

REPORT ON
ACTUARIAL VALUATION
AND
EXPERIENCE STUDY
MINNESOTA STATE RETIREMENT SYSTEM

JUNE 30, 1975

November 19, 1975



112-0000

LITTLE, CHURCH & CHAPIN, INC.

CONSULTING ACTUARIES

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November 19, 1975

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

Gentlemen:

We are pleased to transmit herewith our report on the actuarial valuation and experience study of your Retirement System made as of June 30, 1975.

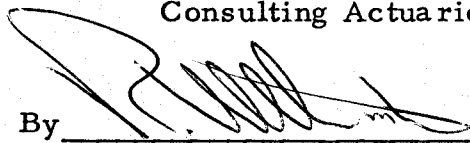
Pursuant to the Contract under which this valuation was authorized, the actuarial valuation was carried out on the basis of a 5% interest rate assumption, a 3-1/2% salary scale, and on the basis of certain other specified actuarial assumptions. Also, in accordance with the above noted contract, we utilized the entry age normal cost method of funding to determine the unfunded accrued liability of the System.

We hereby certify that the actuarial valuation of the Minnesota State Retirement System made as of June 30, 1975 was carried out on the basis of accepted actuarial methods and procedures and in accordance with the provisions of Minnesota Statutes 1974, Chapter 356 as amended by Laws 1975. The results of that valuation indicate that the contributions required from the employees and from the State under Minnesota Statutes 1974, Chapter 352, are adequate to provide the benefits that will be paid from the System.

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

Very truly yours,

LITTLE, CHURCH & CHAPIN, INC.
Consulting Actuaries

By 

Robert H. Little, F.S.A.

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REPORT ON
ACTUARIAL VALUATION AND EXPERIENCE STUDY
OF THE
MINNESOTA STATE RETIREMENT SYSTEM
AS OF
JUNE 30, 1975

SECTION I

INTRODUCTION

Minnesota Statutes 1974, Chapter 356 as amended by Laws 1975, requires that an actuarial valuation be carried out annually and that an experience study be carried out every fourth year. This report contains the results of the actuarial valuation and experience study that was carried out as of June 30, 1975 in compliance with this requirement by the State law.

This actuarial survey is, by definition, divided into the following two principal phases:

1. Phase I - Experience Study

This phase consists of an analysis of the experience of the members during the period since the last investigation with respect to rates of separation from active service for active members and mortality rates among retired members. This analysis permits the actuary to develop appropriate assumptions with respect to each of these contingencies for use in the valuation phase. The last such exper -

ience study was carried out as of June 30, 1971.

2. Phase II - Actuarial Valuation

This phase consists of computing the actuarial assets and liabilities of the System on the basis of the actuarial assumptions developed during the course of the experience study together with the specified 5% interest rate assumption and 3-1/2% salary scale.

The Executive Director of the System furnished us with IBM punch cards or magnetic tapes containing detailed employee information on the 69,469 members who were actively employed as of June 30, 1975 or who had terminated from active employment during the four years under investigation. In addition, the Executive Director furnished us with 7,162 IBM punch cards containing detailed information on all retired members who were receiving benefits as of June 30, 1975 or who had died during the four years under investigation. We were also furnished various listings and tabulations of employee data.

The Executive Director and his staff are to be complimented on the accuracy and completeness of the aforementioned data.

The following Section II of this report sets forth the results of the experience study and Section III sets forth the results of the actuarial valuation. The schedules contained in Section IV at the end of this report set forth in detail the actuarial assumptions developed during the course of the investigation and the schedules required by law.

SECTION II

RESULTS OF ACTUARIAL EXPERIENCE STUDY

In order to carry out an actuarial valuation of the assets and liabilities of your Retirement System the actuary must first adopt assumptions with respect to the following items:

1. Interest earnings that will be realized on the fund over many years in the future.
2. The relative increases in the salary of a member from the date of the valuation to the date of separation from active service.
3. The mortality rates to be experienced among persons retired for age and service.
4. The mortality rates to be experienced among persons retired for disability.
5. The probabilities of members separating from active service on account of:
 - a) Withdrawal without vesting - i. e., withdrawal with refundment and withdrawal prior to completion of ten years of service.
 - b) Death
 - c) Disability
 - d) Age and Service Retirement

We have examined the experience of the members of your Retirement System during the four year period ending June 30, 1975. We set forth in the following paragraphs of this Section a discussion of the items entering into the investigation.

INTEREST RATE AND SALARY SCALES

Your Retirement Law requires that the actuarial valuation be carried out on the basis of a 5% interest rate assumption and upon a 3-1/2%, per annum, salary scale.

MORTALITY AFTER AGE AND SERVICE RETIREMENT

The following schedule shows a comparison of the deaths which actually occurred among members retired for age or service and the number expected by the mortality table currently in use which is referred to as the 1951 Group Annuity Mortality Table with ages set back one year for males and set back two years for females.

	<u>MORTALITY AFTER AGE AND SERVICE RETIREMENT</u>	
	<u>Actual Deaths</u>	<u>Deaths Expected by 1951 Group Annuity Mortality Table (x-1)(y-2)</u>
Male	626	653
Female	<u>306</u>	<u>302</u>
Total	932	955

The ratio of actual deaths to expected deaths is 98% whereas it was 103% as of June 30, 1971. Although this shows a trend toward lower mortality, we believe the present table is appropriate for continued use.

MORTALITY AFTER DISABILITY RETIREMENT

You are currently using the Combined Annuity Mortality Table to reflect rates of mortality after disability retirement. The following table shows a

comparison of the actual deaths with those expected by the Combined Annuity Mortality Table:

MORTALITY AFTER DISABILITY RETIREMENT

	<u>Actual Deaths</u>	<u>Expected Deaths Combined Annuity Mortality Table</u>
Male	74	20
Female	<u>26</u>	<u>10</u>
Total	100	30

Although the experience shows that the actual rates of mortality after disability retirement are higher than those which were assumed in the valuation, there are less than 300 members retired for disability and fluctuations can be expected. We therefore recommend that the Combined Annuity Mortality Table be continued in use.

RATES OF SEPARATION FROM ACTIVE SERVICE

We do not believe that the experience of your members during the four year period ending June 30, 1975 is a reliable guide to the experience to be expected in the future because of the following:

1. The economic conditions that prevailed nationwide.
2. The System was amended during the period to provide special benefits for Correctional Employees.
3. General Member benefits were increased substantially and retirement was made mandatory at age 65.

