

MINNESOTA STATE RETIREMENT SYSTEM

JUDGES' RETIREMENT FUND

ACTUARIAL VALUATION AS OF

JUNE 30, 1981

DECEMBER 18, 1981

December 18, 1981

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

Ladies and Gentlemen:

We have performed an actuarial valuation of the Minnesota State Retirement System Judges' Retirement Fund as of June 30, 1981.

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 Touche Ross & Co.

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

TOUCHE ROSS & CO.

  
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John H. Flittie, F.S.A.

  
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Andrea Feshbach, F.S.A.

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REPORT HIGHLIGHTS

	<u>Judges'</u> <u>Plan</u>	<u>Supreme</u> <u>Court</u> <u>Justices</u>	<u>Total</u>
A. Financial and Actuarial Status			
1. Valuation Assets	\$ 8,513,941	\$ —	\$ 8,513,941
2. Accrued Liability	31,126,254	1,488,997	32,615,251
3. Unfunded Accrued Liability (2 - 1)	22,512,313	1,488,997	24,101,310
4. Accrued Liability Funding Ratio (1 / 2)	27.35%	0.00%	26.10%
5. Normal Cost*	1,491,558 (14.43)	72,191 (25.51)	1,563,749 (14.73)
B. Contributions			
1. Chapter 356 Requirement*	3,025,891 (29.28)	172,589 (60.99)	3,198,480 (30.12)
2. Actual Prescribed Contribution*#	484,937 (4.69)	11,320 (4.00)	496,257 (4.67)
C. Depth of Funding - Plan Continuation Basis			
1. Present Value of Accrued Benefits	35,696,292	1,690,540	37,386,832
2. Depth of Funding (A1 / C1)	23.85	-	22.77

\* Parentheses indicate contribution levels as a percentage of salary.

\*# Includes \$7,680 for Judges and \$11,320 for Supreme Court Justices in nonrefundable contributions to provide certain survivor benefits.

REPORT HIGHLIGHTS (continued)

	<u>Judges'</u> <u>Plan</u>	<u>Supreme</u> <u>Court</u> <u>Justices</u>	<u>Total</u>
D. Plan Participants			
1. Active Members			
a. Number	215	5	220
b. Covered payroll	10,335,500	283,000	10,618,500
2. Retired Members/Beneficiaries			
a. Number	125	1	126
b. Average annual benefit payable	11,472	42,000	11,715
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	5,731	—	5,731

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT FUND

ACTUARIAL VALUATION AS OF JUNE 30, 1981

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 and Chapter 11A of the Minnesota Statutes.

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 3-1/2% 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, 1981 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 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 benefits payable from the MPRI Fund (as of June 30, 1981 and as of January 1, 1982), 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, 1981, is intended to comply with all of the requirements regarding actuarial reporting that are set forth in Chapters 356 and 11A of the Statutes. 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 11A respectively.

#### VALUATION ASSETS

The Executive Director furnished us with a Financial Report setting forth the assets and liabilities of the Fund as of June 30, 1981. The Accounting Balance Sheet furnished by the Executive Director is set forth in Table 1.

#### ACTUARIAL BALANCE SHEETS

Table 2 sets forth an Actuarial Balance Sheet summarizing the actuarial valuation. Whereas the previously mentioned Accounting Balance Sheet (Table 1) 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) and 4 which set forth the determination of the unfunded accrued liability and the status of the MPRI Fund as of June 30, 1981.

Table 1

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT FUND

Accounting Balance Sheet as of June 30, 1981

## A. ASSETS

1. Cash		\$ 22,247.08
2. Short term investments (at cost)		1,012,000.00
3. Accounts receivable:		
a. Accrued Judges' contributions	\$2,300.81	
b. Miscellaneous	<u>40.00</u>	2,340.81
4. Accrued interest on investments		52,310.54
5. Dividends declared and payable, but not yet received		6,082.50
6. Investment in debt securities at amortized cost		1,754,037.28
7. Investment in G.N.M.A.'s at amortized cost		245,687.97
8. Investment in equities at cost*		729,077.34
9. Deferred yield adjustment account		88,337.51
10. Participation in MPRI Fund**		<u>4,904,840.00</u>
11. TOTAL ASSETS		<u><u>\$8,816,961.03</u></u>

## B. LIABILITIES AND RESERVES

Liabilities

1. Due SER Fund	\$ 34,077.95
2. Due MPRI Fund	190,399.60
3. Due General Fund	0.00
4. Deferred Credits and County Reimbursement	<u>78,542.79</u>
5. Total liabilities	<u><u>303,020.34</u></u>

Reserves

1. MPRI Fund Reserve	4,904,840.00
2. Member contribution reserve	2,177,802.37
3. Retirement Reserve - "Old Law" Judges	974,292.00
4. Retirement Reserve - Additional Judges and Survivors	7,276,502.00
5. State contribution reserve	(6,819,495.68)
6. Total reserves (valuation assets)***	<u><u>8,513,940.69</u></u>
7. TOTAL LIABILITIES AND RESERVES	<u><u>8,816,961.03</u></u>

\* Market value as of June 30, 1981 is \$885,980.

