

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

ACTUARIAL VALUATION AS OF
JUNE 30, 1980

January 16, 1981

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ACTUARIES AND CONSULTANTS

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January 16, 1981

Board of Directors
Minnesota State Retirement System
529 Jackson at 10th Street
St. Paul, Minnesota 55101

Gentlemen:

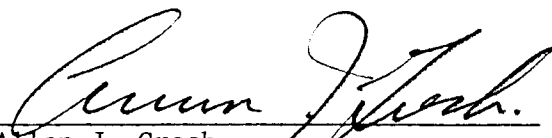
We have performed an actuarial valuation of the Minnesota State Retirement System, Judges Retirement Fund as of June 30, 1980.

The valuation was performed on the basis of accepted actuarial methods and procedures, in accordance with the applicable provisions set forth in Minnesota Statutes (Chapter 356) and stipulated in the Contract between the State of Minnesota and The Wyatt Company.

We hereby certify that the entry age normal cost method was utilized in determining the accrued liability for all benefits payable under the Fund.

Respectfully submitted,

THE WYATT COMPANY


Allan J. Grosh
Fellow, Society of Actuaries

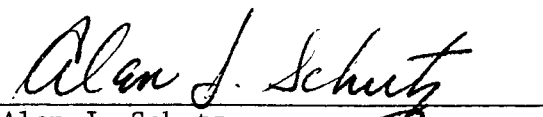

Alan J. Schutz
Associate, Society of Actuaries

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MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Actuarial Valuation as of June 30, 1980

PURPOSE AND SUMMARY

The purpose of this report is to set forth the financial status of the Minnesota State Retirement System (MSRS), Judges Retirement Fund in accordance with the applicable provisions set forth in Chapter 356 of the Minnesota Statutes and Chapter 607 of the Minnesota Laws of 1980.

Chapter 356 of the Minnesota Statutes sets forth the annual reporting requirements which govern the public employee retirement systems in Minnesota. The principal requirement (in addition to the experience study required every fourth year) is that an actuarial valuation be performed each year and that the valuation specifically set forth the following items based on an assumed 5% interest rate and a 3½% salary scale assumption:

1. The assets of the plan and the present value of all benefits which will be payable from the plan.
2. The normal cost of the plan (as a level percentage of payroll) based on the entry age normal cost method.
3. The accrued liability of the plan, defined as the present value of all benefits less the present value of future entry age normal costs.
4. An actuarial balance sheet showing accrued assets, accrued liabilities, and the deficit from full funding of the accrued liability (unfunded accrued liability).
5. The annual contribution required to pay normal cost and amortize the June 30, 1980 unfunded accrued liability by June 30, 2009.
6. An analysis explaining the increase or decrease in the unfunded accrued liability since the last valuation.

Chapter 607, Article 14, Section 16 of the Minnesota Laws of 1980 (which eventually will be entered as Chapter 11A of the Minnesota Statutes) pertains to the operation of the Minnesota Post Retirement Investment Fund (MPRI Fund). It includes requirements regarding the determination of the present value of

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benefits payable from the MPRI Fund (as of June 30, 1980 and as of January 1, 1981) and the corresponding mortality gain or loss each year, the latter to facilitate an appropriate transfer between the Judges Retirement Fund and the MPRI Fund.

This reporting on the status of the Judges Retirement Fund as of June 30, 1980, is intended to comply with all of the requirements regarding actuarial reporting that are set forth in Chapter 356 of the Statutes and Chapter 607 of the 1980 Laws. The Appendix at the end of the report cross-references the information of the Minnesota Statutes set forth herein with that specifically called for under Chapters 356 and 607 respectively.

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Last year we performed an experience study as prescribed by Chapter 356. As a result of the findings in that study the Board adopted revised actuarial assumptions pertaining to mortality, turnover, average retirement age and the assumed rate of administrative expenses. The report reflects all of these revisions, as well as an improvement in the benefit formula accrual rate and an increase of 1/2% in the Judges contribution rate, both for years commencing after June 30, 1980.

In summary, our valuation reveals the following:

1. The Chapter 356 contribution requirement has increased from 28.31% of pay as of June 30, 1979 to 30.08% as of June 30, 1980. Absent the revisions in actuarial assumptions, these requirements would have increased to 30.53%.
2. The above increase in Chapter 356 requirements includes 1.73% for the benefit improvements effective June 30, 1980.
3. Judges contributions to the plan represent 15.8% of total requirements prescribed by Chapter 356, as compared to 14.5% in the prior year.
4. The depth of funding ratio, defined as the assets divided by the present value of accrued benefits on an ongoing basis has decreased from 24.32% as of June 30, 1979 to 23.42% as of June 30, 1980.

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Unlike most of the other public retirement programs in Minnesota, the Statutes do not require that any State contributions be made while a Judge is

) in active service. Rather, a terminal funding approach is used wherein, at the time of death, disablement or retirement, the Judges accumulated contributions in the plan are supplemented by the required amount of additional State General Funds needed to provide benefits in full. Because of this approach under which the State funding (over 80% of the total) is deferred until benefits become payable, any measure of the financial status of the plan will indicate that only a small percentage of benefits earned have actually been funded. Therefore, we would support any attempt by the State to advance fund this program at least in accordance with Chapter 356 requirements.

CHANGES FROM THE PRIOR YEAR'S REPORTING

This year's report reflects four changes from the prior year's report which may be summarized as follows:

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1. The actuarial assumptions were revised in accordance with the recommendations prescribed in our June 30, 1979 experience study, as adopted by the Board.
 2. The retirement benefit accrual formula has been increased from 2½% of final average salary to 3% of final average salary, for each year of service subsequent to June 30, 1980. In addition the maximum benefit limitation has been increased from 60% of the salary in the year prior to retirement to 65% of such salary.
 3. Judges contributions have been increased by ½% of salary per year. This increase applies to total salary, irregardless as to whether or not a Judge participates in Social Security.
 4. The manner in which the deficit in the MPRI Fund (i.e., the counterpart to the prior MAFB Annuity Stabilization Account) is reported has been revised in accordance with our discussions with the Executive Director of MSRS and with the recommendation of the Legislative Auditor. This changes slightly the manner in which accrued liability and asset items are determined. This change also revises certain values reported last year which are used this year for comparative purposes, and is described in detail later in the report.

PRINCIPAL VALUATION RESULTS

The principal results of our valuation are summarized and compared with those of June 30, 1979 in the table below. Two sets of values are set forth for 1980 in order to facilitate a determination of the impact of the revisions in actuarial assumptions.