Accordingly, although probabilities of disability and retirement developed as of June 30, 1971 are somewhat at variance with the experience during the

four years ending June 30, 1975, we are recommending that all of the assumptions adopted as a result of the June 30, 1971 study be continued.

The results of the investigation with respect to rates of separation from active service are summarized in the following table. The "Expected Separations" are based on the rates developed by the June 30, 1971 experience study covering the experience of your members from January 1, 1968 through June 30, 1971 and are those that we recommend be continued.

SUMMARY OF EXPERIENCE STUDY
WITH RESPECT TO RATES OF SEPARATION
FROM ACTIVE SERVICE

	<u>Actual Separations</u>	<u>Expected Separations</u>
	<u>Withdrawal Without Vesting*</u>	
Male	2,603	2,740
Female	<u>4,858</u>	<u>5,134</u>
Total	7,461	7,874
	<u>Death</u>	
Male	349	362
Female	<u>131</u>	<u>145</u>
Total	480	507
	<u>Disability Retirement</u>	
Male	127	72
Female	<u>68</u>	<u>47</u>
Total	195	119
	<u>Age and Service Retirement</u>	
Male	1,360	1,078
Female	<u>1,028</u>	<u>818</u>
Total	2,388	1,896

*Based on experience of members after completing 3 years of service.

RECOMMENDATIONS ON ACTUARIAL ASSUMPTIONS

Based upon our study and analysis of the information developed by the experience study of the actual experience of your members during the period July 1, 1971 to June 30, 1975, we respectfully make the following recommendations with respect to the actuarial assumptions to be used for the actuarial valuations.

1. In order to comply with your Retirement Law, the actuarial valuations should be carried out on the basis of a 5% interest rate assumption and upon a 3-1/2%, per annum, salary scale.
2. We recommend the continuation of the 1951 Group Annuity Mortality Table with ages set back one year for males and two years for females for the mortality after age and service retirement assumption.
3. We recommend the continuation of the Combined Annuity Mortality Table as the basis of the assumption for mortality after disability retirement.
4. We recommend the continuation of the probabilities of separation from active service developed by the June 30, 1971 experience analysis.

SECTION III

RESULTS OF ACTUARIAL VALUATION

The Contract under which this valuation was authorized specifies that the actuarial valuation be carried out on the basis of a 5% interest rate assumption, a 3-1/2% salary scale, the 1951 Group Annuity Mortality Table with ages set back one year for Male retirees and set back two years for Female retirees, and upon other appropriate actuarial assumptions. We were also instructed to carry out the actuarial valuation on the basis of an entry age normal cost method of funding.

The current valuation was carried out in accordance with the stipulations contained in the aforementioned Contract and on the basis of the actuarial assumptions recommended in Section II of the Report. Also, we reflected the 5-1/2% average salary increase that became effective July 9, 1975.

The entry age normal cost method of funding requires the determination of the level contribution rate which, if contributed on behalf of all new employees from the dates of employment to the dates of separation from service, will be adequate to provide all of their benefits. Under this funding method, the unfunded accrued liability is taken as the total liability of the System for benefits earned in the past as well as those earnable in the future, less the assets on hand, less the present value of future employee contributions and less the present value of future State entry age normal cost contributions.

In order to develop the entry age normal cost contribution rate for new General Employees, we carried out a complete valuation of active members as of June 30, 1975 who were employed during the preceding five-year period. The results of these calculations indicate that the total entry age normal cost rate under the new scale of benefits for General Employees amounts to 6.91% of salary. General Employees are required by law to contribute 4% and, accordingly, the State's share of the entry age normal cost contribution rate for General Employees amounts to 2.91%.

Using the same procedure, we calculated the total entry age normal cost rate for Correctional Employees to be 10.79% of salary. Correctional Employees are required by law to contribute 6% and, accordingly, the State's share of the entry age normal cost contribution for Correctional Employees amounts to 4.79%.

The law requires that the State make the following contributions to the Fund:

- (1) A "matching" contribution equal to 4% of General Employees' salaries and 9% of Correctional Employees' salaries.
- (2) An "additional" contribution equal to 2% of General Employees' salaries and 5% of Correctional Employees' 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.

We assigned the State contribution Reserve to Correctional and General Employees in proportion to their accumulated contributions as follows:

State Contribution Reserve

General Employees	\$95,853,385
Correctional Employees	<u>2,998,632</u>
Total	\$98,852,017

The Accounting Balance Sheet shown on the following page was furnished by the Executive Director.

The Actuarial Balance Sheet shown on the page following the Accounting Balance Sheet summarizes the results of the valuation. In the current valuation we have made provision for administrative expenses amounting to .14% of salaries.

MINNESOTA STATE RETIREMENT SYSTEM

ACCOUNTING BALANCE SHEET
AS OF
JUNE 30, 1975

ASSETS

Cash in Office	\$.00
Cash in State Treasury	479,526.67
Cash in Bank	200.00
Short term investments (at cost)	12,321,955.56
Accounts receivable:	
a) Accrued employee contributions	675,633.40
b) Accrued employer contributions	1,043,743.77
c) Employee back payments	150,185.54
d) Investment maturities and sales	755,042.82
e) Due from other plans	51,940.65
f) Due from MAFB Fund	.00
g) Other	21,630.59
Accrued interest in investments	1,450,465.37
Dividends declared and payable but not yet received	30,992.94
Investment in debt securities at amortized cost	69,886,528.17
Investment in equities at cost (1)	73,566,613.60
Recognized unrealized appreciation in equities	2,146,422.77
Equipment at depreciated cost	11,382.04
Deferred yield adjustment account	2,886,106.43
Participation in the MAFB Fund	91,117,722.17
Total Assets	<u>\$256,596,092.49</u>

LIABILITIES AND RESERVES

LIABILITIES

Accounts payable:	
a) Security purchases	\$ 378,218.25
b) Annuities	1,206.92
c) Survivor benefits	.00
d) Annuitant deposits	10,649.10
e) Accrued expenses	49,259.36
f) Overpaid dividends	1,785.00
g) Transfer to unclassified employee retirement	205,728.32
Suspense item: Unredeemed 6 year old warrants	4,692.40
Total Liabilities	<u>\$ 651,539.35</u>

RESERVES

Employee contribution reserve	65,678,306.97
Survivor benefit reserve	296,507.00
Reserve for participation in MAFB Fund	91,117,722.17
State contribution reserve	98,852,017.00
Total Reserves	<u>\$255,944,553.14</u>
Total Liabilities and Reserves	<u>\$256,596,092.49</u>

(1) Market Value at June 30, 1975 was \$72,509,441.