\*\* Participation equals Required Reserves for retired lives participating in the MPRI fund.

\*\*\* Portion of assets to be applied as valuation assets towards providing benefits.

Table 2

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT FUND

Actuarial Balance Sheet as of June 30, 1981

A. ASSETS

1. Assets on hand from accounting balance sheet:		
a. Participation in MPRI Fund	4,904,840	
b. All other assets	<u>3,912,121</u>	8,816,961
2. Present value of employees' future contributions		5,038,671
3. Present value of state future contributions applicable to:		
a. Entry age normal costs	12,681,678	
b. Unfunded accrued liability	<u>24,101,310</u>	<u>36,782,988</u>
4. TOTAL ASSETS		<u>\$50,638,620</u>

B. LIABILITIES

1. Current liabilities from accounting balance sheet		303,020
2. Present value of earned and earnable benefits payable to presently active members:		
a. Retirement benefits	30,685,814	
b. Disability benefits	1,719,240	
c. Refundments due to death or withdrawal	0	
d. Surviving spouse benefits	<u>4,598,192</u>	37,003,246
3. Present value of benefits for deferred annuitants		159,527
4. Present value of refundment to former members without vested rights		17,193
5. Present value of presently retired persons		
a. Participation in MPRI Fund	4,904,840	
b. From Judges' Fund	<u>8,250,794</u>	<u>13,155,634</u>
6. TOTAL LIABILITIES		<u>\$50,638,620</u>

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT FUND

Chapter 356 Balance Sheet as of June 30, 1981

ASSETS AND UNFUNDED ACCRUED LIABILITY

A. ASSETS(1)

1. Cash		22,247.08
2. Short term investments (at cost)		1,012,000.00
3. Accounts receivable:		
a. Accrued judges' contributions	2,300.81	
b. Miscellaneous	<u>40.00</u>	2,340.81
4. Accrued interest on investments		52,310.54
5. Dividends declared and payable, but not yet received		6,082.50
6. Investment in debt securities at amortized cost		1,754,037.28
7. Investment in G.N.M.A.'s at amortized cost		245,687.97
8. Investment in equities at cost		729,077.34
9. Deferred yield adjustment account		88,337.51
10. Participation in MPRI Fund(2)		<u>4,904,840.00</u>
11. TOTAL ASSETS		<u><u>8,816,961.03</u></u>

B. UNFUNDED ACCRUED LIABILITY

1. Total unfunded accrued liability	24,101,310.00
2. TOTAL ASSETS AND UNFUNDED ACCRUED LIABILITY	<u><u>32,918,271.03</u></u>

CURRENT LIABILITIES AND RESERVES REQUIRED

C. LIABILITIES

1. Due SER Fund	34,077.95
2. Due MPRI Fund	190,399.60
3. Due General Fund	0.00
4. Deferred Credits and County Reimbursement	<u>78,542.79</u>
5. Total liabilities	<u><u>303,020.34</u></u>

D. RESERVES REQUIRED

1. Total reserves required per attached Table 3(b)	32,615,250.69
2. TOTAL CURRENT LIABILITIES AND RESERVES REQUIRED	<u><u>32,918,271.03</u></u>

(1) Accumulated contributions, without interest, of members not yet retired amounted to \$2,177,802.37 as of June 30, 1981 (includes accrued but unpaid contributions).

(2) Participating equals Required Reserves for retired lives participating in the MPRI fund as of June 30, 1981, excluding the January 1, 1982 benefit increases.

Table 3(b)

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT FUND

Determination of Accrued Liability and  
Unfunded Accrued Liability as of June 30, 1981

	<u>Present Value of Benefits</u>	<u>Present Value of Applicable Portion of Normal Cost Contribution</u>	<u>Accrued Liability Equals Reserves Required (1) - (2)</u>
A. DETERMINATION OF ACCRUED LIABILITY			
1. Active Members			
a. Retirement benefits	30,685,814	13,291,677	17,394,137
b. Disability benefits	1,719,240	1,187,487	531,753
c. Refundments due to death or withdrawal	-	-	-
d. Surviving spouse benefit	4,598,192	3,241,185	1,357,007
2. Deferred annuitants	159,527	-	159,527
3. Former members without vested rights	17,193	-	17,193
4. Retirement and survivors benefits from Judges' Fund	8,250,794	-	8,250,794
5. Participation in MPRI Fund	4,904,840	-	4,904,840
6. Total	<u>50,335,600</u>	<u>17,720,349</u>	<u>32,615,251</u>
B. DETERMINATION OF UNFUNDED ACCRUED LIABILITY			
1. Accrued Liability	-	-	32,615,251
2. Valuation assets	-	-	8,513,941
3. Unfunded accrued liability (1 - 2)	-	-	24,101,310