<u>SUMMARY OF PRINCIPAL VALUATION RESULTS</u>			
	<u>Prior Assumptions</u>		<u>Revised Assumptions</u>
	<u>1979</u>	<u>1980</u>	<u>1980</u>
1. Normal Cost*	1,342,403 (13.53)	1,538,688 (14.49)	1,609,606 (15.16)
2. Accrued Liability	29,231,190	33,170,121	31,367,041
3. Valuation Assets	6,897,325	7,641,062	7,641,062
4. Accrued Liability Funding Ratio	23.60%	23.04%	24.36%
5. Unfunded Accrued Liability	22,333,865	25,529,059	23,725,979
6. Chapter 356 Requirement	2,809,146	3,241,754	3,193,587
7. Estimated Judges Annual Contribution	407,294	503,537	503,537
8. Plan Continuation Liability	28,365,972	31,589,577	32,623,850
9. Plan Continuation Liability Funding Ratio	24.32%	24.19%	23.42%
* Parenteses indicate item as a percentage of covered payroll.			

As seen in the table, the normal cost has increased from 13.53% to 15.16% of covered payroll. While the accrued liability of the plan has increased from \$29,231,190 to \$31,367,041 during the year, the valuation assets

) of the plan have increased from \$6,897,325 to \$7,641,062 during the same period. Consequently, the unfunded accrued liability has increased from \$22,333,865 on June 30, 1979 to \$23,725,979 on June 30, 1980 while the portion of accrued liability funded has increased from 23.60% to 24.36% during the same period. The Chapter 356 contribution requirements have increased from \$2,809,146 to \$3,193,587.

The present value of accrued benefits, determined on a plan continuation basis (applying all ongoing actuarial assumptions including assumed salary increases) has increased from \$28,365,972 to \$32,623,850. As a result, the depth of funding ratio, defined as the valuation assets divided by the present value of accrued benefits, has decreased from 24.32% to 23.42%.

) It should be noted that in the above comparison, all amounts for 1980 reflect the improved benefit formula, effective June 30, 1980.

VALUATION ASSETS

The Executive Director furnished us with a Financial Report setting forth the assets and liabilities of the Fund as of June 30, 1980. The accounting balance sheet furnished by the Executive Director is set forth in Table 2(a), as adjusted by us to reflect a \$135,839.62 transfer of assets from the Judges Retirement Fund to the MPRI Fund to reflect (i) the increase in reserve requirements due to the revision in actuarial assumptions, (ii) an increase for the mortality loss during the year and (iii) an accrual item for payments due the MPRI Fund.

ACTUARIAL BALANCE SHEETS

) Table 2(b) sets forth an actuarial balance sheet summarizing the actuarial valuation. Whereas the previously mentioned accounting balance sheet

) (Table 2(a)) balances the current assets to date with current accumulated reserves for benefits payable, the actuarial balance sheet compares total assets, including the present value of all future contributions payable to the plan, with the present value of all benefits payable from the plan.

Table 3(a) sets forth a balance sheet comparing the assets and unfunded accrued liability (the total of the two equaling the accrued liability) to the current liabilities and reserves required under the plan. This table is in the format specifically required by Chapter 356 and is supported by attachments in the form of Tables 3(b), 3(c) and 3(d) which set forth the determination of the unfunded accrued liability and the status of the MPRI Fund as of June 30, 1980.

MINNESOTA POST RETIREMENT INVESTMENT FUND

Background

) The Minnesota Post Retirement Investment Fund (MPRI Fund), previously termed the Minnesota Adjustable Fixed Benefit Fund (MAFB), is basically a vehicle for providing variable annuity payments to pensioners. When an active participant retires, assets equal to the present value of future benefits payable to that participant (and beneficiary, if applicable) are transferred from the State and Employee Contribution Reserves (along with additional General appropriations when necessary) to the MPRI Fund. Thereafter benefits are paid from the MPRI Fund. Future benefit increases are determined on the basis of the investment performance of MPRI Fund assets.

) Article 14, Section 16 of Chapter 607 of the 1980 Minnesota Laws provides a new method for determining benefit increases. A benefit increase is granted in any year in which the earnings of MPRI Fund assets exceed 5%. In a year in which there is an MPRI Fund deficit (i.e., required reserves exceed MPRI Fund assets) 25% of any income in excess of the 5% requirement is credited towards amortizing the deficit, with the remaining 75% being used to provide

) benefit increases. If there is no MPRI Fund deficit, all income in excess of the required 5% is used to provide benefit increases.

MPRI Fund Status as of June 30, 1980

Table 3(c) sets forth the determination of MPRI Fund net assets and reserve requirements as of June 30, 1980. The State Board of Investment reported MPRI Fund net assets of \$3,586,557, including a credit of \$11,164, representing 25% of MPRI Fund income earned in excess of the required 5% during fiscal 1980. Two additional credits totaling \$3,181 resulted in a decrease of \$14,345 in the MPRI Fund deficit during the past year. The Table sets forth net assets of \$3,722,397 as of June 30, 1980 which reflect the following adjustments:

1. An increase of \$30,810 representing a transfer from the Judges Retirement Fund for the mortality loss experienced during the year.
2. An increase of \$105,030 for reserve strengthening (\$98,341) and an accrual adjustment (\$6,689).

) The required reserves for MPRI Fund benefits were determined to be \$3,760,185 and \$3,694,764 as of June 30, 1980 and January 1, 1981 respectively. The latter represents the base for benefit increases that will go into effect on January 1, 1981.

As required by Chapter 607 of the 1980 Laws, Table 3(d) allocates the mortality loss and reserve determinations for January 1, 1981 benefit increase purposes to the eligible and non-eligible groups.

Accounting Treatment of MPRI Fund Deficit

The Legislative Auditor, in his February 4, 1980 memorandum suggested several revisions to the manner in which assets and liabilities pertaining to the MPRI Fund are to be disclosed. These suggestions have been incorporated in this report.

) Generally, participation in the MPRI Fund is now defined as the greater of net assets, or required reserves. This suggests that a "surplus" (or assets

exceeding required reserves) in addition to being treated as an asset is also treated as "a liability" even though increases have not or possibly will not be granted based on this surplus. Conversely, a deficit (or the amount by which required reserves exceed actual assets) in addition to being treated as a liability, is now being treated as an asset. The latter condition represents the status as of June 30, 1980 which can be depicted as follows:

<u>ACCOUNTING TREATMENT OF MPRI FUND</u>		
<u>ASSETS</u>		
.	Net Assets	3,722,397
.	MPRI Fund Deficit	37,788
.	Total	3,760,185
<u>LIABILITIES</u>		
.	Required Reserves	3,760,185
.	MPRI Fund Surplus	0
.	Total	3,760,185

These revisions produce the following changes in disclosure this year:

1. The plan continuation liability funding ratio is slightly higher on this basis since an identical amount (equal to the MPRI Fund deficit) has been included in both the numerator and denominator of the fraction.
2. Table 4 must include a balancing item representing the change in the MPRI Fund deficit during the year.

While we feel that the accounting method introduced in our prior year's report represented a more complete disclosure of actual assets and reserve requirements of the Judges Retirement Fund, we have adopted the Legislative Auditor's recommendation to be consistent with the reporting approach of the other major public retirement plans in Minnesota.