MINNESOTA STATE RETIREMENT SYSTEM

ACTUARIAL BALANCE SHEET
AS OF
JUNE 30, 1975

ASSETS

1.	Assets on Hand from Accounting Balance Sheet:		
	a) Participation in MAFB Fund	\$ 91,117,722	
	b) All other assets	<u>165,478,370</u>	\$256,596,092
2.	Present Value of Employees' Future Contributions		133,263,046
3.	Present Value of State Future Contributions		
	Applicable to:		
	a) Entry Age Normal Cost	\$ 97,230,820	
	b) Unfunded Accrued Liability		
	(Balance of "Matching" Contribution less .14% for Operating Expenses)	33,404,723	
	c) Unfunded Accrued Liability		
	(Portion to be funded by "Additional" Contribution)	<u>149,553,959</u>	<u>280,189,502</u>
4.	TOTAL ASSETS		<u><u>\$670,048,640</u></u>

LIABILITIES

5.	Current Liabilities from Accounting Balance Sheet		\$ 651,539
6.	Present Value of Earned and Earnable Benefits		
	Payable to Presently Active Members:		
	a) Retirement Benefits	\$460,589,496	
	b) Disability Benefits	24,506,758	
	c) Refundments due to death or withdrawal	73,186,655	
	d) Surviving Spouse Benefits	<u>12,501,692</u>	570,784,601
7.	Present Value of Benefits for Deferred Annuitants:		
	a) Retirement Benefits	\$ 4,061,696	
	b) Refundments due to death or withdrawal	145,412	
	c) Benefits already authorized	<u>1,526</u>	4,208,634
8.	Present Value of Refundments to former members without vested rights		359,111
9.	Present Value of Survivor Benefits		296,507
10.	Present Value of Benefits Payable from MAFB Fund		103,337,219
11.	MAFBF Annuity Stabilization Account		<u>(9,588,971)</u>
12.	TOTAL LIABILITIES		<u><u>\$670,048,640</u></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.

Item 3 shows the present value of the State's 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 2.91% of General Employees' salaries and 4.79% of Correctional Employees' salaries.

Item 3(b) The portion attributable to the balance of the State's "matching" contribution less .14% which is allocated for operating expenses. This amounts to .95% of General Employees' salaries and 4.07% of Correctional Employees' salaries.

Item 3(c) The portion attributable to the State's "additional" contribution. The following table shows the required information for Correctional Employees and for General Employees:

	<u>Correctional Employees</u>	<u>General Employees</u>	<u>Total</u>
1. Annualized Salaries July 1, 1975	\$10,467,784	\$404,384,378	\$414,852,162
2. State "Additional" con- tribution rate	5%	2%	
3. Annual State "Additional" contribution	523,389	8,087,688	8,611,077
4. Item 3(c) Actuarial Balance Sheet	6,390,562	143,163,397	149,553,959
5. Years (to nearest year) re- quired to amortize Item 3(c) of Actuarial Balance Sheet by "Additional" State Con- tributions which increase in accordance with salary scale	13	21	20
6. First year annual contribu- tion with subsequent salary scale increases required to amortize Item 3(c) of Act- uarial Balance Sheet over Period Ending June 30, 1997	340,646	7,631,257	7,971,903
7. Total Unfunded Accrued Liability (Item 3(b) plus Item 3(c) of Actuarial Balance Sheet)	\$ 9,090,688	\$173,867,994	\$182,958,682

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, 1975 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.

The total of \$103,337,219 shown for Item 10 represents the value of benefits payable from the MAFB to MSRS retirees. The Accounting Balance Sheet shows the MAFB Fund as \$91,117,722. The difference is due to the 1974-75 experience computed in accordance with the law as follows:

	<u>MAFB Fund</u>
1. Accounting Balance Sheet	\$ 91,117,722
2. Statutory Mortality Loss 1974-75	+ 2,630,526
3. Interest Loss 1974-75	+ <u>9,588,971</u>
4. Actuarially Computed Reserve	\$103,337,219

We would like to note that the foregoing losses determined under the law are not precise values. The following schedule shows our determination of what we consider to be more appropriate gains and losses:

	<u>MAFB Fund</u>
1. Accounting Balance Sheet	\$ 91,117,722
2. Mortality Gain	- <u>218,251</u>
3. MAFBF Participation after transfer of Mortality Gain	\$ 90,899,471
4. Investment Loss	<u>12,437,748</u>
5. Actuarially Computed Reserve	\$103,337,219

The mortality gain of \$218,251 was calculated as the difference between the actuarially computed reserve (\$103,337,219) and the MAFBF participation that would have resulted if the MAFBF had earned exactly 5% (\$103,555,470).

CONCLUSIONS

In a retirement system such as yours where both the benefits and contributions are specified in the Retirement Law, the major purpose of an actuarial valuation is to determine whether or not the prescribed contributions are adequate to provide the benefits that will ultimately be paid under the system. The results of the current valuation show that the benefits to be provided under the System can be financed by the members' contributions and the State's "matching" contributions plus the State's "additional" contribution for approximately twenty years.

SECTION IV

REQUIRED EXHIBITS

Minnesota Statutes 1974, Chapter 356 as amended by Laws 1975, requires, in Section 356.20, Subdivision 4(1), that the actuary of the System prepare an exhibit setting forth certain specified information with regard to the System as of the valuation date, including "Reserves Required" under the System. In an earlier conference with representatives of the State's Employee Retirement System's Interim Commission, we were advised that "Reserve Required", as contemplated in the aforementioned statute, may be defined as the actuarially computed present value applicable to a specified benefit reduced by the actuarially computed present value of any portion of the total entry age normal cost contribution under the System which is applicable to the specified benefit.