Touche Ross & Co  
CONTRIBUTIONS

Chapters 356 and 490 set forth requirements as to the level of contributions. Chapter 490 prescribes the actual amount of contributions and Chapter 356 describes the method used to determine the amount of contribution required to fully fund the Normal Cost and the Unfunded Accrued Liability.

Annual Requirement in Accordance with Chapter 356:

	<u>Percent of Payroll</u>	<u>Amount</u>
1. Normal cost	14.73%	\$1,563,749
2. Assumed operating expense	.16	16,990
3. Amortization of the Unfunded Accrued Liability by June 30, 2009	15.23	1,617,741
4. Total Chapter 356 requirement (1 + 2 + 3)	30.12	3,198,480

DEPTH OF FUNDING

The depth of funding is an indication of the extent to which the accrued benefits are funded and is measured by the ratio of valuation assets to the present value of accrued benefits. These measurements are made on the plan continuation basis (applying all ongoing actuarial assumptions including assumed salary increases and turnover) and are illustrated as follows:

Depth of Funding:

1. Active members	\$24,054,478
2. Deferred annuitants	159,527
3. Former members without vested rights	17,193
4. Retirement and survivors' benefits not payable from MPRI Fund	8,250,794
5. Participation in MPRI Fund	<u>4,904,840</u>
6. Total present values of accrued benefits	\$37,386,832
7. Valuation assets	\$ 8,513,941
8. Depth of Funding (7 / 6)	22.77%

MINNESOTA POST RETIREMENT INVESTMENT FUNDBackground

) 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, 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.

Chapter 11A of the Minnesota Statutes provides a 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), 5% of any income in excess of the 5% requirement is credited towards amortizing the deficit, with the remaining 95% 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, 1981

Table 4 sets forth the determination of MPRI Fund net assets and reserve requirements as of June 30, 1981.

As required by Chapter 11A of the 1980 Laws, Table 4 allocates the mortality gain and reserve determinations for January 1, 1982 benefit increase purposes to the eligible and non-eligible groups.

UNFUNDED ACCRUED LIABILITY

) Tables 5 and 6 reconcile the change in the unfunded accrued liability during the year. Table 5 sets forth an illustration that the increase in the unfunded accrued liability is equal to the excess of deductions over income during the year, where any increase in required actuarial reserves is indicated as a deduction item. Table 6 sets forth our analysis of the change in the unfunded accrued liability.

Table 4

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES RETIREMENT FUND

Determination of MPRI Fund Participation and Reserves  
as of June 30, 1981

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	Members Eligible for 1/1/82 Increase	Members Not Eligible for Increase	Total
1. Unadjusted MPRI Fund Participation as of June 30, 1981	--	--	\$4,678,645
2. Transfer to MPRI Fund for Mortality (Gain) Loss	\$ 179,802	\$ 10,597	190,399
3. Participation as of June 30, 1981 (1) + (2)	--	--	4,869,044
4. Required Reserves as of June 30, 1981	3,758,951	1,145,889	4,904,840
5. Required Reserves as of January 1, 1982	3,690,476	1,128,922	4,819,398

This exhibit does not reflect benefit increases to become effective on January 1, 1982.



