# STATE EMPLOYEES RETIREMENT FUND

## ACTUARIAL VALUATION REPORT

## JULY 1, 1992

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December 2, 1992

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, 1992.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. 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 on September 20, 1989.

Respectfully submitted,

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

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

TKC/WVH/bh

STATE EMPLOYEES RETIREMENT FUND

TABLE OF CONTENTS

## STATE EMPLOYEES RETIREMENT FUND

TABLE OF CONTENTS
(Continued)

# STATE EMPLOYEES RETIREMENT FUND

## REPORT HIGHLIGHTS
## (DOLLARS IN THOUSANDS)

| | | | | 07/01/91 Valuation | 07/01/92 Valuation |
|---|---|---|---|---|---|
| A. | CONTRIBUTIONS (Table 11) | | | | |
| | 1. | Statutory Contributions - Chapter 352 % of Payroll | | 8.44% | 8.11% |
| | 2. | Required Contributions - Chapter 356 % of Payroll | | 7.86% | 8.27% |
| | 3. | Sufficiency (Deficiency): (A.1. - A.2.) | | 0.58% | -0.16% |
| B. | FUNDING RATIOS | | | | |
| | 1. | Accrued Benefit Funding Ratio | | | |
| | | a. | Current Assets (Table 1) | $2,304,311 | $2,613,472 |
| | | b. | Current Benefit Obligations (Table 8) | $2,520,042 | $2,744,923 |
| | | c. | Funding Ratio: (a/b) | 91.44% | 95.21% |
| | 2. | Accrued Liability Funding Ratio | | | |
| | | a. | Current Assets (Table 1) | $2,304,311 | $2,613,472 |
| | | b. | Actuarial Accrued Liability (Table 9) | $2,883,603 | $3,125,299 |
| | | c. | Funding Ratio: (a/b) | 79.91% | 83.62% |
| | 3. | Projected Benefit Funding Ratio (Table 8) | | | |
| | | a. | Current and Expected Future Assets | $3,863,379 | $3,875,377 |
| | | b. | Current and Expected Future Benefit Obligations | $3,660,837 | $3,932,617 |
| | | c. | Funding Ratio: (a/b) | 105.53% | 98.54% |
| C. | PLAN PARTICIPANTS | | | | |
| | 1. | Active Members | | | |
| | | a. | Number (Table 3) | 49,718 | 49,214 |
| | | b. | Projected Annual Earnings | $1,612,238 | $1,658,792 |
| | | c. | Average Annual Earnings (Actual $) | $32,428 | $33,706 |
| | | d. | Average Age | 41.3 | 41.6 |
| | | e. | Average Service | 9.9 | 10.2 |
| | 2. | Others | | | |
| | | a. | Service Retirements (Table 4) | 12,335 | 12,835 |
| | | b. | Disability Retirements (Table 5) | 726 | 743 |
| | | c. | Survivors (Table 6) | 946 | 1,023 |
| | | d. | Deferred Retirements (Table 7) | 2,216 | 2,769 |
| | | e. | Terminated Other Non-vested (Table 7) | 4,152 | 4,256 |
| | | f. | Total | 20,375 | 21,626 |

## 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 95.21%. The corresponding ratio for the prior year was 91.44%.
>
> 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 1992 the ratio is 83.62%, which is an increase from the 1991 value of 79.91%.
>
> The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 98.54% shows that the current statutory contributions are inadequate.

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

Minnesota Statutes require that the asset value used for actuarial purposes

recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines F1 to F6. It combines the cost value of the Assets Available for Benefits and one-third of the difference between the market value and cost value of those assets.

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.

<u>Actuarial Balance Sheet (Table 8)</u>

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 in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

> 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

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1992 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table:

| | |
|---|---|
| Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits | $1,043,184,313 |
| Current Employees | |
| Accumulated employee contributions including allocated investment income | $406,921,461 |
| Employer-financed vested | 1,278,882,656 |
| Employer-financed nonvested | 15,934,929 |
| Total Pension Benefit Obligation | $2,744,923,359 |
| Net Assets Available for Benefits at Cost | $2,576,920,000 |
| Total Benefit Obligation less Assets | $168,003,359 |
| Funded Ratio | 93.88% |

## 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 the 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 6.5% 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.

## Sources 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 expectation. For a detailed analysis of the major components, refer to Table 10.

## Contribution Sufficiciency (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 8.11% compared to the Required Contribution Rate of 8.27%.

## Changes in Actuarial Assumptions

The actuarial assumptions are the same as those used in the prior valuation.

Paragraph X.1.4 of the Actuarial Standards requires that the Actuarial Present Value of Compensation for purposes of determining the Normal Cost of the Fund be calculated assuming mid-year payments. Previously, beginning of year payments were assumed. This change in methodology results in an increase of 0.63% of payroll in the Normal Cost and a Contribution Deficiency of the Fund.

## Changes in Plan Provisions

Member Contributions were decreased from 4.15% to 3.99% and Employer Contributions were decreased from 4.29% to 4.12%, contingent upon the funds being sufficient. Due to the change in actuarial assumptions noted above, a sufficiency was not realized so that these contribution rates should be adjusted slightly (upward by 0.08% each).

TABLE 1

## STATE EMPLOYEES RETIREMENT FUND

### ACCOUNTING BALANCE SHEET
### (DOLLARS IN THOUSANDS)

### JULY 1, 1992

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS | | |
| | 1. Cash, Equivalents, Short-term Securities | $25,873 | $25,873 |
| | 2. Investments | | |
| | a. Fixed Income | 487,503 | 474,482 |
| | b. Equity | 1,112,684 | 1,008,994 |
| | c. Real Estate | 75,930 | 82,984 |
| | 3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF) | 981,047 | 981,047 |
| | 4. Other | 4,984 | 4,984 |
| B. | TOTAL ASSETS | $2,688,021 | $2,578,364 |
| C. | AMOUNTS CURRENTLY PAYABLE | $1,444 | $1,444 |
| D. | ASSETS AVAILABLE FOR BENEFITS | | |
| | 1. Member Reserves | $427,320 | $427,320 |
| | 2. Employer Reserves | 1,272,066 | 1,162,409 |
| | 3. MPRIF Reserves | 981,047 | 981,047 |
| | 4. Non-MPRIF Reserves | 6,144 | 6,144 |
| | 5. Total Assets Available for Benefits | $2,686,577 | $2,576,920 |
| E. | TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS | $2,688,021 | $2,578,364 |

| | | | |
|---|---|---|---|
| F. | DETERMINATION OF ACTUARIAL VALUE OF ASSETS | | |
| | 1. Cost Value of Assets Available for Benefits (D5) | | $2,576,920 |
| | 2. Market Value (D5) | $2,686,577 | |
| | 3. Cost Value (D5) | 2,576,920 | |
| | 4. Market Over Cost: (F2-F3) | $109,657 | |
| | 5. 1/3 of Market Over Cost: (F4)/3 | | 36,552 |
| | 6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets") | | $2,613,472 |

TABLE 2

# STATE EMPLOYEES RETIREMENT FUND

## CHANGE IN ASSETS AVAILABLE FOR BENEFITS
## (DOLLARS IN THOUSANDS)

## YEAR ENDING JUNE 30, 1992

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS AVAILABLE AT BEGINNING OF PERIOD | $2,378,201 | $2,267,368 |
| B. | OPERATING REVENUES | | |
| | 1. Member Contributions | $58,478 | $58,478 |
| | 2. Employer Contributions | 59,244 | 59,244 |
| | 3. Investment Income | 179,453 | 179,453 |
| | 4. MPRIF Income | 81,437 | 81,437 |
| | 5. Net Realized Gain (Loss) | 36,989 | 36,989 |
| | 6. Other | 1,569 | 1,569 |
| | 7. Net Change in Unrealized Gain (Loss) | (1,176) | 0 |
| | 8. Total Revenue | $415,994 | $417,170 |
| C. | OPERATING EXPENSES | | |
| | 1. Service Retirements | $95,010 | $95,010 |
| | 2. Disability Benefits | 0 | 0 |
| | 3. Survivor Benefits | 0 | 0 |
| | 4. Refunds | 6,492 | 6,492 |
| | 5. Expenses | 3,664 | 3,664 |
| | 6. Other | 2,452 | 2,452 |
| | 7. Total Disbursements | $107,618 | $107,618 |
| D. | OTHER CHANGES IN RESERVES | 0 | 0 |
| E. | ASSETS AVAILABLE AT END OF PERIOD | $2,686,577 | $2,576,920 |

## STATE EMPLOYEES RETIREMENT FUND

### ACTIVE MEMBERS AS OF JUNE 30, 1992

| | YEARS OF SERVICE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
| <25 | 862 | 393 | 49 | | | | | | 1,304 |
| 25-29 | 964 | 2,068 | 1,247 | 141 | | | | | 4,420 |
| 30-34 | 736 | 2,047 | 2,663 | 1,618 | 150 | | | | 7,214 |
| 35-39 | 603 | 1,848 | 2,559 | 2,299 | 1,543 | 187 | | | 9,039 |
| 40-44 | 499 | 1,571 | 2,070 | 1,711 | 2,213 | 1,180 | 187 | | 9,431 |
| 45-49 | 354 | 851 | 1,382 | 1,042 | 1,243 | 1,228 | 750 | 56 | 6,906 |
| 50-54 | 193 | 465 | 783 | 773 | 766 | 551 | 727 | 484 | 4,742 |
| 55-59 | 116 | 289 | 510 | 460 | 622 | 456 | 398 | 504 | 3,355 |
| 60-64 | 61 | 157 | 272 | 372 | 374 | 345 | 250 | 264 | 2,095 |
| 65+ | 44 | 53 | 96 | 128 | 148 | 102 | 64 | 73 | 708 |
| ALL | 4,432 | 9,742 | 11,631 | 8,544 | 7,059 | 4,049 | 2,376 | 1,381 | 49,214 |

### AVERAGE ANNUAL EARNINGS

| | YEARS OF SERVICE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
| <25 | 15,360 | 20,113 | 17,893 | | | | | | 16,888 |
| 25-29 | 19,527 | 25,365 | 28,496 | 25,768 | | | | | 24,988 |
| 30-34 | 18,769 | 26,810 | 30,781 | 30,398 | 29,098 | | | | 28,308 |
| 35-39 | 19,967 | 28,224 | 31,851 | 33,634 | 33,519 | 32,879 | | | 31,076 |
| 40-44 | 20,979 | 28,805 | 32,837 | 34,527 | 37,419 | 37,132 | 35,952 | | 33,519 |
| 45-49 | 20,948 | 29,640 | 32,542 | 34,740 | 38,197 | 41,082 | 40,235 | 42,544 | 35,375 |
| 50-54 | 19,433 | 27,648 | 32,606 | 33,397 | 36,866 | 39,280 | 40,810 | 43,153 | 35,511 |
| 55-59 | 17,908 | 26,927 | 32,316 | 33,072 | 34,530 | 37,129 | 39,725 | 44,043 | 35,163 |
| 60-64 | 12,344 | 26,965 | 29,639 | 31,525 | 34,741 | 35,954 | 36,706 | 44,518 | 33,939 |
| 65+ | 13,327 | 31,052 | 26,631 | 28,162 | 34,656 | 36,148 | 31,573 | 39,609 | 31,245 |
| ALL | 18,721 | 27,139 | 31,422 | 32,980 | 36,012 | 38,300 | 39,384 | 43,527 | 31,649 |

| | 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 | 82 | 264 | 365 | 281 | 254 | 155 | 93 | 60 | 1,557 |

TABLE 4

# STATE EMPLOYEES RETIREMENT FUND

## SERVICE RETIREMENTS AS OF JUNE 30, 1992

| | YEARS RETIRED | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
| <50 | 1 | | | | | | | 1 |
| 50-54 | | 3 | | | | | | 3 |
| 55-59 | 193 | 203 | 1 | | | | | 397 |
| 60-64 | 435 | 703 | 332 | | | | | 1,470 |
| 65-69 | 319 | 1,368 | 1,299 | 49 | | | | 3,035 |
| 70-74 | 41 | 254 | 1,714 | 871 | 11 | | | 2,891 |
| 75-79 | 4 | 13 | 289 | 1,630 | 452 | 11 | | 2,399 |
| 80-84 | | | 13 | 89 | 1,285 | 102 | 10 | 1,499 |
| 85+ | | | | 2 | 231 | 586 | 321 | 1,140 |
| ALL | 993 | 2,544 | 3,648 | 2,641 | 1,979 | 699 | 331 | 12,835 |

## AVERAGE ANNUAL BENEFIT

| | YEARS RETIRED | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
| <50 | 5,607 | | | | | | | 5,607 |
| 50-54 | | 2,772 | | | | | | 2,772 |
| 55-59 | 8,803 | 8,676 | 6,150 | | | | | 8,731 |
| 60-64 | 8,184 | 7,964 | 10,262 | | | | | 8,548 |
| 65-69 | 7,572 | 6,418 | 8,461 | 6,710 | | | | 7,418 |
| 70-74 | 8,455 | 6,532 | 6,258 | 7,962 | 5,813 | | | 6,825 |
| 75-79 | 6,395 | 5,646 | 5,715 | 5,840 | 5,907 | 4,793 | | 5,833 |
| 80-84 | | | 6,788 | 6,217 | 4,991 | 4,650 | 2,795 | 5,042 |
| 85+ | | | | 3,701 | 6,262 | 4,030 | 4,019 | 4,479 |
| ALL | 8,109 | 7,029 | 7,366 | 6,567 | 5,353 | 4,133 | 3,982 | 6,618 |

| | TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
| ALL | 8,052 | 17,881 | 26,871 | 17,343 | 10,593 | 2,888 | 1,318 | 84,942 |

TABLE 5

## STATE EMPLOYEES RETIREMENT FUND

### SURVIVORS AS OF JUNE 30, 1992

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | 10 | 17 | 12 | 1 | | | | 40 |
| 50-54 | 7 | 12 | 6 | | | | 1 | 26 |
| 55-59 | 10 | 28 | 20 | 2 | | | | 60 |
| 60-64 | 18 | 62 | 36 | 12 | | 1 | 1 | 130 |
| 65-69 | 10 | 64 | 58 | 45 | 9 | | 2 | 188 |
| 70-74 | 26 | 56 | 40 | 67 | 14 | 1 | 2 | 206 |
| 75-79 | 16 | 36 | 11 | 40 | 48 | 3 | 6 | 160 |
| 80-84 | 10 | 9 | 2 | 9 | 56 | 17 | 18 | 121 |
| 85+ | 4 | 7 | 1 | | 8 | 19 | 53 | 92 |
| ALL | 111 | 291 | 186 | 176 | 135 | 41 | 83 | 1,023 |

### AVERAGE ANNUAL BENEFIT

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | 2,929 | 4,223 | 3,735 | 2,974 | | | | 3,722 |
| 50-54 | 7,516 | 6,171 | 5,772 | | | | 3,381 | 6,334 |
| 55-59 | 6,080 | 5,769 | 4,747 | 4,783 | | | | 5,447 |
| 60-64 | 6,641 | 6,568 | 4,763 | 5,345 | | 2,103 | 4,265 | 5,913 |
| 65-69 | 7,168 | 6,276 | 6,801 | 6,397 | 4,076 | | 1,707 | 6,361 |
| 70-74 | 5,752 | 6,085 | 5,931 | 6,025 | 4,082 | 2,408 | 2,933 | 5,809 |
| 75-79 | 4,867 | 5,640 | 6,383 | 6,352 | 5,039 | 4,783 | 2,655 | 5,484 |
| 80-84 | 3,903 | 4,488 | 3,831 | 3,372 | 6,201 | 3,962 | 2,991 | 4,842 |
| 85+ | 6,138 | 6,156 | 1,484 | | 4,985 | 3,787 | 3,751 | 4,128 |
| ALL | 5,630 | 5,992 | 5,682 | 5,981 | 5,354 | 3,858 | 3,440 | 5,518 |

| AGE | TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | 624 | 1,743 | 1,056 | 1,052 | 722 | 158 | 285 | 5,644 |

TABLE 6

## STATE EMPLOYEES RETIREMENT FUND

### DISABILITY RETIREMENTS AS OF JUNE 30, 1992

| AGE | YEARS DISABLED ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | 23 | 30 | 9 | 4 | | | | 66 |
| 50-54 | 9 | 22 | 9 | 2 | 2 | | | 44 |
| 55-59 | 12 | 34 | 18 | 7 | 2 | | | 73 |
| 60-64 | 28 | 47 | 27 | 15 | 1 | | | 118 |
| 65-69 | 3 | 24 | 58 | 38 | 20 | 4 | 2 | 149 |
| 70-74 | | | 18 | 86 | 28 | 5 | 2 | 139 |
| 75-79 | | | | 26 | 70 | 8 | 2 | 106 |
| 80-84 | | | | 1 | 12 | 11 | 7 | 31 |
| 85+ | | | | | | 4 | 13 | 17 |
| ALL | 75 | 157 | 139 | 179 | 135 | 32 | 26 | 743 |

### AVERAGE ANNUAL BENEFIT

| AGE | YEARS DISABLED ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | 4,453 | 4,099 | 3,563 | 5,106 | | | | 4,210 |
| 50-54 | 6,447 | 5,810 | 4,753 | 5,608 | 3,211 | | | 5,597 |
| 55-59 | 7,476 | 5,731 | 5,497 | 3,784 | 1,849 | | | 5,667 |
| 60-64 | 5,719 | 4,974 | 4,695 | 5,697 | 2,448 | | | 5,157 |
| 65-69 | 4,649 | 4,564 | 4,268 | 6,080 | 3,642 | 3,352 | 4,801 | 4,684 |
| 70-74 | | | 4,176 | 5,194 | 4,186 | 3,739 | 2,867 | 4,773 |
| 75-79 | | | | 3,428 | 4,510 | 3,620 | 3,434 | 4,157 |
| 80-84 | | | | 3,418 | 3,974 | 3,808 | 5,159 | 4,165 |
| 85+ | | | | | | 3,743 | 3,439 | 3,511 |
| ALL | 5,656 | 5,025 | 4,484 | 5,105 | 4,193 | 3,685 | 3,963 | 4,761 |

| AGE | TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | 424 | 788 | 623 | 913 | 566 | 117 | 103 | 3,537 |

## STATE EMPLOYEES RETIREMENT FUND

## RECONCILIATION OF MEMBERS

| | | Actives | Terminated: Deferred Retirement | Terminated: Other Non-Vested |
|---|---|---|---|---|
| A. | ON JUNE 30, 1991 | 49,718 | 2,216 | 4,152 |
| B. | ADDITIONS | 4,017 | 856 | 1,302 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | (847) | (115) | (11) |
| | 2. Disability | (72) | (5) | 0 |
| | 3. Death | (70) | (8) | (4) |
| | 4. Terminated - Deferred | (701) | 0 | (40) |
| | 5. Terminated - Refund | (2,080) | (88) | (339) |
| | 6. Terminated - Other Non-Vested | (1,085) | 0 | 0 |
| | 7. Returned as Active | 0 | (83) | (139) |
| | 8. Transferred to Other Fund | 0 | 0 | (644) |
| D. | DATA ADJUSTMENTS | 334 | (4) | (21) |
| | Vested | 38,274 | | |
| | Non-Vested | 10,940 | | |
| E. | TOTAL ON JUNE 30, 1992 | 49,214 | 2,769 | 4,256 |

| | | Recipients: Retirement Annuitants | Recipients: Disabled | Recipients: Survivors |
|---|---|---|---|---|
| A. | ON JUNE 30, 1991 | 12,335 | 726 | 946 |
| B. | ADDITIONS | 995 | 82 | 121 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 0 | 0 | 0 |
| | 2. Death | (476) | (57) | (34) |
| | 3. Annuity Expired | 0 | 0 | 0 |
| | 4. Returned as Active | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | (19) | (8) | (10) |
| E. | TOTAL ON JUNE 30, 1992 | 12,835 | 743 | 1,023 |

TABLE 8

## STATE EMPLOYEES RETIREMENT FUND

### ACTUARIAL BALANCE SHEET (DOLLARS IN THOUSANDS)

### JULY 1, 1992

| | | Non-Vested | Vested | Total |
|---|---|---|---|---|
| A. | CURRENT ASSETS (TABLE 1, F6) | | | $2,613,472 |
| B. | EXPECTED FUTURE ASSETS | | | |
| | 1. Present Value of Expected Future Statutory Supplemental Contributions | | | $454,587 |
| | 2. Present Value of Future Normal Costs | | | 807,318 |
| | 3. Total Expected Future Assets | | | $1,261,905 |
| C. | TOTAL CURRENT AND EXPECTED FUTURE ASSETS | | | $3,875,377 |
| D. | CURRENT BENEFIT OBLIGATIONS | Non-Vested | Vested | Total |
| | 1. Benefit Recipients | | | |
| | a. Retirement Annuities | | $892,784 | $892,784 |
| | b. Disability Benefits | | 34,519 | 34,519 |
| | c. Surviving Spouse and Child Benefits | | 59,888 | 59,888 |
| | 2. Deferred Retirements With Future Augmentation | | 53,420 | 53,420 |
| | 3. Former Members Without Vested Rights | | 2,573 | 2,573 |
| | 4. Active Members | | | |
| | a. Retirement Annuities | 11,290 | 1,286,213 | 1,297,503 |
| | b. Disability Benefits | 46,718 | 0 | 46,718 |
| | c. Survivor's Benefits | 53,629 | 0 | 53,629 |
| | d. Deferred Retirements | 3,379 | 241,628 | 245,007 |
| | e. Refund Liability Due to Death or Withdrawal | 0 | 58,882 | 58,882 |
| | 5. Total Current Benefit Obligations | $115,016 | $2,629,907 | $2,744,923 |
| E. | EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $1,187,694 |
| F. | TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $3,932,617 |
| G. | CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A) | | | $131,451 |
| H. | CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C) | | | $57,240 |

TABLE 9

## STATE EMPLOYEES RETIREMENT FUND

## DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) AND SUPPLEMENTAL CONTRIBUTION RATE (DOLLARS IN THOUSANDS)

JULY 1, 1992

| | Actuarial Present Value of Projected Benefits | Actuarial Present Value of Future Normal Costs | Actuarial Accrued Liability |
|---|---|---|---|
| A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL) | (1) | (2) | (3)=(1)-(2) |
| 1. Active Members | | | |
| a. Retirement Annuities | $2,228,242 | $477,146 | $1,751,096 |
| b. Disability Benefits | 80,503 | 22,779 | 57,724 |
| c. Survivor's Benefit | 90,329 | 23,113 | 67,216 |
| d. Deferred Retirements | 383,410 | 128,713 | 254,697 |
| e. Refunds Due to Death or Withdrawal | 106,949 | 155,567 | (48,618) |
| f. Total | $2,889,433 | $807,318 | $2,082,115 |
| 2. Deferred Retirements With Future Augmentation | 53,420 | | 53,420 |
| 3. Former Members Without Vested Rights | 2,573 | | 2,573 |
| 4. Annuitants in MPRIF | 981,047 | | 981,047 |
| 5. Recipients Not in MPRIF | 6,144 | | 6,144 |
| 6. Total | $3,932,617 | $807,318 | $3,125,299 |

| | |
|---|---|
| B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) | |
| 1. AAL (A6) | $3,125,299 |
| 2. Current Assets (Table 1, F6) | 2,613,472 |
| 3. UAAL (B1-B2) | $511,827 |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE | |
| 1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020 | $34,968,224 |
| 2. Supplemental Contribution Rate (B3/C1) | 1.46% |

## STATE EMPLOYEES RETIREMENT FUND

### CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
### (DOLLARS IN THOUSANDS)

### YEAR ENDING JUNE 30, 1992

| | | | |
|---|---|---|---|
| A. | UAAL AT BEGINNING OF YEAR | | $579,291 |
| B. | CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING | | |
| | 1. | Normal Cost and Expenses | $100,101 |
| | 2. | Contribution | (117,721) |
| | 3. | Interest on A, B1 and B2 | 48,491 |
| | 4. | Total (B1+B2+B3) | $30,871 |
| C. | EXPECTED UAAL AT END OF YEAR (A+B4) | | $610,162 |
| D. | INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED | | |
| | 1. | Salary Increases | ($53,359) |
| | 2. | Investment Return | (95,187) |
| | 3. | MPRIF Mortality | 578 |
| | 4. | Mortality of Other Benefit Recipients | 51 |
| | 5. | Other Items | 49,582 |
| | 6. | Total | ($98,335) |
| E. | UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D5) | | $511,827 |
| F. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS | | 0 |
| G. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS | | 0 |
| H. | UAAL AT END OF YEAR (E+F+G) | | $511,827 |

# STATE EMPLOYEES RETIREMENT FUND

## DETERMINATION OF CONTRIBUTION SUFFICIENCY
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | Percent of Payroll | Dollar Amount |
|---|---|---|
| A. STATUTORY CONTRIBUTIONS - CHAPTER 352 | | |
| 1. Employee Contributions | 3.99% | $66,186 |
| 2. Employer Contributions | 4.12% | 68,342 |
| 3. Total | 8.11% | $134,528 |
| B. REQUIRED CONTRIBUTIONS - CHAPTER 356 | | |
| 1. Normal Cost | | |
| a. Retirement Benefits | 3.97% | $65,919 |
| b. Disability benefits | 0.18% | 3,042 |
| c. Survivors | 0.18% | 3,064 |
| d. Deferred Retirement Benefits | 1.02% | 16,991 |
| e. Refunds Due to Death or Withdrawal | 1.23% | 20,332 |
| f. Total | 6.58% | $109,348 |
| 2. Supplemental Contribution Amortization by July 1, 2020 of UAAL | 1.46% | 24,218 |
| 3. Allowance for Expenses | 0.23% | 3,815 |
| 4. Total | 8.27% | $137,381 |
| C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4] | -0.16% | ($2,853) |

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1992 is $1,658,792.

