

REPORT ON
ACTUARIAL VALUATION
MINNESOTA STATE RETIREMENT SYSTEM
JUNE 30, 1972
4% INTEREST RATE ASSUMPTION

December 11, 1972

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December 11, 1972

Board of Trustees
Minnesota State Retirement System
529 Jackson Street
St. Paul, Minnesota 55101

Gentlemen:

We are pleased to transmit herewith our report on the actuarial valuation of your Retirement System made as of June 30, 1972 on the basis of a 4% interest rate assumption. This valuation was authorized under Contract No. E-0633.

We look forward to the opportunity of discussing this report with you at your convenience.

Very truly yours,

COATES AND CRAWFORD
Consulting Actuaries

By


Robert H. Little, F.S.A.

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REPORT ON
ACTUARIAL VALUATION
OF THE
MINNESOTA STATE RETIREMENT SYSTEM
AS OF
JUNE 30, 1972
ON THE BASIS OF 4% INTEREST RATE ASSUMPTION

The contract under which this valuation was authorized specified that the actuarial valuation be carried out on the basis of the System as it was constituted on June 30, 1972 using 3-1/2% and 4% interest rate assumptions and the other actuarial assumptions developed during the course of the June 30, 1971 actuarial investigation. This report sets forth the results of the 4% valuation. The results of the 3-1/2% valuation have been submitted in a separate report.

In order to develop the entry age normal cost contribution rate for new employees, we carried out a complete valuation as of June 30, 1971 of active members who were employed during the preceding four and one-half year period. The results of these calculations indicate that the total entry age normal cost rate amounts to 5.28% of salary. This rate compares with a 5.77% rate developed on the basis of a 3-1/2% interest assumption.

Employees are required by law to contribute 3% and, accordingly, the State's share of the entry age normal cost contribution rate amounts to 2.28%.

The law requires that the State make the following contributions to the Fund with respect to members contributing at a 3% rate:

- (1) A "matching" contribution equal to 3% of the members' participating salaries, and
- (2) An "additional" contribution equal to one-third of members' contributions, or 1% of participating salaries.

We have been advised that it is the intent of the Minnesota Legislature to pay the "additional" contributions referred to above for a limited time only.

The Actuarial Balance Sheet shown on the following page summarizes the results of the valuation. An Accounting Balance Sheet has not been included in this report because it would duplicate the Accounting Balance Sheet included in our report on the 3-1/2% valuation required by law.

MINNESOTA STATE RETIREMENT SYSTEM

ACTUARIAL BALANCE SHEET
AS OF
JUNE 30, 1972

4% INTEREST RATE ASSUMPTION

ASSETS

| | | | |
|----|--|-----------------------|-------------------------|
| 1. | Assets on Hand from Accounting Balance Sheet: | | |
| | a) Participation in MAFB Fund and Annuity Stabilization Reserve | \$ 53,552,116.21 | |
| | b) All other Assets | <u>125,951,810.06</u> | \$179,503,926.27 |
| 2. | Present Value of Employees' Future Contributions (3% of Participating Salary) | | 65,744,076.00 |
| 3. | Present Value of State Future Contributions Applicable to: | | |
| | a) Entry Age Normal Cost (2.28% of Participating Salary) | \$ 49,965,498.00 | |
| | b) Unfunded Accrued Liability (Balance of 3% "Matching" Contribution less .19% for Operating Expenses or .53% of Participating Salary) | 11,614,787.00 | |
| | c) Unfunded Accrued Liability (Portion to be funded by "Additional" Contribution) | <u>(4,244,704.10)</u> | <u>57,335,580.90</u> |
| 4. | TOTAL ASSETS | | <u>\$302,583,583.17</u> |