Table 5

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT FUND

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

<b>A. INCOME</b>			
1.	From Judges' contributions		489,713.52
2.	From Employer contributions		1,069,137.79
3.	From investments		
	a. Interest on securities, short term & GNMA's	273,188.69	
	b. Dividends on corporate stock	61,500.13	
	c. Gain on sale of stock	109,442.44	
	d. Loss on sale of short term securities	(4,968.75)	439,162.51
4.	Participation in MPRI Fund income		303,044.32
5.	Other Revenues		
	a. County reimbursements	95,223.06	
	b. Interest on back payments	0.00	
	c. Prior year reimbursements	443.00	95,666.06
6.	<b>TOTAL INCOME</b>		<u><u>2,396,724.20</u></u>
<b>B. DEDUCTIONS FROM INCOME</b>			
1.	Benefits		
	a. Judges' Plan service retirement annuities	622,870.45	
	b. Judges' Plan disability retirement benefits	16,825.20	
	c. Judges' Plan survivor benefits (spouses)	50,392.74	
	d. Supreme and District Court Judges' Plan retirement annuities	409,441.47	
	e. Supreme and District Court Judges' Plan survivor benefits	214,823.03	
	f. County Paid Judges' Plan retirement annuities	105,168.54	
	g. County Paid Judges' Plan survivor benefits	23,737.82	1,443,259.25
2.	Refundments (employee contributions)		
	a. Left service	21,320.34	
	b. Erroneous deductions	1,221.80	
	c. Employee death	14,079.63	
	d. Interest paid	9,885.83	46,507.60
3.	Administrative expenses		34,077.95
4.	Increase in total reserves required		
	a. Reserves required 6/30/80	31,367,041.00	
	b. Reserves required 6/30/81	32,615,250.69	1,248,209.69
5.	<b>TOTAL DEDUCTIONS FROM INCOME</b>		<u><u>2,772,054.49</u></u>
6.	<b>EXCESS OF DEDUCTIONS FROM INCOME OVER INCOME</b>		<u><u>375,330.29</u></u>
<b>C. INCREASE IN UNFUNDED ACCRUED LIABILITY</b>			
1.	Unfunded accrued liability 6/30/80		23,725,979.33
2.	Unfunded accrued liability 6/30/81		24,101,309.62
3.	<b>INCREASE IN UNFUNDED ACCRUED LIABILITY</b>		<u><u>375,330.29</u></u>

Table 6

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT FUND

Analysis of Change in the Unfunded Accrued Liability  
During the Fiscal Year Ending June 30, 1981

1. Unfunded accrued liability as of June 30, 1980		23,725,979
2. Change due to current rate of funding and interest requirements		
a. 1980-81 past service contribution	(126,740)	
b. 5% interest requirement	<u>1,186,299</u>	1,059,559
3. Change due to actuarial gains (indicated by parentheses) or losses (no parentheses) because of experience deviations from expected		
a. Salary	(644,783)	
b. Investment income	(248,682)	
c. MPRI Fund mortality loss	190,400	
d. Mortality loss on other retirees	(21,225)	
e. Gain on Social Security	(1,459)	
f. Withdrawals, death, disability of active members (balancing item)	<u>(41,521)</u>	<u>(684,228)</u>
4. Unfunded accrued liability as of June 30, 1981		<u>24,101,310</u>

) The Executive Director furnished us with employee information pertaining to all active members, inactive members and retired members of the Fund. Tables 7 and 8 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. In addition, age and service, salary and benefit distributions are provided in Tables 9(a) and 9(b) for active employees and 10(a) and 10(b) for retirees.

PLAN VALUED

) The provisions of the Minnesota State Retirement System, Judges' Retirement Fund are governed principally by Chapters 490 and 11A of the Minnesota Statutes pertaining to MPRI Fund Benefits. Table 11 sets forth a summary of the principal provisions as of June 30, 1981. No significant changes to Chapter 490 were reported since the last actuarial valuation as of June 30, 1980.

Table 7

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT PLAN

Covered Judges' Census Data as of June 30, 1981\*

	<u>Number</u>	<u>Annual Payroll</u>
Active at June 30, 1980	215	10,278,000
New Entrants	<u>12</u>	
Total	227	
Less Separations from Active Service:		
Refund of Contributions	5	240,000
Separation with a Vested Right to a Deferred Annuity	1	48,000
Service Retirement	<u>6</u>	288,000
Total Separations	12	
Active at June 30, 1981	215	10,335,500

Average Entry Age of New Employees

<u>For the Fiscal Year Ending</u>	<u>Average Age at Entry</u>
6/30/78	46.8
6/30/79	38.7
6/30/80	46.3
6/30/81	43.8

Average age at entry in State service for all active employees at 6/30/81:

41.2

\* In addition, five Supreme Court Justices participating under their own plan were reflected in the valuation.

Table 8

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT PLAN

Judges' Plan Annuitant Census Data as of June 30, 1981

	<u>Number</u>	<u>Annual Annuity Benefit Payable</u>
<b>A. <u>Service Retirement Annuitants</u></b>		
Receiving at June 30, 1980	75	1,039,294.56
New	9	178,659.36
Deaths	7	111,140.16
Adjustments-Net Result	0	29,326.56
Receiving at June 30, 1981	77	1,136,140.32
<b>B. <u>Disabled Employees</u></b>		
Receiving at June 30, 1980	3	28,762.20
Adjustments-Net Result	0	922.92
Receiving at June 30, 1981	3	29,685.12
<b>C. <u>Widows Receiving an Annuity or Survivor Benefit</u></b>		
Receiving at June 30, 1980	43	273,685.68
New	4	44,952.48
Deaths	1	8,586.96
Adjustments-Net Result	0	196.08
Receiving at June 30, 1981	46	310,247.28
<b>D. <u>Children Receiving a Survivor Benefit</u></b>		
Receiving at June 30, 1981	0	0.00

