*: 2.7% of Average Salary for each year of Allowable Service prior to 7/1/80 and 3.2% of Average Salary for each year of Allowable Service after 6/30/80. Maximum benefit of 76.8% of average salary for the high five years preceding retirement.

***Early Retirement Benefit*:**

| | |
|---|---|
| *Eligibility*: | Age 62 and five years of Allowable Service. |
| *Amount*: | Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date with reduction of 0.5% for each month the Member is under age 65 at time of retirement. |
| *Form of Payment*: | Life annuity. Actuarial equivalent options are:<br>- 50% or 100% joint and survivor<br>- 50% or 100% bounce back joint and survivor<br>- 10 or 15 year certain and life |
| *Benefit Increases*: | Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). |

# DISABILITY

***Disability Benefit*:**

| | |
|---|---|
| *Eligibility*: | Permanent inability to perform the functions of judge. |
| *Amount*: | No benefit is paid by the Fund. Instead salary is continued for one year but not beyond age 70. Employee contributions continue and Allowable Service is earned. |

***Retirement After Disability*:**

| | |
|---|---|
| *Eligibility*: | Member is still disabled after salary payments cease after one year or at age 70, if earlier. |
| *Amount*: | Larger of 25% of Average Salary or the Normal Retirement Benefit, without reduction. |
| *Benefit Increases*: | Same as for retirement. |

# DEATH

***Survivor's Benefit*:**

| | |
|---|---|
| *Eligibility*: | Active or disabled Member dies before retirement or a former Member eligible for a deferred annuity dies. |
| *Amount*: | Larger of 25% of Average Salary or 60% of Normal Retirement Benefit had the Member retired at date of death.<br><br>If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefits before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.<br><br>Benefit paid to spouse for life. If no spouse, benefit is paid to surviving dependent children until child marries, dies, or attains age 18 (age 22 if full-time student). |
| *Benefit Increases*: | Same as for retirement. |

***Prior Survivors' Benefit*:**

| | |
|---|---|
| *Eligibility*: | Retired Member dies who did not elect an optional annuity and such Member retired prior to 1/1/74 or was in office prior to 1/1/74 and continued contributing 4% of pay to provide this post-retirement death benefit. |
| *Amount*: | 50% of the retired Member's benefit continues to the surviving spouse if married three years. Benefit begins immediately unless spouse is not yet age 40 and continues to death.<br><br>If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefits before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%. |
| *Benefit Increases*: | Adjusted by MSRS to provide same increase as MPRIF. |

***Refund of Contributions*:**

| | |
|---|---|
| *Eligibility*: | Member dies prior to retirement or former Member eligible for a deferred annuity dies and survivors' benefits are not payable. |
| *Amount*: | Member's contributions with 5% interest. |

## TERMINATION

***Refund of Contributions*:**

| | |
|---|---|
| *Eligibility*: | Termination of service as a judge. |
| *Amount*: | Member's contributions with 5% interest. A deferred annuity may be elected in lieu of a refund. |

***Deferred Benefit*:**

| | |
|---|---|
| *Eligibility*: | Five years of Allowable Service. |
| *Amount*: | Benefit computed under law in effect at termination. Amount is payable as a normal or early retirement annuity.<br><br>If a Member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%. |

## SIGNIFICANT CHANGES:

No significant changes in plan provisions were recognized for this valuation.

**Judges Retirement Fund**

# Summary of Plan Provisions

*This summary of provisions reflects the interpretation of applicable Statutes by the Commission Actuary for purposes of preparing this valuation. This interpretation is not intended to create or rescind any benefit rights in conflict with any Minnesota Statutes.*

## GENERAL

***Eligibility*:** A judge or justice of any court who is covered under the Social Security Act.

***Contributions*:**

*Member*: 8.00% of salary. (Amended 1998) Contributions after maximum benefit is reached are redirected to the Unclassified Plan.

*Employer*: 20.5% of salary.

***Allowable Service*:** Service as a judge. Half credit is received for service not compensated at an annual salary or for service while entitled to practice law. Credit may also be earned for uncredited judicial service if the appropriate employee contributions, with interest, are made.

***Salary*:** Salary set by law.

***Average Salary*:** Average of the five highest years of salary of the last 10 years prior to retirement.

## RETIREMENT

***Normal Retirement Benefit*:**

*Eligibility*: Age 65 and five years of Allowable Service. Age 70.

*Amount*: 2.7% of Average Salary for each year of Allowable Service prior to 7/1/80 and 3.2% of Average Salary for each year of Allowable Service after 6/30/80. Maximum benefit of 76.8% of average salary for the high five years preceding retirement.

***Early Retirement Benefit*:**

*Eligibility*: Age 62 and five years of Allowable Service.

*Amount*: Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date with reduction of 0.5% for each month the Member is under age 65 at time of retirement.

*Form of Payment*: Life annuity:

- 50% or 100% joint and survivor
- 50% or 100% bounce back joint and survivor
- 10 or 15 year certain and life

*Benefit Increases*: Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF).

## DISABILITY

***Disability Benefit***:

*Eligibility*: Permanent inability to perform the functions of judge.

*Amount*: No benefit is paid by the Fund. Instead salary is continued for one year but not beyond age 70. Employee contributions continue and Allowable Service is earned.

***Retirement After Disability***:

*Eligibility*: Member is still disabled after salary payments cease after one year or at age 70, if earlier.

*Amount*: Larger of 25% of Average Salary or the Normal Retirement Benefit, without reduction.

*Benefit Increases*: Same as for retirement.