RECONCILIATION OF THE UNFUNDED ACCRUED LIABILITY

Tables 4 and 5 reconcile the change in the unfunded accrued liability during the year. Table 4 sets forth an accounting balance sheet illustrating

) that the increase in the unfunded accrued liability is equal to the excess of deductions over income during the year.

Table 5 sets forth our analysis of the change in the unfunded accrued liability. As is shown in detail in the table, the unfunded accrued liability increased from \$22,333,865 on June 30, 1979 to \$23,725,979 as of June 30, 1980. This increase has resulted primarily on account of:

1. An increase of \$1,001,236 representing the amount by which normal cost, operating expenses and interest on the unfunded accrued liability exceeded annual contributions during the year.
2. A decrease of \$1,803,080 resulting from the revisions in actuarial assumptions, including the increase of \$98,341 in MPRI Fund reserve requirements.
3. An increase of \$1,379,200 resulting from the improvement in the retirement benefit formula.
4. An increase due to net actuarial losses of \$814,758. The net actuarial loss represents the extent to which gains from favorable investment experience and increases in Social Security were exceeded by losses due to salary increases, and mortality and turnover experience.

EMPLOYEE DATA

) The Executive Director furnished us with employee information pertaining to all active members, inactive members and retired members of the Fund. Tables 6(a) and 6(b) summarize the changes in active, inactive and retired membership during the year in accordance with the requirements set forth in Section 356.215 of the Minnesota Statutes, Subdivisions 4 and 5.

The following groups of retired Judges and their beneficiaries, reflected for the first time in last year's valuation report, have also been included:

1. County Paid Judges.
2. County Paid Judges' Widows.
3. District and Supreme Court Judges' Widows.
4. District and Supreme Court Judges.

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In addition, the six active Supreme Court Justices participating in the Supreme Court Justices Plan have again been included in the valuation.

PLAN VALUED

The provisions of the Minnesota Retirement System, Judges Retirement Fund are governed principally by the Uniform Retirement and Survivors Annuities for Judges section of Chapter 490 of the Minnesota Statutes which are summarized in Table 7. The table reflects the following revisions in the plan, as of June 30, 1980:

1. The benefit accrual percentage has been increased $2\frac{1}{2}\%$ to 3% for service after June 30, 1980.
2. The maximum benefit limitation has increased from 60% of the Judges' final year's salary to 65%.
3. The Judges' contribution rate has been increased by one-half percent.

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ACTUARIAL METHODS AND ASSUMPTIONS

The actuarial methods and assumptions differed for the Judges Retirement Fund and the Supreme Court Justices Plan and are summarized separately as follows:

Judges Retirement Fund

Actuarial Methods

The method used for the Judges Retirement Fund is one of the many variations of the entry age normal cost method which was used in our prior valuation and is identical to the method utilized in valuing the MSRS State Employees Retirement Fund.

Under the method, the entry age normal cost percentage is determined as (a) divided by (b) where:

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- (a) equals the sum of the present value of benefits payable for all active members, determined at each member's entry age; and
 - (b) equals the sum of the present value of compensation for all active members, determined at each member's entry age.

The normal cost for the year is then determined by applying the normal cost percentage to covered payroll. The accrued liability is, by definition, equal to the present value of all benefits payable under the plan, less the present value of all future normal costs. The unfunded accrued liability is the net of the accrued liability and current valuation assets on hand.

The impact of the method was discussed in our prior year's report. To summarize, the method has produced a slightly higher normal cost and a slightly lower unfunded accrued liability for this group than the more standard entry age normal cost method.

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Actuarial Assumptions

This report reflects the revisions recommended in our June 30, 1979 experience study and adopted by the Board effective June 30, 1980. The revisions may be summarized as follows:

- 1. To reflect the fact that turnover under the Judges Plan has been extremely low, the turnover assumption has been eliminated from the valuation.
 - 2. To reflect the current trend towards improved mortality, the 1971 Group Annuity Mortality Table has been adopted.
 - 3. The current assumed disability rates at the younger ages have been retained, but the rates after age 40 have been gradually increased so that they are 100% higher at ages 50 and thereafter.
 - 4. The assumed rates of retirement have been replaced by an assumed retirement age of 68.
 - 5. The expense provision has been increased from .14% of covered payroll to .16%.
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The assumptions are set forth in Tables 8(a) through 8(c).

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Supreme Court Justices Plan

Actuarial Methods

The standard entry age normal cost, with normal cost developed directly as a percentage of pay for each member was used for the six Supreme Court Justices valued in the plan.

Actuarial Assumptions

The actuarial assumptions, which reflect the revised mortality basis adopted for all of the MSRS plans, are summarized in Table 8(a).

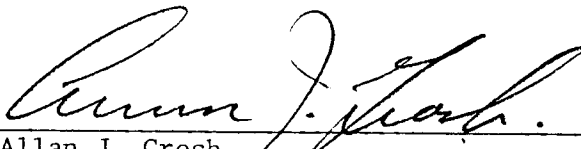
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If, in connection with this valuation of the Fund, additional investigations are indicated, we will be happy to undertake any further computations that may be desired.

Respectfully submitted,

THE WYATT COMPANY


Allan J. Grosh
Fellow, Society of Actuaries

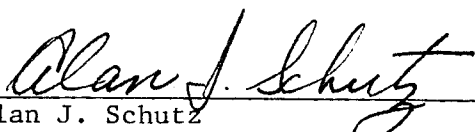

Alan J. Schutz
Associate, Society of Actuaries

Table 1(a)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Summary of Actuarial Valuation as of June 30, 1980

	Judges Plan	Supreme Court Justices	Total
A. BASIC DATA			
1. Active Members			
a. Number	215	6	221
b. Covered payroll	10,278,000	339,000	10,617,000
2. Retired Members/Beneficiaries			
a. Number	121	---	121
b. Average annual benefit payable	11,089	---	11,089
3. Deferred Annuitants			
a. Number	4	---	4
b. Average annual vested benefit	7,048	---	7,048
4. Former Members Without Vested Rights			
a. Number	3	---	3
b. Average employee contributions	6,331	---	6,331
B. BASIC FINANCIAL RESULTS			
1. Normal Cost	1,539,644	69,962	1,609,606
2. Accrued Liability	30,264,560	1,102,481	31,367,041
3. Valuation Assets	7,641,062	---	7,641,062
4. Portion of Accrued Liability Funded	25.25%	0.00%	24.36%
5. Unfunded Accrued Liability [2 - 3]	22,623,498	1,102,481	23,725,979
C. DETERMINATION OF ANNUAL REQUIREMENT IN ACCORDANCE WITH CHAPTER 356 1/			
1. Normal Cost	1,539,644	69,962	1,609,606
	(14.98)	(20.64)	(15.16)
2. Assumed Operating Expenses	16,444	542	16,986
	(0.16)	(0.16)	(0.16)
3. Amortization of the Unfunded Accrued Liability by June 30, 2009	1,494,181	72,814	1,566,995
	(14.54)	(21.48)	(14.76)
4. Total Chapter 356 Requirement [1 + 2 + 3]	3,050,269	143,318	3,193,587
	(29.68)	(42.28)	(30.08)
5. Portion Being Funded by Judges Contributions	503,537	---	503,537
	(4.90)	---	(4.74)
D. DEPTH OF FUNDING - PLAN CONTINUATION BASIS			
1. Present Value of Accrued Benefits			
a. Active members	19,456,057	1,068,263	20,524,320
b. Deferred annuitants	150,554	---	150,554
c. Inactive members without vested rights	24,073	---	24,073
d. Retirement and survivors benefits not payable from MPRI Fund	8,164,718	---	8,164,718
e. Benefits payable from MPRI Fund	3,760,185	---	3,760,185
f. Total present value of accrued benefits	31,555,587	1,068,263	32,623,850
2. Asset Reserves	7,641,062	---	7,641,062
3. Ratio of Accrued Benefits Funded [2 + 1(f)]	24.21%	0.00%	23.42%