## STATE EMPLOYEES RETIREMENT FUND

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| Interest: | **Pre-Retirement:** 8.5% per annum<br>**Post-Retirement:** 5.0% per annum |
| Salary Increases: | Reported salary at valuation date increased 6.5% to current fiscal year and 6.5% annually for each future year. Prior fiscal year salary is annualized for new Members. |
| Mortality: | **Pre-Retirement:**<br>Male - 1971 Group Annuity Mortality Table<br>Female - 1971 Group Annuity Mortality Table male rates set back eight years<br>**Post-Retirement:**<br>Male - Same as above<br>Female - Same as above<br>**Post-Disability:**<br>Male - Combined Annuity Mortality Table<br>Female - Combined Annuity Mortality Table |
| Retirement Age: | Graded rates beginning at age 58 as shown in rate table. Members who have attained the highest assumed retirement age will retire in one year. In addition, 25% of Members are assumed to retire each year that they are eligible for the Rule of 90. |
| Separation: | Graded rates based on actual experience developed by the June 30, 1971 experience analysis. Rates are shown in rate table. |
| Disability: | Rates adopted by MSRS as shown in rate table. |
| Expenses: | Prior year 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. |

## STATE EMPLOYEES RETIREMENT FUND

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| **Family Composition:** | 85% of Members are assumed to be married. Female is three years younger than male. |
| **Social Security:** | N/A |
| **Benefit Increases After Retirement:** | Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions. |
| **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>45% 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. |
| **Asset Valuation Method:** | Cost Value plus one-third Unrealized Gains or Losses. |
| **Payment on the Unfunded Actuarial Accrued Liability:** | A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 6.5% per annum. |

STATE EMPLOYEES 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 | 5 | 4 | 2,400 | 3,700 | 0 | 0 | 0 | 0 |
| 21 | 5 | 4 | 2,250 | 3,550 | 0 | 0 | 0 | 0 |
| 22 | 5 | 4 | 2,080 | 3,390 | 0 | 0 | 0 | 0 |
| 23 | 6 | 4 | 1,920 | 3,230 | 0 | 0 | 0 | 0 |
| 24 | 6 | 4 | 1,760 | 3,070 | 0 | 0 | 0 | 0 |
| 25 | 6 | 5 | 1,600 | 2,910 | 0 | 0 | 0 | 0 |
| 26 | 7 | 5 | 1,470 | 2,750 | 0 | 0 | 0 | 0 |
| 27 | 7 | 5 | 1,340 | 2,600 | 0 | 0 | 0 | 0 |
| 28 | 7 | 5 | 1,230 | 2,430 | 0 | 0 | 0 | 0 |
| 29 | 8 | 5 | 1,130 | 2,270 | 0 | 0 | 0 | 0 |
| 30 | 8 | 5 | 1,040 | 2,120 | 2 | 0 | 0 | 0 |
| 31 | 9 | 6 | 950 | 1,970 | 2 | 0 | 0 | 0 |
| 32 | 9 | 6 | 890 | 1,820 | 2 | 0 | 0 | 0 |
| 33 | 10 | 6 | 830 | 1,680 | 2 | 0 | 0 | 0 |
| 34 | 10 | 7 | 770 | 1,540 | 2 | 0 | 0 | 0 |
| 35 | 11 | 7 | 720 | 1,410 | 2 | 1 | 0 | 0 |
| 36 | 12 | 7 | 680 | 1,300 | 2 | 1 | 0 | 0 |
| 37 | 13 | 8 | 640 | 1,190 | 2 | 1 | 0 | 0 |
| 38 | 14 | 8 | 600 | 1,090 | 2 | 1 | 0 | 0 |
| 39 | 15 | 9 | 560 | 1,000 | 2 | 2 | 0 | 0 |
| 40 | 16 | 9 | 530 | 920 | 2 | 2 | 0 | 0 |
| 41 | 18 | 10 | 500 | 850 | 2 | 2 | 0 | 0 |
| 42 | 20 | 10 | 480 | 780 | 2 | 4 | 0 | 0 |
| 43 | 23 | 11 | 460 | 720 | 3 | 4 | 0 | 0 |
| 44 | 26 | 12 | 430 | 680 | 3 | 4 | 0 | 0 |
| 45 | 29 | 13 | 410 | 630 | 3 | 5 | 0 | 0 |
| 46 | 33 | 14 | 390 | 590 | 5 | 6 | 0 | 0 |
| 47 | 38 | 15 | 370 | 560 | 7 | 7 | 0 | 0 |
| 48 | 42 | 16 | 350 | 530 | 9 | 7 | 0 | 0 |
| 49 | 47 | 18 | 340 | 500 | 11 | 10 | 0 | 0 |

## STATE EMPLOYEES 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 | 53 | 20 | 320 | 470 | 14 | 10 | 0 | 0 |
| 51 | 59 | 23 | 300 | 440 | 16 | 12 | 0 | 0 |
| 52 | 65 | 26 | 280 | 410 | 20 | 14 | 0 | 0 |
| 53 | 71 | 29 | 260 | 390 | 24 | 16 | 0 | 0 |
| 54 | 78 | 33 | 240 | 360 | 28 | 20 | 0 | 0 |
| 55 | 85 | 38 | 210 | 330 | 34 | 24 | 0 | 0 |
| 56 | 93 | 42 | 170 | 290 | 40 | 30 | 0 | 0 |
| 57 | 100 | 47 | 140 | 230 | 46 | 36 | 0 | 0 |
| 58 | 109 | 53 | 90 | 170 | 56 | 44 | 50 | 50 |
| 59 | 119 | 59 | 40 | 90 | 66 | 52 | 50 | 50 |
| 60 | 131 | 65 | 0 | 0 | 76 | 62 | 150 | 150 |
| 61 | 144 | 71 | 0 | 0 | 90 | 74 | 150 | 150 |
| 62 | 159 | 78 | 0 | 0 | 110 | 88 | 500 | 200 |
| 63 | 174 | 85 | 0 | 0 | 136 | 104 | 350 | 350 |
| 64 | 192 | 93 | 0 | 0 | 174 | 122 | 1,100 | 1,100 |
| 65 | 213 | 100 | 0 | 0 | 0 | 0 | 10,000 | 10,000 |
| 66 | 236 | 109 | 0 | 0 | 0 | 0 | 0 | 0 |
| 67 | 263 | 119 | 0 | 0 | 0 | 0 | 0 | 0 |
| 68 | 292 | 131 | 0 | 0 | 0 | 0 | 0 | 0 |
| 69 | 324 | 144 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 | 361 | 159 | 0 | 0 | 0 | 0 | 0 | 0 |

# STATE EMPLOYEES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| **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:** | 3.99% of salary unless there is a deficiency. (Amended 1992) |
| **Employer:** | 4.12% of salary unless there is a deficiency. (Amended 1992) |
| **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. |
| **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:** Age 65 and three years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.<br><br>**First hired after June 30, 1989:** The greater of age 65 or the age eligible for full Social Security retirement benefits and three years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service. |
| **Amount:** | 1.5% of average salary for each year of Allowable Service. |

TABLE 13
(Continued)

## STATE EMPLOYEES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

**Early Retirement Benefit**

| | |
|---|---|
| **Eligibility:** | **First hired before July 1, 1989:**<br>Age 55 and three years of Allowable Service.<br>Any age with 30 years of Allowable Service.<br>Rule of 90: Age plus Allowable Service totals 90.<br><br>**First hired after June 30, 1989:**<br>Age 55 with three years of Allowable Service. |
| **Amount:** | **First hired before July 1, 1989:**<br>The greater of<br>1% of average salary for each of the first 10 years of Allowable Service and 1.5% 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;<br>**OR**<br>1.5% 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.<br><br>**First hired after June 30, 1989:**<br>1.5% of average salary for each year of Allowable Service assuming augmentation to the age eligible for full Social Security retirement benefit at 3% per year and actuarial reduction for each month the Member is under the Social Security retirement age. |
| **Form of Payment:** | Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are:<br><br>50% or 100% joint and survivor with bounce back feature without additional reduction.<br>15 year certain and life thereafter. |

TABLE 13
(Continued)

## STATE EMPLOYEES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

**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.

## 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.

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.

STATE EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| **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, if age 50 with three years of Allowable Service or any age with 30 years of Allowable Service. If the Member dies before age 55 and has less than 30 years of Allowable Service, benefits commence when Member would have been age 55. |
| **Amount:** | Surviving spouse receives the 100% joint and survivor benefit the Member could have elected if terminated. In lieu of this benefit, the surviving spouse may elect a refund of contributions with interest. |
| **Benefit Increases:** | Same as for retirement. |

## STATE EMPLOYEES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

**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. |

TABLE 13
(Continued)

STATE EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

## SIGNIFICANT CHANGES

Member and employer contributions reduced from 4.15% and 4.29% of Salary to 3.99% and 4.12%, respectively, unless there is a deficiency in which case the contributions will be increased to eliminate the deficiency.

## STATE EMPLOYEES RETIREMENT FUND

## MILITARY AFFAIRS CALCULATION

Section 352.85 of Chapter 352 of Minnesota Statutes provides 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 | $108,215 |
| 3. | Normal Cost | |
| | a. Dollar Amount | $ 11,575 |
| | b. Percent of Payroll | 10.69% |

TABLE 15

## STATE EMPLOYEES RETIREMENT FUND

## PILOTS CALCULATION

Section 352.86 of chapter 352 of Minnesota Statutes provides 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 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 | 4 |
| 2. | Projected Annual Earnings | $218,964 |
| 3. | Normal Cost | |
| | a. Dollar Amount | $ 22,565 |
| | b. Percent of Payroll | 10.31% |

# STATE PATROL RETIREMENT FUND

# ACTUARIAL VALUATION REPORT

# JULY 1, 1992

MILLIMAN & ROBERTSON, INC.

MILLIMAN & ROBERTSON, INC.
Actuaries and Consultants

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Wendell Milliman, F.S.A. (1976)
Stuart A. Robertson, F.S.A.
Chairman Emeritus

December 2, 1992

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, 1992.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. 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 on September 20, 1989.

Respectfully submitted,

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

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

TKC/WVH/bh

STATE PATROL RETIREMENT FUND

TABLE OF CONTENTS

## STATE PATROL RETIREMENT FUND

TABLE OF CONTENTS
(Continued)

# STATE PATROL RETIREMENT FUND

## REPORT HIGHLIGHTS
## (DOLLARS IN THOUSANDS)

| | 07/01/91 Valuation | 07/01/92 Valuation |
|---|---|---|
| **A. CONTRIBUTIONS (Table 11)** | | |
| 1. Statutory Contributions - Chapter 352B % of Payroll | 23.38% | 23.38% |
| 2. Required Contributions - Chapter 356 % of Payroll | 22.58% | 22.27% |
| 3. Sufficiency (Deficiency): (A.1. - A.2.) | 0.80% | 1.11% |
| **B. FUNDING RATIOS** | | |
| 1. Accrued Benefit Funding Ratio | | |
| a. Current Assets (Table 1) | $200,068 | $222,314 |
| b. Current Benefit Obligations (Table 8) | $214,626 | $224,479 |
| c. Funding Ratio: (a/b) | 93.22% | 99.04% |
| 2. Accrued Liability Funding Ratio | | |
| a. Current Assets (Table 1) | $200,068 | $222,314 |
| b. Actuarial Accrued Liability (Table 9) | $224,033 | $233,656 |
| c. Funding Ratio: (a/b) | 89.30% | 95.15% |
| 3. Projected Benefit Funding Ratio (Table 8) | | |
| a. Current and Expected Future Assets | $317,076 | $326,142 |
| b. Current and Expected Future Benefit Obligations | $310,536 | $317,456 |
| c. Funding Ratio: (a/b) | 102.11% | 102.74% |
| **C. PLAN PARTICIPANTS** | | |
| 1. Active Members | | |
| a. Number (Table 3) | 809 | 795 |
| b. Projected Annual Earnings | $37,777 | $37,113 |
| c. Average Annual Earnings (Actual $) | $46,696 | $46,683 |
| d. Average Age | 40.7 | 41.1 |
| e. Average Service | 13.6 | 14.0 |
| 2. Others | | |
| a. Service Retirements (Table 4) | 363 | 373 |
| b. Disability Retirements (Table 5) | 15 | 15 |
| c. Survivors (Table 6) | 109 | 109 |
| d. Deferred Retirements (Table 7) | 15 | 19 |
| e. Terminated Other Non-vested (Table 7) | 0 | 3 |
| f. Total | 502 | 519 |

## STATE PATROL 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 99.04%. The corresponding ratio for the prior year was 93.22%.

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 1992 the ratio is 95.15%, which is an increase from the 1991 value of 89.30%.

The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 102.74% verifies that the current statutory contributions are sufficient.

### Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes

recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines F1 to F6. It combines the cost value of the Assets Available for Benefits and one-third of the difference between the market value and cost value of those assets.

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.

<u>Actuarial Balance Sheet (Table 8)</u>

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 in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

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**

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1992 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table:

| | |
|---|---|
| Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits | $110,937,391 |
| Current Employees | |
| Accumulated employee contributions including allocated investment income | $24,126,625 |
| Employer-financed vested | 87,957,201 |
| Employer-financed nonvested | 1,457,025 |
| Total Pension Benefit Obligation | $224,478,242 |
| Net Assets Available for Benefits at Cost | $219,764,000 |
| Total Benefit Obligation less Assets | $4,714,242 |
| Funded Ratio | 97.90% |

## 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 the 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 6.5% 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.

## Sources 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 expectation. For a detailed analysis of the major components, refer to Table 10.

## Contribution Sufficiciency (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 23.38% compared to the Required Contribution Rate of 22.27%.

## Changes in Actuarial Assumptions

The actuarial assumptions are the same as those used in the prior valuation.

Paragraph X.1.4 of the Actuarial Standards requires that the Actuarial Present Value of Compensation for purposes of determining the Normal Cost of the Fund be calculated assuming mid-year payments. Previously, beginning of year payments were assumed. This change in methodology results in an increase of 0.99% of payroll in the Normal Cost and a decrease in the Contribution Sufficiency of the Fund.

## Changes in Plan Provisions

There were no changes in plan provisions since the prior valuation which impacted funding costs.

TABLE 1

# STATE PATROL RETIREMENT FUND

## ACCOUNTING BALANCE SHEET
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS | | |
| | 1. Cash, Equivalents, Short-term Securities | $2,744 | $2,744 |
| | 2. Investments | | |
| | a. Fixed Income | 35,882 | 34,993 |
| | b. Equity | 81,897 | 74,861 |
| | c. Real Estate | 5,589 | 5,864 |
| | 3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF) | 101,509 | 101,509 |
| | 4. Other | 287 | 287 |
| B. | TOTAL ASSETS | $227,908 | $220,258 |
| C. | AMOUNTS CURRENTLY PAYABLE | $494 | $494 |
| D. | ASSETS AVAILABLE FOR BENEFITS | | |
| | 1. Member Reserves | $24,742 | $24,742 |
| | 2. Employer Reserves | 94,082 | 86,432 |
| | 3. MPRIF Reserves | 101,509 | 101,509 |
| | 4. Non-MPRIF Reserves | 7,081 | 7,081 |
| | 5. Total Assets Available for Benefits | $227,414 | $219,764 |
| E. | TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS | $227,908 | $220,258 |

| | | | |
|---|---|---|---|
| F. | DETERMINATION OF ACTUARIAL VALUE OF ASSETS | | |
| | 1. Cost Value of Assets Available for Benefits (D5) | | $219,764 |
| | 2. Market Value (D5) | $227,414 | |
| | 3. Cost Value (D5) | 219,764 | |
| | 4. Market Over Cost: (F2-F3) | $7,650 | |
| | 5. 1/3 of Market Over Cost: (F4)/3 | | 2,550 |
| | 6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets") | | $222,314 |

# STATE PATROL RETIREMENT FUND

## CHANGE IN ASSETS AVAILABLE FOR BENEFITS
## (DOLLARS IN THOUSANDS)

## YEAR ENDING JUNE 30, 1992

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS AVAILABLE AT BEGINNING OF PERIOD | $205,198 | $197,503 |
| B. | OPERATING REVENUES | | |
| | 1. Member Contributions | $2,795 | $2,795 |
| | 2. Employer Contributions | 4,893 | 4,893 |
| | 3. Investment Income | 13,197 | 13,197 |
| | 4. MPRIF Income | 8,675 | 8,675 |
| | 5. Net Realized Gain (Loss) | 2,697 | 2,697 |
| | 6. Other | 0 | 0 |
| | 7. Net Change in Unrealized Gain (Loss) | (45) | 0 |
| | 8. Total Revenue | $32,212 | $32,257 |
| C. | OPERATING EXPENSES | | |
| | 1. Service Retirements | $9,603 | $9,603 |
| | 2. Disability Benefits | 0 | 0 |
| | 3. Survivor Benefits | 0 | 0 |
| | 4. Refunds | 74 | 74 |
| | 5. Expenses | 238 | 238 |
| | 6. Other | 81 | 81 |
| | 7. Total Disbursements | $9,996 | $9,996 |
| D. | OTHER CHANGES IN RESERVES | 0 | 0 |
| E. | ASSETS AVAILABLE AT END OF PERIOD | $227,414 | $219,764 |

## STATE PATROL RETIREMENT FUND

## ACTIVE MEMBERS AS OF JUNE 30, 1992

| AGE | YEARS OF SERVICE <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| <25 | 3 | 7 | | | | | | | 10 |
| 25-29 | 6 | 48 | 14 | | | | | | 68 |
| 30-34 | 3 | 31 | 62 | 26 | 1 | | | | 123 |
| 35-39 | | 25 | 32 | 73 | 20 | | | | 150 |
| 40-44 | 1 | 13 | 11 | 31 | 55 | 28 | | | 139 |
| 45-49 | 1 | 6 | 3 | 10 | 28 | 80 | 33 | | 161 |
| 50-54 | | 1 | | 2 | 5 | 43 | 50 | 8 | 109 |
| 55-59 | 1 | 1 | | 1 | 1 | 4 | 8 | 9 | 25 |
| 60-64 | | | | | 1 | 1 | | 4 | 6 |
| 65+ | | | | | | | 1 | 3 | 4 |
| ALL | 15 | 132 | 122 | 143 | 111 | 156 | 92 | 24 | 795 |

## AVERAGE ANNUAL EARNINGS

| AGE | YEARS OF SERVICE <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| <25 | 27,506 | 34,854 | | | | | | | 32,650 |
| 25-29 | 32,163 | 35,736 | 40,289 | | | | | | 36,358 |
| 30-34 | 37,935 | 34,411 | 40,513 | 45,003 | 65,230 | | | | 40,062 |
| 35-39 | | 38,329 | 40,846 | 44,075 | 47,333 | | | | 42,863 |
| 40-44 | 39,927 | 41,721 | 42,678 | 44,820 | 47,419 | 49,345 | | | 46,265 |
| 45-49 | 39,927 | 42,184 | 39,021 | 45,795 | 48,770 | 47,083 | 45,529 | | 46,601 |
| 50-54 | | 41,460 | | 44,148 | 46,806 | 47,676 | 46,398 | 48,247 | 46,970 |
| 55-59 | 39,927 | 45,327 | | 40,694 | 53,895 | 51,002 | 50,324 | 45,771 | 47,935 |
| 60-64 | | | | | 43,259 | 44,769 | | 45,786 | 45,195 |
| 65+ | | | | | | | 43,454 | 41,987 | 42,354 |
| ALL | 33,939 | 36,868 | 40,733 | 44,503 | 47,898 | 47,738 | 46,396 | 46,126 | 43,834 |

| AGE | PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| ALL | 509 | 4,866 | 4,969 | 6,363 | 5,316 | 7,447 | 4,268 | 1,107 | 34,848 |

TABLE 4

## STATE PATROL RETIREMENT FUND

### SERVICE RETIREMENTS AS OF JUNE 30, 1992

| | YEARS RETIRED | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
| <50 | | | | | | | | |
| 50-54 | 2 | 1 | | | | | | 3 |
| 55-59 | 14 | 46 | | | | | | 60 |
| 60-64 | 2 | 28 | 60 | | | | | 90 |
| 65-69 | | 6 | 42 | 54 | 1 | | | 103 |
| 70-74 | | 1 | 10 | 31 | 18 | | | 60 |
| 75-79 | | | 1 | 12 | 13 | 11 | | 37 |
| 80-84 | | | | | 1 | 5 | 6 | 12 |
| 85+ | | | | | 1 | | 7 | 8 |
| ALL | 18 | 82 | 113 | 97 | 34 | 16 | 13 | 373 |

### AVERAGE ANNUAL BENEFIT

| | YEARS RETIRED | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
| <50 | | | | | | | | |
| 50-54 | 21,726 | 16,896 | | | | | | 20,116 |
| 55-59 | 26,545 | 25,038 | | | | | | 25,390 |
| 60-64 | 23,514 | 27,113 | 21,707 | | | | | 23,429 |
| 65-69 | | 15,954 | 24,567 | 22,660 | 14,512 | | | 22,968 |
| 70-74 | | 17,175 | 22,050 | 23,562 | 16,604 | | | 21,116 |
| 75-79 | | | 19,479 | 16,978 | 18,465 | 14,727 | | 16,899 |
| 80-84 | | | | | 19,536 | 22,257 | 13,921 | 17,862 |
| 85+ | | | | | 11,674 | | 15,392 | 14,927 |
| ALL | 25,673 | 24,887 | 22,781 | 22,245 | 17,195 | 17,080 | 14,713 | 22,209 |

| | TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
| ALL | 462 | 2,040 | 2,574 | 2,157 | 584 | 273 | 191 | 8,283 |

# STATE PATROL RETIREMENT FUND

## SURVIVORS AS OF JUNE 30, 1992

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | 1 | | | 1 | | | 2 |
| 50-54 | | 2 | | | | | | 2 |
| 55-59 | | 2 | | 2 | | | | 4 |
| 60-64 | 1 | 3 | 1 | 3 | 3 | | 2 | 13 |
| 65-69 | 1 | 2 | 1 | 5 | 4 | 1 | | 14 |
| 70-74 | | 3 | 1 | 4 | 4 | 1 | 3 | 16 |
| 75-79 | 1 | 4 | | | 2 | 4 | 5 | 16 |
| 80-84 | 1 | 3 | | | 1 | 4 | 12 | 21 |
| 85+ | | 3 | | | 1 | 3 | 14 | 21 |
| ALL | 4 | 23 | 3 | 14 | 16 | 13 | 36 | 109 |