# DEATH

***Survivor's Benefit*:**

| | |
|---|---|
| *Eligibility*: | Active or disabled Member dies before retirement or a former Member eligible for a deferred annuity dies. |
| *Amount*: | Larger of 25% of Average Salary or 60% of Normal Retirement Benefit had the Member retired at date of death.<br><br>If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefits before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.<br><br>Benefit paid to spouse for life. If no spouse, benefit is paid to surviving dependent children until child marries, dies, or attains age 18 (age 22 if full-time student). |
| *Benefit Increases*: | Same as for retirement. |

***Refund of Contributions*:**

| | |
|---|---|
| *Eligibility*: | Member dies prior to retirement or former Member eligible for a deferred annuity dies and survivors' benefits are not payable. |
| *Amount*: | Member's contributions with 5% interest. |

# TERMINATION

***Refund of Contributions*:**

| | |
|---|---|
| *Eligibility*: | Termination of service as a judge. |
| *Amount*: | Member's contributions with 5% interest. A deferred annuity may be elected in lieu of a refund. |

***Deferred Benefit*:**

*Eligibility*: Five years of Allowable Service.

*Amount*: Benefit computed under law in effect at termination. Amount is payable as a normal or early retirement annuity.

If a Member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

## SIGNIFICANT CHANGES:

No significant changes in plan provisions were recognized for this valuation.

**Judges Retirement Fund**

## *Schedule of Funding Progress*

*(dollars in thousands)*

July 1, 2003

| Actuarial Valuation Date | Actuarial Value of Assets (A) | Actuarial Accrued Liability (B) | Unfunded AAL (UAAL) (B)-(A) | Funded Ratio (A)/(B) | Actual Covered Payroll (Previous FY) (C) | UAAL as % of Covered Payroll ((B)-(A))/(C) |
|---|---|---|---|---|---|---|
| 07/01/91 | $ 33,559 | $ 78,429 | $ 44,870 | 42.79% | $ 18,410 | 243.73% |
| 07/01/92 | 37,768 | 83,969 | 46,201 | 44.98% | 22,765 | 202.95% |
| 07/01/93 | 44,156 | 90,509 | 46,353 | 48.79% | 22,084 | 209.89% |
| 07/01/94 | 50,428 | 98,313 | 47,885 | 51.29% | 22,264 | 215.08% |
| 07/01/95 | 56,813 | 102,238 | 45,425 | 55.57% | 22,877 | 198.56% |
| 07/01/96 | 64,851 | 108,150 | 43,299 | 59.96% | 22,421 | 193.12% |
| 07/01/97 | 74,681 | 117,714 | 43,033 | 63.44% | 22,909 | 187.84% |
| 07/01/98 | 86,578 | 130,727 | 44,149 | 66.23% | 24,965 | 176.84% |
| 07/01/99 | 97,692 | 139,649 | 41,957 | 69.96% | 32,940 | 127.37% |
| 07/01/00 | 111,113 | 153,660 | 42,547 | 72.31% | 26,315 | 161.68% |
| 07/01/01 | 123,589 | 165,244 | 41,655 | 74.79% | 28,246 | 147.47% |
| 07/01/02 | 131,379 | 171,921 | 40,542 | 76.42% | 31,078 | 130.45% |
| 07/01/03 | 134,142 | 176,291 | 42,149 | 76.09% | 33,771 | 124.81% |

**Judges Retirement Fund**

## *Schedule of Employer Contributions*

*(dollars in thousands)*

July 1, 2003

| Year Ended June 30 | Actuarially Required Contribution Rate (A) | Actual Covered Payroll (B) | Actual Member Contributions (C) | Annual Required Contributions [(A)*(B)]-(C) | Actual Employer Contributions[1] | Percentage Contributed |
|---|---|---|---|---|---|---|
| 1991 | 23.59% | 18,410 | 799 | 3,544 | 0 | 0.00% |
| 1992 | 25.10% | 22,765 | 988 | 4,726 | 4,722 | 99.92% |
| 1993 | 26.59% | 22,084 | 1,409 | 4,463 | 4,845 | 108.56% |
| 1994 | 26.29% | 22,264 | 1,416 | 4,437 | 4,912 | 110.71% |
| 1995 | 28.27% | 22,877 | 1,455 | 5,012 | 5,162 | 102.99% |
| 1996 | 27.32% | 22,421 | 1,426 | 4,699 | 4,972 | 105.81% |
| 1997 | 27.01% | 22,909 | 1,457 | 4,731 | 6,632 | 140.18% |
| 1998 | 27.60% | 24,965 | 1,570 | 5,320 | 7,129 | 134.00% |
| 1999 | 27.32% | 32,940 | 2,069 | 6,930 | 7,051 | 101.75% |
| 2000 | 26.75% | 26,315 | 2,107 | 4,932 | 7,298 | 147.97% |
| 2001 | 24.58% [2] | 28,246 | 2,162 | 4,781 | 7,793 | 163.00% |
| 2002 | 26.72% | 31,078 | 2,345 | 5,959 | 8,369 | 140.44% |
| 2003 | 26.82% [3] | 33,771 | 2,574 | 6,483 | 6,923 | 106.79% |
| 2004 | 26.73% | | | | | |

[1] Includes contributions from other sources (if applicable.)

[2] Actuarially Required Contribution Rate prior to change in plan provisions and Asset Valuation Method is 26.81%.

[3] Actuarially Required Contribution Rate prior to change in Actuarial Assumptions is 26.75%.