1/ Parentheses indicate Chapter 356 contribution levels as a percentage of salary.

Table 1(b)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Comparison of 1979 and 1980 Actuarial Valuation Results

	<u>Prior Assumptions</u>		<u>Revised Assumptions</u>
	1979	1980	1980
1. Active Members			
a. Number	220	221	221
b. Covered payroll	9,924,000	10,617,000	10,617,000
2. Retired Members/ Beneficiaries			
a. Number	129	121	121
b. Average annual benefit payable	10,326	11,089	11,089
3. Deferred Annuitants			
a. Number	4	4	4
b. Average annual vested benefit	7,048	7,048	7,048
4. Former Members Without Vested Rights			
a. Number	1	3	3
b. Average employee contributions	376	6,331	6,331
5. Normal Cost <u>1/</u>	1,342,403 (13.53)	1,538,688 (14.49)	1,609,606 (15.16)
6. Accrued Liability	29,231,190 <u>2/</u>	33,170,121	31,367,041
7. Valuation Assets	6,897,325 <u>2/</u>	7,641,062	7,641,062
8. Unfunded Accrued Liability	22,333,865	25,529,059	23,725,979
9. Accrued Liability Funding Ratio	23.60%	23.04%	24.36%
10. Chapter 356 Requirement (Normal Cost Plus Amortization by 2009). <u>3/</u>	2,809,146 (28.31)	3,241,754 (30.53)	3,193,587 (30.08)

	Prior Assumptions		Revised Assumptions
	1979	1980	1980
11. Present Value of Accrued Benefits Plan Continuation Basis <u>2/</u>	28,365,972	31,589,577	32,623,850
12. Depth of Funding [7 ÷ 11]	24.32%	24.19%	23.42%

1/ Parentheses indicate contribution levels as a percentage of salary.

2 1979 report disclosure adjusted to reflect revised accounting treatment of MPRI Fund participation.

3/ Including assumed operating expenses. Parentheses indicate contribution levels as a percentage of salary.

Table 2(a)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Accounting Balance Sheet as of June 30, 1980

A. ASSETS

1. Cash	5,567.54
2. Short Term Investments (at Cost)	554,000.00
3. Accounts Receivable:	
a. Accrued Judges contributions	1,392.82
4. Accrued Interest on Investments	59,524.58
5. Dividends Declared and Payable, but Not Yet Received	4,187.25
6. Investment in Debt Securities at Amortized Cost	2,189,579.54
7. Investment in G.N.M.A.'s at Amortized Cost	256,537.33
8. Investment in Equities at Cost <u>1/</u>	1,083,743.17
9. Deferred Yield Adjustment Account	(4,500.00)
10. Participation in the MPRI Fund <u>2/</u>	3,760,185.00
11. TOTAL ASSETS	<u><u>7,910,217.23</u></u>

B. LIABILITIES AND RESERVESLiabilities

1. Accounts Payable		
a. Due SER Fund	11,386.58	
b. Due MPRI Fund	135,839.62	
c. Security Purchases	28,723.82	
d. Due General Fund	<u>1,386.66</u>	177,336.68
2. Deferred Credits and County Reimbursement		<u>91,818.88</u>
3. Total Liabilities		<u><u>269,155.56</u></u>

Reserves

1. Participation in MPRI Fund <u>2/</u>	3,760,185.00
2. Member Contribution Reserve	1,867,726.05
3. Retirement Reserve - "Old Law" Judges	873,720.00
4. Retirement Reserve - Additional Judges and Survivors	7,290,998.00
5. State Contribution Reserve	(6,151,567.38)
6. Total Reserves (Valuation Reserves) <u>3/</u>	<u><u>7,641,061.67</u></u>
7. TOTAL LIABILITIES AND RESERVES	<u><u>7,910,217.23</u></u>

1/ Market value as of June 30, 1980 is \$1,172,597.

2/ Equal to greater of Net Assets (\$3,722,397) or Required Reserves (\$3,760,185) as of June 30, 1980, excluding January 1, 1981 benefit increase.

3/ Portion of assets to be applied as valuation assets toward providing benefits.

Table 2(b)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Actuarial Balance Sheet as of June 30, 1980

A. ASSETS

1.	Assets on Hand from Accounting Balance Sheet:		
	a. Participation in MPRI Fund	3,760,185	
	b. All other assets	<u>4,150,032</u>	7,910,217
2.	Present Value of Judges Future Contributions		6,102,141
3.	Present Value of State Future Contributions Applicable to:		
	a. Entry age normal cost	12,337,378	
	b. Unfunded accrued liability	<u>23,725,979</u>	<u>36,063,357</u>
4.	TOTAL ASSETS		<u>50,075,715</u>

B. LIABILITIES

1.	Current Liabilities from Accounting Balance Sheet		269,155
2.	Present Value of Earned and Earnable Benefits Payable to Presently Active Members:		
	a. Retirement benefits	31,000,446	
	b. Disability benefits	2,181,068	
	c. Refundments due to death or withdrawal	0	
	d. Surviving spouse benefits	<u>4,525,516</u>	37,707,030
3.	Present Value of Benefits for Deferred Annuitants		150,554
4.	Former Members Without Vested Rights		24,073
5.	Present Value of Presently Retired Persons		
	a. Participation in MPRI Fund	3,760,185	
	b. From Judges Fund	<u>8,164,718</u>	<u>11,924,903</u>
6.	TOTAL LIABILITIES		<u>50,075,715</u>

Table 3(a)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Chapter 356 Balance Sheet as of June 30, 1980

