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Class Exams 4.4.15

REPORT ON
ACTUARIAL VALUATION
MINNESOTA STATE JUDGES'
RETIREMENT FUND

JUNE 30, 1974

October 31, 1974



FILE COPY

COATES AND CRAWFORD

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October 31, 1974

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

Gentlemen:

We are pleased to transmit herewith our report on the actuarial valuation of the Judges' Retirement Fund made as of June 30, 1974.

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

We hereby certify that the actuarial valuation of the Minnesota State Judges' Retirement Fund made as of June 30, 1974 was carried out on the basis of accepted actuarial methods and procedures and in accordance with the provisions of Minnesota Statutes 1971, Chapter 356.

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

Very truly yours,

COATES AND CRAWFORD
Consulting Actuaries

By 

Robert H. Little, F.S.A.

REPORT ON
ACTUARIAL VALUATION
OF THE
MINNESOTA STATE JUDGES' RETIREMENT FUND
AS OF
JUNE 30, 1974

SECTION I

INTRODUCTION

In accordance with the Contract between the State of Minnesota and this firm, we have completed the actuarial valuation of the Minnesota State Judges' Retirement Fund as of June 30, 1974.

The Executive Director of the System furnished us with detailed employee information on all active members and retired members of the Fund as of June 30, 1974. The Executive Director and his staff are to be complimented on the accuracy and completeness of the aforementioned data.

The Statement of Assets on hand was accepted and used by us without audit.

The Judges' Plan is somewhat unique and it is necessary to make certain assumptions to reflect its unique provisions. The current valuation is

based on the following assumptions:

- | | | |
|---|---|--|
| 1. Rate of separation from active service | - | Schedules attached (Same as MSRS) |
| 2. Interest | - | 5% (Same as MSRS) |
| 3. Salary Scale | - | 3-1/2% per annum, compounded annually (Same as MSRS) |
| 4. Mortality After Retirement | - | 1951 G. A. Mortality Table set back one year for males and two years for females. (Same as MSRS) |
| 5. Social Security Monthly Primary Amount | - | \$305 increasing with salary scale |
| 6. Level Social Security Contribution Rate | - | 6.11% |
| 7. Social Security Covered Monthly Wages | - | \$1,100 increasing with salary scale |
| 8. Escalation after Retirement (for those entitled to escalation) | - | 3-1/2% per annum, compounded annually |

We believe it is appropriate to use the MSRS actuarial assumptions until such time as we can investigate and develop probabilities based on the Judges' own experience.

The following Section II sets forth the results of the actuarial valuation and Section III contains the exhibits required by Chapter 356 of the Statutes.

SECTION II

RESULTS OF ACTUARIAL VALUATION

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

On the assumption that new Judges will be employed at age 43 with a monthly salary of \$2,292, we calculated the total entry age normal cost rate for Judges to be 12.99% of salary. We calculate the Judges' share to be equivalent to 4.84% of total salary and the State's share to be 8.15% of total salary.

The law requires:

"The balance of all money necessary for administering this act and the judges' retirement fund, including payment of retirement compensation and other benefits under this act, shall be contributed to the fund by the state. The amount required therefore is hereby annually appropriated from the general fund to the judges retirement fund".

The Actuarial Balance Sheet shown on the following page summarizes
the results of the valuation.

MINNESOTA STATE JUDGES' RETIREMENT FUND

ACTUARIAL BALANCE SHEET
AS OF
JUNE 30, 1974

ASSETS

1. Assets on Hand		\$ 879,628
2. Present Value of Judges' Future Contributions		2,167,599
3. Present Value of State Future Contributions Applicable to:		
a) Entry Age Normal Cost (8.15%)	\$ 3,648,953	
b) Unfunded Accrued Liability	<u>13,782,352</u>	<u>17,431,305</u>
4. TOTAL ASSETS		<u>\$20,478,532</u>

LIABILITIES

5. Present Value of Earned and Earnable Benefits Payable to Presently Active Members:		
a) Retirement Benefits	\$18,209,612	
b) Disability Benefits	330,158	
c) Refundments due to death or withdrawal	330,250	
d) Surviving Spouse Benefits	<u>829,559</u>	\$19,699,579
6. Present Value of Benefits Payable to Presently Retired Persons		679,945
7. Accounts Payable from Accounting Balance Sheet		<u>99,008</u>
8. TOTAL LIABILITIES		<u>\$20,478,532</u>

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

Item 1 shows the assets on hand.