	<u>Number</u>	<u>Annual Annuity Benefit Payable</u>
E. <u>Deferred Annuitants</u>		
Deferred as of June 30, 1980	4	28,191.12
New	0	0.00
Began Receiving	0	0.00
Deferred as of June 30, 1981	4	28,191.12

Average Age at Retirement of New Service Annuitants\*

<u>Fiscal Year Ending</u>	<u>Average Retirement Age</u>
6/30/78	70.3
6/30/79	67.5
6/30/80	67.8
6/30/81	67.1
All Existing Service Annuitants	68.7

\* Not including District or Supreme Court, or County Paid Judges or Widows.

Table 9(a)

MINNESOTA STATE RETIREMENT SYSTEM  
ACTIVE JUDGES

Service Groups by Age Groups

Age Group	Service Group						Total
	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25 &amp; over</u>	
<u>Male</u>							
0 - 19							0
20 - 24							0
25 - 29							0
30 - 34							0
35 - 39	10	3					13
40 - 44	11	11	2				24
45 - 49	7	10	7	1			25
50 - 54	9	17	5	6	2	2	41
55 - 59	6	12	10	14	13	2	57
60 - 64	1	6	8	5	5	5	30
65 & over	<u>0</u>	<u>1</u>	<u>5</u>	<u>6</u>	<u>4</u>	<u>5</u>	<u>21</u>
Total	44	60	37	32	24	14	211
<u>Female</u>							
0 - 19							0
20 - 24							0
25 - 29							0
30 - 34	1						1
35 - 39	1						1
40 - 44	1	0					1
45 - 49	1	2					3
50 - 54	1	0	1				2
55 - 59	1	0	0				1
65 & over	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	6	2	1	0	0	0	9

Table 9(b)

MINNESOTA STATE RETIREMENT SYSTEM  
ACTIVE JUDGES

Distribution of Annual Earnings by Age Groups

Age Group	Male			Female			All		
	No.	Total	Average	No.	Total	Average	No.	Total	Average
0 - 19	0	0	0	0	0	0	0	0	0
20 - 24	0	0	0	0	0	0	0	0	0
25 - 29	0	0	0	0	0	0	0	0	0
30 - 34	0	0	0	1	48,000	48,000	1	48,000	48,000
35 - 39	13	624,000	48,000	1	48,000	48,000	14	672,000	48,000
40 - 44	24	1,152,000	48,000	1	48,000	48,000	25	1,200,000	48,000
45 - 49	25	1,200,000	48,000	3	144,000	48,000	28	1,344,000	48,000
50 - 54	41	1,959,500	47,793	2	96,000	48,000	43	2,055,500	47,802
55 - 59	57	2,768,000	48,561	1	56,000	56,000	58	2,824,000	48,690
60 - 64	30	1,456,000	48,533	0	0	0	30	1,456,000	48,533
65 & over	21	1,019,000	48,524	0	0	0	21	1,019,000	48,524
Total	211	10,178,500	48,239	9	440,000	48,889	220	10,618,500	48,266

Distribution of Annual Earnings by Service Groups

Service Group	Male			Female			All		
	No.	Total	Average	No.	Total	Average	No.	Total	Average
0	10	488,000	48,800	1	48,000	48,000	11	536,000	48,727
1	7	336,000	48,000	1	48,000	48,000	8	384,000	48,000
2	6	288,000	48,000	0	0	0	6	288,000	48,000
3	4	192,000	48,000	4	200,000	50,000	8	392,000	49,000
4	17	816,000	48,000	0	0	0	17	816,000	48,000
0-4	44	2,120,000	48,182	6	296,000	49,333	50	2,416,000	48,320
5-9	60	2,896,000	48,267	2	96,000	48,000	62	2,992,000	48,258
10-14	37	1,776,000	48,000	1	48,000	48,000	38	1,824,000	48,000
15-19	32	1,555,000	48,594	0	0	0	32	1,555,000	48,594
20-24	24	1,176,000	49,000	0	0	0	24	1,176,000	49,000
25-29	10	463,500	46,350	0	0	0	10	463,500	46,350
30-34	4	192,000	48,000	0	0	0	4	192,000	48,000
35-39	0	0	0	0	0	0	0	0	0
40+	0	0	0	0	0	0	0	0	0
Total	211	10,178,500	48,239	9	440,000	48,889	220	10,618,500	48,266



MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT FUND  
ANNUITANTS IN MIPRF  
(INCLUDES RETIRED AND DISABLED)

TABLE 10(A)