ASSETS AND UNFUNDED ACCRUED LIABILITY

A. ASSETS 1/

1. Cash	5,567.54
2. Short Term Investments (at Cost)	554,000.00
3. Accounts Receivable:	
a. Accrued Judges Contributions	1,392.82
4. Accrued Interest on Investments	59,524.58
5. Dividends Declared and Payable, but Not Yet Received	4,187.25
6. Investment in Debt Securities at Amortized Cost	2,189,579.54
7. Investment in G.N.M.A.'s at Amortized Cost	256,537.33
8. Investment in Equities at Cost	1,083,743.17
9. Deferred Yield Adjustment Account	(4,500.00)
10. Participation in the MPRI Fund <u>2/</u>	<u>3,760,185.00</u>
11. Total Assets	<u><u>7,910,217.23</u></u>

B. UNFUNDED ACCRUED LIABILITY

1. Total Unfunded Accrued Liability	23,725,979.33
2. TOTAL ASSETS AND UNFUNDED LIABILITY	<u><u>31,636,196.56</u></u>

CURRENT LIABILITIES AND RESERVES REQUIRED

C. LIABILITIES

1. Accounts Payable:		
a. Due SER Fund	11,386.58	
b. Due MPRI Fund	135,839.62	
c. Security Purchases	28,723.82	
d. Due General Fund	<u>1,386.66</u>	177,336.68
2. Deferred Credits and County Reimbursement		<u>91,818.88</u>
3. Total Liabilities		<u><u>269,155.56</u></u>

D. RESERVES REQUIRED

1. Total Reserves Required per Attached Table 3(b)	31,367,041.00
2. TOTAL CURRENT LIABILITIES AND RESERVES REQUIRED	<u><u>31,636,196.56</u></u>

1/ Accumulated contributions, without interest, of members not yet retired amounted to \$1,867,726.05 as of June 30, 1980 (includes accrued but unpaid contributions).

2/ Equal to greater of Net Assets (\$15,599,784) or Required Reserves (\$16,238,625) as of June 30, 1980, excluding the January 1, 1981 benefit increase.

Table 3(b)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Determination of Accrued Liability and
Unfunded Accrued Liability as of June 30, 1980

	(1)	(2)	(3)
	Present Value of Benefits	Present Value of Applicable Portion of Normal Cost Contribution	Accrued Liability Equals Reserves Required (1)-(2)
A. <u>DETERMINATION OF ACCRUED LIABILITY</u>			
1. Active Members			
a. Retirement benefits	31,000,446	13,775,997	17,224,449
b. Disability benefits	2,181,068	1,570,492	610,576
c. Refundments due to death or withdrawal	---	---	---
d. Surviving spouse benefits	4,525,516	3,093,030	1,432,486
2. Deferred Annuitants	150,554	---	150,554
3. Former Members Without Vested Rights	24,073	---	24,073
4. Retirement and Survivors Benefits from Judges Fund	8,164,718	---	8,164,718
5. Participation in MPRI Fund	<u>3,760,185</u>	<u>---</u>	<u>3,760,185</u>
6. Total	49,806,560	18,439,519	31,367,041
B. <u>DETERMINATION OF UNFUNDED ACCRUED LIABILITY</u>			
1. Accrued Liability	---	---	31,367,041
2. Valuation Assets	---	---	7,641,062
3. Unfunded Accrued Liability [1 - 2]	---	---	23,725,979

Table 3(c)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Determination of MPRI Fund Participation and Reserves
as of June 30, 1980 1/

1.	Unadjusted MPRI Fund Net Assets as of June 30, 1980	3,586,557
2.	Transfer to MPRI Fund from Judges Retirement for 1980 Mortality Loss	30,810
3.	Amount Transferable to MPRI Fund for Reserve Strengthening (Actuarial Assumption Revision) and Accrual Adjustment	105,030 <u>2/</u>
4.	Net Transfer [2 + 3]	135,840
5.	Net Assets as of June 30, 1980 [1 + 4]	3,722,397
6.	Required Reserves as of June 30, 1980	3,760,185
7.	Required Reserves as of January 1, 1981	3,694,764

1/ Does not reflect impact of benefit increases to be effective on January 1, 1981.

2/ \$102,145 as of June 30, 1979; \$105,030 as of June 30, 1980 (including adjustment for those retiring in year ending on June 30, 1980 and accrual adjustment of \$6,689).

Table 3(d)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Allocation of MPRI Fund Reserves According to
Eligibility for January 1, 1981 Increase 1/

	<u>Total</u>	<u>Total Allocated to</u>	
		<u>Members Eligible for Increase</u>	<u>Members Not Eligible for Increase</u>
1. Reserves as of June 30, 1980	3,760,185	3,103,647	656,538
2. Reserves as of January 1, 1981	3,694,764	3,048,991	645,773
3. Mortality Loss During the Year Ended June 30, 1980	30,810	24,307	6,503

1/ Does not reflect impact of benefit increases to be effective January 1, 1981.

Table 4

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Analysis of Income and Deductions From Income
and Effect on the Unfunded Accrued Liability

A. INCOME

1.	From Judges Contributions		415,914.08
2.	From the State		
a.	Transfers from the State General Fund		1,082,907.93
3.	From Investments		
a.	Interest on securities	271,724.99	
b.	Dividends on corporate stock	53,393.38	
c.	Gain on sale of stock	7,831.00	
d.	Loss on sale of short term securities	(10,618.75)	
e.	Interest earned on monthly adjustment	2,184.09	324,514.71
4.	Participation in MPRI Fund Income		185,958.26
5.	Other Revenues		
a.	County reimbursements	98,243.88	
b.	Interest on back payments	204.56	
c.	Prior year cancelled annuity warrants	7,143.30	105,591.74
6.	TOTAL INCOME		<u>2,114,886.72</u>

B. DEDUCTIONS FROM INCOME

1.	Benefits		
a.	Judges Plan service retirement annuities	545,987.41	
b.	Judges Plan disability retirement benefits	16,559.52	
c.	Judges Plan survivor benefits (spouses)	49,596.84	
d.	Supreme and District Court Judges Plan retirement annuities	406,990.86	
e.	Supreme and District Court Judges Plan survivor benefits	188,301.42	
f.	County Paid Judges Plan retirement annuities	106,725.24	
g.	County Paid Judges Plan survivor benefits	24,471.33	1,338,632.62
2.	Refunds Paid		
a.	Left service	4,019.31	
b.	Erroneous contributions	2,918.49	
c.	Interest paid	198.34	7,136.14
3.	Administrative Expenses ^{1/}		11,036.58
4.	Increase in Total Reserves Required		
a.	Reserves required 6/30/79	29,231,190.00	^{2/}
b.	Reserves required 6/30/80	31,367,041.00	22,135,851.00
5.	Decrease in MPRI Fund Deficit		14,344.94
6.	TOTAL DEDUCTIONS FROM INCOME		<u>3,507,001.28</u>
7.	EXCESS OF DEDUCTIONS FROM INCOME OVER INCOME		<u>1,392,114.56</u>

C. INCREASE IN UNFUNDED ACCRUED LIABILITY

1.	Unfunded Accrued Liability 6/30/79	22,333,864.77
2.	Unfunded Accrued Liability 6/30/80	<u>23,725,979.33</u>
3.	INCREASE IN UNFUNDED ACCRUED LIABILITY	<u>1,392,114.56</u>

^{1/} Represents 0.10% of covered payroll.