Item 2 shows the present value of Judges' future contributions required by law.

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

Item 3(a) The portion attributable to the State's share of the total entry age normal cost contribution of 8.15% of Judges' salaries.

Item 3(b) The portion attributable to the State's unfunded accrued liability. It will require an initial annual contribution of \$707,695, increasing in accordance with the salary scale, to amortize this liability over the 23 year period ending June 30, 1997. \$707,695 amounts to 11.91% of current annual salary.

Item 5 shows the actuarially computed present value of all benefits earned to June 30, 1974 and earnable after that date that will be paid from the Fund to presently active members.

Item 6 shows the actuarially computed present value of benefits presently being paid to retired persons.

CONCLUSIONS

The results of the current valuation show that the benefits to be provided under the Fund can be financed by the Judges' contributions and the following State contributions:

	<u>Recommended State Contributions 1975-76</u>
a) Entry Age Normal Cost	8.15%
b) Unfunded Accrued Liability (23 years)	11.91%
c) Expenses	<u>.14%</u>
d) Total	20.20%

SECTION III

REQUIRED EXHIBITS

Minnesota Statutes 1971, Chapter 356, requires, in Section 356.20, Subdivision 4(1), that the actuary of the Fund prepare an exhibit setting forth certain specified information with regard to the Fund as of the valuation date, including "Reserves Required" under the Fund. In an earlier conference with representatives of the State's Employee Retirement System's Interim Commission, we were advised that "Reserve Required", as contemplated in the aforementioned statute, may be defined as the actuarially computed present value applicable to a specified benefit reduced by the actuarially computed present value of any portion of the total entry age normal cost contribution under the Fund which is applicable to the specified benefit.

The exhibit required by Section 356.20, Subdivision 4(1) of Minnesota Statutes 1971, Chapter 356, is presented on the following pages of this Section III and we hereby certify that the reserves required set forth therein have been computed in accordance with the Entry Age Normal Cost (level Normal Cost) basis in the manner outlined in the definition referred to above.

MINNESOTA STATE JUDGES' RETIREMENT FUND

EXHIBIT REQUIRED BY MINNESOTA STATUTES 1971, CHAPTER 356,
SECTION 356.20, SUBDIVISION 4(1)
AS OF JUNE 30, 1974

ASSETS AND UNFUNDED ACCRUED LIABILITY

Assets

1. Cash	\$ 146,128.97
2. Short term investments (at cost)	150,130.14
3. Accounts receivable from Judges	104,271.73
4. Participation in the MAFB Fund	<u>479,097.65</u>
5. Total Assets	\$ 879,628.49
6. Unfunded Accrued Liability	<u>13,782,351.68</u>
7. TOTAL ASSETS AND UNFUNDED ACCRUED LIABILITY	<u><u>\$14,661,980.17</u></u>

CURRENT LIABILITIES AND RESERVES REQUIRED

Current Liabilities

8. Accounts payable:	
a) General Fund	\$ 90,000.00
b) SER Fund	<u>9,008.17</u>
9. Total Liabilities	\$ 99,008.17

Reserves Required

10. Total Reserves Required per attached schedule	<u>14,562,972.00</u>
11. TOTAL CURRENT LIABILITIES AND RESERVES REQUIRED	<u><u>\$14,661,980.17</u></u>

Note: Accumulated contributions, without interest, of Judges not yet retired amounted to \$231,071.66 as of June 30, 1974.