## AVERAGE ANNUAL BENEFIT

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | 6,767 | | | 4,325 | | | 5,546 |
| 50-54 | | 3,803 | | | | | | 3,803 |
| 55-59 | | 12,454 | | 20,437 | | | | 16,446 |
| 60-64 | 5,746 | 10,138 | 19,699 | 18,289 | 8,550 | | 7,377 | 11,625 |
| 65-69 | 13,603 | 10,725 | 20,967 | 21,579 | 14,217 | 11,309 | | 16,578 |
| 70-74 | | 15,163 | 16,483 | 15,836 | 9,857 | 17,099 | 8,250 | 12,912 |
| 75-79 | 14,158 | 8,968 | | | 10,809 | 14,738 | 8,422 | 10,794 |
| 80-84 | 7,747 | 12,196 | | | 12,816 | 13,912 | 9,428 | 10,759 |
| 85+ | | 10,266 | | | 7,305 | 10,448 | 9,876 | 9,891 |
| ALL | 10,314 | 10,430 | 19,050 | 19,070 | 10,501 | 13,412 | 9,250 | 11,749 |

| AGE | TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | 41 | 239 | 57 | 266 | 168 | 174 | 333 | 1,280 |

## STATE PATROL RETIREMENT FUND

## DISABILITY RETIREMENTS AS OF JUNE 30, 1992

| AGE | YEARS DISABLED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | 1 | 1 | | | | | | 2 |
| 50-54 | | | 1 | 1 | | | | 2 |
| 55-59 | | 2 | 1 | | | | | 3 |
| 60-64 | | | | 1 | 2 | | | 3 |
| 65-69 | | | | 2 | 3 | | | 5 |
| 70-74 | | | | | | | | |
| 75-79 | | | | | | | | |
| 80-84 | | | | | | | | |
| 85+ | | | | | | | | |
| ALL | 1 | 3 | 2 | 4 | 5 | | | 15 |

## AVERAGE ANNUAL BENEFIT

| AGE | YEARS DISABLED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | 14,736 | 4,998 | | | | | | 9,867 |
| 50-54 | | | 18,443 | 11,544 | | | | 14,994 |
| 55-59 | | 22,484 | 25,581 | | | | | 23,516 |
| 60-64 | | | | 16,990 | 12,892 | | | 14,258 |
| 65-69 | | | | 19,660 | 15,550 | | | 17,194 |
| 70-74 | | | | | | | | |
| 75-79 | | | | | | | | |
| 80-84 | | | | | | | | |
| 85+ | | | | | | | | |
| ALL | 14,736 | 16,655 | 22,012 | 16,964 | 14,487 | | | 16,601 |

| AGE | TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | 14,736 | 49,965 | 44,024 | 67,856 | 72,435 | | | 249,015 |

## STATE PATROL RETIREMENT FUND

## RECONCILIATION OF MEMBERS

| | | Actives | Terminated: Deferred Retirement | Terminated: Other Non-Vested |
|---|---|---|---|---|
| A. | ON JUNE 30, 1991 | 809 | 15 | 0 |
| B. | ADDITIONS | 15 | 5 | 1 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | (18) | 0 | 0 |
| | 2. Disability | 0 | (1) | 0 |
| | 3. Death | (2) | 0 | 0 |
| | 4. Terminated - Deferred | (5) | 0 | 0 |
| | 5. Terminated - Refund | (2) | 0 | 0 |
| | 6. Terminated - Other Non-Vested | (1) | 0 | 0 |
| | 7. Returned as Active | 0 | 0 | 0 |
| | 8. Transferred to Other Fund | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | (1) | 0 | 2 |
| | Vested | 694 | | |
| | Non-Vested | 101 | | |
| E. | TOTAL ON JUNE 30, 1992 | 795 | 19 | 3 |

| | | Recipients: Retirement Annuitants | Recipients: Disabled | Recipients: Survivors |
|---|---|---|---|---|
| A. | ON JUNE 30, 1991 | 363 | 15 | 109 |
| B. | ADDITIONS | 20 | 2 | 5 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 0 | 0 | 0 |
| | 2. Death | (9) | (2) | (3) |
| | 3. Annuity Expired | 0 | 0 | 0 |
| | 4. Returned as Active | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | (1) | 0 | (2) |
| E. | TOTAL ON JUNE 30, 1992 | 373 | 15 | 109 |

# STATE PATROL RETIREMENT FUND

## ACTUARIAL BALANCE SHEET
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | | Non-Vested | Vested | Total |
|---|---|---|---|---|
| A. | CURRENT ASSETS (TABLE 1, F6) | | | $222,314 |
| B. | EXPECTED FUTURE ASSETS | | | |
| | 1. Present Value of Expected Future Statutory Supplemental Contributions | | | $20,028 |
| | 2. Present Value of Future Normal Costs | | | 83,800 |
| | 3. Total Expected Future Assets | | | $103,828 |
| C. | TOTAL CURRENT AND EXPECTED FUTURE ASSETS | | | $326,142 |
| D. | CURRENT BENEFIT OBLIGATIONS | | | |
| | 1. Benefit Recipients | | | |
| | a. Retirement Annuities | | $91,670 | $91,670 |
| | b. Disability Benefits | | 3,132 | 3,132 |
| | c. Surviving Spouse and Child Benefits | | 13,788 | 13,788 |
| | 2. Deferred Retirements With Future Augmentation | | 2,241 | 2,241 |
| | 3. Former Members Without Vested Rights | | 107 | 107 |
| | 4. Active Members | | | |
| | a. Retirement Annuities | 794 | 85,253 | 86,047 |
| | b. Disability Benefits | 10,104 | 0 | 10,104 |
| | c. Survivor's Benefits | 9,485 | 0 | 9,485 |
| | d. Deferred Retirements | 115 | 7,440 | 7,555 |
| | e. Refund Liability Due to Death or Withdrawal | 0 | 350 | 350 |
| | 5. Total Current Benefit Obligations | $20,498 | $203,981 | $224,479 |
| E. | EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $92,977 |
| F. | TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $317,456 |
| G. | CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A) | | | $2,165 |
| H. | CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C) | | | ($8,686) |

TABLE 9

# STATE PATROL RETIREMENT FUND

## DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) AND SUPPLEMENTAL CONTRIBUTION RATE (DOLLARS IN THOUSANDS)

JULY 1, 1992

| | Actuarial Present Value of Projected Benefits (1) | Actuarial Present Value of Future Normal Costs (2) | Actuarial Accrued Liability (3)=(1)-(2) |
|---|---|---|---|
| A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL) | | | |
| 1. Active Members | | | |
| a. Retirement Annuities | $159,033 | $56,758 | $102,275 |
| b. Disability Benefits | 17,595 | 9,655 | 7,940 |
| c. Survivor's Benefit | 16,402 | 9,727 | 6,675 |
| d. Deferred Retirements | 12,905 | 6,327 | 6,578 |
| e. Refunds Due to Death or Withdrawal | 583 | 1,333 | (750) |
| f. Total | $206,518 | $83,800 | $122,718 |
| 2. Deferred Retirements With Future Augmentation | 2,241 | | 2,241 |
| 3. Former Members Without Vested Rights | 107 | | 107 |
| 4. Annuitants in MPRIF | 101,509 | | 101,509 |
| 5. Recipients Not in MPRIF | 7,081 | | 7,081 |
| 6. Total | $317,456 | $83,800 | $233,656 |

| | |
|---|---|
| B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) | |
| 1. AAL (A6) | $233,656 |
| 2. Current Assets (Table 1, F6) | 222,314 |
| 3. UAAL (B1-B2) | $11,342 |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE | |
| 1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020 | $782,358 |
| 2. Supplemental Contribution Rate (B3/C1) | 1.45% |

## STATE PATROL RETIREMENT FUND

## DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) AND SUPPLEMENTAL CONTRIBUTION RATE (DOLLARS IN THOUSANDS)

## JULY 1, 1992

D. BREAKDOWN OF PRESENT VALUE OF BENEFITS FOR RECIPIENTS NOT IN MPRIF

| | | |
|---|---|---|
| 1. | Disabilities | $ 845 |
| 2. | 6% Payments (Pre-73) | 5,491 |
| 3. | Lump Sum (Pre-73) | 745 |
| 4. | Total | $7,081 |

| | |
|---|---|
| Percent of Future Payroll Through July 1, 2020 Necessary to Support 6% Payments (D2/C1) | .70% |

## STATE PATROL RETIREMENT FUND

### CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
### (DOLLARS IN THOUSANDS)

### YEAR ENDING JUNE 30, 1992

| | | |
|---|---|---|
| A. | UAAL AT BEGINNING OF YEAR | $23,965 |
| B. | CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING | |
| | 1. Normal Cost and Expenses | $7,422 |
| | 2. Contribution | (7,688) |
| | 3. Interest on A, B1 and B2 | 2,026 |
| | 4. Total (B1+B2+B3) | $1,760 |
| C. | EXPECTED UAAL AT END OF YEAR (A+B4) | $25,725 |
| D. | INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED | |
| | 1. Salary Increases | ($8,498) |
| | 2. Investment Return | (6,922) |
| | 3. MPRIF Mortality | 368 |
| | 4. Mortality of Other Benefit Recipients | (2) |
| | 5. Other Items | 671 |
| | 6. Total | ($14,383) |
| E. | UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D5) | $11,342 |
| F. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS | 0 |
| G. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS | 0 |
| H. | UAAL AT END OF YEAR (E+F+G) | $11,342 |

## STATE PATROL RETIREMENT FUND

## DETERMINATION OF CONTRIBUTION SUFFICIENCY
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | Percent of Payroll | Dollar Amount |
|---|---|---|
| A. STATUTORY CONTRIBUTIONS - CHAPTER 352B | | |
| 1. Employee Contributions | 8.50% | $3,155 |
| 2. Employer Contributions | 14.88% | 5,522 |
| 3. Total | 23.38% | $8,677 |
| B. REQUIRED CONTRIBUTIONS - CHAPTER 356 | | |
| 1. Normal Cost | | |
| a. Retirement Benefits | 13.64% | $5,061 |
| b. Disability benefits | 2.36% | 876 |
| c. Survivors | 2.41% | 895 |
| d. Deferred Retirement Benefits | 1.51% | 561 |
| e. Refunds Due to Death or Withdrawal | 0.27% | 99 |
| f. Total | 20.19% | $7,492 |
| 2. Supplemental Contribution Amortization by July 1, 2020 of UAAL | 1.45% | 538 |
| 3. Allowance for Expenses | 0.63% | 234 |
| 4. Total | 22.27% | $8,264 |
| C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4] | 1.11% | $413 |

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1992 is $37,113.

TABLE 12

## STATE PATROL RETIREMENT FUND

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| **Interest:** | **Pre-Retirement:** 8.5% per annum<br>**Post-Retirement:** 5.0% per annum |
| **Salary Increases:** | Reported salary at Valuation Date increased 6.5% to current fiscal year and 6.5% annually for each future year. |
| **Mortality:** | **Pre-Retirement:**<br>Male - 1971 Group Annuity Mortality Table<br>Female - 1971 Group Annuity Mortality Table male rates set back eight years<br><br>**Post-Retirement:**<br>Male - Same as above<br>Female - Same as above<br><br>**Post-Disability:**<br>Male - Same as above<br>Female - Same as above |
| **Retirement Age:** | Age 58 for State Troopers and for State Police Officers hired after June 30, 1961 or age 63 for State Police Officers hired before July 1, 1961. If over assumed retirement age, one year from the valuation date. |
| **Separation:** | Graded rates starting at .03 at age 20 and decreasing to .005 at age 45-49 and .02 for ages 50-54. Adopted 1984. |
| **Disability:** | Rates adopted by MSRS as shown in rate table. |
| **Administrative and Investment 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. |

## STATE PATROL RETIREMENT FUND

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| **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 |
| **Benefit Increases After Retirement:** | Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions. |
| **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 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:** | Cost Value plus one-third Unrealized Gains or Losses. |
| **Payment on the Unfunded Actuarial Accrued Liability:** | A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 6.5% per annum. |

## STATE PATROL RETIREMENT FUND

## SUMMARY 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 | 5 | 4 | 300 | 300 | 4 | 4 | 0 | 0 |
| 21 | 5 | 4 | 290 | 289 | 4 | 4 | 0 | 0 |
| 22 | 5 | 4 | 280 | 280 | 5 | 5 | 0 | 0 |
| 23 | 6 | 4 | 270 | 270 | 5 | 5 | 0 | 0 |
| 24 | 6 | 4 | 260 | 260 | 6 | 6 | 0 | 0 |
| 25 | 6 | 5 | 250 | 250 | 6 | 6 | 0 | 0 |
| 26 | 7 | 5 | 240 | 240 | 6 | 6 | 0 | 0 |
| 27 | 7 | 5 | 230 | 230 | 7 | 7 | 0 | 0 |
| 28 | 7 | 5 | 220 | 220 | 7 | 7 | 0 | 0 |
| 29 | 8 | 5 | 210 | 210 | 8 | 8 | 0 | 0 |
| 30 | 8 | 5 | 200 | 200 | 8 | 8 | 0 | 0 |
| 31 | 9 | 6 | 190 | 190 | 9 | 9 | 0 | 0 |
| 32 | 9 | 6 | 180 | 180 | 9 | 9 | 0 | 0 |
| 33 | 10 | 6 | 170 | 170 | 10 | 10 | 0 | 0 |
| 34 | 10 | 7 | 160 | 160 | 10 | 10 | 0 | 0 |
| 35 | 11 | 7 | 150 | 150 | 11 | 11 | 0 | 0 |
| 36 | 12 | 7 | 140 | 140 | 12 | 12 | 0 | 0 |
| 37 | 13 | 8 | 130 | 130 | 13 | 13 | 0 | 0 |
| 38 | 14 | 8 | 120 | 120 | 15 | 15 | 0 | 0 |
| 39 | 15 | 9 | 110 | 110 | 16 | 16 | 0 | 0 |
| 40 | 16 | 9 | 100 | 100 | 18 | 18 | 0 | 0 |
| 41 | 18 | 10 | 90 | 90 | 20 | 20 | 0 | 0 |
| 42 | 20 | 10 | 80 | 80 | 22 | 22 | 0 | 0 |
| 43 | 23 | 11 | 70 | 70 | 24 | 24 | 0 | 0 |
| 44 | 26 | 12 | 60 | 60 | 26 | 26 | 0 | 0 |
| 45 | 29 | 13 | 50 | 50 | 29 | 29 | 0 | 0 |
| 46 | 33 | 14 | 50 | 50 | 32 | 32 | 0 | 0 |
| 47 | 38 | 15 | 50 | 50 | 36 | 36 | 0 | 0 |
| 48 | 42 | 16 | 50 | 50 | 41 | 41 | 0 | 0 |
| 49 | 47 | 18 | 50 | 50 | 46 | 46 | 0 | 0 |

## STATE PATROL RETIREMENT FUND

## SUMMARY ACTUARIAL ASSUMPTIONS AND METHODS

Separation Expressed as Number of Occurrences Per 10,000:

| Age | Death Male | Death Female | Withdrawal Male | Withdrawal Female | Disability Male | Disability Female | Retirement Male | Retirement Female |
|---|---|---|---|---|---|---|---|---|
| 50 | 53 | 20 | 200 | 200 | 50 | 50 | 0 | 0 |
| 51 | 59 | 23 | 200 | 200 | 57 | 57 | 0 | 0 |
| 52 | 65 | 26 | 200 | 200 | 64 | 64 | 0 | 0 |
| 53 | 71 | 29 | 200 | 200 | 72 | 72 | 0 | 0 |
| 54 | 78 | 33 | 200 | 200 | 80 | 80 | 0 | 0 |
| 55 | 85 | 38 | 0 | 0 | 88 | 88 | 0 | 0 |
| 56 | 93 | 42 | 0 | 0 | 98 | 98 | 0 | 0 |
| 57 | 100 | 47 | 0 | 0 | 108 | 108 | 0 | 0 |
| 58 | 109 | 53 | 0 | 0 | 118 | 118 | 10,000 | 10,000 |
| 59 | 119 | 59 | 0 | 0 | 129 | 129 | 0 | 0 |
| 60 | 131 | 65 | 0 | 0 | 141 | 141 | 0 | 0 |
| 61 | 144 | 71 | 0 | 0 | 154 | 154 | 0 | 0 |
| 62 | 159 | 78 | 0 | 0 | 167 | 167 | 0 | 0 |
| 63 | 174 | 85 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 | 192 | 93 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65 | 213 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| 66 | 236 | 109 | 0 | 0 | 0 | 0 | 0 | 0 |
| 67 | 163 | 119 | 0 | 0 | 0 | 0 | 0 | 0 |
| 68 | 292 | 131 | 0 | 0 | 0 | 0 | 0 | 0 |
| 69 | 324 | 144 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 | 361 | 159 | 0 | 0 | 0 | 0 | 0 | 0 |

TABLE 13

## STATE PATROL RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| Eligibility: | State trooper, conservation officers and certain crime bureau officers. |
| Contributions | |
| Member: | 8.50% of salary. |
| Employer: | 14.88% of salary. (Amended 1990) |
| Allowable Service: | Service during which Member contributions were deducted. Includes period receiving temporary Workers' Compensation. Allowable Service for benefit purposes stops at age 60 for new Members and most of the current Members. |
| 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: | 2.5% of Average Salary for each year of Allowable Service. |
| Early Retirement Benefit | |
| Eligibility: | Age 50 and five years of Allowable Service. |
| Amount: | Normal Retirement Benefit based on Allowable Service and Average Salary at retirement reduced to the actuarial equivalent of the benefit that would be payable if the Member deferred the benefit until age 55. |

**STATE PATROL RETIREMENT FUND**

**SUMMARY OF PLAN PROVISIONS**

**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.

Members retired under laws in effect before June 1, 1973 receive an additional 6% supplement. Each year the supplement increases by 6% of the total annuity which includes both MPRIF and supplemental amounts.

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.

## DISABILITY

### Occupational Disability Benefit

**Eligibility:** Member under age 55 who cannot perform his duties because of a disability directly resulting from an act of duty.

## STATE PATROL RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| **Amount:** | Normal Retirement Benefit based on Allowable Service (minimum of 20 years) and Average Salary at disability without reduction for commencement before age 55.<br><br>Payments cease at age 55 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. |
| **Non-Duty Disability Benefit** | |
| **Eligibility:** | Under age 55 with 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.<br><br>Payments cease at age 55 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. |
| **Form of Payment:** | Same as for retirement. |
| **Benefit Increases:** | Adjusted by MSRS to provide same increase as MPRIF. |
| **Retirement After Disability** | |
| **Eligibility:** | Age 55 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. |

STATE PATROL RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

## 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. |
| 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. |

### Refund of Contributions

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

STATE PATROL RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| **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. |

# CORRECTIONAL EMPLOYEES RETIREMENT FUND

## ACTUARIAL VALUATION REPORT

## JULY 1, 1992

FILE COPY

MILLIMAN & ROBERTSON, INC.

MILLIMAN & ROBERTSON, INC.
Actuaries and Consultants

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December 2, 1992

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, 1992.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. 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 on September 20, 1989.

Respectfully submitted,

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

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

TKC/WVH/bh

**CORRECTIONAL EMPLOYEES RETIREMENT FUND**

# TABLE OF CONTENTS

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

TABLE OF CONTENTS
(Continued)

CORRECTIONAL EMPLOYEES RETIREMENT FUND

REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)

| | | 07/01/91 Valuation | 07/01/92 Valuation |
|---|---|---|---|
| A. | CONTRIBUTIONS (Table 11) | | |
| | 1. Statutory Contributions - Chapter 352 % of Payroll | 11.17% | 11.17% |
| | 2. Required Contributions - Chapter 356 % of Payroll | 10.82% | 11.41% |
| | 3. Sufficiency (Deficiency): (A.1. - A.2.) | 0.35% | -0.24% |
| B. | FUNDING RATIOS | | |
| | 1. Accrued Benefit Funding Ratio | | |
| | a. Current Assets (Table 1) | $105,925 | $121,051 |
| | b. Current Benefit Obligations (Table 8) | $95,097 | $105,605 |
| | c. Funding Ratio: (a/b) | 111.39% | 114.63% |
| | 2. Accrued Liability Funding Ratio | | |
| | a. Current Assets (Table 1) | $105,925 | $121,051 |
| | b. Actuarial Accrued Liability (Table 9) | $112,171 | $123,515 |
| | c. Funding Ratio: (a/b) | 94.43% | 98.01% |
| | 3. Projected Benefit Funding Ratio (Table 8) | | |
| | a. Current and Expected Future Assets | $160,099 | $170,534 |
| | b. Current and Expected Future Benefit Obligations | $156,222 | $172,998 |
| | c. Funding Ratio: (a/b) | 102.48% | 98.58% |
| C. | PLAN PARTICIPANTS | | |
| | 1. Active Members | | |
| | a. Number (Table 3) | 1,467 | 1,573 |
| | b. Projected Annual Earnings | $50,821 | $56,044 |
| | c. Average Annual Earnings (Actual $) | $34,643 | $35,629 |
| | d. Average Age | 37.7 | 38.2 |
| | e. Average Service | 8.0 | 8.1 |
| | 2. Others | | |
| | a. Service Retirements (Table 4) | 358 | 363 |
| | b. Disability Retirements (Table 5) | 12 | 17 |
| | c. Survivors (Table 6) | 13 | 14 |
| | d. Deferred Retirements (Table 7) | 157 | 181 |
| | e. Terminated Other Non-vested (Table 7) | 48 | 44 |
| | f. Total | 588 | 619 |

## CORRECTIONAL 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 114.63%. The corresponding ratio for the prior year was 111.39%.

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 1992 the ratio is 98.01%, which is an increase from the 1991 value of 94.43%.

The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 98.58% shows that the current statutory contributions are inadequate.

### Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes

recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines F1 to F6. It combines the cost value of the Assets Available for Benefits and one-third of the difference between the market value and cost value of those assets.

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.

<u>Actuarial Balance Sheet (Table 8)</u>
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 in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

> 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.

**<u>GASB Disclosure</u>**

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1992 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table:

| | |
|---|---|
| Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits | $43,501,342 |
| Current Employees | |
| Accumulated employee contributions including allocated investment income | $15,305,290 |
| Employer-financed vested | 45,062,394 |
| Employer-financed nonvested | 1,734,731 |
| Total Pension Benefit Obligation | $105,603,757 |
| Net Assets Available for Benefits at Cost | $119,122,000 |
| Total Benefit Obligation less Assets | ($13,518,243) |
| Funded Ratio | 112.80% |

## 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 the 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 6.5% 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.

## Sources 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 expectation. For a detailed analysis of the major components, refer to Table 10.

Contribution Sufficiciency (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 11.17% compared to the Required Contribution Rate of 11.41%.

Changes in Actuarial Assumptions

The actuarial assumptions are the same as those used in the prior valuation.

Paragraph X.1.4 of the Actuarial Standards requires that the Actuarial Present Value of Compensation for purposes of determining the Normal Cost of the Fund be calculated assuming mid-year payments. Previously, beginning of year payments were assumed. This change in methodology results in an increase of 0.86% of payroll in the Normal Cost and a Contribution Deficiency of the Fund.

Changes in Plan Provisions

There were no changes in plan provisions since the prior valuation which impacted funding costs.