LIABILITIES

| | | | |
|-----|--|---------------------|-------------------------|
| 5. | Current Liabilities from Accounting Balance Sheet | | \$ 1,292,028.96 |
| 6. | Present Value of Earned and Earnable Benefits Payable to Presently Active Members: | | |
| | a) Retirement Benefits | \$188,424,688.00 | |
| | b) Disability Benefits | 16,852,500.00 | |
| | c) Refundments due to death or withdrawal | 34,145,345.00 | |
| | d) Surviving Spouse Benefits | <u>5,221,539.00</u> | 244,644,072.00 |
| 7. | Present Value of Benefits for Deferred Annuitants: | | |
| | a) Retirement Benefits | \$ 2,389,131.00 | |
| | b) Refundments due to death or withdrawal | 124,583.00 | |
| | c) Benefits already authorized | <u>5,655.00</u> | 2,519,369.00 |
| 8. | Present Value of Refundments to former members without vested rights | | 287,879.00 |
| 9. | Benefits Payable from MAFB Fund: | | |
| | a) Reserve for Participation | \$ 52,732,562.67 | |
| | b) Stabilization Reserve | <u>819,553.54</u> | 53,552,116.21 |
| 10. | Present Value of Survivor Benefits | | <u>288,118.00</u> |
| 11. | TOTAL LIABILITIES | | <u>\$302,583,583.17</u> |

The Actuarial Balance Sheet is a convenient device to present the results of an actuarial valuation. The following comments are intended to assist you in your understanding of the items contained in the Actuarial Balance Sheet.

Item 1 shows the assets on hand and was taken directly from the Accounting Balance Sheet.

Item 2 shows the present value of members' future contributions required by law equal to 3% of the members' participating salaries.

Item 3 shows the present value of State future contributions to the System. We have divided the present value applicable to the State's contributions as follows:

Item 3(a) The portion attributable to the State's share of the total entry age normal cost contribution of 5.28% of members' salaries. After deducting the members' share of 3%, the State's share of the entry age normal cost contribution amounts to 2.28% of members' salaries.

Item 3(b) The portion attributable to the balance of the State's "matching" contribution (.72% of members' salaries less .19% which is allocated for operating expense).

Item 3(c) The portion attributable to the State's "additional" contribution. The negative amount shows that the State's matching contribution is more than sufficient to fund all existing benefits for present members.

Item 5 shows the current liabilities and was taken directly from the Accounting Balance Sheet.

Item 6 shows the actuarially computed present value of all benefits earned to June 30, 1972 and earnable after that date that will be paid from the System to presently active members.

Item 7 shows the actuarially computed present value of all benefits payable from the System to members who have terminated service with vested benefits.

Item 8 shows the actuarially computed present value of refundments that will be paid from the System to members who have terminated service without vested benefits.

Item 9 shows the MSRS participation in the MAFB Fund and Item 10 shows the present value of survivor benefits.

The three exhibits presented on the following pages of this report are those which conform to the requirements of Minnesota Statutes 1971, Chapter 356, Section 356.20, Subdivisions 4(1), 4(2) and 4(3), except for the fact that they reflect a 4% interest assumption rather than the 3-1/2% assumption required by Chapter 356.