The exhibit required by Section 356.20, Subdivision 4(1) of Minnesota Statutes 1974, Chapter 356 as amended by Laws 1975 is presented on the following pages of this Section IV and we hereby certify that the Reserves Required set forth therein have been computed in accordance with the Entry Age Normal Cost (level Normal Cost) basis in the manner outlined in the definition referred to above.

MINNESOTA STATE RETIREMENT SYSTEM

EXHIBIT REQUIRED BY MINNESOTA STATUTES 1974, CHAPTER 356,
SECTION 356, 20, SUBDIVISION 4(1) AS AMENDED BY LAWS 1975
AS OF JUNE 30, 1975

ASSETS AND UNFUNDED ACCRUED LIABILITY

ASSETS

1. Cash in Office	\$.00
2. Cash in State Treasury	479,526.67
3. Cash in Bank	200.00
4. Short term investments (at cost)	12,321,955.56
5. Accounts Receivable:	
a) Accrued employee contributions	675,633.40
b) Accrued employer contributions	1,043,743.77
c) Employee back payments	150,185.54
d) Investment maturities and sales	755,042.82
e) Due from other plans	51,940.65
f) Due from MAFB Fund	.00
g) Other	21,630.59
6. Accrued interest in investments	1,450,465.37
7. Dividends declared and payable but not yet received	30,992.94
8. Investments in debt securities at amortized cost	69,886,528.17
9. Investment in equities at cost	73,566,613.60
10. Recognized unrealized appreciation in equities	2,146,422.77
11. Equipment at depreciated cost	11,382.04
12. Deferred yield adjustment account	2,886,106.43
13. Participation in the MAFB Fund	91,117,722.17
14. Total Assets	<u>\$256,596,092.49</u>

UNFUNDED ACCRUED LIABILITY

15. Unfunded Accrued Liability to be funded by portion of State's "Matching Contribution" in excess of State's share of entry age normal cost contribution and Operating Expenses	\$ 33,404,723.00
16. Unfunded Accrued Liability to be funded by State's "Additional" contribution	<u>149,553,958.86</u>
17. Total Unfunded Accrued Liability	\$182,958,681.86
18. TOTAL ASSETS AND UNFUNDED ACCRUED LIABILITY	<u>\$439,554,774.35</u>

CURRENT LIABILITIES AND RESERVES REQUIRED

CURRENT LIABILITIES

19. Accounts payable:	
a) Security purchases	\$ 378,218.25
b) Annuities	1,206.92
c) Survivor benefits	.00
d) Annuitant deposits	10,649.10
e) Accrued expenses	49,259.36
f) Overpaid dividends	1,785.00
g) Transfer to unclassified employee retirement	205,728.32
20. Suspense item: Unredeemed 6 year old warrants	4,692.40
21. MAFBF Annuity Stabilization Account	<u>(9,588,971.00)</u>
22. Total Liabilities	\$ (8,937,431.65)

RESERVES REQUIRED

23. Total Reserves Required per attached schedule	<u>\$448,492,206.00</u>
24. TOTAL CURRENT LIABILITIES AND RESERVES REQUIRED	<u>\$439,554,774.35</u>

Note: Accumulated contributions, without interest, of members not yet retired amounted to \$65,678,306.97 as of June 30, 1975.

MINNESOTA STATE RETIREMENT SYSTEM

DETERMINATION OF RESERVES REQUIRED
AS OF
JUNE 30, 1975

	(1)	(2)	(3)
	Present Value of Benefits	Present Value of Applicable Portion of Normal Cost Contribution	Reserves Required (1) - (2)
<u>Benefits For:</u>			
1. Active Members:			
a) Retirement Benefits	\$460,589,496	\$138,650,382	\$321,939,114
b) Disability Benefits	24,506,758	13,027,765	11,478,993
c) Refundments due to death or withdrawal	73,186,655	72,998,006	188,649
d) Surviving Spouse Benefits	12,501,692	5,817,713	6,683,979
2. Deferred Annuitants	4,208,634	-	4,208,634
3. Former Members Without Vested Rights	359,111	-	359,111
4. Survivors	296,507	-	296,507
5. Benefits Payable from MAFB Fund	<u>103,337,219</u>	<u>-</u>	<u>103,337,219</u>
6. Total	\$678,986,072	\$230,493,866	\$448,492,206

Minnesota Statutes 1974, Chapter 356 as amended by Laws 1975, requires, in Section 356.20, Subdivision 4(2) and (3), that there be submitted annually an analysis of the System's income and deductions from income with increases in total reserves required being specifically referred to as a deduction from income. The exhibit required by Section 356.20, Subdivision 4(2) and (3) is presented on the following page of this Section IV. Items of income and deductions from income with the exception of increases in total reserves required were taken directly from statements prepared by the Executive Director.

Inasmuch as any excess of "income" over "deductions from income" must be equal to the reduction in the Unfunded Accrued Liability of the System over the period covered by the analysis, we have confirmed that fact in Item 16 of the exhibit.

MINNESOTA STATE RETIREMENT SYSTEM

EXHIBIT REQUIRED BY MINNESOTA STATUTES 1975, CHAPTER 356,
SECTION 356.20, SUBDIVISION 4(2) AND (3) AS AMENDED BY LAWS 1975
FISCAL YEAR ENDING JUNE 30, 1975

ANALYSIS OF INCOME AND DEDUCTIONS FROM INCOME

INCOME

1.	<u>From Employees</u>	
	Employee contributions	\$14,225,078.85
	Employee accrued contributions receivable	675,633.40
	Employee contributions, accounts receivable	58,355.06
2.	<u>From Employers</u>	
	Employers contributions	14,589,502.07
	Employer additional contributions	7,295,707.52
	Employer accrued contributions receivable	1,043,743.77
3.	<u>From Investments</u>	
	Interest on debt securities and short term interest	5,094,589.00
	Dividends on corporate stock	2,406,878.35
	Recognized unrealized appreciation in stock	(320,955.30)
	Premium on bonds called	8,003.41
	Gain on sale of stock	37,743.83
	Interest on back payments by employees	104,029.14
4.	<u>From MAFB Fund Participation</u>	
	Participation in MAFB Fund realized income	4,666,501.82
	MAFB Fund statutory valuation adjustment	(12,304,624.88)
5.	<u>Other Revenues</u>	
	Miscellaneous	1,959.78
6.	<u>TOTAL INCOME</u>	<u>\$37,582,145.82</u>