^{2/} Adjusted from last year's report to include the deficit in the MAFB Fund.

Table 5

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Analysis of Change in the Unfunded Accrued Liability
During the Fiscal Year Ending June 30, 1980

1.	Unfunded Accrued Liability as of June 30, 1979		22,333,865
2.	Change Due to Current Rate of Funding and Interest Requirements		
a.	1979 - 80 past service contribution	(115,457)	
b.	5% interest requirement	<u>1,116,693</u>	1,001,236
3.	Change Due to Revision in Actuarial Assumptions		(1,803,080)
4.	Change Due to Improvement in Benefit Formula <u>1/</u>		1,379,200
5.	Change Due to Actuarial Gains (indicated by parentheses) or Losses (no parentheses) Because of Experience Deviations from Expected		
a.	MPRI Fund mortality loss	30,810	
b.	Mortality loss (other retirees)	126,990	
c.	Salary	668,386	
d.	Social Security increase	(300,333)	
e.	Investments	(127,140)	
f.	Withdrawal, disability, mortality, retirement (balancing item)	<u>416,045</u>	<u>814,758</u>
6.	Unfunded Accrued Liability as of June 30, 1980		<u>23,725,979</u>

1/ Percentage applied to final average salary for each year of service after June 30, 1980 has been increased from 2½% to 3%. Maximum percentage has been increased from 60% to 65%.

Table 6(a)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Covered Judges Retirement Fund Employee Census Data
as of June 30, 1980 1/

	<u>Number</u>	<u>Annualized Payroll</u>
Active at June 30, 1979	214	9,606,000
New Entrants	<u>9</u>	
Total	223	
Less Separations from Active Service:		
Refund	1	45,000
Separation with Neither Refundment Nor Right to a Deferred Annuity	1	45,000
Deaths	1	45,000
Service Retirement	<u>5</u>	225,000
Total Separations	8	360,000
Active at June 30, 1980	215	10,278,000

AVERAGE ENTRY AGE OF NEW EMPLOYEES

<u>For the Fiscal Year Ending</u>	<u>Average Age at Entry</u>
6/30/77	39.8
6/30/78	46.8
6/30/79	38.7
6/30/80	46.3
Average age at entry in State service for all active employees at 6/30/80	42.1

1/ In addition 6 Supreme Court Justices participating under their own plan were reflected in the valuation.

Table 6(b)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Judges Retirement Fund Annuitant Census Data
as of June 30, 1980

	<u>Number</u>	<u>Annual Annuity Benefit Payable</u>
A. <u>SERVICE RETIREMENT ANNUITANTS</u> <u>1/</u>		
Receiving at June 30, 1979	72	984,151.32
New	5	92,783.16
Deaths	2	37,639.92
Receiving at June 30, 1980	75	1,039,294.56
B. <u>DISABLED EMPLOYEES</u>		
Receiving at June 30, 1979	2	27,998.52
Adjustments-Net Result	0	763.68
Receiving at June 30, 1980	2	28,762.20
C. <u>WIDOWS RECEIVING AN ANNUITY OR SURVIVOR BENEFIT</u>		
Receiving at June 30, 1979	44	265,501.20
New	2	18,819.96
Deaths	2	8,770.68
Payment Stopped (Remarried)	1	1,864.80
Receiving at June 30, 1980	43	273,685.68
D. <u>CHILDREN RECEIVING A SURVIVOR BENEFIT</u>		
Receiving at June 30, 1980	None	

	<u>Number</u>	<u>Annual Annuity Benefit Payable</u>
E. <u>DEFERRED ANNUITANTS</u>		
Deferred as of June 30, 1979	4	28,191.12
New	0	0.00
Began Receiving	0	0.00
Deferred as of June 30, 1980	4	28,191.12

AVERAGE AGE AT RETIREMENT OF NEW SERVICE ANNUITANTS 2/

<u>Fiscal Year Ending</u>	<u>Average Retirement Age</u>
6/30/77	69.3
6/30/78	70.3
6/30/79	67.5
6/30/80	67.8
<u>All Existing Service Annuitants</u>	69.5

1/ Includes Non-MPRI retired Judges, and retired Judges included for the first time in the prior year's report.

2/ Not including District or Supreme Court, or County Paid Judges or Widows.

Table 7

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Summary of Principal Plan Provisions as of June 30, 1980

A. JUDGES PLAN

1. Coverage: From first date as a Judge.
2. Types of Coverage:
 - a. Including Social Security: All Judges except those excluded by Item 2(b) are covered by Social Security.
 - b. Not Including Social Security: Judges prior to January 1, 1974 were given the opportunity to elect not to be covered under Social Security.
3. Contributions:
 - a. From Judges: Judges pay the Social Security Tax Rate applied to the entire salary, plus an additional $\frac{1}{2}\%$ of salary (subject to a minimum of 7% of salary in total). For those Judges with Social Security coverage, the appropriate portion of this contribution is forwarded to Social Security.
 - From the State: The State provides any additional funds necessary to meet obligations.
4. Final Average Salary: Monthly average for the highest 5 years of salary within the last 10 years.
5. Normal Retirement:
 - a. Eligibility: Earlier of:
 - . attainment of age 65 and completion of 10 years of service; or
 - . attainment of age 70.
 - b. Benefit Amount: $2\frac{1}{2}\%$ of Final Average Salary for each year of service prior to June 30, 1980, plus 3% of Final Average Salary for each year thereafter.
 - c. Maximum Benefit: 65% of annual salary in the year immediately preceding retirement.
 - d. Minimum Benefit: Benefits for Judges who retire at age 70 with at least 10 years of service and who were members of the plan prior to January 1, 1974, are subject to a minimum of 50% of Final Average Salary (proportionately reduced for less than 15 years of service).