MINNESOTA STATE RETIREMENT SYSTEM

EXHIBIT REQUIRED BY MINNESOTA STATUTES 1971, CHAPTER 356,
SECTION 356.20, SUBDIVISION 4(1) AS OF JUNE 30, 1972

4% INTEREST RATE ASSUMPTION

ASSETS AND UNFUNDED ACCRUED LIABILITY

Assets

| | | | |
|-----|--|----|-------------------------|
| 1. | Cash in office | \$ | 25.00 |
| 2. | Deposits in banks | | 264,526.92 |
| 3. | Short term investments (at cost) | | 6,139,468.12 |
| 4. | Accounts receivable: | | |
| | a) Accrued employee contributions | | 346,505.70 |
| | b) Accrued employer contributions | | 382,893.49 |
| | c) Employee back payments | | 32,668.72 |
| | d) Investment maturities and sales | | 316,297.25 |
| | e) Other | | 21,083.25 |
| 5. | Accrued interest in investments | | 1,011,013.25 |
| 6. | Dividends declared & payable, but not yet received | | 62,082.37 |
| 7. | Investment in debt securities at amortized cost | | 67,013,548.92 |
| 8. | Investment in equities at cost (Market Value \$59,448,886) | | 49,956,219.44 |
| 9. | Equipment at depreciated cost | | 9,082.46 |
| 10. | Prepaid postage | | 2,000.00 |
| 11. | Deferred yield adjustment account | | 394,395.17 |
| 12. | Annuity stabilization account | | 819,553.54 |
| 13. | Participation in the MAFB Fund | | 52,732,562.67 |
| 14. | Total Assets | | <u>\$179,503,926.27</u> |

Unfunded Accrued Liability

| | | | |
|-----|--|----|-------------------------|
| 15. | Unfunded Accrued Liability to be funded by portion of State's 3% "Matching Contribution" in excess of State's share of entry age normal cost contribution and Operating Expenses | \$ | 11,614,787.00 |
| 16. | Unfunded Accrued Liability to be funded by State's "Additional" contribution | | <u>(4,244,704.10)</u> |
| 17. | Total Unfunded Accrued Liability | \$ | 7,370,082.90 |
| 18. | TOTAL ASSETS AND UNFUNDED ACCRUED LIABILITY | | <u>\$186,874,009.17</u> |

CURRENT LIABILITIES AND RESERVES REQUIRED

Current Liabilities

| | | | |
|-----|---|----|-----------------|
| 19. | Accounts Payable: | | |
| | a) Due to MAFB Fund | \$ | 232,796.53 |
| | b) Security purchases | | 968,076.68 |
| | c) Annuities | | 1,556.10 |
| | d) Survivor benefits | | 2,543.97 |
| | e) Annuitant deposits | | 17,454.54 |
| | f) Accrued expenses | | 51,640.10 |
| | g) Overpaid dividends & prepaid postage | | 2,296.27 |
| | h) Transfer to unclassified employee retirement | | 11,883.72 |
| 20. | Suspense item | | <u>3,781.05</u> |
| 21. | Total current liabilities | \$ | 1,292,028.96 |

Reserves Required

| | | | |
|-----|---|--|-------------------------|
| 22. | Total Reserves Required per attached schedule | | <u>\$185,581,980.21</u> |
| 23. | TOTAL CURRENT LIABILITIES AND RESERVES REQUIRED | | <u>\$186,874,009.17</u> |

Note: Accumulated contributions, without interest, of members not yet retired amounted to \$47,240,336.36 as of June 30, 1972.

MINNESOTA STATE RETIREMENT SYSTEM

DETERMINATION OF RESERVES REQUIRED
AS OF
JUNE 30, 1972

4% INTEREST RATE ASSUMPTION

| <u>Benefits For:</u> | (1) | (2) | <u>Reserves Required (1) - (2)</u> |
|--|--|--|--|
| | <u>Present Value of Benefits</u> | <u>Present Value of Applicable Portion of Normal Cost Contribution</u> | |
| 1. Active Members: | | | |
| a) Retirement Benefits | \$188,424,688.00 | \$ 74,071,659.00 | \$114,353,029.00 |
| b) Disability Benefits | 16,852,500.00 | 10,299,906.00 | 6,552,594.00 |
| c) Refundments due to death or withdrawal | 34,145,345.00 | 29,146,540.00 | 4,998,805.00 |
| d) Surviving Spouse Benefits | 5,221,539.00 | 2,191,469.00 | 3,030,070.00 |
| 2. Deferred Annuitants | 2,519,369.00 | - | 2,519,369.00 |
| 3. Former Members Without Vested Rights | 287,879.00 | - | 287,879.00 |
| 4. Survivors | 288,118.00 | - | 288,118.00 |
| 5. Benefits Payable from MAFB Fund: | | | |
| a) Reserve for Participation | 52,732,562.67 | - | 52,732,562.67 |
| b) Annuity Stabilization Reserve | 819,553.54 | - | 819,553.54 |
| 6. Total | \$301,291,554.21 | \$115,709,574.00 | \$185,581,980.21 |