MINNESOTA STATE JUDGES' RETIREMENT FUND

DETERMINATION OF RESERVES REQUIRED
AS OF
JUNE 30, 1974

	(1)	(2)	(3)
	Present Value of Benefits	Present Value of Applicable Portion of Normal Cost Contribution	Reserves Required (1) - (2)
<u>Benefits For:</u>			
1. Active Members:			
a) Retirement Benefits	\$18,209,612	\$5,006,171	\$13,203,441
b) Disability Benefits	330,158	147,749	182,409
c) Refundments due to death or withdrawal	330,250	326,839	3,411
d) Surviving Spouse Benefits	829,559	335,793	493,766
2. Deferred Annuitants	-0-	-	-0-
3. Former Members Without Vested Rights	-0-	-	-0-
4. Retired Persons	<u>679,945</u>	<u>-</u>	<u>679,945</u>
5. Total	\$20,379,524	\$5,816,552	\$14,562,972

Minnesota Statutes 1971, Chapter 356, requires, in Section 356.20, Subdivision 4(2) and (3), that there be submitted annually an analysis of the System's income and deductions from income with increases in total reserves required being specifically referred to as a deduction from income. The exhibit required by Section 356.20, Subdivision 4(2) and (3) is presented on the following page of this Section III. Items of income and deductions from income with the exception of increases in total reserves required were taken directly from statements prepared by the Executive Director.

Inasmuch as any excess of "income" over "deductions from income" must be equal to the reduction in the Unfunded Accrued Liability of the System over the period covered by the analysis, we have confirmed that fact in Item 15 of the exhibit.

MINNESOTA STATE JUDGES' RETIREMENT FUND

EXHIBIT REQUIRED BY MINNESOTA STATUTES 1971, CHAPTER 356,
SECTION 356.20, SUBDIVISION 4(2) and (3)
FISCAL YEAR ENDING JUNE 30, 1974

ANALYSIS OF INCOME AND DEDUCTIONS FROM INCOME

INCOME

1. Judges' Contributions	\$	155,710.84
2. Judges' Contributions Receivable		75,434.82
3. Interest On Past Due Contributions		80,942.33
4. Transfer from State General Fund		488,218.21
5. Interest on Short Term Investments		913.75
6. Income from MAFB Fund		<u>985.18</u>
7. TOTAL INCOME	\$	<u>802,205.13</u>

DEDUCTIONS FROM INCOME

8. Retirement Payments	\$	9,768.19
9. Spouses' Payments		2,734.45
10. Refundments - Erroneous Deductions		74.00
11. Administrative Expenses		9,008.17
12. Increase in Total Reserve Required:		
Reserves Required 6-30-73	\$	-0-
Reserves Required 6-30-74		<u>14,562,972.00</u>
13. TOTAL DEDUCTIONS FROM INCOME		\$14,584,556.81
14. EXCESS OF INCOME OVER DEDUCTIONS FROM INCOME		(13,782,351.68)
15. REDUCTION IN UNFUNDED ACCRUED LIABILITY:		
Unfunded Accrued Liability 6-30-73	\$	-0-
Unfunded Accrued Liability 6-30-74		<u>13,782,351.68</u>
		\$(13,782,351.68)

Minnesota Statutes 1971, Chapter 356, requires, in Section 356.20, Subdivision 4(4), that there be submitted annually an analysis of changes in the membership of the Fund. Section 356.21, Subdivisions 4 and 5, requires information with respect to the annual payroll and annual annuities of the members of the Fund as well as certain information with respect to average ages. The exhibit required by Section 356.20, Subdivision 4(4), Section 356.21, Subdivision 4(6), and Section 356.21, Subdivision 5(9) and (10) is presented on the following pages of this Section III.