-)
6. Early Retirement:
- a. Eligibility: Attainment of age 62 and completion of 10 years of service.
- b. Benefit Amount: Normal Retirement benefit formula based on service and Final Average Salary to date of early retirement but reduced 1/15th for each year that actual retirement precedes age 65.
7. Form of Payment: Life annuity with no guarantees upon death.
8. Disability Retirement:
- a. Eligibility: None other than disablement while in office.
- b. Benefit Amount:
- . Full salary for the first two years of disability paid outside the plan.
 - . After two years of disability, an annuity computed in the same manner as the full benefit amount for service retirement, subject to a minimum of 25% of Final Average Salary.
9. Deferred Service Retirement: Any benefit described above may be deferred until the early or normal retirement date.
10. Return of Contributions: Upon termination of employment, if a Judge qualifies for no other benefits under this plan, he will receive his contributions accumulated with interest at a rate of 5% compounded annually.
11. Pre-Retirement Survivor's Annuity: 60% of the annuity determined in the same manner as normal service retirement benefits assuming the Judge retired on his date of death. Subject to minimum of 25% of final average salary.
12. Post-Retirement Survivor's Annuity:
- a. Joint and Survivor Election: In lieu of receiving benefits in the standard life annuity form of payment, a retiring Judge may elect actuarially reduced benefits in the joint and survivor annuity or term certain annuity forms.
- b. Prior Survivor's Benefits: Benefits for Judges who were in office prior to January 1, 1974 and who continue to make additional contributions of 4% of salary to the survivor's fund receive benefits in the 50% joint and survivor form, with no actuarial reduction.
-)

c. Social Security
Offset

For Judges participating in Social Security, Judges Plan benefits are reduced by 75% of the Social Security Benefits payable.

B. SUPREME COURT JUSTICES PLAN

1. Coverage: Supreme Court Justices as of December 31, 1973 who elected coverage under Chapter 490.025 in lieu of coverage under Chapters 490.121 through 490.132.
2. Retirement With Continuation of Compensation:
 - a. Eligibility: Attainment of age 70 and completion of 12 years of Supreme Court service.
 - b. Benefit Amount:
 - . Continuation of final compensation until the end of the term to which the Supreme Court Justice was elected.
 - . 50% of final salary plus an additional 2-1/2% of final salary for each year of Supreme Court service in excess of 12, payable after the continuation of compensation ceases.
3. Retirement Without Continuation of Compensation:
 - a. Eligibility: Earlier of:
 - . attainment of age 65 and completion of 15 years of Supreme Court service; or
 - . attainment of age 70.
 - b. Benefit Amount: 50% of final salary plus an additional 2-1/2% of final salary for each year of Supreme Court service in excess of 12.
4. Disability Benefits:
 - a. Eligibility: Disablement after completion of two full terms.
 - b. Benefit Amount: 50% of final salary plus an additional 2-1/2% of final salary for each year of Supreme Court service in excess of 12.

Table 8(a)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Summary of Actuarial Assumptions and Methods

A. JUDGES RETIREMENT FUND

- | | |
|-----------------------------|--|
| 1. Mortality: | 1971 Group Annuity Mortality Table with ages set back 8 years for females. |
| 2. Withdrawal: | None. |
| 3. Disability: | Graded rates based on actual experience, as adjusted by our June 30, 1979 experience analysis and set forth in the Separation from Active Service Table. |
| 4. Expenses: | .16% of covered payroll. |
| 5. Interest Rate: | 5% per annum. |
| 6. Salary Scale: | 3-1/2% per annum. |
| 7. Assumed Retirement Age: | Age 68. |
| 8. Actuarial Cost Method: | Entry age cost method, with normal cost determined as a level percentage of future covered payroll, on an aggregate basis. |
| 9. Social Security: | |
| a. Primary amount: | \$653.80 per month, increasing with salary scale. |
| b. Level contribution rate: | 6.99%. |
| c. Covered monthly wages: | \$25,900 increasing with salary scale. |

) B. SUPREME COURT JUSTICES

- | | |
|---|--|
| 1. Mortality (Pre and Post-Retirement): | 1971 Group Annuity Mortality with ages set back 8 years for females. |
| 2. Withdrawal: | None. |
| 3. Interest Rate: | 5%. |
| 4. Salary Scale: | 3-1/2% per annum. |
| 5. Expenses: | .16% of covered payroll. |
| 6. Retirement Age: | Latest of: <ul style="list-style-type: none">. attainment of age 70;. completion of 12 years of service; or. one year from valuation date. |

Table 8(b)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Male Judges
Probabilities of Separation From Active Service
(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	5		
21	5		
22	5		
23	6		
24	6		
25	6		
26	7		
27	7		
28	7		
29	8		
30	8	2	
31	9	2	
32	9	2	
33	10	2	
34	10	2	
35	11	2	
36	12	2	
37	13	2	
38	14	2	
39	15	2	
40	16	2	
41	18	2	
42	20	2	
43	23	3	
44	26	3	

<u>Age</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
45	29	3	
46	33	5	
47	38	7	
48	42	9	
49	47	11	
50	53	14	
51	59	16	
52	65	20	
53	71	24	
54	78	28	
55	85	34	
56	93	40	
57	100	46	
58	109	56	
59	119	66	
60	131	76	
61	144	90	
62	159	110	
63	174	136	
64	192	174	
65	213		
66	236		
67	263		
68			10,000

Table 8(c)

MINNESOTA STATE RETIREMENT SYSTEM
JUDGES RETIREMENT FUND

Female Judges

Probabilities of Separation From Active Service

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

<u>Age</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	4		
21	4		
22	4		
23	4		
24	4		
25	5		
26	5		
27	5		
28	5		
29	5		
30	5		
31	6		
32	6		
33	6		
34	7		
35	7	1	
36	7	1	
37	8	1	
38	8	1	
39	9	2	
40	9	2	
41	10	2	
42	10	4	
43	11	4	
44	12	4	

<u>Age</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
45	13	5	
46	14	6	
47	15	7	
48	16	7	
49	18	10	
50	20	10	
51	23	12	
52	26	14	
53	29	16	
54	33	20	
55	38	24	
56	42	30	
57	47	36	
58	53	44	
59	59	52	
60	65	62	
61	71	74	
62	78	88	
63	85	104	
64	93	122	
65	100		
66	109		
67	119		
68	131		

APPENDIX

MINNESOTA STATE RETIREMENT SYSTEM JUDGES RETIREMENT FUND

Table References to Chapter 356 and Chapter 607 1/

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3(a)	Chapter 356 Balance Sheet		23
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3(c) and 3(d)	Determination of MPRI Fund Participation and Reserves		25
4	Analysis of Income and Deductions From Income and Effect on the Un- funded Accrued Liability	356.20 Subd. 4(2) 356.20 Subd. 4(3) 356.215 Subd. 4(11)	26

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5	Analysis of Change in the Unfunded Accrued Liability During the Fiscal Year Ending June 30, 1980.	356.215 Subd. 4(9)	27
6(a)	Covered Judges Census Data	356.20 Subd. 4(4)	28
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7	Summary of Principal Plan Provisions	356.215 Subd. 4(12)	31
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8(b) and 8(c)	Probabilities of Separation from Active Service	356.215 Subd. 4(5)	36

^{1/} Chapter 356 of the Minnesota Statutes
Chapter 607 of the 1980 Minnesota Laws

^{2/} All as of June 30, 1980

MINNESOTA STATE JUDGES' RETIREMENT FUND
ACTUARIAL VALUATION AS OF JUNE 30, 1980

The purpose of this memorandum is to discuss the valuation reports of the Minnesota State Judges' Retirement Fund which were submitted to the Commission in accordance with Minnesota Statutes, Chapter 356. The entry age normal cost method was used with a 5% interest assumption. Although a separate memorandum was prepared on the 1979 valuation, the Commission's schedule did not permit a review of it, and the results are incorporated into this memorandum. The 1978 report was prepared by Harry M. Church and David G. Adams of Towers, Perrin, Forster and Crosby, and the later reports were prepared by Allan J. Grosch and Alan J. Schutz of the Wyatt Company.