TABLE 1

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## ACCOUNTING BALANCE SHEET
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS | | |
| | 1. Cash, Equivalents, Short-term Securities | $1,458 | $1,458 |
| | 2. Investments | | |
| | a. Fixed Income | 25,312 | 24,625 |
| | b. Equity | 57,772 | 52,574 |
| | c. Real Estate | 3,943 | 4,040 |
| | 3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF) | 36,728 | 36,728 |
| | 4. Other | 224 | 224 |
| B. | TOTAL ASSETS | $125,437 | $119,649 |
| C. | AMOUNTS CURRENTLY PAYABLE | $527 | $527 |
| D. | ASSETS AVAILABLE FOR BENEFITS | | |
| | 1. Member Reserves | $16,729 | $16,729 |
| | 2. Employer Reserves | 71,453 | 65,665 |
| | 3. MPRIF Reserves | 36,728 | 36,728 |
| | 4. Non-MPRIF Reserves | 0 | 0 |
| | 5. Total Assets Available for Benefits | $124,910 | $119,122 |
| E. | TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS | $125,437 | $119,649 |

| | | | |
|---|---|---|---|
| F. | DETERMINATION OF ACTUARIAL VALUE OF ASSETS | | |
| | 1. Cost Value of Assets Available for Benefits (D5) | | $119,122 |
| | 2. Market Value (D5) | $124,910 | |
| | 3. Cost Value (D5) | 119,122 | |
| | 4. Market Over Cost: (F2-F3) | $5,788 | |
| | 5. 1/3 of Market Over Cost: (F4)/3 | | 1,929 |
| | 6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets") | | $121,051 |

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

### CHANGE IN ASSETS AVAILABLE FOR BENEFITS
### (DOLLARS IN THOUSANDS)

### YEAR ENDING JUNE 30, 1992

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS AVAILABLE AT BEGINNING OF PERIOD | $109,813 | $103,982 |
| B. | OPERATING REVENUES | | |
| | 1. Member Contributions | $2,332 | $2,332 |
| | 2. Employer Contributions | 2,955 | 2,955 |
| | 3. Investment Income | 9,206 | 9,206 |
| | 4. MPRIF Income | 3,107 | 3,107 |
| | 5. Net Realized Gain (Loss) | 1,808 | 1,808 |
| | 6. Other | 45 | 45 |
| | 7. Net Change in Unrealized Gain (Loss) | (43) | 0 |
| | 8. Total Revenue | $19,410 | $19,453 |
| C. | OPERATING EXPENSES | | |
| | 1. Service Retirements | $3,773 | $3,773 |
| | 2. Disability Benefits | 0 | 0 |
| | 3. Survivor Benefits | 0 | 0 |
| | 4. Refunds | 220 | 220 |
| | 5. Expenses | 236 | 236 |
| | 6. Other | 84 | 84 |
| | 7. Total Disbursements | $4,313 | $4,313 |
| D. | OTHER CHANGES IN RESERVES | 0 | 0 |
| E. | ASSETS AVAILABLE AT END OF PERIOD | $124,910 | $119,122 |

TABLE 3

# CORRECTIONAL EMPLOYEES RETIREMENT FUND

## ACTIVE MEMBERS AS OF JUNE 30, 1992

| AGE | YEARS OF SERVICE <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| <25 | 14 | 19 | | | | | | | 33 |
| 25-29 | 44 | 136 | 47 | 2 | | | | | 229 |
| 30-34 | 36 | 124 | 112 | 52 | 1 | | | | 325 |
| 35-39 | 30 | 61 | 71 | 105 | 42 | | | | 309 |
| 40-44 | 28 | 48 | 59 | 66 | 89 | 16 | | | 306 |
| 45-49 | 10 | 23 | 36 | 44 | 54 | 32 | 7 | 1 | 207 |
| 50-54 | 7 | 8 | 14 | 24 | 27 | 12 | 17 | 3 | 112 |
| 55-59 | 3 | 4 | 7 | 8 | 11 | 7 | 2 | 2 | 44 |
| 60-64 | | | | 1 | 4 | 1 | 1 | 1 | 8 |
| 65+ | | | | | | | | | |
| ALL | 172 | 423 | 346 | 302 | 228 | 68 | 27 | 7 | 1,573 |

## AVERAGE ANNUAL EARNINGS

| AGE | YEARS OF SERVICE <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| <25 | 25,533 | 29,019 | | | | | | | 27,540 |
| 25-29 | 19,138 | 29,449 | 32,284 | 34,961 | | | | | 28,098 |
| 30-34 | 22,438 | 30,861 | 32,487 | 35,845 | 34,985 | | | | 31,299 |
| 35-39 | 24,932 | 31,145 | 33,836 | 36,649 | 38,956 | | | | 34,092 |
| 40-44 | 24,534 | 30,340 | 32,939 | 36,055 | 38,751 | 41,351 | | | 34,565 |
| 45-49 | 22,927 | 31,054 | 36,061 | 37,026 | 40,041 | 41,795 | 39,395 | 32,765 | 37,097 |
| 50-54 | 31,480 | 34,291 | 38,084 | 38,951 | 37,759 | 42,204 | 41,603 | 31,979 | 38,320 |
| 55-59 | 25,942 | 33,362 | 39,485 | 39,791 | 41,544 | 41,805 | 30,262 | 33,886 | 38,271 |
| 60-64 | | | | 39,220 | 40,247 | 58,048 | 57,887 | 26,771 | 42,864 |
| 65+ | | | | | | | | | |
| ALL | 23,080 | 30,405 | 33,553 | 36,699 | 39,121 | 42,003 | 40,794 | 31,892 | 33,454 |

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 | 3,969 | 12,861 | 11,609 | 11,083 | 8,919 | 2,856 | 1,101 | 223 | 52,623 |

TABLE 4

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## SERVICE RETIREMENTS AS OF JUNE 30, 1992

| AGE | YEARS RETIRED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | | 1 | | | | | | 1 |
| 55-59 | 8 | 50 | | | | | | 58 |
| 60-64 | 7 | 18 | 49 | | | | | 74 |
| 65-69 | | 3 | 25 | 51 | | | | 79 |
| 70-74 | | | 5 | 19 | 52 | | | 76 |
| 75-79 | | | | 8 | 48 | | | 56 |
| 80-84 | | | | | 19 | | | 19 |
| 85+ | | | | | | | | |
| ALL | 15 | 72 | 79 | 78 | 119 | | | 363 |

## AVERAGE ANNUAL BENEFIT

| AGE | YEARS RETIRED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | | 7,284 | | | | | | 7,284 |
| 55-59 | 14,351 | 15,446 | | | | | | 15,295 |
| 60-64 | 12,149 | 12,442 | 12,998 | | | | | 12,782 |
| 65-69 | | 8,639 | 9,132 | 10,396 | | | | 9,929 |
| 70-74 | | | 8,450 | 6,831 | 6,942 | | | 7,014 |
| 75-79 | | | | 8,726 | 5,042 | | | 5,568 |
| 80-84 | | | | | 5,990 | | | 5,990 |
| 85+ | | | | | | | | |
| ALL | 13,323 | 14,298 | 11,487 | 9,356 | 6,024 | | | 9,871 |

| AGE | TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | 199 | 1,029 | 907 | 729 | 716 | | | 3,583 |

TABLE 5

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## SURVIVORS AS OF JUNE 30, 1992

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | 1 | 2 | | | | | 3 |
| 50-54 | | | | | | | | |
| 55-59 | | 2 | 1 | 1 | | | | 4 |
| 60-64 | | | 1 | | | | | 1 |
| 65-69 | | 1 | | | | | | 1 |
| 70-74 | | | | | 2 | | | 2 |
| 75-79 | | | | | 1 | | | 1 |
| 80-84 | | 1 | | | 1 | | | 2 |
| 85+ | | | | | | | | |
| ALL | | 5 | 4 | 1 | 4 | | | 14 |

## AVERAGE ANNUAL BENEFIT

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | 5,707 | 8,451 | | | | | 7,536 |
| 50-54 | | | | | | | | |
| 55-59 | | 7,451 | 15,899 | 6,297 | | | | 9,275 |
| 60-64 | | | 2,364 | | | | | 2,364 |
| 65-69 | | 3,157 | | | | | | 3,157 |
| 70-74 | | | | | 5,257 | | | 5,257 |
| 75-79 | | | | | 4,067 | | | 4,067 |
| 80-84 | | 318 | | | 5,407 | | | 2,863 |
| 85+ | | | | | | | | |
| ALL | | 4,817 | 8,791 | 6,297 | 4,997 | | | 6,110 |

| AGE | TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | | 24,085 | 35,164 | 6,297 | 19,988 | | | 85,540 |

TABLE 6

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## DISABILITY RETIREMENTS AS OF JUNE 30, 1992

| AGE | YEARS DISABLED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | 5 | 3 | | | | | | 8 |
| 50-54 | | 1 | | 1 | | | | 2 |
| 55-59 | | 1 | 2 | 1 | | | | 4 |
| 60-64 | | | | | | | | |
| 65-69 | | | | 1 | 1 | | | 2 |
| 70-74 | | | | 1 | | | | 1 |
| 75-79 | | | | | | | | |
| 80-84 | | | | | | | | |
| 85+ | | | | | | | | |
| ALL | 5 | 5 | 2 | 4 | 1 | | | 17 |

## AVERAGE ANNUAL BENEFIT

| AGE | YEARS DISABLED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | 11,915 | 9,189 | | | | | | 10,893 |
| 50-54 | | 12,183 | | 8,885 | | | | 10,534 |
| 55-59 | | 8,067 | 11,336 | 12,209 | | | | 10,737 |
| 60-64 | | | | | | | | |
| 65-69 | | | | 14,519 | 3,258 | | | 8,889 |
| 70-74 | | | | 2,254 | | | | 2,254 |
| 75-79 | | | | | | | | |
| 80-84 | | | | | | | | |
| 85+ | | | | | | | | |
| ALL | 11,915 | 9,563 | 11,336 | 9,467 | 3,258 | | | 10,070 |

| AGE | TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | 59,575 | 47,815 | 22,672 | 37,868 | 3,258 | | | 171,190 |

TABLE 7

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## RECONCILIATION OF MEMBERS

| | | Actives | Terminated Deferred Retirement | Terminated Other Non-Vested |
|---|---|---|---|---|
| A. | ON JUNE 30, 1991 | 1,467 | 157 | 48 |
| B. | ADDITIONS | 200 | 39 | 14 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | (13) | (3) | 0 |
| | 2. Disability | (4) | (1) | 0 |
| | 3. Death | (2) | 0 | 0 |
| | 4. Terminated - Deferred | (25) | 0 | (7) |
| | 5. Terminated - Refund | (38) | (5) | (2) |
| | 6. Terminated - Other Non-Vested | (12) | 0 | 0 |
| | 7. Returned as Active | 0 | (6) | (4) |
| | 8. Transferred to Other Fund | 0 | 0 | (4) |
| D. | DATA ADJUSTMENTS | 0 | 0 | (1) |
| | Vested | 1,085 | | |
| | Non-Vested | 488 | | |
| E. | TOTAL ON JUNE 30, 1992 | 1,573 | 181 | 44 |

| | | Recipients Retirement Annuitants | Recipients Disabled | Recipients Survivors |
|---|---|---|---|---|
| A. | ON JUNE 30, 1991 | 358 | 12 | 13 |
| B. | ADDITIONS | 17 | 5 | 0 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 0 | 0 | 0 |
| | 2. Death | (10) | 0 | 0 |
| | 3. Annuity Expired | 0 | 0 | 0 |
| | 4. Returned as Active | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | (2) | 0 | 1 |
| E. | TOTAL ON JUNE 30, 1992 | 363 | 17 | 14 |

# CORRECTIONAL EMPLOYEES RETIREMENT FUND

## ACTUARIAL BALANCE SHEET
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | | Non-Vested | Vested | Total |
|---|---|---|---|---|
| A. | CURRENT ASSETS (TABLE 1, F6) | | | $121,051 |
| B. | EXPECTED FUTURE ASSETS | | | |
| | 1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11) | | | $0 |
| | 2. Present Value of Future Normal Costs | | | 49,483 |
| | 3. Total Expected Future Assets | | | $49,483 |
| C. | TOTAL CURRENT AND EXPECTED FUTURE ASSETS | | | $170,534 |
| D. | CURRENT BENEFIT OBLIGATIONS | | | |
| | 1. Benefit Recipients | | | |
| | a. Retirement Annuities | | $33,691 | $33,691 |
| | b. Disability Benefits | | 2,007 | 2,007 |
| | c. Surviving Spouse and Child Benefits | | 1,030 | 1,030 |
| | 2. Deferred Retirements With Future Augmentation | | 6,656 | 6,656 |
| | 3. Former Members Without Vested Rights | | 118 | 118 |
| | 4. Active Members | | | |
| | a. Retirement Annuities | 889 | 42,626 | 43,515 |
| | b. Disability Benefits | 1,410 | 0 | 1,410 |
| | c. Survivor's Benefits | 1,684 | 0 | 1,684 |
| | d. Deferred Retirements | 752 | 14,284 | 15,036 |
| | e. Refund Liability Due to Death or Withdrawal | 0 | 458 | 458 |
| | 5. Total Current Benefit Obligations | $4,735 | $100,870 | $105,605 |
| E. | EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $67,393 |
| F. | TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $172,998 |
| G. | CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A) | | | ($15,446) |
| H. | CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C) | | | $2,464 |

TABLE 9

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

### DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) AND SUPPLEMENTAL CONTRIBUTION RATE (DOLLARS IN THOUSANDS)

JULY 1, 1992

| | Actuarial Present Value of Projected Benefits (1) | Actuarial Present Value of Future Normal Costs (2) | Actuarial Accrued Liability (3)=(1)-(2) |
|---|---|---|---|
| A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL) | | | |
| 1. Active Members | | | |
| a. Retirement Annuities | $94,094 | $31,032 | $63,062 |
| b. Disability Benefits | 2,775 | 1,162 | 1,613 |
| c. Survivor's Benefit | 3,358 | 1,151 | 2,207 |
| d. Deferred Retirements | 27,832 | 14,450 | 13,382 |
| e. Refunds Due to Death or Withdrawal | 1,437 | 1,688 | (251) |
| f. Total | $129,496 | $49,483 | $80,013 |
| 2. Deferred Retirements With Future Augmentation | 6,656 | | 6,656 |
| 3. Former Members Without Vested Rights | 118 | | 118 |
| 4. Annuitants in MPRIF | 36,728 | | 36,728 |
| 5. Recipients Not in MPRIF | 0 | | 0 |
| 6. Total | $172,998 | $49,483 | $123,515 |

| | |
|---|---|
| B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) | |
| 1. AAL (A6) | $123,515 |
| 2. Current Assets (Table 1, F6) | 121,051 |
| 3. UAAL (B1-B2) | $2,464 |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE | |
| 1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020 | $1,181,430 |
| 2. Supplemental Contribution Rate (B3/C1) | 0.21% |

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
(DOLLARS IN THOUSANDS)

## YEAR ENDING JUNE 30, 1992

| | | |
|---|---|---|
| A. | UAAL AT BEGINNING OF YEAR | $6,245 |
| B. | CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING | |
| | 1. Normal Cost and Expenses | $5,211 |
| | 2. Contribution | (5,287) |
| | 3. Interest on A, B1 and B2 | 528 |
| | 4. Total (B1+B2+B3) | $452 |
| C. | EXPECTED UAAL AT END OF YEAR (A+B4) | $6,697 |
| D. | INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED | |
| | 1. Salary Increases | ($2,903) |
| | 2. Investment Return | (4,801) |
| | 3. MPRIF Mortality | 370 |
| | 4. Mortality of Other Benefit Recipients | 0 |
| | 5. Other Items | 3,101 |
| | 6. Total | ($4,233) |
| E. | UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D5) | $2,464 |
| F. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS | 0 |
| G. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS | 0 |
| H. | UAAL AT END OF YEAR (E+F+G) | $2,464 |

# CORRECTIONAL EMPLOYEES RETIREMENT FUND

## DETERMINATION OF CONTRIBUTION SUFFICIENCY
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | Percent of Payroll | Dollar Amount |
|---|---|---|
| A. STATUTORY CONTRIBUTIONS - CHAPTER 352 | | |
| 1. Employee Contributions | 4.90% | $2,746 |
| 2. Employer Contributions | 6.27% | 3,514 |
| 3. Total | 11.17% | $6,260 |
| B. REQUIRED CONTRIBUTIONS - CHAPTER 356 | | |
| 1. Normal Cost | | |
| a. Retirement Benefits | 6.81% | $3,817 |
| b. Disability benefits | 0.26% | 147 |
| c. Survivors | 0.25% | 138 |
| d. Deferred Retirement Benefits | 3.04% | 1,704 |
| e. Refunds Due to Death or Withdrawal | 0.38% | 215 |
| f. Total | 10.74% | $6,021 |
| 2. Supplemental Contribution Amortization by July 1, 2020 of UAAL | 0.21% | 118 |
| 3. Allowance for Expenses | 0.46% | 258 |
| 4. Total | 11.41% | $6,397 |
| C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4] | -0.24% | ($137) |

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1992 is $56,044.

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| Interest: | Pre-Retirement: 8.5% per annum<br><br>Post-Retirement: 5.0% per annum |
| Salary Increases: | Reported salary at valuation date increased 6.5% to current fiscal year and 6.5% annually for each future year. Prior fiscal year salary is annualized for new Members. |
| Mortality: | Pre-Retirement:<br>Male - 1971 Group Annuity Mortality Table<br>Female - 1971 Group Annuity Mortality Table male rates set back 8 years<br><br>Post-Retirement:<br>Male - Same as above<br>Female - Same as above<br><br>Post-Disability:<br>Male - Combined Annuity Mortality Table<br>Female - Combined Annuity Mortality Table |
| Retirement Age: | Age 58 or if over age 58, one year from valuation date. |
| Separation: | Graded rates based on actual experience developed by the June 30, 1971 experience analysis. Rates are shown in rate table. |
| Disability: | Rates adopted by MSRS as shown in rate table. |
| Administrative and Investment 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. |

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| 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 6.5% salary scale. Only earnings history while in state service is used. Future Social Security benefits replace the same proportion of salary as at present. |
| Benefit Increases After Retirement: | Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions. |
| 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. |
| Asset Valuation Method: | Cost Value plus one-third Unrealized Gains or Losses. |
| Payment on the Unfunded Actuarial Accrued Liability: | A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 6.5% per annum. |

TABLE 12
(Continued)

## CORRECTIONAL EMPLOYEES 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 | 5 | 4 | 2,400 | 3,700 | 0 | 0 | 0 | 0 |
| 21 | 5 | 4 | 2,250 | 3,550 | 0 | 0 | 0 | 0 |
| 22 | 5 | 4 | 2,080 | 3,390 | 0 | 0 | 0 | 0 |
| 23 | 6 | 4 | 1,920 | 3,230 | 0 | 0 | 0 | 0 |
| 24 | 6 | 4 | 1,760 | 3,070 | 0 | 0 | 0 | 0 |
| 25 | 6 | 5 | 1,600 | 2,910 | 0 | 0 | 0 | 0 |
| 26 | 7 | 5 | 1,470 | 2,750 | 0 | 0 | 0 | 0 |
| 27 | 7 | 5 | 1,340 | 2,600 | 0 | 0 | 0 | 0 |
| 28 | 7 | 5 | 1,230 | 2,430 | 0 | 0 | 0 | 0 |
| 29 | 8 | 5 | 1,130 | 2,270 | 0 | 0 | 0 | 0 |
| 30 | 8 | 5 | 1,040 | 2,120 | 2 | 0 | 0 | 0 |
| 31 | 9 | 6 | 950 | 1,970 | 2 | 0 | 0 | 0 |
| 32 | 9 | 6 | 890 | 1,820 | 2 | 0 | 0 | 0 |
| 33 | 10 | 6 | 830 | 1,680 | 2 | 0 | 0 | 0 |
| 34 | 10 | 7 | 770 | 1,540 | 2 | 0 | 0 | 0 |
| 35 | 11 | 7 | 720 | 1,410 | 2 | 1 | 0 | 0 |
| 36 | 12 | 7 | 680 | 1,300 | 2 | 1 | 0 | 0 |
| 37 | 13 | 8 | 640 | 1,190 | 2 | 1 | 0 | 0 |
| 38 | 14 | 9 | 600 | 1,090 | 2 | 1 | 0 | 0 |
| 39 | 15 | 9 | 560 | 1,000 | 2 | 2 | 0 | 0 |
| 40 | 16 | 9 | 530 | 920 | 2 | 2 | 0 | 0 |
| 41 | 18 | 10 | 500 | 850 | 2 | 2 | 0 | 0 |
| 42 | 20 | 10 | 480 | 780 | 2 | 4 | 0 | 0 |
| 43 | 23 | 11 | 460 | 720 | 3 | 4 | 0 | 0 |
| 44 | 26 | 12 | 430 | 680 | 3 | 4 | 0 | 0 |
| 45 | 29 | 13 | 410 | 630 | 3 | 5 | 0 | 0 |
| 46 | 33 | 14 | 390 | 590 | 5 | 6 | 0 | 0 |
| 47 | 38 | 15 | 370 | 560 | 7 | 7 | 0 | 0 |
| 48 | 42 | 16 | 350 | 530 | 9 | 7 | 0 | 0 |
| 49 | 47 | 18 | 340 | 500 | 11 | 10 | 0 | 0 |

## CORRECTIONAL EMPLOYEES 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 | 53 | 20 | 320 | 470 | 14 | 10 | 0 | 0 |
| 51 | 59 | 23 | 300 | 440 | 16 | 12 | 0 | 0 |
| 52 | 65 | 26 | 280 | 410 | 20 | 14 | 0 | 0 |
| 53 | 71 | 29 | 260 | 390 | 24 | 16 | 0 | 0 |
| 54 | 78 | 33 | 240 | 360 | 28 | 20 | 0 | 0 |
| 55 | 85 | 38 | 210 | 330 | 34 | 24 | 0 | 0 |
| 56 | 93 | 42 | 170 | 290 | 40 | 30 | 0 | 0 |
| 57 | 100 | 47 | 140 | 230 | 46 | 36 | 0 | 0 |
| 58 | 109 | 53 | 90 | 170 | 56 | 44 | 10,000 | 10,000 |
| 59 | 119 | 59 | 40 | 90 | 66 | 52 | 0 | 0 |
| 60 | 131 | 65 | 0 | 0 | 76 | 62 | 0 | 0 |
| 61 | 144 | 71 | 0 | 0 | 90 | 74 | 0 | 0 |
| 62 | 159 | 78 | 0 | 0 | 110 | 88 | 0 | 0 |
| 63 | 174 | 85 | 0 | 0 | 136 | 104 | 0 | 0 |
| 64 | 192 | 93 | 0 | 0 | 174 | 122 | 0 | 0 |
| 65 | 213 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| 66 | 236 | 109 | 0 | 0 | 0 | 0 | 0 | 0 |
| 67 | 263 | 119 | 0 | 0 | 0 | 0 | 0 | 0 |
| 68 | 292 | 131 | 0 | 0 | 0 | 0 | 0 | 0 |
| 69 | 324 | 144 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 | 361 | 159 | 0 | 0 | 0 | 0 | 0 | 0 |

TABLE 13

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| **Eligibility:** | State employees in covered correctional service. |
| **Contributions** | |
| **Member:** | 4.90% of salary. |
| **Employer:** | 6.27% of salary. (Amended 1990) |
| **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:** | 2.5% of average salary for each year of Allowable Service, pro rata for completed months. Maximum of 75% of Average Salary.<br><br>After 84 months or normal retirement age if earlier, benefit changes to unreduced General Plan benefit. For Members hired prior to July 1, 1989, normal retirement age is 65; for Members hired after June 30, 1989, normal retirement age is the age first eligible for nonreduced Social Security benefits. If combined General Plan benefit and Social security (based on State service) are less than the Correctional benefit, an additional benefit will be paid to prevent a decrease. |

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

**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 to the actuarial equivalent of the benefit that would be payable if the Member deferred the benefit until age 55.

**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 benefits.

**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 under age 55 who cannot perform his duties as a direct result of a disability related to an act of duty.