MINNESOTA STATE RETIREMENT SYSTEM

EXHIBIT REQUIRED BY MINNESOTA STATUTES 1971, CHAPTER 356,
SECTION 356.20, SUBDIVISION 4(2) and (3)
FISCAL YEAR ENDING JUNE 30, 1972

4% INTEREST RATE ASSUMPTION

ANALYSIS OF INCOME AND DEDUCTIONS FROM INCOME

INCOME

| | | |
|----|--|------------------------|
| 1. | <u>From Employees</u> | |
| | Employee contributions | \$ 7,512,599.06 |
| | Employee accrued contributions receivable | 346,505.70 |
| | Employee contributions, accounts receivable | 15,074.81 |
| 2. | <u>From Employers</u> | |
| | Employer contributions | 7,524,902.81 |
| | Employer additional contributions | 2,503,021.48 |
| | Employer accrued contributions receivable | 382,893.49 |
| 3. | <u>From Investments</u> | |
| | Interest on debt securities | 3,973,444.61 |
| | Dividends on corporate stock | 1,440,818.46 |
| | Premium on bonds called | 1,630.78 |
| | MAFB Fund income | 4,737,297.82 |
| 4. | <u>Other Revenues</u> | |
| | Interest on back payments by employees | 15,937.58 |
| | Employer payments in lieu of interest | 151.45 |
| | Adjustment in prior year benefit payments | 94.37 |
| | Unclaimed contributions & benefits cancelled into fund | 73.53 |
| | Employer contributions from unclassified employee retirement | 2,701.19 |
| | Increase in MAFB Fund a/c capitalization of bond losses | 229,958.57 |
| | Gain on sales of securities | 21,307.03 |
| 5. | <u>TOTAL INCOME</u> | <u>\$28,708,412.74</u> |

DEDUCTIONS FROM INCOME

| | | |
|-----|---|------------------------|
| 6. | <u>Benefits</u> | |
| | Retirement benefits | \$ 5,463,690.25 |
| | Survivor benefits (spouses) | 29,162.64 |
| | Interest paid - deceased employees | 92,419.64 |
| | Interest paid - compulsory retirees | 3,084.32 |
| 7. | <u>Refundments</u> | |
| | Left service | 1,779,514.47 |
| | Coverage by other systems | 61,375.34 |
| | Employee deaths | 271,416.50 |
| | Annuitant deaths | 87,325.97 |
| | Erroneous deductions | 9,956.17 |
| 8. | <u>Unclassified Employee Retirement Account</u> | |
| | Transfer of employee contributions | 152,324.07 |
| | Transfer of employer contributions | 152,324.07 |
| | Transfer of interest on initial assets | 15,096.06 |
| 9. | <u>Operating Expenses</u> | 446,124.26 |
| 10. | <u>Reduction in Annuity Stabilization Reserve</u> | 502,390.15 |
| 11. | <u>Increase in Total Reserves Required</u> | |
| | Reserves Required 6-30-71 | \$168,543,770.41 |
| | Reserves Required 6-30-72 | <u>185,581,980.21</u> |
| 12. | <u>TOTAL DEDUCTIONS FROM INCOME</u> | <u>\$26,104,413.71</u> |
| 13. | <u>EXCESS OF INCOME OVER DEDUCTIONS FROM INCOME</u> | <u>\$ 2,603,999.03</u> |
| 14. | <u>REDUCTION IN UNFUNDED ACCRUED LIABILITY:</u> | |
| | Unfunded Accrued Liability 6-30-71 | \$ 9,974,081.93 |
| | Unfunded Accrued Liability 6-30-72 | <u>7,370,082.90</u> |
| | | <u>\$ 2,603,999.03</u> |