This memorandum contains the following:

1. Statistical and Valuation Data
2. Discussion of Valuation Results
3. Experience Study
4. Conclusion

1. Statistical and Valuation Data

(1) Membership

	<u>1978</u>	<u>1979</u>	<u>1980</u>
Active Members	217	220*	221
Retired Members	31	72**	75
Disabled	1	2	2
Survivors	10	44**	43
Deferred Annuitants	3	4	4

(2) Payroll and Annuities Payable

Total Annual Payroll	\$9,089,988	\$9,924,000	\$10,617,000
Annuities (annual)	464,064	1,331,994**	1,341,743

(3) Valuation Balance Sheet

Actuarial Liabilities			
Annuities in Force	\$ 3,844,849	\$10,700,882	\$11,924,903
Deferred Annuities	102,377	137,248	150,554
Active Members	<u>16,437,564</u>	<u>18,393,060</u>	<u>19,291,584</u>
Total	\$20,384,790	\$29,231,190	\$31,367,041
Assets	<u>4,933,299</u>	<u>6,897,325</u>	<u>7,641,062</u>
	\$15,451,491	\$22,333,865	\$23,725,979
Funding Ratio	24.20%	23.60%	24.36%

* Includes 6 Supreme Court Judges for the first time.

** Includes 81 retired judges and beneficiaries with \$780,603 of benefit for the first time.

(4) Normal Cost and Funding Costs

	<u>1978</u>	<u>1979</u>	<u>1980</u>
Normal Cost	12.65%	13.53%	15.16%
Expenses	0.14	0.14	0.16
Interest on Deficit	<u>8.50</u>	<u>11.62</u>	<u>11.17</u>
Minimum Contribution	21.29%	25.29%	26.49%
Normal Cost plus			
Expenses	12.79%	13.67%	15.32%
Amortization by 2009	<u>11.06</u>	<u>14.64</u>	<u>14.76</u>
Required Contribution	23.85%	28.31%	30.08%

2. Discussion of Valuation Results

The increase in the normal cost from 1978 to 1979 came about as a result of including 6 Supreme Court judges for the first time. The corresponding increase from 1979 to 1980 was the result of two factors: (1) the benefit accrual formula for each year of service after June 30, 1980 was changed from 2.5% of final average salary to 3% coupled with a raising of the maximum benefit from 60% of salary in the final active year to 65%; (2) in accordance with the 1975-1979 experience study, which will be reviewed in Section 3, the mortality assumption was strengthened and assumed withdrawals were eliminated. The first factor increased the normal cost 0.96 percentage points and the second one 0.67 percentage points.

Since the benefit in this plan in most cases involves a Social Security offset, the judges' share of the normal cost is determined by the Actuary using a formula which takes into account the employee Social Security tax. This resulted in the following division of the normal cost:

	<u>1978</u>	<u>1979</u>	<u>1980</u>
Judges' Share	4.23%	4.10%	4.75%
State's Share	<u>8.42</u>	<u>9.43</u>	<u>10.41</u>
Total	12.65%	13.53%	15.16%

The 1980 figures involve an increased contribution formula for the judges. With the 1980 division of the normal cost, the State's share of the 30.08% required contribution becomes 25.33%. This compares with 19.62% in 1978 and 24.21% in 1979.

During the 1978-79 year, the deficit increased by \$6,882,374 mostly by transfer of additional retirees into this group, and the increase during the past year was \$1,392,114. These increases were analyzed as follows:

<u>Increases:</u>	<u>1978-79</u>	<u>1979-1980</u>
Addition of Retirees	\$5,534,479	\$ 0
Addition of Supreme Court Judges	969,630	0
Salary Scale Loss	634,833	668,386
Change in Benefits	0	1,379,200
Contribution Deficiency	0	1,001,236
Mortality Loss-Retirees		157,800
Capital Loss (Net)	0	2,788
Deviations in Mortality, Withdrawal, Disablement & Retirement	466,880	416,045
Total Increase	\$7,605,822	\$ 3,625,455

Decreases:

Change in Assumptions		\$ 1,803,080
Amortization Contribution	\$ 394,652	0
Social Security Increase	131,378	300,333
Excess Interest	146,621	129,928
Capital Gain (Net)	4,972	0
Mortality Gain - Retirees	45,825	0
Total Decreases	\$ 723,448	\$ 2,233,341

Net Increase	\$6,882,374	\$ 1,392,114
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The state does not make contributions to this fund in accordance with any formula but contributes part of the required reserve at the time each judge retires. Thus, the amount of the State's contribution will be subject to wide variation from year to year, and this will result in a contribution deficiency in some years and some amortization in others.

3. Experience Study

As required by statute, the 1979 report contained a comparison of the experience under the plan during the prior three years with the predictions of the actuarial assumptions. The statute calls for a review of experience over a four-year period, but data were available for this plan for only three years.

Each year, attention has been called to the fact that this plan was being valued with actuarial assumptions borrowed from the MSRS valuations and that they were untested so far as the judges were concerned. Therefore, it is not surprising that this first experience study suggested more appropriate assumptions.

The following chart summarizes the actual number of events compared with the number predicted by the actuarial assumptions:

	<u>Actual</u>	<u>Expected</u>	<u>Ratio</u>
Withdrawals	2	16	12.5%
Disablements	3	0	--
Mortality - Active	3	6	50.0
Mortality - Retirees	4	5	80.0
Age Retirement	22	70	31.4

The following shows the average age at retirement in recent years:

<u>Year</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Avg. Age.	71.4	69.3	70.3	67.5

Since almost no withdrawals occurred, the Actuary recommended that none be assumed. The death rates among both actives and retirees have been less than those in the mortality table used for valuations, and a more conservative table was adopted for the 1980 valuation as well as a more realistic set of rates of disablement.

As stated above, the valuations up to now have been based on the actuarial assumptions used in valuing MSRS. For MSRS, it is assumed that retirements begin at age 58 at a low rate and that the rate increases as the age increases, reaching 100% at age 65. The above analysis indicates that judges tend to retire later than those rates predict, and the Actuary stated that an average retirement age of 68 could be used and would still provide some margin. This assumption was adopted in 1980.

4. Conclusion

The valuations and experience study comply with the various statutes. The low funding ratio for this plan is caused by the irregular contributions of the State, and we recommend that a regular and adequate funding program be adopted.