TABLE 13
(Continued)

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| **Amount:** | 50% of Average Salary plus 2.5% of Average Salary for each year in excess of 20 years of Allowable Service pro rata for completed months. Maximum of 75% of Average Salary. |
| | Payment begins at disability and stops at age 62 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. |
| **Non-Occupational Disability** | |
| **Eligibility:** | Under age 55 with 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 62 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. |
| **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. |

**CORRECTIONAL EMPLOYEES RETIREMENT FUND**

**SUMMARY OF PLAN PROVISIONS**

## DEATH

### Surviving Spouse Benefit

| | |
|---|---|
| Eligibility: | Member or former Member who dies before retirement or disability benefits commence, if age 50 with three years of Allowable Service or any age with 30 years of Allowable Service. If the Member dies before age 55, benefits commence when Member would have been 55. |
| Amount: | Surviving spouse receives the General Plan 100% joint and survivor benefit the Member could have elected if terminated. In lieu of this benefit, the surviving spouse may elect a refund of contributions with interest. |
| Benefit Increases: | Adjusted by MSRS to provide same income as MPRIF. |

### Refund of Contributions With Interest

| | |
|---|---|
| Eligibility: | Active employee dies and survivor benefits are not payable or a former employee dies before annuity begins. |
| 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. |

TABLE 13
(Continued)

## CORRECTIONAL EMPLOYEES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

**Deferred Annuity**

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

LEGISLATORS RETIREMENT PLAN

ACTUARIAL VALUATION REPORT

JULY 1, 1992



MILLIMAN & ROBERTSON, INC.

MILLIMAN & ROBERTSON, INC.
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December 2, 1992

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

RE: Legislators Retirement Plan

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1992.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. 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 on September 20, 1989.

Respectfully submitted,

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

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

TKC/WVH/bh

## LEGISLATORS RETIREMENT PLAN

TABLE OF CONTENTS
(Continued)

**LEGISLATORS RETIREMENT PLAN**

TABLE OF CONTENTS

LEGISLATORS RETIREMENT FUND

REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)

| | 07/01/91 Valuation | 07/01/92 Valuation |
|---|---|---|
| A. CONTRIBUTIONS (Table 11) | | |
| 1. Statutory Contributions - Chapter 3A % of Payroll | 9.00% | 9.00% |
| 2. Required Contributions - Chapter 356 % of Payroll | 27.67% | 30.49% |
| 3. Sufficiency (Deficiency): (A.1. - A.2.) | -18.67% | -21.49% |
| B. FUNDING RATIOS | | |
| 1. Accrued Benefit Funding Ratio | | |
| a. Current Assets (Table 1) | $14,694 | $15,160 |
| b. Current Benefit Obligations (Table 8) | $29,641 | $32,272 |
| c. Funding Ratio: (a/b) | 49.57% | 46.97% |
| 2. Accrued Liability Funding Ratio | | |
| a. Current Assets (Table 1) | $14,694 | $15,160 |
| b. Actuarial Accrued Liability (Table 9) | $30,403 | $33,224 |
| c. Funding Ratio: (a/b) | 48.33% | 45.63% |
| 3. Projected Benefit Funding Ratio (Table 8) | | |
| a. Current and Expected Future Assets | $22,700 | $23,427 |
| b. Current and Expected Future Benefit Obligations | $38,409 | $41,491 |
| c. Funding Ratio: (a/b) | 59.10% | 56.46% |
| C. PLAN PARTICIPANTS | | |
| 1. Active Members | | |
| a. Number (Table 3) | 201 | 200 |
| b. Projected Annual Earnings | $6,589 | $6,753 |
| c. Average Annual Earnings (Actual $) | $32,779 | $33,765 |
| d. Average Age | 49.2 | 50.1 |
| e. Average Service | 7.6 | 8.6 |
| 2. Others | | |
| a. Service Retirements (Table 4) | 134 | 132 |
| b. Disability Retirements (Table 5) | NA | NA |
| c. Survivors (Table 6) | 43 | 46 |
| d. Deferred Retirements (Table 7) | 123 | 120 |
| e. Terminated Other Non-vested (Table 7) | 3 | 2 |
| f. Total | 303 | 300 |

## LEGISLATORS 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 46.97%. The corresponding ratio for the prior year was 49.57%.

- 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 1992 the ratio is 45.63%, which is a decrease from the 1991 value of 48.33%.

- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 56.46% shows that the current statutory contributions are inadequate.

Under current law, the state is required to fund the remaining full liability for retirements as they occur. The funding ratios shown here do not reflect the anicipated contributions arising from this requirement.

## Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines F1 to F6. It combines the cost value of the Assets Available for Benefits and one-third of the difference between the market value and cost value of those assets. Both the market value and cost value of assets shown in Tables 1 and 2 include the value of member deposits with accumulated interest. Since these "Other Assets" are not separately held apart from the State's general fund it may be argued that these amounts are not assets.

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 in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

- 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**

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1992 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table:

| | |
|---|---|
| Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits | $19,785,212 |
| Current Employees | |
| Accumulated employee contributions including allocated investment income | $3,604,776 |
| Employer-financed vested | 7,439,300 |
| Employer-financed nonvested | 1,442,753 |
| Total Pension Benefit Obligation | $32,272,041 |
| Net Assets Available for Benefits at Cost | $15,160,000 |
| Total Benefit Obligation less Assets | $17,112,041 |
| Funded Ratio | 46.98% |

## 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 the 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 6.5% 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.

## Sources 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 expectation. For a detailed analysis of the major components, refer to Table 10.

Contribution Sufficiciency (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 9.00% compared to the Required Contribution Rate of 30.49%. Under current law, the state is required to fund the remaining full liability for retirements as they occur. Therefore, this deficiency is theoretical only; technically, no deficiency exists under a terminal funding structure as long as current requirements are met.

It should be noted that if the "Other Assets" of Tables 1 and 2 are excluded from the Actuarial Value of Assets, the contribution deficiency would be larger.

Changes in Actuarial Assumptions

The actuarial assumptions are the same as those used in the prior valuation.

Paragraph X.1.4 of the Actuarial Standards requires that the Actuarial Present Value of Compensation for purposes of detérmining the Normal Cost of the Fund be calculated assuming mid-year payments. Previously, beginning of year payments were assumed. This change in methodology results in an increase of 1.13% of payroll in the Normal Cost and Contribution Deficiency of the Fund.

Changes in Plan Provisions

There were no changes in plan provisions since the prior valuation which impacted funding costs.

TABLE 1

# LEGISLATORS RETIREMENT FUND

## ACCOUNTING BALANCE SHEET
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | Market Value | Cost Value |
|---|---|---|
| A. ASSETS | | |
| 1. Cash, Equivalents, Short-term Securities | $0 | $0 |
| 2. Investments | | |
| a. Fixed Income | 0 | 0 |
| b. Equity | 0 | 0 |
| c. Real Estate | 0 | 0 |
| 3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF) | 10,305 | 10,305 |
| 4. Other * | 5,015 | 5,015 |
| B. TOTAL ASSETS | $15,320 | $15,320 |
| C. AMOUNTS CURRENTLY PAYABLE | $160 | $160 |
| D. ASSETS AVAILABLE FOR BENEFITS | | |
| 1. Member Reserves * | $4,975 | $4,975 |
| 2. Employer Reserves | (2,371) | (2,371) |
| 3. MPRIF Reserves | 10,305 | 10,305 |
| 4. Non-MPRIF Reserves | 2,251 | 2,251 |
| 5. Total Assets Available for Benefits | $15,160 | $15,160 |
| E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS | $15,320 | $15,320 |

| F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS | | |
|---|---|---|
| 1. Cost Value of Assets Available for Benefits (D5) | | $15,160 |
| 2. Market Value (D5) | $15,160 | |
| 3. Cost Value (D5) | 15,160 | |
| 4. Market Over Cost: (F2-F3) | $0 | |
| 5. 1/3 of Market Over Cost: (F4)/3 | | 0 |
| 6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets") | | $15,160 |

* Includes $4,975 of Member Reserves not segregated from general funds.

# LEGISLATORS RETIREMENT FUND

## CHANGE IN ASSETS AVAILABLE FOR BENEFITS (DOLLARS IN THOUSANDS)

## YEAR ENDING JUNE 30, 1992

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS AVAILABLE AT BEGINNING OF PERIOD | $14,694 | $14,694 |
| B. | OPERATING REVENUES | | |
| | 1. Member Contributions | $590 | $590 |
| | 2. Employer Contributions | 0 | 0 |
| | 3. Investment Income | 0 | 0 |
| | 4. MPRIF Income | 872 | 872 |
| | 5. Net Realized Gain (Loss) | 0 | 0 |
| | 6. Other | 601 | 601 |
| | 7. Net Change in Unrealized Gain (Loss) | 0 | 0 |
| | 8. Total Revenue | $2,063 | $2,063 |
| C. | OPERATING EXPENSES | | |
| | 1. Service Retirements | $1,500 | $1,500 |
| | 2. Disability Benefits | 0 | 0 |
| | 3. Survivor Benefits | 0 | 0 |
| | 4. Refunds | 34 | 34 |
| | 5. Expenses | 40 | 40 |
| | 6. Other | 23 | 23 |
| | 7. Total Disbursements | $1,597 | $1,597 |
| D. | OTHER CHANGES IN RESERVES | 0 | 0 |
| E. | ASSETS AVAILABLE AT END OF PERIOD | $15,160 | $15,160 |

# LEGISLATORS RETIREMENT PLAN

## ACTIVE MEMBERS AS OF JUNE 30, 1992

| AGE | YEARS OF SERVICE <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| <25 | | | | | | | | | |
| 25-29 | | 1 | 1 | | | | | | 2 |
| 30-34 | | 7 | 3 | 2 | | | | | 12 |
| 35-39 | | 6 | 4 | 6 | | | | | 16 |
| 40-44 | 1 | 12 | 9 | 10 | 2 | 2 | | | 36 |
| 45-49 | | 11 | 15 | 7 | 5 | 5 | | | 43 |
| 50-54 | 1 | 7 | 4 | 11 | 5 | 3 | | | 31 |
| 55-59 | | 4 | 3 | 9 | 4 | 5 | | | 25 |
| 60-64 | | 3 | 6 | 7 | 5 | 5 | 1 | | 27 |
| 65+ | | 2 | 2 | 2 | | 1 | 1 | | 8 |
| ALL | 2 | 53 | 47 | 54 | 21 | 21 | 2 | | 200 |

## AVERAGE ANNUAL EARNINGS

| AGE | YEARS OF SERVICE <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| <25 | | | | | | | | | |
| 25-29 | | 32,780 | 32,780 | | | | | | 32,780 |
| 30-34 | | 32,780 | 32,780 | 32,780 | | | | | 32,780 |
| 35-39 | | 32,780 | 32,780 | 32,780 | | | | | 32,780 |
| 40-44 | 32,780 | 32,780 | 32,780 | 32,780 | 32,780 | 32,780 | | | 32,780 |
| 45-49 | | 32,780 | 32,780 | 32,780 | 32,780 | 32,780 | | | 32,780 |
| 50-54 | 32,780 | 32,780 | 32,780 | 32,780 | 32,780 | 32,780 | | | 32,780 |
| 55-59 | | 32,780 | 32,780 | 32,780 | 32,780 | 32,780 | | | 32,780 |
| 60-64 | | 32,780 | 32,780 | 32,780 | 32,780 | 32,780 | 32,780 | | 32,780 |
| 65+ | | 32,780 | 32,780 | 32,780 | | 32,780 | 32,780 | | 32,780 |
| ALL | 32,780 | 32,780 | 32,780 | 32,780 | 32,780 | 32,780 | 32,780 | | 32,780 |

| AGE | PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| ALL | 66 | 1,737 | 1,541 | 1,770 | 688 | 688 | 66 | | 6,556 |

# LEGISTATORS RETIREMENT PLAN

## SERVICE RETIREMENTS AS OF JUNE 30, 1992

| AGE | YEARS RETIRED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | | | | | | | | |
| 55-59 | | | | | | | | |
| 60-64 | 5 | 18 | | | | | | 23 |
| 65-69 | | 4 | 34 | | | | | 38 |
| 70-74 | | 3 | 8 | 21 | | | | 32 |
| 75-79 | | 1 | 1 | 5 | 12 | | | 19 |
| 80-84 | | | | 1 | 8 | 1 | | 10 |
| 85+ | | | | | 1 | 9 | | 10 |
| ALL | 5 | 26 | 43 | 27 | 21 | 10 | | 132 |

## AVERAGE ANNUAL BENEFIT

| AGE | YEARS RETIRED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | | | | | | | | |
| 55-59 | | | | | | | | |
| 60-64 | 11,275 | 8,712 | | | | | | 9,269 |
| 65-69 | | 5,296 | 8,862 | | | | | 8,487 |
| 70-74 | | 11,695 | 9,783 | 11,397 | | | | 11,021 |
| 75-79 | | 5,370 | 16,898 | 20,646 | 8,372 | | | 11,893 |
| 80-84 | | | | 12,494 | 7,173 | 7,731 | | 7,761 |
| 85+ | | | | | 19,491 | 8,437 | | 9,542 |
| ALL | 11,275 | 8,402 | 9,220 | 13,150 | 8,445 | 8,366 | | 9,753 |

## TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | 56 | 218 | 396 | 355 | 177 | 83 | | 1,287 |

TABLE 5

## LEGISTATORS RETIREMENT PLAN

### SURVIVORS AS OF JUNE 30, 1992

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | 1 | | 1 | 1 | | | | 3 |
| 55-59 | | 1 | | | | | | 1 |
| 60-64 | | 1 | 1 | | 1 | 1 | | 4 |
| 65-69 | 2 | 2 | | 1 | 1 | | | 6 |
| 70-74 | 1 | 2 | 2 | | 2 | | | 7 |
| 75-79 | 1 | 8 | | 1 | 2 | 3 | | 15 |
| 80-84 | | | | | 1 | 6 | | 7 |
| 85+ | 1 | 2 | | | | | | 3 |
| ALL | 6 | 16 | 4 | 3 | 7 | 10 | | 46 |

### AVERAGE ANNUAL BENEFIT

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | 3,381 | | 19,815 | 6,136 | | | | 9,777 |
| 55-59 | | 4,743 | | | | | | 4,743 |
| 60-64 | | 7,544 | 2,676 | | 5,105 | 2,546 | | 4,468 |
| 65-69 | 2,050 | 2,683 | | 1,558 | 4,641 | | | 2,611 |
| 70-74 | 941 | 6,779 | 6,582 | | 2,040 | | | 4,535 |
| 75-79 | 8,265 | 5,115 | | 8,120 | 5,801 | 3,879 | | 5,370 |
| 80-84 | | | | | 5,122 | 3,733 | | 3,931 |
| 85+ | 1,818 | 7,151 | | | | | | 5,373 |
| ALL | 3,084 | 5,402 | 8,914 | 5,271 | 4,364 | 3,658 | | 4,860 |

| AGE | TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | 18,504 | 86,432 | 35,656 | 15,813 | 30,548 | 36,580 | | 223,560 |

## LEGISLATORS RETIREMENT FUND

## RECONCILIATION OF MEMBERS

| | | | Terminated | |
|---|---|---|---|---|
| | | Actives | Deferred Retirement | Other Non-Vested |
| A. | ON JUNE 30, 1991 | 201 | 123 | 3 |
| B. | ADDITIONS | 3 | 4 | 0 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 0 | (6) | 0 |
| | 2. Disability | 0 | 0 | 0 |
| | 3. Death | 0 | 0 | 0 |
| | 4. Terminated - Deferred | (4) | 0 | 0 |
| | 5. Terminated - Refund | 0 | (2) | 0 |
| | 6. Terminated - Other Non-Vested | 0 | 0 | 0 |
| | 7. Returned as Active | 0 | 0 | 0 |
| | 8. Transferred to Other Fund | 0 | 0 | (1) |
| D. | DATA ADJUSTMENTS | 0 | 1 | 0 |
| | Vested | 112 | | |
| | Non-Vested | 88 | | |
| E. | TOTAL ON JUNE 30, 1992 | 200 | 120 | 2 |

| | | Recipients | | |
|---|---|---|---|---|
| | | Retirement Annuitants | Disabled | Survivors |
| A. | ON JUNE 30, 1991 | 134 | NA | 43 |
| B. | ADDITIONS | 6 | 0 | 6 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 0 | 0 | 0 |
| | 2. Death | (11) | 0 | (1) |
| | 3. Annuity Expired | 0 | 0 | 0 |
| | 4. Returned as Active | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | 3 | 0 | (2) |
| E. | TOTAL ON JUNE 30, 1992 | 132 | NA | 46 |

## LEGISLATORS RETIREMENT FUND

### ACTUARIAL BALANCE SHEET (DOLLARS IN THOUSANDS)

### JULY 1, 1992

| | | | | | |
|---|---|---|---|---|---|
| A. | CURRENT ASSETS (TABLE 1, F6) | | | | $15,160 |
| B. | EXPECTED FUTURE ASSETS | | | | |
| | 1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11) | | | | $0 |
| | 2. Present Value of Future Normal Costs | | | | 8,267 |
| | 3. Total Expected Future Assets | | | | $8,267 |
| C. | TOTAL CURRENT AND EXPECTED FUTURE ASSETS | | | | $23,427 |
| D. | CURRENT BENEFIT OBLIGATIONS | | Non-Vested | Vested | Total |
| | 1. Benefit Recipients | | | | |
| | | a. Retirement Annuities | | $10,305 | $10,305 |
| | | b. Disability Benefits | | 0 | 0 |
| | | c. Surviving Spouse and Child Benefits | | 2,251 | 2,251 |
| | 2. Deferred Retirements With Future Augmentation | | | 7,211 | 7,211 |
| | 3. Former Members Without Vested Rights | | | 18 | 18 |
| | 4. Active Members | | | | |
| | | a. Retirement Annuities | 1,089 | 9,351 | 10,440 |
| | | b. Disability Benefits | 0 | 0 | 0 |
| | | c. Survivor's Benefits | 419 | 0 | 419 |
| | | d. Deferred Retirements | 283 | 1,214 | 1,497 |
| | | e. Refund Liability Due to Death or Withdrawal | 0 | 131 | 131 |
| | 5. Total Current Benefit Obligations | | $1,791 | $30,481 | $32,272 |
| E. | EXPECTED FUTURE BENEFIT OBLIGATIONS | | | | $9,219 |
| F. | TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS | | | | $41,491 |
| G. | CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A) | | | | $17,112 |
| H. | CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C) | | | | $18,064 |

## LEGISLATORS RETIREMENT FUND

## DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) AND SUPPLEMENTAL CONTRIBUTION RATE (DOLLARS IN THOUSANDS)

### JULY 1, 1992

| | Actuarial Present Value of Projected Benefits (1) | Actuarial Present Value of Future Normal Costs (2) | Actuarial Accrued Liability (3)=(1)-(2) |
|---|---|---|---|
| A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL) | | | |
| 1. Active Members | | | |
| a. Retirement Annuities | $17,998 | $5,853 | $12,145 |
| b. Disability Benefits | 0 | 0 | 0 |
| c. Survivor's Benefit | 730 | 410 | 320 |
| d. Deferred Retirements | 2,669 | 1,509 | 1,160 |
| e. Refunds Due to Death or Withdrawal | 309 | 495 | (186) |
| f. Total | $21,706 | $8,267 | $13,439 |
| 2. Deferred Retirements With Future Augmentation | 7,211 | | 7,211 |
| 3. Former Members Without Vested Rights | 18 | | 18 |
| 4. Annuitants in MPRIF | 10,305 | | 10,305 |
| 5. Recipients Not in MPRIF | 2,251 | | 2,251 |
| 6. Total | $41,491 | $8,267 | $33,224 |

| | |
|---|---|
| B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) | |
| 1. AAL (A6) | $33,224 |
| 2. Current Assets (Table 1, F6) | 15,160 |
| 3. UAAL (B1-B2) | $18,064 |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE | |
| 1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020 | $147,194 |
| 2. Supplemental Contribution Rate (B3/C1) | 12.27% |

* If non-segregated member reserves were not counted as assets, the UAAL would be $23,039, resulting in a Supplemental Contribution Rate of 15.65%.

## LEGISLATORS RETIREMENT FUND

### CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
### (DOLLARS IN THOUSANDS)

### YEAR ENDING JUNE 30, 1992

| | | | |
|---|---|---|---|
| A. | UAAL AT BEGINNING OF YEAR | | $15,709 |
| B. | CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING | | |
| | 1. | Normal Cost and Expenses | $1,142 |
| | 2. | Contribution | (590) |
| | 3. | Interest on A, B1 and B2 | 1,359 |
| | 4. | Total (B1+B2+B3) | $1,911 |
| C. | EXPECTED UAAL AT END OF YEAR (A+B4) | | $17,620 |
| D. | INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED | | |
| | 1. | Salary Increases | $0 |
| | 2. | Investment Return | 416 |
| | 3. | MPRIF Mortality | 120 |
| | 4. | Mortality of Other Benefit Recipients | 119 |
| | 5. | Other Items | (211) |
| | 6. | Total | $444 |
| E. | UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D5) | | $18,064 |
| F. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS | | 0 |
| G. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS | | 0 |
| H. | UAAL AT END OF YEAR (E+F+G) | | $18,064 |

# LEGISLATORS RETIREMENT FUND

## DETERMINATION OF CONTRIBUTION SUFFICIENCY
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | Percent of Payroll | Dollar Amount |
|---|---|---|
| A. STATUTORY CONTRIBUTIONS - CHAPTER 3A | | |
| 1. Employee Contributions | 9.00% | $608 |
| 2. Employer Contributions | 0.00%* | 0 * |
| 3. Total | 9.00% | $608 |

* Employer contributions are required to cover the portion of the benefit liabilities which are not funded by the member's accumulated contribution at the time of benefit commencement.

| | Percent of Payroll | Dollar Amount |
|---|---|---|
| B. REQUIRED CONTRIBUTIONS - CHAPTER 356 | | |
| 1. Normal Cost | | |
| a. Retirement Benefits | 13.30% | $898 |
| b. Disability benefits | 0.00% | 0 |
| c. Survivors | 0.84% | 57 |
| d. Deferred Retirement Benefits | 2.55% | 172 |
| e. Refunds Due to Death or Withdrawal | 0.92% | 62 |
| f. Total | 17.61% | $1,189 |
| 2. Supplemental Contribution Amortization by July 1, 2020 of UAAL | 12.27% | 829 |
| 3. Allowance for Expenses | 0.61% | 41 |
| 4. Total | 30.49% | $2,059 |
| C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4] | -21.49% | ($1,451) |

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1992 is $5,793 in salaries and $960 in per diem payments.

The deficiency amount shown above is calculated based on reported assets which include a receivable of $4,975 for member contributions that are held in the State's general fund. If this amount was not considered as an asset of the fund in these calculations, the deficiency would be 24.87%.

## LEGISLATORS RETIREMENT PLAN

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

**Interest:**

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

**Post-Retirement:** 5.0% per annum

**Salary Increases:**

The statutory salary rate as prescribed in Chapter 345, Article I, Sec. 28, with a 3% increase for the 1992-93 fiscal year and 6.5% per year thereafter. Per diem payments were assumed to remain constant each year in the future.

**Mortality:**

**Pre-Retirement:**
Male - 1971 Group Annuity Mortality Table
Female - 1971 Group Annuity Mortality Table male rates set back eight years

**Post-Retirement:**
Male - Same as above
Female - Same as above

**Post-Disability:**
Male - N/A
Female - N/A

**Retirement Age:**

Age 62 or if over age 62, one year from valuation date.

**Separation:**

Rates based on years of service.

| Year | House | Senate |
|---|---|---|
| 1 | 0% | 0% |
| 2 | 30 | 0 |
| 3 | 0 | 0 |
| 4 | 20 | 25 |
| 5 | 0 | 0 |
| 6 | 10 | 0 |
| 7 | 0 | 0 |
| 8 | 5 | 10 |

**Disability:**

None

**Expenses:**

Prior year expenses expressed as percentage of prior year payroll.