DEDUCTIONS FROM INCOME

7.	Increase in MAFBF Annuity Stabilization Account	\$(9,544,407.00)
8.	<u>Benefits</u>	
	Service retirement annuities	\$11,118,929.22
	Disability retirement benefits	400,201.26
	Survivor benefits (spouses)	33,892.32
9.	<u>Refundments (Employee Contributions)</u>	
	Left service and coverage by other systems	2,795,352.80
	Employee deaths	222,846.35
	Annuitant deaths	60,725.95
	Erroneous deductions	30,042.14
	Interest on contributions	139,943.54
10.	<u>Unclassified Employee Retirement</u>	
	Transfer of employee contributions	324,850.27
	Transfer of employer contributions	468,919.75
	Transfer of interest	4,034.66
11.	<u>Operating Expenses</u>	
	Total Operating Expenses	551,891.94
12.	<u>Prior Year Adjustments</u>	299,388.29
13.	<u>Increase in Total Reserves Required</u>	
	Reserves Required 6-30-74	\$397,951,226.00
	Reserves Required 6-30-75	448,492,206.00
14.	<u>TOTAL DEDUCTIONS FROM INCOME</u>	<u>\$57,447,591.49</u>
15.	<u>EXCESS OF INCOME OVER DEDUCTIONS FROM INCOME</u>	(19,865,445.67)
16.	<u>REDUCTION IN UNFUNDED ACCRUED LIABILITY:</u>	
	Unfunded Accrued Liability 6-30-74	\$163,093,236.19
	Unfunded Accrued Liability 6-30-75	182,958,681.86
		\$ (19,865,445.67)

Minnesota Statutes 1974, Chapter 356, as amended by laws 1975, requires, in Section 356.20, Subdivision 4(4), that there be submitted annually an analysis of changes in the membership of the System. Section 356.215, Subdivisions 4 and 5, requires information with respect to the annual payroll and annual annuities of the members of the System as well as certain information with respect to average ages. The exhibit required by Section 356.20, Subdivision 4 and Section 356.215, Subdivisions 4 and 5 is presented on the following pages of this Section IV. All of the information was taken directly from an exhibit prepared by the Executive Director.

MINNESOTA STATE RETIREMENT SYSTEM

EXHIBIT REQUIRED BY MINNESOTA STATUTES 1974, CHAPTER 356
SECTION 356.20, SUBDIVISION 4 AND SECTION 356.215, SUBDIVISIONS 4 AND 5
AS AMENDED BY LAWS 1975
FISCAL YEAR ENDING JUNE 30, 1975

COVERED EMPLOYEE STATEMENT

ACTIVE EMPLOYEES - GENERAL MEMBERS

	<u>Number</u>	<u>Annualized Payroll</u>
Active at July 1, 1974	37,945	\$329,537,257.05
New Entrants, 7/1/74 - 6/30/75*	<u>8,677</u>	64,119,620.17
Total	46,622	
Less Separations from Active Service:		
Refundment of Contributions*	5,393	33,091,652.05
Separation with a Vested Right to a Deferred Annuity	75	693,890.63
Separation with Neither Refundment Nor Right to a Deferred Annuity	1,399	6,508,679.23
Disability	48	438,059.18
Death*	92	852,415.36
Service Retirement	641	6,866,393.40
Death While Eligible Annuity	<u>8</u>	129,457.42
Total Separations	7,656	

Active at June 30, 1975:

Regular Retirement Plan	38,966	\$383,302,933.30
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Average Entry Age of New Employees

<u>For the Period</u>	<u>Male</u>	<u>Female</u>	<u>Average of Total</u>
1/1/70 - 6/30/71	32 yrs. 8 mos.	28 yrs. 1 mo.	29 yrs. 8 mos.
7/1/71 - 6/30/72	30 yrs. 9 mos.	27 yrs. 9 mos.	28 yrs. 11 mos.
7/1/72 - 6/30/73	30 yrs. 4 mos.	27 yrs. 7 mos.	28 yrs. 6 mos.
7/1/73 - 6/30/74	29 yrs. 10 mos.	27 yrs. 10 mos.	28 yrs. 6 mos.
7/1/74 - 6/30/75	30 yrs. 2 mos.	28 yrs. 1 mo.	28 yrs. 10 mos.

Average age at entry into State service for all active employees at June 30, 1975:

Average Male	30 yrs. 7 mos.
Average Female	28 yrs. 9 mos.
Total Average	29 yrs. 7 mos.

*Includes new and separated same year.

MINNESOTA STATE RETIREMENT SYSTEM

EXHIBIT REQUIRED BY MINNESOTA STATUTES 1974, CHAPTER 356,
SECTION 356.20, SUBDIVISION 4 AND SECTION 356.215, SUBDIVISIONS 4 AND 5
AS AMENDED BY LAWS 1975
FISCAL YEAR ENDING JUNE 30, 1975

COVERED EMPLOYEE STATEMENT

(Continued)

ACTIVE EMPLOYEES - CORRECTIONAL EMPLOYEES

	<u>Number</u>	<u>Annualized Payroll</u>
Active at July 1, 1974	737	\$7,440,827.20
New Entrants, 7/1/74 - 6/30/75*	<u>412</u>	3,698,089.60
Total	1,149	
Less Separations from Active Service:		
Refundment of Contributions*	126	725,790.89
Separation with Deferred Annuity	1	9,568.00
Separation with Neither Refundment or Deferred Annuity	25	202,581.60
Death	5	45,406.40
Service Retirement	<u>91</u>	1,002,382.12
Total Separations	248	
Active at June 30, 1975	901	\$9,922,070.96

Average Entry Age of New Employees

<u>For the Year</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
7/1/73 - 6/30/74	29 yrs. 4 mos.	25 yrs. 2 mos.	28 yrs. 8 mos.
7/1/74 - 6/30/75	29 yrs. 5 mos.	29 yrs. 7 mos.	29 yrs. 5 mos.

Average Entry Age for All Active Employees at 6/30/75

<u>Male</u>	<u>Female</u>	<u>Total</u>
30 yrs. 0 mos.	32 yrs. 5 mos.	30 yrs. 4 mos.

*Includes new and separated same year.