DISTRIBUTION OF ANNUAL BENEFIT BY AGE GROUPS

AGE GROUP	MALE				FEMALE				ALL
	NO.	TOTAL	AVERAGE	NO.	TOTAL	AVERAGE	NO.	TOTAL	
UNDER 40	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0
60-64	1	13356	13356	0	0	0	0	0	0
65-69	12	181291	15108	0	0	0	12	181291	15108
70-74	15	186480	12432	1	8676	8676	16	195156	12197
75-79	9	124160	13796	0	0	0	9	124160	13796
80-84	3	47100	15700	0	0	0	3	47100	15700
85+	1	7560	7560	0	0	0	1	7560	7560
TOTAL	41	559947	13657	1	8676	8676	42	568623	13539

YEARS RETIRED	MALE				FEMALE				ALL
	NO.	TOTAL	AVERAGE	NO.	TOTAL	AVERAGE	NO.	TOTAL	
0	7	112656	16094	0	0	0	7	112656	16094
1	4	70296	17574	0	0	0	4	70296	17574
2	7	95431	13633	0	0	0	7	95431	13633
3	3	30840	10280	0	0	0	3	30840	10280
4	10	130160	13016	0	0	0	10	130160	13016
5-9	31	439383	14174	0	0	0	31	439383	14174
10-14	10	120564	12056	1	8676	8676	11	129240	11749
15-19	0	0	0	0	0	0	0	0	0
20-24	0	0	0	0	0	0	0	0	0
25+	0	0	0	0	0	0	0	0	0
TOTAL	41	559947	13657	1	8676	8676	42	568623	13539

Table 10(b)

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT FUND

Annuitants in MPRIF  
(Includes Retired and Disabled)

Distribution of Years Retired by Age Groups

Age Group	Years Retired						Total
	0-4	5-9	10-14	15-19	20-24	25 & over	
<u>Male</u>							
Under 40	0	0	0	0	0	0	0
40 - 44	0	0	0	0	0	0	0
45 - 49	0	0	0	0	0	0	0
50 - 54	0	0	0	0	0	0	0
55 - 59	0	0	0	0	0	0	0
60 - 64	1	0	0	0	0	0	1
65 - 69	11	1	0	0	0	0	12
70 - 74	13	2	0	0	0	0	15
75 - 79	6	3	0	0	0	0	9
80 - 84	0	3	0	0	0	0	3
85 & over	0	1	0	0	0	0	1
Total	31	10	0	0	0	0	41
<u>Female</u>							
Under 40	0	0	0	0	0	0	0
40 - 44	0	0	0	0	0	0	0
45 - 49	0	0	0	0	0	0	0
50 - 54	0	0	0	0	0	0	0
55 - 59	0	0	0	0	0	0	0
60 - 64	0	0	0	0	0	0	0
65 - 69	0	0	0	0	0	0	0
70 - 74	0	1	0	0	0	0	1
75 - 79	0	0	0	0	0	0	0
80 - 84	0	0	0	0	0	0	0
85 & over	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	1

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT FUND

Summary of Principal Plan Provisions as of June 30, 1981

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 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.
  - b. From the State: The State provides any additional funds necessary to meet obligations, as Judges retire.
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: 2-1/2% 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 1 year 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 or fraction thereof that actual retirement precedes age 65.
7. Form of Payment: Life annuity with no guarantees upon death. Joint & Survivor options and period certain annuities are available.
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.

Table 11 (con't.)

- )
9. Deferred Service Retirement: Any annuity 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 receive benefits in the 50% joint and survivor form, with no actuarial reduction.
13. Social Security Offset: For Judges participating in Social Security, Judges' Plan benefits are reduced by 75% of the Social Security primary benefit payable.
- )

Table 11 (con't.)

) 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, or 15 years of service as Supreme Court Judge and Judge of District Court.
  - 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, except for service after age 73, payable after the continuation of compensation ceases. The maximum benefit is 75% of final salary.
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 and completion of two full terms.

Table 11 (con't.)

- )
- 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.
5. Contributions from Judges: 4% of salary to provide a 50% joint and survivor benefit with no actuarial reduction.
- )

ACTUARIAL METHODS AND ASSUMPTIONS

) Chapter 356 of the Minnesota Statutes calls for the determination of normal cost and accrued liability in accordance with the entry age normal cost method, one of several available projected cost methods. We have continued to use the version employed in prior years.

Tables 12(a), (b) and (c) summarize the actuarial assumptions used. They are unchanged from the previous valuation.



Table 12(a)

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT PLAN

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 the June 30, 1979 experience analysis and as set forth in the Separation From Active Service Table.
4. Expenses: .16% of 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: Individual level dollar entry age cost method, modified to approximate a level percentage of future payroll normal cost.
9. Social Security:
  - a. Primary amount: \$677.00 per month, increasing with salary scale.
  - b. Level contribution rate: 6.99% assumed for all future years.
  - c. Covered annual wages: \$29,700 increasing with salary scale.