TABLE 12
(Continued)

## LEGISLATORS RETIREMENT PLAN

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| **Return of Contributions:** | All employees withdrawing after becoming eligible for a deferred benefit were assumed to 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. Each Member may have up to two dependent children depending on Member's age. Assumed first child born at Member's age 28 and second child born at member's age 31. |
| **Social Security:** | N/A |
| **Benefit Increases After Retirement:** | Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions. |
| **Special Consideration:** | Per diem payments for regular and special sessions were included in salary. The annual amount of per diem that is recognized in this valuation is $4,800 per Member. This is based on $48 per day times an average session of 100 days. |
| **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:** | Cost Value plus one-third Unrealized Gains or Losses. |
| **Payment on the Unfunded Actuarial Accrued Liability:** | A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 6.5% per annum. |

TABLE 13

## LEGISLATORS RETIREMENT PLAN

## SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| **Eligibility:** | Members of the State Legislature. A Member of PERA who is elected to the Legislature may elect to remain a Member of PERA and receive credit under PERA for service as a legislator. |
| **Contributions** | |
| **Member:** | 9% of salary. |
| **Employer:** | No specified statutory contribution rate. State must contribute an amount equal to the full annuity value at benefit commencement less accumulated member contributions. |
| **Service:** | Granted for the full term unless termination occurs before the end of the term. Service during all or part of four regular legislative sessions is deemed to be eight years of service. |
| **Salary:** | Compensation received for service as a Member of the legislature. Salary includes the monthly compensation paid to a legislator and the per diem payments paid during a regular or special session. Salary does not include additional compensation attributable to a leadership position. |
| **Average Salary:** | Average of the five highest successive years of salary. |

### RETIREMENT

**Normal Retirement Benefit**

| | |
|---|---|
| **Eligibility:** | Age 62 and either six full years of service or service during all or part of four regular legislative sessions. For eligibility purposes, service does not include credit for time not served when a Member does not serve a full term of office. |
| **Amount:** | A percentage of Average Salary for each year of service as follows: |

| | |
|---|---|
| Prior to 1/1/79 | - 5% for the first eight years |
| | - 2.5% for subsequent years |
| After 12/31/78 | - 2.5% |

TABLE 13
(Continued)

**LEGISLATORS RETIREMENT PLAN**

**SUMMARY OF PLAN PROVISIONS**

| | |
|---|---|
| **Early Retirement Benefit** | |
| **Eligibility:** | Age 60 and either six full years of Service or Service during all or part of four regular legislative sessions. |
| **Amount:** | Normal Retirement Benefit based on service and Average Salary at retirement date assuming augmentation to age 62 at 3% per year and actuarial reduction for each month the Member is under age 62. |
| **Form of Payment:** | Paid as a joint and survivor annuity to Member, spouse and dependent children. |
| **Benefit Increases:** | Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). |
| **DISABILITY** | None |

## DEATH BENEFITS

| | |
|---|---|
| **Surviving Spouse Benefit** | |
| **Eligibility:** | Death while active, or after termination if service requirements for a Normal Retirement Benefit are met but payments have not begun. |
| **Amount:** | Survivor's payments of 50% of the retirement benefit of the Member assuming the Member had attained normal retirement age and had a minimum of eight years of service. Benefit is paid for life. A former Member's benefit is augmented as a Deferred Annuity to date of death before determining the portion payable to the spouse. |

**LEGISLATORS RETIREMENT PLAN**

**SUMMARY OF PLAN PROVISIONS**

**Surviving Dependent Children's Benefit**

| | |
|---|---|
| **Eligibility:** | Same as spouse's benefit. |
| **Amount:** | Benefit for first child is 25% of the retirement benefit (computed as for surviving spouse) with 12.5% for each additional child. Maximum payable (including spouse) is 100% of the retirement benefit. Benefits cease when a child marries or attains age 18 (22 if a full-time student). |
| **Benefit Increases:** | Adjusted by MSRS to provide same increase as MPRIF. |

**Refund of Contributions**

| | |
|---|---|
| **Eligibility:** | Member dies before receiving any retirement benefits and survivor benefits are not payable. |
| **Amount:** | Member's contributions without interest. |

## TERMINATION

**Refund of Contributions**

| | |
|---|---|
| **Eligibility:** | Termination of 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. |

**Deferred Benefit**

| | |
|---|---|
| **Eligibility:** | Same service requirement as for Normal Retirement. |

## LEGISLATORS RETIREMENT PLAN

## SUMMARY OF PLAN PROVISIONS

**Amount:** Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/73; 5% from 7/1/73 to 1/1/81; and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

ELECTIVE STATE OFFICERS RETIREMENT PLAN

ACTUARIAL VALUATION REPORT

JULY 1, 1992

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MILLIMAN & ROBERTSON, INC.
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Stuart A. Robertson, F.S.A.
Chairman Emeritus

December 2, 1992

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

RE: Elective State Officers Retirement Plan

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1992.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. 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 on September 20, 1989.

Respectfully submitted,

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.
Actuary

TKC/WVH/bh

## ELECTIVE STATE OFFICERS RETIREMENT PLAN

## TABLE OF CONTENTS

## ELECTIVE STATE OFFICERS RETIREMENT PLAN

TABLE OF CONTENTS
(Continued)

## ELECTIVE STATE OFFICERS RETIREMENT FUND

### REPORT HIGHLIGHTS
### (DOLLARS IN THOUSANDS)

| | 07/01/91 Valuation | 07/01/92 Valuation |
|---|---|---|
| **A. CONTRIBUTIONS (Table 11)** | | |
| 1. Statutory Contributions - Chapter 352C % of Payroll | 9.00% | 9.00% |
| 2. Required Contributions - Chapter 356 % of Payroll | 33.28% | 36.23% |
| 3. Sufficiency (Deficiency): (A.1. - A.2.) | -24.28% | -27.23% |
| **B. FUNDING RATIOS** | | |
| 1. Accrued Benefit Funding Ratio | | |
| a. Current Assets (Table 1) | $308 | $334 |
| b. Current Benefit Obligations (Table 8) | $2,160 | $2,269 |
| c. Funding Ratio: (a/b) | 14.26% | 14.72% |
| 2. Accrued Liability Funding Ratio | | |
| a. Current Assets (Table 1) | $308 | $334 |
| b. Actuarial Accrued Liability (Table 9) | $2,249 | $2,380 |
| c. Funding Ratio: (a/b) | 13.70% | 14.03% |
| 3. Projected Benefit Funding Ratio (Table 8) | | |
| a. Current and Expected Future Assets | $634 | $675 |
| b. Current and Expected Future Benefit Obligations | $2,575 | $2,721 |
| c. Funding Ratio: (a/b) | 24.62% | 24.81% |
| **C. PLAN PARTICIPANTS** | | |
| 1. Active Members | | |
| a. Number (Table 3) | 6 | 6 |
| b. Projected Annual Earnings | $440 | $451 |
| c. Average Annual Earnings (Actual $) | $73,271 | $75,167 |
| d. Average Age | 50.7 | 51.7 |
| e. Average Service | 7.0 | 8.0 |
| 2. Others | | |
| a. Service Retirements (Table 4) | 3 | 4 |
| b. Disability Retirements (Table 5) | NA | NA |
| c. Survivors (Table 6) | 4 | 4 |
| d. Deferred Retirements (Table 7) | 7 | 6 |
| e. Terminated Other Non-vested (Table 7) | 0 | 0 |
| f. Total | 14 | 14 |

## ELECTIVE STATE OFFICERS 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 14.72%. The corresponding ratio for the prior year was 14.26%.

- 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 1992 the ratio is 14.03%, which is an increase from the 1991 value of 13.69%.

- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 24.81% shows that the current statutory contributions are inadequate.

Under current law, the state is required to fund the remaining full liability for retirements as they occur. The funding ratios shown here do not reflect the anicipated contributions arising from this requirement.

## Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines F1 to F6. It combines the cost value of the Assets Available for Benefits and one-third of the difference between the market value and cost value of those assets. Both the market value and cost value of assets shown in Tables 1 and 2 include the value of member deposits with accumulated interest. Since these "Other Assets" are not separately held apart from the State's general fund it may be argued that these amounts are not assets.

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 in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

- 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**

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1992 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table:

| | |
|---|---|
| Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits | $1,457,310 |
| Current Employees | |
| Accumulated employee contributions including allocated investment income | $227,286 |
| Employer-financed vested | 516,065 |
| Employer-financed nonvested | 67,321 |
| Total Pension Benefit Obligation | $2,267,982 |
| Net Assets Available for Benefits at Cost | $334,000 |
| Total Benefit Obligation less Assets | $1,933,982 |
| Funded Ratio | 14.73% |

## 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 the 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 6.5% 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.

## Sources 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 expectation. For a detailed analysis of the major components, refer to Table 10.

Contribution Sufficiciency (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 9.00% compared to the Required Contribution Rate of 36.23%. Under current law, the state is required to fund the remaining full liability for retirements as they occur. Therefore, this deficiency is theoretical only; technically, no deficiency exists under a terminal funding structure as long as current requirements are met.

It should be noted that if the "Other Assets" of Tables 1 and 2 are excluded from the Actuarial Value of Assets, the contribution deficiency would be larger.

Changes in Actuarial Assumptions

The actuarial assumptions are the same as those used in the prior valuation.

Paragraph X.1.4 of the Actuarial Standards requires that the Actuarial Present Value of Compensation for purposes of determining the Normal Cost of the Fund be calculated assuming mid-year payments. Previously, beginning of year payments were assumed. This change in methodology results in an increase of 1.33% of payroll in the Normal Cost and Contribution Deficiency of the Fund.

Changes in Plan Provisions

There were no changes in plan provisions since the prior valuation which impacted funding costs.

## ELECTIVE STATE OFFICERS RETIREMENT FUND

### ACCOUNTING BALANCE SHEET (DOLLARS IN THOUSANDS)

### JULY 1, 1992

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS | | |
| | 1. Cash, Equivalents, Short-term Securities | $0 | $0 |
| | 2. Investments | | |
| | a. Fixed Income | 0 | 0 |
| | b. Equity | 0 | 0 |
| | c. Real Estate | 0 | 0 |
| | 3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF) | 0 | 0 |
| | 4. Other * | 336 | 336 |
| B. | TOTAL ASSETS | $336 | $336 |
| C. | AMOUNTS CURRENTLY PAYABLE | $2 | $2 |
| D. | ASSETS AVAILABLE FOR BENEFITS | | |
| | 1. Member Reserves * | $334 | $334 |
| | 2. Employer Reserves | (982) | (982) |
| | 3. MPRIF Reserves | 0 | 0 |
| | 4. Non-MPRIF Reserves | 982 | 982 |
| | 5. Total Assets Available for Benefits | $334 | $334 |
| E. | TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS | $336 | $336 |

| | | | |
|---|---|---|---|
| F. | DETERMINATION OF ACTUARIAL VALUE OF ASSETS | | |
| | 1. Cost Value of Assets Available for Benefits (D5) | | $334 |
| | 2. Market Value (D5) | $334 | |
| | 3. Cost Value (D5) | 334 | |
| | 4. Market Over Cost: (F2-F3) | $0 | |
| | 5. 1/3 of Market Over Cost: (F4)/3 | | 0 |
| | 6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets") | | $334 |

* Includes $333 of Member Reserves not segregated from general funds.

TABLE 2

# ELECTIVE STATE OFFICERS RETIREMENT FUND

## CHANGE IN ASSETS AVAILABLE FOR BENEFITS
## (DOLLARS IN THOUSANDS)

## YEAR ENDING JUNE 30, 1992

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS AVAILABLE AT BEGINNING OF PERIOD | $308 | $308 |
| B. | OPERATING REVENUES | | |
| | 1. Member Contributions | $34 | $34 |
| | 2. Employer Contributions | 0 | 0 |
| | 3. Investment Income | 0 | 0 |
| | 4. MPRIF Income | 0 | 0 |
| | 5. Net Realized Gain (Loss) | 0 | 0 |
| | 6. Other | 111 | 111 |
| | 7. Net Change in Unrealized Gain (Loss) | 0 | 0 |
| | 8. Total Revenue | $145 | $145 |
| C. | OPERATING EXPENSES | | |
| | 1. Service Retirements | $117 | $117 |
| | 2. Disability Benefits | 0 | 0 |
| | 3. Survivor Benefits | 0 | 0 |
| | 4. Refunds | 0 | 0 |
| | 5. Expenses | 2 | 2 |
| | 6. Other | 0 | 0 |
| | 7. Total Disbursements | $119 | $119 |
| D. | OTHER CHANGES IN RESERVES | 0 | 0 |
| E. | ASSETS AVAILABLE AT END OF PERIOD | $334 | $334 |

# ELECTIVE STATE OFFICERS RETIREMENT PLAN

## ACTIVE MEMBERS AS OF JUNE 30, 1992

| | YEARS OF SERVICE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| AGE | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
| <25 | | | | | | | | | |
| 25-29 | | | | | | | | | |
| 30-34 | | | | | | | | | |
| 35-39 | | | | | | | | | |
| 40-44 | 1 | | | | | | | | 1 |
| 45-49 | | 1 | 1 | 1 | | | | | 3 |
| 50-54 | | | | | | | | | |
| 55-59 | | | | 1 | 1 | | | | 2 |
| 60-64 | | | | | | | | | |
| 65+ | | | | | | | | | |
| ALL | 1 | 1 | 1 | 2 | 1 | | | | 6 |

## AVERAGE ANNUAL EARNINGS

| | YEARS OF SERVICE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| AGE | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
| <25 | | | | | | | | | |
| 25-29 | | | | | | | | | |
| 30-34 | | | | | | | | | |
| 35-39 | | | | | | | | | |
| 40-44 | 65,438 | | | | | | | | 65,438 |
| 45-49 | | 59,982 | 59,982 | 85,195 | | | | | 68,386 |
| 50-54 | | | | | | | | | |
| 55-59 | | | | 109,054 | 59,982 | | | | 84,518 |
| 60-64 | | | | | | | | | |
| 65+ | | | | | | | | | |
| ALL | 65,438 | 59,982 | 59,982 | 97,125 | 59,982 | | | | 73,272 |

| | PRIOR FISCAL YEAR EARNINGS (ACTUAL DOLLARS) BY YEARS OF SERVICE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| AGE | ≤1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
| ALL | 65,438 | 59,982 | 59,982 | 194,250 | 59,982 | | | | 439,632 |

TABLE 4

## ELECTIVE STATE OFFICERS RETIREMENT PLAN

## SERVICE RETIREMENTS AS OF JUNE 30, 1992

| | YEARS RETIRED | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
| <50 | | | | | | | | |
| 50-54 | | | | | | | | |
| 55-59 | | | | | | | | |
| 60-64 | 1 | 1 | | | | | | 2 |
| 65-69 | | | | | | | | |
| 70-74 | | | | | | | | |
| 75-79 | | | | 1 | | | | 1 |
| 80-84 | | | | | 1 | | | 1 |
| 85+ | | | | | | | | |
| ALL | 1 | 1 | | 1 | 1 | | | 4 |

## AVERAGE ANNUAL BENEFIT

| | YEARS RETIRED | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
| <50 | | | | | | | | |
| 50-54 | | | | | | | | |
| 55-59 | | | | | | | | |
| 60-64 | 2,566 | 38,805 | | | | | | 20,686 |
| 65-69 | | | | | | | | |
| 70-74 | | | | | | | | |
| 75-79 | | | | 18,748 | | | | 18,748 |
| 80-84 | | | | | 15,522 | | | 15,522 |
| 85+ | | | | | | | | |
| ALL | 2,566 | 38,805 | | 18,748 | 15,522 | | | 18,911 |

| | TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS RETIRED | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
| ALL | 2,566 | 38,805 | | 18,748 | 15,522 | | | 75,644 |

TABLE 5

# ELECTIVE STATE OFFICERS RETIREMENT PLAN

## SURVIVORS AS OF JUNE 30, 1992

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | | | | | | | | |
| 55-59 | | | | | | | | |
| 60-64 | | | | | | | | |
| 65-69 | | | | | | | | |
| 70-74 | | | | | | | | |
| 75-79 | | 1 | | | 2 | | | 3 |
| 80-84 | | | | | | | | |
| 85+ | | | | | | 1 | | 1 |
| ALL | | 1 | | | 2 | 1 | | 4 |

## AVERAGE ANNUAL BENEFIT

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | | | | | | | | |
| 55-59 | | | | | | | | |
| 60-64 | | | | | | | | |
| 65-69 | | | | | | | | |
| 70-74 | | | | | | | | |
| 75-79 | | 17,408 | | | 9,615 | | | 12,213 |
| 80-84 | | | | | | | | |
| 85+ | | | | | | 8,470 | | 8,470 |
| ALL | | 17,408 | | | 9,615 | 8,470 | | 11,277 |

| AGE | TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | | 17,408 | | | 19,230 | 8,470 | | 45,108 |

## ELECTIVE STATE OFFICERS RETIREMENT FUND

## RECONCILIATION OF MEMBERS

| | | | Terminated | |
|---|---|---|---|---|
| | | Actives | Deferred Retirement | Other Non-Vested |
| A. | ON JUNE 30, 1991 | 6 | 7 | 0 |
| B. | ADDITIONS | 0 | 0 | 0 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 0 | (1) | 0 |
| | 2. Disability | 0 | 0 | 0 |
| | 3. Death | 0 | 0 | 0 |
| | 4. Terminated - Deferred | 0 | 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 Other Fund | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | 0 | 0 | 0 |
| | Vested | 3 | | |
| | Non-Vested | 3 | | |
| E. | TOTAL ON JUNE 30, 1992 | 6 | 6 | 0 |

| | | Recipients | | |
|---|---|---|---|---|
| | | Retirement Annuitants | Disabled | Survivors |
| A. | ON JUNE 30, 1991 | 3 | NA | 4 |
| B. | ADDITIONS | 1 | 0 | 0 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 0 | 0 | 0 |
| | 2. Death | 0 | 0 | 0 |
| | 3. Annuity Expired | 0 | 0 | 0 |
| | 4. Returned as Active | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | 0 | 0 | 0 |
| E. | TOTAL ON JUNE 30, 1992 | 4 | NA | 4 |

## ELECTIVE STATE OFFICERS RETIREMENT FUND

### ACTUARIAL BALANCE SHEET
### (DOLLARS IN THOUSANDS)

### JULY 1, 1992

| | | Non-Vested | Vested | Total |
|---|---|---|---|---|
| A. | CURRENT ASSETS (TABLE 1, F6) | | | $334 |
| B. | EXPECTED FUTURE ASSETS | | | |
| | 1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11) | | | $0 |
| | 2. Present Value of Future Normal Costs | | | 341 |
| | 3. Total Expected Future Assets | | | $341 |
| C. | TOTAL CURRENT AND EXPECTED FUTURE ASSETS | | | $675 |
| D. | CURRENT BENEFIT OBLIGATIONS | Non-Vested | Vested | Total |
| | 1. Benefit Recipients | | | |
| | a. Retirement Annuities | | $638 | $638 |
| | b. Disability Benefits | | 0 | 0 |
| | c. Surviving Spouse and Child Benefits | | 345 | 345 |
| | 2. Deferred Retirements With Future Augmentation | | 475 | 475 |
| | 3. Former Members Without Vested Rights | | 0 | 0 |
| | 4. Active Members | | | |
| | a. Retirement Annuities | 21 | 511 | 532 |
| | b. Disability Benefits | 0 | 0 | 0 |
| | c. Survivor's Benefits | 19 | 0 | 19 |
| | d. Deferred Retirements | 43 | 210 | 253 |
| | e. Refund Liability Due to Death or Withdrawal | 0 | 7 | 7 |
| | 5. Total Current Benefit Obligations | $83 | $2,186 | $2,269 |
| E. | EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $452 |
| F. | TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $2,721 |
| G. | CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A) | | | $1,935 |
| H. | CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C) | | | $2,046 |

TABLE 9

## ELECTIVE STATE OFFICERS RETIREMENT FUND

### DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) AND SUPPLEMENTAL CONTRIBUTION RATE (DOLLARS IN THOUSANDS)

JULY 1, 1992

| | Actuarial Present Value of Projected Benefits (1) | Actuarial Present Value of Future Normal Costs (2) | Actuarial Accrued Liability (3)=(1)-(2) |
|---|---|---|---|
| A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL) | | | |
| 1. Active Members | | | |
| a. Retirement Annuities | $818 | $113 | $705 |
| b. Disability Benefits | 0 | 0 | 0 |
| c. Survivor's Benefit | 27 | 13 | 14 |
| d. Deferred Retirements | 392 | 155 | 237 |
| e. Refunds Due to Death or Withdrawal | 27 | 60 | (33) |
| f. Total | $1,264 | $341 | $923 |
| 2. Deferred Retirements With Future Augmentation | 475 | | 475 |
| 3. Former Members Without Vested Rights | 0 | | 0 |
| 4. Annuitants in MPRIF | 0 | | 0 |
| 5. Recipients Not in MPRIF | 982 | | 982 |
| 6. Total | $2,721 | $341 | $2,380 |

| | |
|---|---|
| B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) | |
| 1. AAL (A6) | $2,380 |
| 2. Current Assets (Table 1, F6) | 334 |
| 3. UAAL (B1-B2) | $2,046 |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE | |
| 1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020 | $9,878 |
| 2. Supplemental Contribution Rate (B3/C1) | 20.71% |

* If non-segregated member reserves were not counted as assets, the UAAL would be $2,379, resulting in a Supplemental Contribution Rate of 24.08%.

## ELECTIVE STATE OFFICERS RETIREMENT FUND

### CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
### (DOLLARS IN THOUSANDS)

### YEAR ENDING JUNE 30, 1992

| | | | |
|---|---|---|---|
| A. | UAAL AT BEGINNING OF YEAR | | $1,941 |
| B. | CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING | | |
| | 1. | Normal Cost and Expenses | $62 |
| | 2. | Contribution | (34) |
| | 3. | Interest on A, B1 and B2 | 166 |
| | 4. | Total (B1+B2+B3) | $194 |
| C. | EXPECTED UAAL AT END OF YEAR (A+B4) | | $2,135 |
| D. | INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED | | |
| | 1. | Salary Increases | $0 |
| | 2. | Investment Return | 27 |
| | 3. | MPRIF Mortality | 0 |
| | 4. | Mortality of Other Benefit Recipients | 56 |
| | 5. | Other Items | (172) |
| | 6. | Total | ($89) |
| E. | UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D5) | | $2,046 |
| F. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS | | 0 |
| G. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS | | 0 |
| H. | UAAL AT END OF YEAR (E+F+G) | | $2,046 |

# ELECTIVE STATE OFFICERS RETIREMENT FUND

## DETERMINATION OF CONTRIBUTION SUFFICIENCY
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | | Percent of Payroll | Dollar Amount |
|---|---|---|---|
| A. | STATUTORY CONTRIBUTIONS - CHAPTER 352C | | |
| | 1. Employee Contributions | 9.00% | $41 |
| | 2. Employer Contributions | 0.00%* | 0 * |
| | 3. Total | 9.00% | $41 |

* Employer contributions are required to cover the portion of the benefit liabilities which are not funded by the member's accumulated contribution at the time of benefit commencement.

| | | Percent of Payroll | Dollar Amount |
|---|---|---|---|
| B. | REQUIRED CONTRIBUTIONS - CHAPTER 356 | | |
| | 1. Normal Cost | | |
| | a. Retirement Benefits | 4.88% | $22 |
| | b. Disability benefits | 0.00% | 0 |
| | c. Survivors | 0.67% | 3 |
| | d. Deferred Retirement Benefits | 6.87% | 31 |
| | e. Refunds Due to Death or Withdrawal | 2.66% | 12 |
| | f. Total | 15.08% | $68 |
| | 2. Supplemental Contribution Amortization by July 1, 2020 of UAAL | 20.71% | 93 |
| | 3. Allowance for Expenses | 0.44% | 2 |
| | 4. Total | 36.23% | $163 |
| C. | CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4] | -27.23% | ($122) |

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1992 is $451.

The deficiency amount shown above is calculated based on reported assets which include a receivable of $333 for member contributions that are held in the State's general fund. If this amount was not considered as an asset of the fund in these calculations, the deficiency would be 30.60%.