ANNUITANT STATEMENT

<u>GENERAL MEMBERS</u>	<u>Number</u>	<u>Annual Annuity Benefit Payable</u>
(1) SERVICE RETIREMENT ANNUITANTS		
Receiving at June 30, 1974	4,693	\$ 8,760,039.72
New	638	1,814,769.00
	<u>5,331</u>	<u>\$10,574,808.72</u>
Deaths	220	365,751.72
	<u>5,111</u>	<u>\$10,209,057.00</u>
End of Period Certain	1	893.16
	<u>5,110</u>	<u>\$10,208,163.84</u>
Adjustments - Net Result	1	4,843.20
Receiving at June 30, 1975	5,109*	\$10,203,320.64*
(2) DISABLED EMPLOYEES:		
Receiving at June 30, 1974	273	\$ 361,144.20
New	48	99,882.84
	<u>321</u>	<u>\$ 461,027.04</u>
Deaths	30	53,726.28
	<u>291</u>	<u>\$ 407,300.76</u>
Disability Recovered	2	1,593.48
Receiving at June 30, 1975	289*	\$ 405,707.28*
(3) WIDOWS RECEIVING AN ANNUITY OR SURVIVOR BENEFIT:		
A. BENEFICIARIES RECEIVING AN OPTIONAL OR REVERSIONARY ANNUITY:		
Receiving at June 30, 1974	195	\$ 222,858.36
New	21	39,016.80
	<u>216</u>	<u>\$ 261,875.16</u>
Deaths	7	5,388.72
Receiving at June 30, 1975	209*	\$ 256,486.44*

ANNUITANT STATEMENT
(Continued)

	<u>Number</u>	<u>Annual Annuity Benefit Payable</u>
B. SPOUSES RECEIVING A SURVIVOR BENEFIT		
Receiving at June 30, 1974	30	\$ 33,892.32
Changes	<u>0</u>	<u>.00</u>
Receiving at June 30, 1975	30*	\$ 33,892.32*
(4) CHILDREN RECEIVING A SURVIVOR BENEFIT		
Receiving at June 30, 1974	0*	\$.00*
No new additions		
(5) DEFERRED ANNUITANTS		
Receiving at June 30, 1974	715	\$ 590,734.20
New	<u>36</u> 751	<u>23,907.36</u> \$ 614,641.56
Deaths	<u>22</u>	<u>16,121.64</u>
Receiving at June 30, 1975	729*	\$ 598,519.92*

AVERAGE AGE AT RETIREMENT OF NEW SERVICE ANNUITANTS

<u>FISCAL YEAR ENDING</u>	<u>AVERAGE RETIREMENT AGE</u>
6/30/71	65 yrs. 11 months
6/30/72	66 yrs. 3 months
6/30/73	65 yrs. 11 months
6/30/74	65 yrs. 4 months
6/30/75	65 yrs. 2 months

AVERAGE AGE AT RETIREMENT OF ALL EXISTING SERVICE ANNUITANTS

65 yrs. 10 months

ANNUITANT STATEMENT
(Continued)

<u>CORRECTIONAL MEMBERS</u>	<u>Number</u>	<u>Annual Annuity Benefit Payable</u>
1) SERVICE RETIREMENT ANNUITANTS		
Receiving at June 30, 1974	17	\$ 92,664.60
New	<u>92</u>	<u>469,939.08</u>
	109	563,603.68
Death	<u>2</u>	<u>12,782.04</u>
	107	549,821.64
Adjustments - Net Result	<u>0</u>	<u>11,248.92</u>
	107*	\$538,572.72*
2) DISABLED EMPLOYEES	None	
3) WIDOWS RECEIVING AN ANNUITY OR SURVIVOR BENEFIT	None	
4) CHILDREN RECEIVING A SURVIVOR BENEFIT	None	
5) DEFERRED ANNUITANTS	None	

AVERAGE AGE AT RETIREMENT

New Service Annuitants

<u>Fiscal Year Ending</u>	<u>Average Retirement Age</u>
6/30/74	62 years, 3 months
6/30/75	60 years, 4 months

All Existing Service Annuitants

60 years, 8 months

Section 356.215, Subdivision 4 of the Minnesota Statutes 1974 as amended by Laws 1975 requires an analysis of the increase or decrease in the unfunded liability that occurred since the last valuation. This exhibit is shown on the following page.

MINNESOTA STATE RETIREMENT SYSTEM

EXHIBIT REQUIRED BY MINNESOTA STATUTES 1974, CHAPTER 356,
SECTION 356.215, SUBDIVISION 4 AS AMENDED BY LAWS 1975
FISCAL YEAR ENDING JUNE 30, 1975

1.	Unfunded Accrued Liability June 30, 1974		\$163,093,236
2.	Change due to current rate of funding and interest requirement:		
	a) 1974-75 Past Service Contribution	\$10,432,451	
	b) 5% interest requirement	<u>8,154,662</u>	- 2,277,789
3.	Change due to actuarial gains (-) or losses (+) because of 1974-75 experience deviations from expected:		
	a) Mortality of Retired Persons (Statutory)	+ 2,630,526	
	b) Excess interest earnings	+ 338,464	
	c) Recognized Unrealized Appreciation	+ 320,955	
	d) Withdrawals	- 855,861	
	e) Age and Service retirements	+ 479,064	
	f) Disability retirements	+ 154,821	
	g) Deaths in active service	- 267,056	
	h) Salary increases	+ <u>15,290,036</u>	+ 18,090,949
4.	Change due to 1974-75 entrants		+ 1,189,869
5.	Change due to new EANC rates		+ 2,862,417
6.	Unfunded Accrued Liability		\$182,958,682

SCHEDULE 1

Male General Members

Probabilities of Separation from Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	2,400	6		
21	2,250	6		
22	2,080	7		
23	1,920	7		
24	1,760	7		
25	1,600	7		
26	1,470	7		
27	1,340	7		
28	1,230	8		
29	1,130	8		
30	1,040	8	2	
31	950	9	2	
32	890	10	2	
33	830	11	2	
34	770	12	2	
35	720	13	2	
36	680	15	2	
37	640	16	2	
38	600	18	2	
39	560	20	2	
40	530	22	2	
41	500	25	2	
42	480	27	2	
43	460	29	2	
44	430	32	2	
45	410	35	2	
46	390	38	3	
47	370	41	4	
48	350	44	5	
49	340	48	6	

SCHEDULE 1

Male General Members
(Continued)