MINNESOTA STATE JUDGES' RETIREMENT FUND

EXHIBIT REQUIRED BY MINNESOTA STATUTES 1971, CHAPTER 356,
SECTION 356.20, SUBDIVISION 4(4), SECTION 356.21, SUBDIVISION 4(6) AND
SECTION 356.21, SUBDIVISION 5(9) AND (10)
FISCAL YEAR ENDING JUNE 30, 1974

COVERED EMPLOYEE STATEMENT

ACTIVE EMPLOYEES JUNE 30, 1974:

Number	204
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Annual Salary	\$5,940,432
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RETIRED MEMBERS:

Number	4
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Annual Annuity	58,500.24
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SPOUSES RECEIVING:

Number	1
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Annual Annuity	6,127.80
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Section 356.21, Subdivision 4 of the Minnesota Statutes 1971 requires an analysis of the increase or decrease in the unfunded liability that occurred since the last valuation.

Since this is the first valuation of the Fund, there is no such exhibit this year.

SCHEDULE 1

Male Judges

Probabilities of Separation from Active Service

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

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

SCHEDULE 1

Male Judges
(Continued)

Probabilities of Separation from Active Service

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

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

SCHEDULE 2

Female Judges

Probabilities of Separation from Active Service

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

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

SCHEDULE 2

Female Judges
(Continued)

Probabilities of Separation from Active Service

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

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

MINNESOTA STATE JUDGES' RETIREMENT FUND
ACTUARIAL VALUATION AS OF JUNE 30, 1974

The purpose of this memorandum is to discuss the report of the valuation of the Minnesota State Judges' Retirement Fund as of June 30, 1974. This is the first valuation of this Fund, and it was submitted to the Commission in accordance with Chapter 356 of Minnesota Laws 1971. The entry age normal cost method was used with a 5% interest assumption. The report was prepared by Robert H. Little of Coates and Crawford.

This memorandum contains the following:

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

1. Statistical and Valuation Data

(1) Membership

Active Members	204
Retired Members	4
Survivors	1

(2) Payroll and Annuities Payable

Total Annual Payroll	\$ 5,940,432
Annuities (annual)	64,628

(3) Valuation Balance Sheet

Actuarial Liabilities	
Annuities in Force	\$ 679,945
Active Members	<u>13,883,027</u>
Total	\$ 14,562,972
Assets	<u>780,620</u>
Unfunded Accrued Liability	\$ 13,782,352

Funding Ratio 5.36%

(4) Normal Cost and Funding Costs

Normal Cost	12.99%
Expenses	.14
Interest on Deficit	<u>11.60</u>
Minimum Contribution	24.73%
Normal Cost plus Expenses	13.13%
Amortization by 1997	<u>11.91*</u>
Required Contribution	25.04%

*Based on assumption that payroll will increase 3 1/2% each year.

(5) Actual Support

Judges' Contributions	\$ 231, 146	3.89%
Transfer from State General Fund	<u>488, 218</u>	<u>8.22</u>
Total	\$ 719, 364	12.11%

2. Discussion of Valuation Results

As indicated above, the normal cost turned out to be 12.99% of payroll. 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:

Judges' Share	4.84%
State's Share	<u>8.15</u>
Total	12.99%

With this division of the normal cost, the State's share of the 25.04% required contribution becomes 20.20%. Thus, the financing during the first year fell short of the required amounts.

It should be noted that the amortization contribution shown above is a level percentage of a total payroll which is assumed to increase 3 1/2% per year. Since the cost calculations assume that the amount of the retirement benefit will escalate at this same rate, we feel that it is reasonable to base the amortization requirement on the same assumption. In other words, the escalation will not occur unless the payroll increases. However, for purposes of comparison, we point out that the amortization contribution based on a level payroll would be 16.38%.

This first valuation of this plan had to be based upon numerous untested assumptions. For the most part, the assumptions used for valuations of MSRS were followed. We feel that the termination rates may prove to be too high and that judges will probably retire at later ages than other State employees. In addition, assumptions had to be made about the future level of Social Security benefits and contributions. Although reasonable assumptions were used, we point out that sudden and large changes in these factors can occur in the future.

3. Conclusion

The report complies with the requirements of the statutes.

It appears that it will be necessary to provide financing at a substantially higher level than that received during the first year.

Franklin C. Smith
Associate, Society of Actuaries
GEORGE V. STENNES AND ASSOCIATES
Commission Actuaries