## ELECTIVE STATE OFFICERS RETIREMENT PLAN

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| **Interest:** | **Pre-Retirement:** 8.5% per annum<br>**Post-Retirement:** 5.0% per annum |
| **Salary Increases:** | The statutory salary rate as prescribed in Chapter 345, Article I, Sec. 28, with a 2.5% increase for the 1992-93 fiscal year and 6.5% per year thereafter. |
| **Mortality:** | **Pre-Retirement:**<br>Male - 1971 Group Annuity Mortality Table<br>Female - 1971 Group Annuity Mortality Table male rates set back 8 years<br><br>**Post-Retirement:**<br>Male - Same as above<br>Female - Same as above<br><br>**Post-Disability:**<br>Male - N/A<br>Female - N/A |
| **Retirement Age:** | Age 62 or if over age 62, one year from valuation date. |
| **Separation:** | Rates based on years of service: |

| Year | Rate |
|---|---|
| 1 | 0% |
| 2 | 0 |
| 3 | 0 |
| 4 | 50 |
| 5 | 0 |
| 6 | 0 |
| 7 | 0 |
| 8 | 50 |

| | |
|---|---|
| **Disability:** | None |
| **Expenses:** | Prior year expenses expressed as percentage of prior year payroll. |
| **Return of Contributions:** | All employees withdrawing after eight years of service were assumed to leave their contributions on deposit and receive a deferred annuitant benefit. |

TABLE 12
(Continued)

## ELECTIVE STATE OFFICERS RETIREMENT PLAN

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| **Family Composition:** | 85% of Members are assumed to be married. Female is three years younger than male. Each Member may have up to two dependent children depending on the Member's age. Assume first child born at Member's age 28 and second child born at Member's age 31. |
| **Social Security:** | N/A |
| **Benefit Increases After Retirement:** | Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions. |
| **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:** | Cost Value plus one-third Unrealized Gains or Losses. |
| **Payment on the Unfunded Actuarial Accrued Liability:** | A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 6.5% per annum. |

# ELECTIVE STATE OFFICERS RETIREMENT PLAN

## SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| **Eligibility:** | Employment as a "Constitutional Officer". |
| **Contributions** | |
| **Member:** | 9% of salary. |
| **Employer:** | No specified statutory contribution rate. State must contribute an amount equal to the full annuity value at benefit commencement less accumulated member contributions. |
| **Allowable Service:** | Service while in an eligible position. |
| **Salary:** | Salary upon which Elective State Officers Retirement Plan contributions have been made. |
| **Average Salary:** | Average of the five highest successive years of salary. |

## RETIREMENT

| | |
|---|---|
| **Normal Retirement Benefit** | |
| **Eligibility:** | Age 62 and eight years of Allowable Service. |
| **Amount:** | 2.5% of Average Salary for each year of Allowable Service. |
| **Early Retirement Benefit** | |
| **Eligibility:** | Age 60 and eight 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 62 at time of retirement. |
| **Form of Payment:** | Life annuity |
| **Benefit Increases:** | Adjusted by MSRS to provide same increase as MPRIF. |

ELECTIVE STATE OFFICERS RETIREMENT PLAN

SUMMARY OF PLAN PROVISIONS

## DISABILITY

None

## DEATH

### Surviving Spouse Benefit

Eligibility: Death while active or after retirement or with at least eight years of Allowable Service.

Amount: Survivor's payment of 50% of the retirement benefit of the Member assuming the Member had attained age 62 and had a minimum of eight years of Allowable Service. Benefit is paid for life. A former Member's benefit is augmented the same as a Deferred Annuity to date of death before determining the portion payable to the spouse.

### Surviving Dependent Child Benefit

Eligibility: Same as spouse's benefit.

Amount: Benefit for first child is 25% of the retirement benefit (computed as for surviving spouse) with 12.5% for each additional child. Maximum payable (including spouse) is 100% of the retirement benefit. Benefits cease when a child marries or attains age 18 (22 if a full-time student).

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

## TERMINATION

### Refund of Contributions

Eligibility: Termination of 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.

TABLE 13
(Continued)

## ELECTIVE STATE OFFICERS RETIREMENT PLAN

## SUMMARY OF PLAN PROVISIONS

**Deferred Benefit**

| | |
|---|---|
| **Eligibility:** | Eight years of Allowable Service. |
| **Amount:** | Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/79; 5% from 7/1/79 to 1/1/81; and 3% until age 55; and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement. |

# JUDGES RETIREMENT FUND

# ACTUARIAL VALUATION REPORT

# JULY 1, 1992

MILLIMAN & ROBERTSON, INC.

**MILLIMAN & ROBERTSON, INC.**
Actuaries and Consultants

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Wendell Milliman, F.S.A. (1976)
Stuart A. Robertson, F.S.A.
Chairman Emeritus

December 2, 1992

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

RE: <u>Judges Retirement Fund</u>

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1992.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. 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 on September 20, 1989.

Respectfully submitted,

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.
Actuary

TKC/WVH/bh

# JUDGES RETIREMENT FUND

## TABLE OF CONTENTS

**JUDGES RETIREMENT FUND**

TABLE OF CONTENTS
(Continued)

JUDGES RETIREMENT FUND

REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)

| | 07/01/91 Valuation | 07/01/92 Valuation |
|---|---|---|
| A. CONTRIBUTIONS (Table 11) | | |
| 1. Statutory Contributions - Chapter 490 % of Payroll | 26.34% | 28.38% |
| 2. Required Contributions - Chapter 356 % of Payroll | 25.10% | 26.59% |
| 3. Sufficiency (Deficiency): (A.1. - A.2.) | 1.24% | 1.79% |
| B. FUNDING RATIOS | | |
| 1. Accrued Benefit Funding Ratio | | |
| a. Current Assets (Table 1) | $33,559 | $37,768 |
| b. Current Benefit Obligations (Table 8) | $76,275 | $81,153 |
| c. Funding Ratio: (a/b) | 44.00% | 46.54% |
| 2. Accrued Liability Funding Ratio | | |
| a. Current Assets (Table 1) | $33,559 | $37,768 |
| b. Actuarial Accrued Liability (Table 9) | $78,429 | $83,969 |
| c. Funding Ratio: (a/b) | 42.79% | 44.98% |
| 3. Projected Benefit Funding Ratio (Table 8) | | |
| a. Current and Expected Future Assets | $122,981 | $131,573 |
| b. Current and Expected Future Benefit Obligations | $116,825 | $122,899 |
| c. Funding Ratio: (a/b) | 105.27% | 107.06% |
| C. PLAN PARTICIPANTS | | |
| 1. Active Members | | |
| a. Number (Table 3) | 271 | 271 |
| b. Projected Annual Earnings | $21,570 | $22,181 |
| c. Average Annual Earnings (Actual $) | $79,595 | $81,849 |
| d. Average Age | 52.9 | 53.4 |
| e. Average Service | 10.4 | 10.6 |
| 2. Others | | |
| a. Service Retirements (Table 4) | 109 | 111 |
| b. Disability Retirements (Table 5) | 9 | 9 |
| c. Survivors (Table 6) | 64 | 66 |
| d. Deferred Retirements (Table 7) | 3 | 4 |
| e. Terminated Other Non-vested (Table 7) | 0 | 0 |
| f. Total | 185 | 190 |

JUDGES 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 46.54%. The corresponding ratio for the prior year was 44.00%.

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 1992 the ratio is 44.98%, which is an increase from the 1991 value of 42.79%.

The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 107.06% verifies that the current statutory contributions are sufficient.

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

Minnesota Statutes require that the asset value used for actuarial purposes

recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines F1 to F6. It combines the cost value of the Assets Available for Benefits and one-third of the difference between the market value and cost value of those assets.

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.

<u>Actuarial Balance Sheet (Table 8)</u>

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 in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

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

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1992 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table:

| | |
|---|---|
| Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits | $43,132,498 |
| Current Employees | |
| Accumulated employee contributions including allocated investment income | $5,586,155 |
| Employer-financed vested | 30,008,999 |
| Employer-financed nonvested | 2,425,773 |
| | --------------- |
| Total Pension Benefit Obligation | $81,153,425 |
| Net Assets Available for Benefits at Cost | $37,770,000 |
| Total Benefit Obligation less Assets | $43,383,425 |
| Funded Ratio | 46.54% |

## 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 the 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 6.5% 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.

## Sources 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 expectation. For a detailed analysis of the major components, refer to Table 10.

## Contribution Sufficiciency (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 28.38% compared to the Required Contribution Rate of 26.59%.

## Changes in Actuarial Assumptions

The actuarial assumptions are the same as those used in the prior valuation.

Paragraph X.1.4 of the Actuarial Standards requires that the Actuarial Present Value of Compensation for purposes of determining the Normal Cost of the Fund be calculated assuming mid-year payments. Previously, beginning of year payments were assumed. This change in methodology results in an increase of 0.77% of payroll in the Normal Cost and a decrease in the Contribution Sufficiency of the Fund.

## Changes in Plan Provisions

For Coordinated Members, Member Contributions were increased from 4% to 6.27% and the reduction in benefits for Social Security benefits was eliminated.

TABLE 1

# JUDGES RETIREMENT FUND

## ACCOUNTING BALANCE SHEET
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS | | |
| | 1. Cash, Equivalents, Short-term Securities | $1,822 | $1,822 |
| | 2. Investments | | |
| | a. Fixed Income | 1,741 | 1,750 |
| | b. Equity | 3,972 | 3,914 |
| | c. Real Estate | 271 | 325 |
| | 3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF) | 30,648 | 30,648 |
| | 4. Other | 47 | 47 |
| B. | TOTAL ASSETS | $38,501 | $38,506 |
| C. | AMOUNTS CURRENTLY PAYABLE | $736 | $736 |
| D. | ASSETS AVAILABLE FOR BENEFITS | | |
| | 1. Member Reserves | $5,711 | $5,711 |
| | 2. Employer Reserves | (10,715) | (10,710) |
| | 3. MPRIF Reserves | 30,648 | 30,648 |
| | 4. Non-MPRIF Reserves | 12,121 | 12,121 |
| | 5. Total Assets Available for Benefits | $37,765 | $37,770 |
| E. | TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS | $38,501 | $38,506 |

| | | | |
|---|---|---|---|
| F. | DETERMINATION OF ACTUARIAL VALUE OF ASSETS | | |
| | 1. Cost Value of Assets Available for Benefits (D5) | | $37,770 |
| | 2. Market Value (D5) | $37,765 | |
| | 3. Cost Value (D5) | 37,770 | |
| | 4. Market Over Cost: (F2-F3) | ($5) | |
| | 5. 1/3 of Market Over Cost: (F4)/3 | | (2) |
| | 6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets") | | $37,768 |

TABLE 2

JUDGES RETIREMENT FUND

CHANGE IN ASSETS AVAILABLE FOR BENEFITS
(DOLLARS IN THOUSANDS)

YEAR ENDING JUNE 30, 1992

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS AVAILABLE AT BEGINNING OF PERIOD | $33,559 | $33,559 |
| B. | OPERATING REVENUES | | |
| | 1. Member Contributions | $988 | $988 |
| | 2. Employer Contributions | 4,722 | 4,722 |
| | 3. Investment Income | 710 | 710 |
| | 4. MPRIF Income | 2,508 | 2,508 |
| | 5. Net Realized Gain (Loss) | 189 | 189 |
| | 6. Other | 11 | 11 |
| | 7. Net Change in Unrealized Gain (Loss) | (5) | 0 |
| | 8. Total Revenue | $9,123 | $9,128 |
| C. | OPERATING EXPENSES | | |
| | 1. Service Retirements | $4,592 | $4,592 |
| | 2. Disability Benefits | 0 | 0 |
| | 3. Survivor Benefits | 0 | 0 |
| | 4. Refunds | 0 | 0 |
| | 5. Expenses | 67 | 67 |
| | 6. Other | 258 | 258 |
| | 7. Total Disbursements | $4,917 | $4,917 |
| D. | OTHER CHANGES IN RESERVES | 0 | 0 |
| E. | ASSETS AVAILABLE AT END OF PERIOD | $37,765 | $37,770 |

## JUDGES RETIREMENT FUND

### ACTIVE MEMBERS AS OF JUNE 30, 1992

| AGE | YEARS OF SERVICE <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| <25 | | | | | | | | | |
| 25-29 | | | | | | | | | |
| 30-34 | | 1 | | | | | | | 1 |
| 35-39 | | 5 | 1 | 1 | | | | | 7 |
| 40-44 | 4 | 20 | 21 | 7 | | | | | 52 |
| 45-49 | 2 | 14 | 20 | 12 | 5 | | | | 53 |
| 50-54 | 2 | 7 | 14 | 14 | 10 | 5 | | | 52 |
| 55-59 | 1 | 3 | 7 | 4 | 10 | 6 | 4 | | 35 |
| 60-64 | | 4 | 5 | 7 | 9 | 13 | 5 | 1 | 44 |
| 65+ | 2 | | 3 | 2 | 7 | 6 | 3 | 4 | 27 |
| ALL | 11 | 54 | 71 | 47 | 41 | 30 | 12 | 5 | 271 |

### AVERAGE ANNUAL EARNINGS

| AGE | YEARS OF SERVICE <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| <25 | | | | | | | | | |
| 25-29 | | | | | | | | | |
| 30-34 | | 78,769 | | | | | | | 78,769 |
| 35-39 | | 79,797 | 78,769 | 78,769 | | | | | 79,503 |
| 40-44 | 78,769 | 79,562 | 79,258 | 78,769 | | | | | 79,272 |
| 45-49 | 78,769 | 78,769 | 78,769 | 78,769 | 80,825 | | | | 78,963 |
| 50-54 | 78,769 | 78,769 | 79,136 | 78,769 | 78,769 | 78,769 | | | 78,868 |
| 55-59 | 78,769 | 80,483 | 78,769 | 79,753 | 80,311 | 78,769 | 78,769 | | 79,469 |
| 60-64 | | 83,566 | 79,797 | 79,503 | 79,961 | 79,164 | 78,769 | 83,911 | 79,916 |
| 65+ | 88,363 | | 80,483 | 89,503 | 80,302 | 80,558 | 78,769 | 78,769 | 81,260 |
| ALL | 80,513 | 79,608 | 79,131 | 79,419 | 79,919 | 79,298 | 78,769 | 79,797 | 79,466 |

| AGE | PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ | ALL |
|---|---|---|---|---|---|---|---|---|---|
| ALL | 885 | 4,298 | 5,618 | 3,732 | 3,276 | 2,378 | 945 | 398 | 21,535 |

# JUDGES RETIREMENT FUND

## SERVICE RETIREMENTS AS OF JUNE 30, 1992

| AGE | YEARS RETIRED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | | | | | | | | |
| 55-59 | | | | | | | | |
| 60-64 | 1 | 1 | | | | | | 2 |
| 65-69 | 2 | 18 | 3 | | | | | 23 |
| 70-74 | 5 | 13 | 11 | 1 | | | | 30 |
| 75-79 | | | 19 | 12 | 1 | | | 32 |
| 80-84 | | | 1 | 10 | 4 | | | 15 |
| 85+ | | | | 1 | 6 | 1 | 1 | 9 |
| ALL | 8 | 32 | 34 | 24 | 11 | 1 | 1 | 111 |

## AVERAGE ANNUAL BENEFIT

| AGE | YEARS RETIRED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | | | | | | | | |
| 55-59 | | | | | | | | |
| 60-64 | 32,235 | 31,930 | | | | | | 32,083 |
| 65-69 | 43,070 | 25,350 | 21,826 | | | | | 26,431 |
| 70-74 | 30,210 | 28,043 | 26,203 | 36,218 | | | | 28,002 |
| 75-79 | | | 33,004 | 40,648 | 27,766 | | | 35,707 |
| 80-84 | | | 52,052 | 32,578 | 22,237 | | | 31,119 |
| 85+ | | | | 29,748 | 30,361 | 35,358 | 35,358 | 31,403 |
| ALL | 33,678 | 26,650 | 30,378 | 36,647 | 27,171 | 35,358 | 35,358 | 30,668 |

| AGE | TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | 269 | 852 | 1,032 | 879 | 298 | 35 | 35 | 3,404 |

## JUDGES RETIREMENT FUND

## SURVIVORS AS OF JUNE 30, 1992

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | 1 | 3 | | | | | 4 |
| 50-54 | | 1 | | | | | | 1 |
| 55-59 | | | 1 | | | | | 1 |
| 60-64 | 1 | 1 | | | | | | 2 |
| 65-69 | | 3 | 3 | 1 | 4 | 1 | | 12 |
| 70-74 | 1 | 2 | 1 | 1 | 1 | 1 | | 7 |
| 75-79 | | 1 | | 3 | 3 | | 2 | 9 |
| 80-84 | | 2 | | 1 | 4 | 3 | 2 | 12 |
| 85+ | 1 | 2 | | | 5 | 4 | 6 | 18 |
| ALL | 3 | 13 | 8 | 6 | 17 | 9 | 10 | 66 |

## AVERAGE ANNUAL BENEFIT

| AGE | YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | 17,350 | 23,271 | | | | | 21,791 |
| 50-54 | | 17,411 | | | | | | 17,411 |
| 55-59 | | | 16,525 | | | | | 16,525 |
| 60-64 | 17,773 | 8,624 | | | | | | 13,199 |
| 65-69 | | 22,625 | 20,592 | 19,684 | 10,066 | 17,679 | | 17,273 |
| 70-74 | 27,743 | 15,473 | 26,415 | 24,469 | 5,773 | 17,679 | | 19,004 |
| 75-79 | | 17,679 | | 25,362 | 15,282 | | 12,983 | 18,397 |
| 80-84 | | 12,403 | | 7,692 | 17,599 | 11,926 | 6,396 | 12,622 |
| 85+ | 22,312 | 17,679 | | | 18,080 | 13,914 | 15,674 | 16,543 |
| ALL | 22,609 | 16,927 | 21,816 | 21,322 | 14,864 | 14,088 | 13,280 | 16,706 |

| AGE | TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | 67 | 220 | 174 | 127 | 252 | 126 | 132 | 1,102 |

## JUDGES RETIREMENT FUND

## DISABILITY RETIREMENTS AS OF JUNE 30, 1992

| AGE | YEARS DISABLED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | | | | | | | | |
| 55-59 | | 1 | | | | | | 1 |
| 60-64 | | | | | | | | |
| 65-69 | | 1 | 1 | | 1 | | | 3 |
| 70-74 | | | 1 | 1 | | | | 2 |
| 75-79 | | | 2 | 1 | | | | 3 |
| 80-84 | | | | | | | | |
| 85+ | | | | | | | | |
| ALL | | 2 | 4 | 2 | 1 | | | 9 |

### AVERAGE ANNUAL BENEFIT

| AGE | YEARS DISABLED <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| <50 | | | | | | | | |
| 50-54 | | | | | | | | |
| 55-59 | | 19,602 | | | | | | 19,602 |
| 60-64 | | | | | | | | |
| 65-69 | | 29,957 | 36,585 | | 25,929 | | | 30,824 |
| 70-74 | | | 51,025 | 20,393 | | | | 35,709 |
| 75-79 | | | 25,210 | 19,804 | | | | 23,408 |
| 80-84 | | | | | | | | |
| 85+ | | | | | | | | |
| ALL | | 24,780 | 34,508 | 20,099 | 25,929 | | | 28,191 |

### TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED

| AGE | <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25+ | ALL |
|---|---|---|---|---|---|---|---|---|
| ALL | | 49,560 | 138,032 | 40,198 | 25,929 | | | 253,719 |

## JUDGES RETIREMENT FUND

## RECONCILIATION OF MEMBERS

| | | Actives | Terminated: Deferred Retirement | Terminated: Other Non-Vested |
|---|---|---|---|---|
| A. | ON JUNE 30, 1991 | 271 | 3 | 0 |
| B. | ADDITIONS | 10 | 1 | 0 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | (10) | 0 | 0 |
| | 2. Disability | 0 | 0 | 0 |
| | 3. Death | 0 | 0 | 0 |
| | 4. Terminated - Deferred | (1) | 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 Other Fund | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | 1 | 0 | 0 |
| | Vested | 193 | | |
| | Non-Vested | 78 | | |
| E. | TOTAL ON JUNE 30, 1992 | 271 | 4 | 0 |

| | | Recipients: Retirement Annuitants | Recipients: Disabled | Recipients: Survivors |
|---|---|---|---|---|
| A. | ON JUNE 30, 1991 | 109 | 9 | 64 |
| B. | ADDITIONS | 8 | 0 | 3 |
| C. | DELETIONS | | | |
| | 1. Service Retirement | 0 | 0 | 0 |
| | 2. Death | (6) | 0 | (1) |
| | 3. Annuity Expired | 0 | 0 | 0 |
| | 4. Returned as Active | 0 | 0 | 0 |
| D. | DATA ADJUSTMENTS | 0 | 0 | 0 |
| E. | TOTAL ON JUNE 30, 1992 | 111 | 9 | 66 |

# JUDGES RETIREMENT FUND

## ACTUARIAL BALANCE SHEET
## (DOLLARS IN THOUSANDS)

## JULY 1, 1992

| | | Non-Vested | Vested | Total |
|---|---|---|---|---|
| A. | CURRENT ASSETS (TABLE 1, F6) | | | $37,768 |
| B. | EXPECTED FUTURE ASSETS | | | |
| | 1. Present Value of Expected Future Statutory Supplemental Contributions | | | $54,875 |
| | 2. Present Value of Future Normal Costs | | | 38,930 |
| | 3. Total Expected Future Assets | | | $93,805 |
| C. | TOTAL CURRENT AND EXPECTED FUTURE ASSETS | | | $131,573 |
| D. | CURRENT BENEFIT OBLIGATIONS | Non-Vested | Vested | Total |
| | 1. Benefit Recipients | | | |
| | a. Retirement Annuities | | $29,677 | $29,677 |
| | b. Disability Benefits | | 2,916 | 2,916 |
| | c. Surviving Spouse and Child Benefits | | 10,176 | 10,176 |
| | 2. Deferred Retirements With Future Augmentation | | 363 | 363 |
| | 3. Former Members Without Vested Rights | | 0 | 0 |
| | 4. Active Members | | | |
| | a. Retirement Annuities | 1,807 | 29,561 | 31,368 |
| | b. Disability Benefits | 2,066 | 0 | 2,066 |
| | c. Survivor's Benefits | 4,391 | 0 | 4,391 |
| | d. Deferred Retirements | 0 | 0 | 0 |
| | e. Refund Liability Due to Death or Withdrawal | 0 | 196 | 196 |
| | 5. Total Current Benefit Obligations | $8,264 | $72,889 | $81,153 |
| E. | EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $41,746 |
| F. | TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $122,899 |
| G. | CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A) | | | $43,385 |
| H. | CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C) | | | ($8,674) |

TABLE 9

## JUDGES RETIREMENT FUND

### DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) AND SUPPLEMENTAL CONTRIBUTION RATE (DOLLARS IN THOUSANDS)

JULY 1, 1992

| | Actuarial Present Value of Projected Benefits (1) | Actuarial Present Value of Future Normal Costs (2) | Actuarial Accrued Liability (3)=(1)-(2) |
|---|---|---|---|
| A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL) | | | |
| 1. Active Members | | | |
| a. Retirement Annuities | $65,729 | $30,458 | $35,271 |
| b. Disability Benefits | 4,383 | 2,752 | 1,631 |
| c. Survivor's Benefit | 8,767 | 5,385 | 3,382 |
| d. Deferred Retirements | 0 | 0 | 0 |
| e. Refunds Due to Death or Withdrawal | 888 | 335 | 553 |
| f. Total | $79,767 | $38,930 | $40,837 |
| 2. Deferred Retirements With Future Augmentation | 363 | | 363 |
| 3. Former Members Without Vested Rights | 0 | | 0 |
| 4. Annuitants in MPRIF | 30,648 | | 30,648 |
| 5. Recipients Not in MPRIF | 12,121 | | 12,121 |
| 6. Total | $122,899 | $38,930 | $83,969 |

| | |
|---|---|
| B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) | |
| 1. AAL (A6) | $83,969 |
| 2. Current Assets (Table 1, F6) | 37,768 |
| 3. UAAL (B1-B2) | $46,201 |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE | |
| 1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020 | $483,480 |
| 2. Supplemental Contribution Rate (B3/C1) | 9.56% |

## JUDGES RETIREMENT FUND

### CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
### (DOLLARS IN THOUSANDS)

### YEAR ENDING JUNE 30, 1992

| | | | |
|---|---|---|---|
| A. | UAAL AT BEGINNING OF YEAR | | $44,870 |
| B. | CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING | | |
| | 1. | Normal Cost and Expenses | $3,469 |
| | 2. | Contribution | (5,709) |
| | 3. | Interest on A, B1 and B2 | 3,719 |
| | 4. | Total (B1+B2+B3) | $1,479 |
| C. | EXPECTED UAAL AT END OF YEAR (A+B4) | | $46,349 |
| D. | INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED | | |
| | 1. | Salary Increases | ($68) |
| | 2. | Investment Return | (373) |
| | 3. | MPRIF Mortality | 665 |
| | 4. | Mortality of Other Benefit Recipients | 494 |
| | 5. | Other Items | (4,167) |
| | 6. | Total | ($3,449) |
| E. | UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D5) | | $42,900 |
| F. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS | | 3,301 |
| G. | CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS | | 0 |
| H. | UAAL AT END OF YEAR (E+F+G) | | $46,201 |

## JUDGES RETIREMENT FUND

## DETERMINATION OF CONTRIBUTION SUFFICIENCY
(DOLLARS IN THOUSANDS)

JULY 1, 1992

| | | | Percent of Payroll | Dollar Amount |
|---|---|---|---|---|
| A. | STATUTORY CONTRIBUTIONS - CHAPTER 490 | | | |
| | 1. | Employee Contributions | 6.38% | $1,415 |
| | 2. | Employer Contributions | 22.00% | 4,880 |
| | 3. | Total | 28.38% | $6,295 |
| B. | REQUIRED CONTRIBUTIONS - CHAPTER 356 | | | |
| | 1. | Normal Cost | | |
| | | a. Retirement Benefits | 13.13% | $2,913 |
| | | b. Disability benefits | 1.06% | 236 |
| | | c. Survivors | 2.28% | 505 |
| | | d. Deferred Retirement Benefits | 0.00% | 0 |
| | | e. Refunds Due to Death or Withdrawal | 0.25% | 56 |
| | | f. Total | 16.72% | $3,710 |
| | 2. | Supplemental Contribution Amortization by July 1, 2020 of UAAL | 9.56% | 2,121 |
| | 3. | Allowance for Expenses | 0.31% | 69 |
| | 4. | Total | 26.59% | $5,900 |
| C. | CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4] | | 1.79% | $395 |

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1992 is $22,181.