Probabilities of Separation from Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
50	320	52	7	
51	300	57	8	
52	280	63	10	
53	260	70	12	
54	240	77	14	
55	210	85	17	
56	170	93	20	
57	140	102	23	
58	90	111	28	30
59	40	120	33	30
60		130	38	40
61		140	45	150
62		150	55	150
63		160	68	250
64		170	87	1,350
65				10,000

SCHEDULE 2

Female General Members

Probabilities of Separation from Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	3,700	1		
21	3,550	2		
22	3,390	2		
23	3,230	2		
24	3,070	3		
25	2,910	3		
26	2,750	4		
27	2,600	4		
28	2,430	4		
29	2,270	4		
30	2,120	4		
31	1,970	4		
32	1,820	4		
33	1,680	4		
34	1,540	4		
35	1,410	4	1	
36	1,300	5	1	
37	1,190	5	1	
38	1,090	6	1	
39	1,000	7	2	
40	920	8	2	
41	850	8	2	
42	780	9	3	
43	720	11	3	
44	680	13	3	
45	630	15	3	
46	590	17	4	
47	560	19	4	
48	530	21	4	
49	500	23	5	

SCHEDULE 2

Female General Members
(Continued)

Probabilities of Separation from Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
50	470	25	5	
51	440	27	6	
52	410	30	7	
53	390	33	8	
54	360	36	10	
55	330	39	12	
56	290	43	15	
57	230	47	18	
58	170	51	22	50
59	90	56	26	50
60		61	31	150
61		66	37	150
62		72	44	200
63		78	52	350
64		83	61	1,100
65				10,000

SCHEDULE 3

Male Correctional Members

Probabilities of Separation from Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	2,400	6		
21	2,250	6		
22	2,080	7		
23	1,920	7		
24	1,760	7		
25	1,600	7		
26	1,470	7		
27	1,340	7		
28	1,230	8		
29	1,130	8		
30	1,040	8	2	
31	950	9	2	
32	890	10	2	
33	830	11	2	
34	770	12	2	
35	720	13	2	
36	680	15	2	
37	640	16	2	
38	600	18	2	
39	560	20	2	
40	530	22	2	
41	500	25	2	
42	480	27	2	
43	460	29	2	
44	430	32	2	
45	410	35	2	
46	390	38	3	
47	370	41	4	
48	350	44	5	
49	340	48	6	

SCHEDULE 3

Male Correctional Members
(Continued)

Probabilities of Separation from Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
50	320	52	7	
51	300	57	8	
52	280	63	10	
53	260	70	12	
54	240	77	14	
55				10,000

SCHEDULE 4

Female Correctional Members

Probabilities of Separation from Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	3,700	1		
21	3,550	2		
22	3,390	2		
23	3,230	2		
24	3,070	3		
25	2,910	3		
26	2,750	4		
27	2,600	4		
28	2,430	4		
29	2,270	4		
30	2,120	4		
31	1,970	4		
32	1,820	4		
33	1,680	4		
34	1,540	4		
35	1,410	4	1	
36	1,300	5	1	
37	1,190	5	1	
38	1,090	6	1	
39	1,000	7	2	
40	920	8	2	
41	850	8	2	
42	780	9	3	
43	720	11	3	
44	680	13	3	
45	630	15	3	
46	590	17	4	
47	560	19	4	
48	530	21	4	
49	500	23	5	

SCHEDULE 4

Female Correctional Members
(Continued)

Probabilities of Separation from Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
50	470	25	5	
51	440	27	6	
52	410	30	7	
53	390	33	8	
54	360	36	10	
55				10,000

MSRS VALUATION AS OF JUNE 30, 1975

The purpose of this memorandum is to discuss the valuation report of the Minnesota State Retirement System dated November 19, 1975 which was submitted to the Commission in accordance with Chapter 356 of Minnesota Laws 1974. The valuation was made using the entry age normal cost method and assuming 5% interest. The report was prepared by Robert H. Little of Little, Church and Chapin, Consulting Actuaries.

This memo contains the following:

1. Statistical and Valuation Data
2. Discussion of Valuation Results
3. Unfunded Cost of Vested Benefits
4. Supplemental Experience Study
5. Conclusion

1. Statistical and Valuation Data

Results of the valuation reports as of June 30, 1974 and June 30, 1975 are shown for comparative purposes. Figures are rounded where necessary for simplicity of presentation.

	As of <u>June 30, 1974</u>	As of <u>June 30, 1975</u>
(1) <u>Membership</u>		
Active Members	38,682 *	39,867 *
Inactive Members	4,102	3,889
Retired Members	5,425	5,945
Disabled Members	273	289
Survivors of Deceased Members	225	239

* Including correctional employees numbering 737 and 901, respectively.

(2) Payroll and Annuities Payable

Total Annualized Payroll	\$ 360.6 Million	\$ 414.9 Million
Annuities (annual)	10.1 Million	12.0 Million

	As of June 30, 1974	As of June 30, 1975
(3) <u>Valuation Balance Sheet</u>		
Accrued Liability	\$ 398.0 Million	\$ 448.5 Million
Assets	<u>234.9 Million</u>	<u>265.5 Million</u>
Unfunded Accrued Liability (Deficit)	163.1 Million*	183.0 Million*
Funding Ratio (Ratio of Assets to Accrued Liability)	59.0%	59.2%

* \$173.9 Million for regular employees and \$9.1 Million for correctional employees compared with 1974 figures of \$152.2 Million and \$10.9 Million, respectively.

	Percent of Covered Payroll			
	As of June 30, 1974		As of June 30, 1975	
	<u>Regular</u>	<u>Correctional</u>	<u>Regular</u>	<u>Correctional</u>
(4) <u>Normal Cost and Funding Costs</u>				
Normal Cost	7.00%	10.72%	6.91%	10.79%
Expenses	<u>0.14</u>	<u>0.14</u>	<u>0.14</u>	<u>0.14</u>
Normal Cost plus Expenses	7.14%	10.86%	7.05%	10.93%
Normal Cost plus Expenses	7.14%	10.86%	7.05%	10.93%
Interest on Deficit	<u>2.16</u>	<u>6.84</u>	<u>2.15</u>	<u>4.34</u>
Total ("Minimum Contribution")	9.30%	17.70%	9.20%	15.27%
Normal Cost plus Expenses	7.14%	10.86%	7.05%	10.93%
Amortization by 1997	<u>3.05</u>	<u>9.66</u>	<u>3.11</u>	<u>6.28</u>
Total ("Required Contribution")	10.19%	20.52%	10.16%	17.21%

(5) Statutory Contributions

Employee	4.0%	6.0%	4.0%	6.0%
Employer Regular	4.0	9.0	4.0	9.0
Employer Additional	<u>2.0</u>	<u>5.0</u>	<u>2.0</u>	<u>5.0</u>
Total Contributions	10.0%	20.0%	10.0%	20.0%

(6) Investment Yield (A)	5.54%	4.79%
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(A) Ratio of investment income (on an accrual basis) to mean assets.