Table 12(a) (con't.)

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:
  - . attainment of age 70;
  - . completion of 12 years of service; or
  - . one year from valuation date.

Table 12(b)

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT PLAN

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>	<u>Age</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	5			45	29	3	
21	5			46	33	5	
22	5			47	38	7	
23	6			48	42	9	
24	6			49	47	11	
25	6			50	53	14	
26	7			51	59	16	
27	7			52	65	20	
28	7			53	71	24	
29	8			54	78	28	
30	8	2		55	85	34	
31	9	2		56	93	40	
32	9	2		57	100	46	
33	10	2		58	109	56	
34	10	2		59	119	66	
35	11	2		60	131	76	
36	12	2		61	144	90	
37	13	2		62	159	110	
38	14	2		63	174	136	
39	15	2		64	192	174	
40	16	2		65	213		
41	18	2		66	236		
42	20	2		67	263		
43	23	3		68			
44	26	3					10,000

Table 12(c)

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT PLAN

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>	<u>Age</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	4			45	13	5	
21	4			46	14	6	
22	4			47	15	7	
23	4			48	16	7	
24	4			49	18	10	
25	5			50	20	10	
26	5			51	23	12	
27	5			52	26	14	
28	5			53	29	16	
29	5			54	33	20	
30	5			55	38	24	
31	6			56	42	30	
32	6			57	47	36	
33	6			58	53	44	
34	7			59	59	52	
35	7	1		60	65	62	
36	7	1		61	71	74	
37	8	1		62	78	88	
38	8	1		63	85	104	
39	9	2		64	93	122	
40	9	2		65	100		
41	10	2		66	109		
42	10	4		67	119		
43	11	4		68	131		10,000
44	12	4					

APPENDI

MINNESOTA STATE RETIREMENT SYSTEM  
JUDGES' RETIREMENT FUND

Table References to Chapter 356 and Chapter 11A\*

Table Number	Description**	References
1	Accounting Balance Sheet	
2	Actuarial Balance Sheet	
3(a)	Chapter 356 Balance Sheet	356.20 Subd. 4(1) 356.215 Subd. 4(2)
3(b)	Determination of Accrued Liability and Unfunded Accrued Liability	356.215 Subd. 4(6) 356.215 Subd. 4(8)
4	Determination of MPRI Fund Participation and Reserves	11A.18 Subd.(9),(11)
5	Analysis of Income and Deductions From Income and Effect on the Unfunded Accrued Liability	356.20 Subd. 4(2) 356.20 Subd. 4(3) 356.215 Subd. 4(11)
6	Analysis of Change in the Unfunded Accrued Liability During the Fiscal Year Ending June 30, 1981	356.215 Subd. 4(9)
7	Covered Employee Census Data	
8	General Annuitant Census Data	356.20 Subd. 4(4) 356.215 Subd. 4(10)
9(a)	Employee Age and Service Distribution	
9(b)	Employee Salary Distribution	
10(a)	Retiree Age Distribution	
10(b)	Retiree Benefit Distribution	
11	Summary of Principal Plan Provisions	356.215 Subd. 4(12)
12(a)	Summary of Actuarial Assumptions and Methods	
12(b)	Probabilities of Separation from Active Service - Male Judges	356.215 Subd. 4(4) 356.215 Subd. 4(5)
12(c)	Probabilities of Separation from Active Service - Female Judges	

\* Chapter 356 and 11A of the Minnesota Statutes.

\*\* All as of June 30, 1981.

MEMORANDUM TO: Legislative Commission on Pensions and Retirement

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

RE: June 30, 1981 Actuarial Valuation of Minnesota State Retirement System - Judges' Retirement Plan

DATE: February 18, 1982

The purpose of this memorandum is to review and discuss the results of the June 30, 1981 Actuarial Valuation of the Minnesota State Retirement System - Judges' Retirement Plan. This Actuarial Valuation was prepared by John H. Flittie and Andrea Feshbach of the firm of Touche Ross & Co.

The Actuarial Valuation was conducted using the Entry Age Normal Cost actuarial method, interest at 5%, and a salary increase assumption of  $3\frac{1}{2}\%$  which are in accordance with Minnesota Statutes, Chapter 356.

There were no changes in the actuarial assumptions from the previous year. In addition, there were no major changes in the provisions of the plan since the last Actuarial Valuation.

Funding of this plan is essentially on a terminal basis. At the time of disability, death, or retirement, the state contributes enough so that the total amount, including the Judge's own contributions, will provide for full funding of the benefit.