## JUDGES RETIREMENT FUND

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| Interest: | Pre-Retirement: 8.5% per annum<br>Post-Retirement: 5.0% per annum |
| Salary Increases: | Statutory salary rate as prescribed in Chapter 345, Article I, Sec. 28, with a 3% increase for the 1992-93 fiscal year and 6.5% per year thereafter. |
| Mortality: | Pre-Retirement:<br>Male - 1971 Group Annuity Mortality Table<br>Female - 1971 Group Annuity Mortality Table male rates set back eight years<br><br>Post-Retirement:<br>Male - Same as above<br>Female - Same as above<br><br>Post-Disability:<br>Male - Same as above<br>Female - Same as above |
| Retirement Age: | Judges: Age 68 or, if over age 68, one year from the valuation date.<br>Supreme Court Justices in Pre-1974 Plan: Latest of age 70, 12 years of service, or one year from valuation date. |
| Separation: | None |
| Disability: | Rates adopted by MSRS based on actual experience, most recently adjusted in 1979, as shown in rate table. |
| Expenses: | Prior year 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. |

TABLE 12
(Continued)

## JUDGES RETIREMENT FUND

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

| | |
|---|---|
| Social Security: | N/A |
| Benefit Increases After Retirement: | Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions. |
| 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: | Cost Value plus one-third Unrealized Gains or Losses. |
| Payment on the Unfunded Actuarial Accrued Liability: | A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 6.5% per annum. |

TABLE 12
(Continued)

## 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 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | 5 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | 6 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 6 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 7 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | 7 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | 7 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | 8 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | 8 | 5 | 0 | 0 | 2 | 0 | 0 | 0 |
| 31 | 9 | 6 | 0 | 0 | 2 | 0 | 0 | 0 |
| 32 | 9 | 6 | 0 | 0 | 2 | 0 | 0 | 0 |
| 33 | 10 | 6 | 0 | 0 | 2 | 0 | 0 | 0 |
| 34 | 10 | 7 | 0 | 0 | 2 | 0 | 0 | 0 |
| 35 | 11 | 7 | 0 | 0 | 2 | 1 | 0 | 0 |
| 36 | 12 | 7 | 0 | 0 | 2 | 1 | 0 | 0 |
| 37 | 13 | 8 | 0 | 0 | 2 | 1 | 0 | 0 |
| 38 | 14 | 8 | 0 | 0 | 2 | 1 | 0 | 0 |
| 39 | 15 | 9 | 0 | 0 | 2 | 2 | 0 | 0 |
| 40 | 16 | 9 | 0 | 0 | 2 | 2 | 0 | 0 |
| 41 | 18 | 10 | 0 | 0 | 2 | 2 | 0 | 0 |
| 42 | 20 | 10 | 0 | 0 | 2 | 4 | 0 | 0 |
| 43 | 23 | 11 | 0 | 0 | 3 | 4 | 0 | 0 |
| 44 | 26 | 12 | 0 | 0 | 3 | 4 | 0 | 0 |
| 45 | 29 | 13 | 0 | 0 | 3 | 5 | 0 | 0 |
| 46 | 33 | 14 | 0 | 0 | 5 | 6 | 0 | 0 |
| 47 | 38 | 15 | 0 | 0 | 7 | 7 | 0 | 0 |
| 48 | 42 | 16 | 0 | 0 | 9 | 7 | 0 | 0 |
| 49 | 47 | 18 | 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 | 53 | 20 | 0 | 0 | 14 | 10 | 0 | 0 |
| 51 | 59 | 23 | 0 | 0 | 16 | 12 | 0 | 0 |
| 52 | 65 | 26 | 0 | 0 | 20 | 14 | 0 | 0 |
| 53 | 71 | 29 | 0 | 0 | 24 | 16 | 0 | 0 |
| 54 | 78 | 33 | 0 | 0 | 28 | 20 | 0 | 0 |
| 55 | 85 | 38 | 0 | 0 | 34 | 24 | 0 | 0 |
| 56 | 93 | 42 | 0 | 0 | 40 | 30 | 0 | 0 |
| 57 | 100 | 47 | 0 | 0 | 46 | 36 | 0 | 0 |
| 58 | 109 | 53 | 0 | 0 | 56 | 44 | 0 | 0 |
| 59 | 119 | 59 | 0 | 0 | 66 | 52 | 0 | 0 |
| 60 | 131 | 65 | 0 | 0 | 76 | 62 | 0 | 0 |
| 61 | 144 | 71 | 0 | 0 | 90 | 74 | 0 | 0 |
| 62 | 159 | 78 | 0 | 0 | 110 | 88 | 0 | 0 |
| 63 | 174 | 85 | 0 | 0 | 136 | 104 | 0 | 0 |
| 64 | 192 | 93 | 0 | 0 | 174 | 122 | 0 | 0 |
| 65 | 213 | 100 | 0 | 0 | 0 | 0 | 0 | 0 |
| 66 | 236 | 109 | 0 | 0 | 0 | 0 | 0 | 0 |
| 67 | 263 | 119 | 0 | 0 | 0 | 0 | 0 | 0 |
| 68 | 292 | 131 | 0 | 0 | 0 | 0 | 10,000 | 10,000 |
| 69 | 324 | 144 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 | 361 | 159 | 0 | 0 | 0 | 0 | 0 | 0 |

TABLE 13
BASIC

## JUDGES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| **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. |
| **Employer:** | 22% 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:** | 2.5% of average salary for each year of Allowable Service prior to 7/1/80 and 3% of Average Salary for each year of Allowable Service after 6/30/80. Maximum benefit of 65% of salary for the 12 months preceding retirement. |

## JUDGES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

**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 two years 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 two years 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. |

## JUDGES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

### 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>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. |
| **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. |

JUDGES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

## 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.

TABLE 13
COORDINATED

# JUDGES RETIREMENT FUND

## SUMMARY OF PLAN PROVISIONS

| | |
|---|---|
| Eligibility: | A judge or justice of any court who is covered under the Social Security Act. |
| **Contributions** | |
| Member: | 6.27% of salary. (Amended 1992) |
| Employer: | 22% 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: | 2.5% of average salary for each year of Allowable Service prior to 7/1/80 and 3% of Average Salary for each year of Allowable Service after 6/30/80. Maximum benefit of 65% of salary for the 12 months preceding retirement. (Amended 1992) |
| **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. |

**JUDGES RETIREMENT FUND**

**SUMMARY OF PLAN PROVISIONS**

| | |
|---|---|
| Form of Payment: | Life annuity:<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. |

**JUDGES RETIREMENT FUND**

**SUMMARY OF PLAN PROVISIONS**

## 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. The primary Social Security is the amount upon which Social Security survivors' benefits are based.<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. |

**JUDGES RETIREMENT FUND**

**SUMMARY OF PLAN PROVISIONS**

**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. |

## SIGNIFICANT CHANGES:

1. Member contributions were increased from 4.0% to 6.27 of salary.

2. Removed the offset of 50% of primary Social Security from the determination of the Normal Retirement Benefit.

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January 29, 1992

Minnesota Legislative Commission
on Pensions and Retirement
55 State Office Building
St. Paul, MN 55155-1201

RE: Judges Retirement Fund

Commission Members:

Enclosed are replacement pages 1,2,4,6,7,14,15,16,17 for our recently issued July 1, 1991 Actuarial Valuation Report of the Judges Retirement Fund.

After issuing the report, we were informed that approximately 30 plan members (all but one retired) are covered by the "Prior Survivors' Benefit" provision of the Basic program. This data change results in an increase in benefit liability of approximately $1.8 million. The plan Sufficiency earlier reported has been reduced. Appropriate adjustments to the Valuation Report are reflected in the replacement pages included herein.

Respectfully Submitted,

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

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

cc: Douglas Mewhorter

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# JUDGES RETIREMENT FUND

## REPORT HIGHLIGHTS
## (DOLLARS IN THOUSANDS)

| | 07/01/90 Valuation | 07/01/91 Valuation |
|---|---|---|
| **A. CONTRIBUTIONS (Table 11)** | | |
| 1. Statutory Contributions - Chapter 490 % of Payroll | 22.56% | 26.34% |
| 2. Required Contributions - Chapter 356 % of Payroll | 23.59% | 25.10% |
| 3. Sufficiency (Deficiency): (A.1. - A.2.) | -1.03% | 1.24% |
| **B. FUNDING RATIOS** | | |
| 1. Accrued Benefit Funding Ratio | | |
| a. Current Assets (Table 1) | $28,116 | $33,559 |
| b. Current Benefit Obligations (Table 8) | $68,487 | $76,275 |
| c. Funding Ratio: (a/b) | 41.05% | 44.00% |
| 2. Accrued Liability Funding Ratio | | |
| a. Current Assets (Table 1) | $28,116 | $33,559 |
| b. Actuarial Accrued Liability (Table 9) | $69,396 | $78,428 |
| c. Funding Ratio: (a/b) | 40.52% | 42.79% |
| 3. Projected Benefit Funding Ratio (Table 8) | | |
| a. Current and Expected Future Assets | $98,016 | $122,981 |
| b. Current and Expected Future Benefit Obligations | $102,734 | $116,824 |
| c. Funding Ratio: (a/b) | 95.41% | 105.27% |
| **C. PLAN PARTICIPANTS** | | |
| 1. Active Members | | |
| a. Number (Table 3) | 262 | 271 |
| b. Projected Annual Earnings | $20,662 | $21,570 |
| c. Average Annual Earnings (Actual $) | $78,863 | $79,595 |
| d. Average Age | 52.9 | 52.9 |
| e. Average Service | 10.7 | 10.4 |
| 2. Others | | |
| a. Service Retirements (Table 4) | 106 | 109 |
| b. Disability Retirements (Table 5) | 9 | 9 |
| c. Survivors (Table 6) | 64 | 64 |
| d. Deferred Retirements (Table 7) | 2 | 3 |
| e. Terminated Other Non-vested (Table 7) | 1 | 0 |
| f. Total | 182 | 185 |

Revised 1/29/92

JUDGES 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 44.00%. The corresponding ratio for the prior year was 41.05%.

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 1991 the ratio is 42.79%, which is an increase from the 1990 value of 40.52%.

The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 105.27% verifies that the current statutory contributions are sufficient.

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

Minnesota Statutes require that the asset value used for actuarial purposes

For Non-active Members - the discounted value of benefits, including augmentation in cases where benefits have not commenced.

**GASB Disclosure**

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1991 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table:

| | |
|---|---|
| Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits | $40,147,240 |
| Current Employees | |
| Accumulated employee contributions including allocated investment income | $5,077,734 |
| Employer-financed vested | 28,465,078 |
| Employer-financed nonvested | 2,584,073 |
| Total Pension Benefit Obligation | $76,274,125 |
| Net Assets Available for Benefits at Cost | $33,559,000 |
| Total Benefit Obligation less Assets | $42,715,125 |
| Funded Ratio | 44.00% |

Contribution Sufficiciency (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 26.34% compared to the Required Contribution Rate of 25.10%.

Changes in Actuarial Assumptions

The actuarial assumptions are the same as those used in the prior valuation.

Changes in Plan Provisions

There were no changes in plan provisions since the prior valuation which impacted funding costs.

Revised 1/29/92

TABLE 1

# JUDGES RETIREMENT FUND

## ACCOUNTING BALANCE SHEET
## (DOLLARS IN THOUSANDS)

## JULY 1, 1991

| | | Market Value | Cost Value |
|---|---|---|---|
| A. | ASSETS | | |
| | 1. Cash, Equivalents, Short-term Securities | $268 | $268 |
| | 2. Investments | | |
| | a. Fixed Income | 1,675 | 1,733 |
| | b. Equity | 4,219 | 4,485 |
| | c. Real Estate | 403 | 79 |
| | 3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF) | 28,104 | 28,104 |
| | 4. Other | 0 | 0 |
| B. | TOTAL ASSETS | $34,669 | $34,669 |
| C. | AMOUNTS CURRENTLY PAYABLE | $1,110 | $1,110 |
| D. | ASSETS AVAILABLE FOR BENEFITS | | |
| | 1. Member Reserves | $5,125 | $5,125 |
| | 2. Employer Reserves | (11,501) | (11,501) |
| | 3. MPRIF Reserves | 28,104 | 28,104 |
| | 4. Non-MPRIF Reserves | 11,831 | 11,831 |
| | 5. Total Assets Available for Benefits | $33,559 | $33,559 |
| E. | TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS | $34,669 | $34,669 |

| | | | |
|---|---|---|---|
| F. | DETERMINATION OF ACTUARIAL VALUE OF ASSETS | | |
| | 1. Cost Value of Assets Available for Benefits (D5) | | $33,559 |
| | 2. Market Value (D5) | $33,559 | |
| | 3. Cost Value (D5) | 33,559 | |
| | 4. Market Over Cost: (F2-F3) | $0 | |
| | 5. 1/3 of Market Over Cost: (F4)/3 | | 0 |
| | 6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets") | | $33,559 |

Revised 1/29/92

TABLE 8

**JUDGES RETIREMENT FUND**

**ACTUARIAL BALANCE SHEET**
**(DOLLARS IN THOUSANDS)**

**JULY 1, 1991**

| | | Non-Vested | Vested | Total |
|---|---|---|---|---|
| A. | CURRENT ASSETS (TABLE 1, F6) | | | $33,559 |
| B. | EXPECTED FUTURE ASSETS | | | |
| | 1. Present Value of Expected Future Statutory Supplemental Contributions | | | $51,026 |
| | 2. Present Value of Future Normal Costs | | | 38,396 |
| | 3. Total Expected Future Assets | | | $89,422 |
| C. | TOTAL CURRENT AND EXPECTED FUTURE ASSETS | | | $122,981 |
| D. | CURRENT BENEFIT OBLIGATIONS | | | |
| | 1. Benefit Recipients | | | |
| | a. Retirement Annuities * | | $27,718 | $27,718 |
| | b. Disability Benefits | | 2,738 | 2,738 |
| | c. Surviving Spouse and Child Benefits | | 9,480 | 9,480 |
| | 2. Deferred Retirements With Future Augmentation | | 212 | 212 |
| | 3. Former Members Without Vested Rights | | 0 | 0 |
| | 4. Active Members | | | |
| | a. Retirement Annuities | 1,989 | 27,837 | 29,826 |
| | b. Disability Benefits | 1,974 | 0 | 1,974 |
| | c. Survivor's Benefits | 4,165 | 0 | 4,165 |
| | d. Deferred Retirements | 0 | 0 | 0 |
| | e. Refund Liability Due to Death or Withdrawal | 0 | 162 | 162 |
| | 5. Total Current Benefit Obligations | $8,128 | $68,147 | $76,275 |
| E. | EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $40,549 |
| F. | TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS | | | $116,824 |
| G. | CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A) | | | $42,716 |
| H. | CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C) | | | ($6,157) |

* Includes $1,831 of Pre-74 Spouse Benefits.

Revised 1/29/92

TABLE 9

## JUDGES RETIREMENT FUND

## DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) AND SUPPLEMENTAL CONTRIBUTION RATE (DOLLARS IN THOUSANDS)

**JULY 1, 1991**

| | Actuarial Present Value of Projected Benefits (1) | Actuarial Present Value of Future Normal Costs (2) | Actuarial Accrued Liability (3)=(1)-(2) |
|---|---|---|---|
| A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL) | | | |
| 1. Active Members | | | |
| a. Retirement Annuities | $63,478 | $30,071 | $33,407 |
| b. Disability Benefits | 4,304 | 2,750 | 1,554 |
| c. Survivor's Benefit | 8,430 | 5,250 | 3,180 |
| d. Deferred Retirements | 0 | 0 | 0 |
| e. Refunds Due to Death or Withdrawal | 465 | 325 | 140 |
| f. Total | $76,677 | $38,396 | $38,281 |
| 2. Deferred Retirements With Future Augmentation | 212 | | 212 |
| 3. Former Members Without Vested Rights | 0 | | 0 |
| 4. Annuitants in MPRIF | 28,104 | | 28,104 |
| 5. Recipients Not in MPRIF | 11,831 | | 11,831 |
| 6. Total | $116,824 | $38,396 | $78,428 |

| | |
|---|---|
| B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL) | |
| 1. AAL (A6) | $78,428 |
| 2. Current Assets (Table 1, F6) | 33,559 |
| 3. UAAL (B1-B2) | $44,869 |
| C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE | |
| 1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020 | $497,327 |
| 2. Supplemental Contribution Rate (B3/C1) | 9.02% |

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TABLE 10

## JUDGES RETIREMENT FUND

### CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
### (DOLLARS IN THOUSANDS)

### YEAR ENDING JUNE 30, 1991

| | |
|---|---|
| A. UAAL AT BEGINNING OF YEAR | $41,280 |
| B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING | |
| 1. Normal Cost and Expenses | $3,014 |
| 2. Contribution | (799) |
| 3. Interest on A, B1 and B2 | 3,603 |
| 4. Total (B1+B2+B3) | $5,818 |
| C. EXPECTED UAAL AT END OF YEAR (A+B4) | $47,098 |
| D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED | |
| 1. Salary Increases | ($4,076) |
| 2. Investment Return | (293) |
| 3. MPRIF Mortality | 1,035 |
| 4. Mortality of Other Benefit Recipients | 884 |
| 5. Other Items | 221 |
| 6. Total | ($2,229) |
| E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D5) | $44,869 |
| F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS | 0 |
| G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS | 0 |
| H. UAAL AT END OF YEAR (E+F+G) | $44,869 |

Revised 1/29/92

TABLE 11

## JUDGES RETIREMENT FUND

### DETERMINATION OF CONTRIBUTION SUFFICIENCY
### (DOLLARS IN THOUSANDS)

### JULY 1, 1991

| | Percent of Payroll | Dollar Amount |
|---|---|---|
| A. STATUTORY CONTRIBUTIONS - CHAPTER 490 | | |
| 1. Employee Contributions | 4.34% | $936 |
| 2. Employer Contributions | 22.00% | 4,745 |
| 3. Total | 26.34% | $5,681 |
| B. REQUIRED CONTRIBUTIONS - CHAPTER 356 | | |
| 1. Normal Cost | | |
| a. Retirement Benefits | 12.38% | $2,670 |
| b. Disability benefits | 1.02% | 220 |
| c. Survivors | 2.17% | 469 |
| d. Deferred Retirement Benefits | 0.00% | 0 |
| e. Refunds Due to Death or Withdrawal | 0.17% | 37 |
| f. Total | 15.74% | $3,396 |
| 2. Supplemental Contribution Amortization by July 1, 2020 of UAAL | 9.02% | 1,946 |
| 3. Allowance for Expenses | 0.34% | 73 |
| 4. Total | 25.10% | $5,415 |
| C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) (A3-B4) | 1.24% | $266 |

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1991 is $21,570.

MEMORANDUM TO: Legislative Commission on Pensions and Retirement

FROM: James R. Bordewick, F.S.A.

RE: Minnesota State Retirement System - Judges' Retirement Fund - Experience Study

DATE: March 8, 1984

Chapter 356.215, Subdivision 2 requires that an experience study of the fund be conducted every four years. An experience study is a report which furnishes experience data and an actuarial analysis which substantiates the actuarial assumptions of the fund.

The experience study was conducted by James M. Magalska of Touche, Ross & Co.

Ideally, actuarial assumptions should match experience of the fund by each assumption and also by the assumptions in the aggregate. To put it another way, it would be ideal to utilize actuarial assumptions which do not result in any actuarial gains or losses to the fund. For funds the size of the Judges' plan, it would be only by coincidence that this ideal would be attained.

In general, an actuarial gain results if the expected occurence produced a larger liability than necessary to support the actual occurrence, if the expected liability released by the occurrence was smaller than the actual liability released, or if the actual rate of asset growth was greater than expected. The reverse is true for an actuarial loss.

The following is a summary discussion of the experience study results for the period from June 30, 1979 to June 30, 1983.

1. The unfunded accrued liability increased by $7,173,369 over the period. The portion of this increase attributable to actuarial losses was 48% or $3,454,233.

2. An interest assumption of 5% is required by Chapter 356. The overall rate of return on the value of the assets was in excess of 5% for the period. This resulted in an actuarial gain of $570,999 over the four year period.

3. A salary increase assumption of 3½% is required by Chapter 356. The combined effect of salary increases and Social Security changes produced a net actuarial loss of $1,728,649 over the period.

3. The combined interest and salary scale assumptions are implicit assumptions. In other words, it is expected that excess interest earnings will offset actuarial losses from the lack of a realistic salary increase assumption. Over the past four years, this has not happened.

   It is expected that salary losses in excess of actuarial gains from interest will continue with the assumptions in use.

4. No pre-retirement withdrawals are assumed. There were 13 withdrawals over the past four years and this probably resulted in a small actuarial gain. The results are not statistically significant and the actuary recommended no change in this assumption.

5. The ratio of pre-retirement deaths to expected pre-retirement deaths was 50%. There were four deaths during the period. The results are not statistically significant and the actuary recommended no change in this assumption.

6. There were no disabilities during the four year period although three disabilities were expected. This is not a significant deviation from the expected experience given the size of the fund. The actuary recommended no change in this assumption.

7. The ratio of actual to expected deaths for retirement members was 57% over the four year period ending June 30, 1983. This experience produced an actuarial loss of $267,203. There were 17 deaths. The results are not statistically significant and the actuary recommended no change in this assumption.

8. It is assumed that retirement will occur at an average age of 68. The average age at retirement over the last four years has been about age 67. No particular trend is indicated and the average retirement age will show some volatility due to the size of the group. The actuary recommended no change in this assumption.

9. The expense provision assumed is .16% of payroll. Actual expenses during the past four years have been .26% of payroll and the actuary recommended that this assumption be changed to .26% of payroll.

The experience study complies with the requirements of Chapter 356 of the Minnesota Statutes.

Based on the data available, I agree with the actuary's recommendations on changes to the actuarial assumptions.

James R. Bordewick

James R. Bordewick, F.S.A.
Commission Actuary