* Excluding assets in Minnesota Adjustable Fixed Benefit Fund;
including change in recognized unrealized appreciation or depreciation.

2. Discussion of Valuation Results

Beginning in 1973, the MSRS valuation includes information about a small group of employees called Correctional Employees whose benefits, contributions and normal retirement ages differ from those of the main group. This requires the presentation of a separate funding analysis.

The MSRS Actuary determines normal cost for the entire group from a calculation using only new employees during the most recent five-year period. This approach makes the normal cost sensitive to the employer's current hiring practices. However, almost no change occurred in the normal cost figures for each of the two groups between 1974 and 1975.

The above summary shows a slight deficiency in the actuarial balance for the Regular Group, but this deficiency is smaller in 1975 than in 1974. On the other hand, the actuarial balance for the Correctional Group improved substantially from a small deficiency (0.52%) to a surplus (2.79%).

We believe that the small deficiency in the Regular Group is not of importance. If the total deficit is regarded as belonging to the entire System, then the present total financing provides for amortizing the deficit in a period which extends a year or two beyond 1997.

We wish to direct attention to the fact that the report does not present the funding picture in exactly the above manner. One of the deviations from the above is in the conservative direction and the other is not.

The total deficit is separated into two portions: (a) the present value of the excess of the regular contributions over the normal cost plus expenses; (b) the total deficit minus (a). Since the period for determining the present value of contributions is the remaining active service based upon the assumed deaths and terminations, the average such period is substantially less than the 22 years to 1997. Thus, this approach provides for funding the (a) portion of the deficit in a relatively short period which is a conservative approach.

However, this leaves a large part of the deficit in the (b) portion which must be amortized with the employer's additional 2% and 5% contributions. With payrolls at the present levels, this would require 38 years for the Regular Group and 18 years for the Correctional Group; on a combined basis, the period would be 36 years. The report shows 21 years for the Regular Group and 13 years for the Correctional Group based upon an assumption that the total payroll will increase at the rate of 3 1/2% per year.

During the year, the unfunded accrued liability increased from \$163,093,236 to \$182,958,682, an increase of \$19,865,446. As mentioned above, this increase is a combination of an increase of \$21,661,905 for the Regular Group and a decrease of \$1,796,459 for the Correctional Group. The MSRS Actuary gives the following analysis of the net increase:

Increases:

Deviations in Salary Rates	\$ 15,290,036	
Mortality Loss - Retireds	2,630,526	
Deviation in Retirement Rates	479,064	
Deviation in Disability Rates	154,821	
Interest Loss	338,464	
Recognized Depreciation in Investments	320,955	
Accrued Liability on New Entrants	1,189,869	
New Normal Cost Rates	<u>2,862,417</u>	
Total Increases		\$ 23,266,152

Decreases:

Amortization	\$ 2,277,789	
Mortality Gain - Actives	267,056	
Deviation in Termination Rates	<u>855,861</u>	
Total Decreases		<u>3,400,706</u>

Net Increase \$ 19,865,446

3. Unfunded Cost of Vested Benefits

In accordance with a request from the Commission, the MSRS also submitted a report showing the present value of vested benefits compared with the assets of the fund. This comparison measures the degree of funding if the plan were to be terminated on the valuation date.

The results follow:

Contributions of Non-Vested Participants	\$ 26,721,548
Present Value of Deferred Retirement Benefits of Active Members	261,538,202
Present Value of Death Benefits of Active Members (if Plan were Terminated)	4,337,580
Present Value of Benefits for Inactive Members	<u>107,842,360</u>
Total Assets	\$ 400,439,690
	<u>265,533,524</u>
Unfunded Vested Benefits	\$ 134,906,166
Funding Ratio	66.3%

The MSRS Actuaries estimate that it would be necessary for the assets to earn in excess of 20% per year in order to make the above Funding Ratio 100%. This estimate assumes that 5% reserves would still be used after transfer to the Adjustable Fund.

4. Supplemental Experience Study

As required by statute, the report contained the results of a supplemental study reviewing the actual experience of the System from July 1, 1971 to June 30, 1975 compared with the predictions of the actuarial assumptions.

The following table shows the mortality experience among those receiving retirement benefits and those receiving disability benefits:

	<u>Expected Deaths</u>	<u>Actual Deaths</u>	<u>A/E</u>
Retired	955	932	97.6%
Disabled	30	100	333.3%

Since the ratio for retired lives is fairly close to 100% and since the very favorable ratio for disabled lives is based upon fewer than 300 lives, the MSRS Actuary recommends that the mortality assumptions not be changed.

An employee can leave the group of active members by one of four routes: (1) death; (2) termination; (3) disablement; (4) age and service retirement. So far as terminations are concerned, only terminations without vesting are predicted by the actuarial assumptions, and only these are used in the experience study. The following chart displays the results for each of the four items:

	<u>Expected Number</u>	<u>Actual Number</u>	<u>A/E</u>
Deaths	507	480	94.7%
Terminations	7,874	7,461	94.8%
Disablements	119	195	163.9%
Retirements	1,896	2,388	125.9%

For deaths and terminations, a ratio less than 100% is unfavorable. However, the ratios do not differ widely from this figure. For disablement and retirements, a ratio greater than 100% is unfavorable.

The MSRS Actuary recommends that the assumptions relative to the various rates of separation from active service not be changed at this time. In his opinion, economic conditions, the establishment of special benefits for the Correctional Group, and the substantial improvement in benefits in 1973 have produced results which are not a reliable guide to future experience.

5. Conclusion

The 1975 Valuation Report filed by MSRS conforms with the requirements of Chapter 356 with the exception noted above relative to the financing of the deficit.

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