The Judges' contributions are equal to the Social Security tax rate (currently 6.7%) plus  $\frac{1}{2}\%$  applied to total salary. If covered under Social Security, the portion of this contribution (currently 6.7% of the first \$32,400 of salary) is forwarded to Social Security.

#### SUMMARY OF ACTUARIAL VALUATION RESULTS

1. Membership	<u>6-30-80</u>	<u>6-30-81</u>
Active Members	221	220
Deferred Annuitants	4	7*
Retired Members	75	77
Disabled Members	2	3
Survivors and Beneficiaries	43	46
	<u>345</u>	<u>353</u>

\* Includes 3 members without vested rights.

## SUMMARY OF ACTUARIAL VALUATION RESULTS

### 2. Payroll

6-30-80: \$10,618,500  
6-30-81: \$10,617,000

### 3. Annuities In Force: Annual Basis

6-30-80: \$1,341,743  
6-30-81: \$1,476,073

4. Actuarial Balance Sheet:	<u>6-30-80</u>	<u>6-30-81</u>	<u>Increase</u>
Accrued Liabilities			
Annuities In Force	\$11,924,903	\$13,155,634	\$ 1,230,731
Deferred Annuities	174,627	176,720	2,093
Active Members	19,267,511	19,282,897	15,386
	<u>\$31,367,041</u>	<u>\$32,615,251</u>	<u>\$ 1,248,210</u>
Assets	\$ 7,641,062	\$ 8,513,941	\$ 872,879
Unfunded Accrued Liability	\$23,725,979	\$24,101,310	\$ 375,331
Funding Ratio	24.4%	26.1%	1.7%

### 5. Analysis of Increase in Unfunded Accrued Liability

The Unfunded Accrued Liability increased by \$375,331 from June 30, 1980 to June 30, 1981. The items making up this increase are shown below:

#### Actuarial Experience

Interest	\$ 248,682	Gain
Salary	644,783	Gain
Mortality: Retired Members	169,175	Loss
Social Security	1,459	Gain
Pre-Retirement Experience	41,521	Loss
	<u>\$ 684,228</u>	<u>Gain</u>

<u>Contribution Deficiency</u>	<u>\$1,059,559</u>
	<u>\$ 375,331</u>

### 6. Contribution Levels

Based on the Actuarial Valuation results, the contribution, as a percentage of payroll, which will prevent the Unfunded Accrued Liability from increasing is 26.24%. The contribution, as a percentage of payroll, which will amortize the Unfunded Accrued Liability by June 30, 2009 is 30.12%.

## SUMMARY OF ACTUARIAL VALUATION RESULTS

### 6. Contribution Levels (cont.)

A comparison of the contribution levels, as a percentage of payroll, are shown below:

	<u>6-30-80</u>	<u>6-30-81</u>
Contribution Required to Keep the Unfunded Accrued Liability from Increasing:		
Normal Cost	15.16%	14.73%
Expense	.16	.16
Interest	11.17	11.35
	<u>26.49%</u>	<u>26.24%</u>
Contribution Required to Amortize Unfunded Accrued Liability by June 30, 2009:		
Normal Cost	15.16%	14.73%
Expense	.16	.16
Amortization	14.76	15.23
	<u>30.08%</u>	<u>30.12%</u>

## DISCUSSION OF ACTUARIAL VALUATION RESULTS

1. There was little change in the number of active members of total payroll when June 30, 1981 is compared with June 30, 1980. In fact, payroll was almost constant for the two years.
2. The increase in the Accrued Liability for Active Members is primarily a combination of Active Members moving to a retired status and salaries not increasing as fast as the actuarial assumption. The latter is the main reason that there was only a modest increase in the Unfunded Accrued Liability.
3. Gains from interest were partially due to the realized gain on the sales of securities of \$104,474.

It is to be expected with the funding approach which is utilized that contribution deficiencies will result in years when there are few retirements and contribution sufficiencies will result in years when there are many retirements.

4. There was little change in the contribution percentages from June 30, 1980 to June 30, 1981. The normal cost percentage decreased because of lower entry ages, in total, and because salaries did not increase as fast as expected.

The overall contribution rate for the Judges' was computed to be 4.67% as of June 30, 1981 as compared to 4.74% as of June 30, 1980.

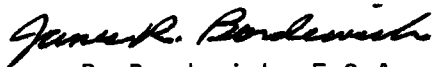


## DISCUSSION OF ACTUARIAL VALUATION RESULTS

5. There are over 20% of the Active Members which are age 60 and over. Since the state's share of the contribution is on a terminal funding basis, it is suggested that a ten year projection be made to determine the future contribution requirements of the state.

## CONCLUSION

The Actuarial Valuation report complies with the requirements of Minnesota Statutes, Chapter 356. Particular attention should be paid to the suggestion in (5) above.

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