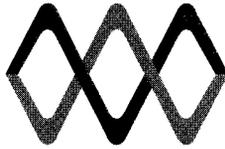


**State Employees Retirement Fund
ACTUARIAL VALUATION REPORT**

July 1, 1998

 **FILE COPY**



MILLIMAN & ROBERTSON, INC.
Actuaries & Consultants

Internationally WOODROW MILLIMAN

Suite 400, 15800 Bluemound Road, Brookfield, Wisconsin 53005-6069
Telephone: 414/784-2250
Fax: 414/784-7287

December 9, 1998

Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

RE: State Employees Retirement Fund

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1998.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. We have relied on the basic employee data and asset figures as submitted by the Minnesota State Retirement System.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission.

Respectfully submitted,

MILLIMAN & ROBERTSON, INC.

Thomas K. Custis, F.S.A., M.A.A.A.
Consulting Actuary

William V. Hogan, F.S.A., M.A.A.A.
Consulting Actuary

TKC/WVH/bh

State Employees Retirement Fund

Table of Contents

	<u>Page</u>
REPORT HIGHLIGHTS	1
COMMENTARY	
Purpose	2
Report Highlights	2
Asset Information	2
Actuarial Balance Sheet	3
GASB Disclosure	3
Actuarial Cost Method	3
Sources of Actuarial Gains and Losses	4
Contribution Sufficiency	4
Changes in Actuarial Assumptions	4
Changes in Plan Provisions	4
ASSET INFORMATION	
Table 1 - Accounting Balance Sheet	5
Table 2 - Changes in Assets Available for Benefits	6
MEMBERSHIP DATA	
Table 3 - Active Members	7
Table 4 - Service Retirements	8
Table 5 - Survivors	9
Table 6 - Disability Retirements	10
Table 7 - Reconciliation of Members	11
FUNDING STATUS	
Table 8 - Actuarial Balance Sheet	12
Table 9 - Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate	13
Table 10 - Changes in Unfunded Actuarial Accrued Liability (UAAL)	14
Table 11 - Determination of Contribution Sufficiency	15

State Employees Retirement Fund

Table of Contents

(Continued)

	<u>Page</u>
ACTUARIAL ASSUMPTIONS	
Table 12 - Summary of Actuarial Assumptions and Methods	16
PLAN PROVISIONS	
Table 13 - Summary Plan Provisions	20
GASB25 DISCLOSURES	
Table 14 - Schedule of Funding Progress	27
Table 15 - Schedule of Employer Contributions	28
SPECIAL GROUPS	
Table 16 - Military Affairs Calculation	29
Table 17 - Pilots Calculation	30

State Employees Retirement Fund

Report Highlights
(dollars in thousands)

	07/01/97 Valuation	07/01/98 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 352 % of Payroll	8.00%	8.00%
2. Required Contributions - Chapter 356 % of Payroll	7.61%	7.73%
3. Sufficiency (Deficiency): (A.1. - A.2.)	0.39%	0.27%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$4,664,519	\$5,390,526
b. Current Benefit Obligations (Table 8)	\$4,079,340	\$4,512,660
c. Funding Ratio: (a/b)	114.34%	119.45%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$4,664,519	\$5,390,526
b. Actuarial Accrued Liability (Table 9)	\$4,519,542	\$5,005,165
c. Funding Ratio: (a/b)	103.21%	107.70%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$5,745,812	\$6,495,768
b. Current and Expected Future Benefit Obligations	\$5,502,019	\$6,041,884
c. Funding Ratio: (a/b)	104.43%	107.51%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	46,289	46,299
b. Projected Annual Earnings	\$1,612,662	\$1,664,588
c. Average Annual Earnings (Actual \$)	\$34,839	\$35,953
d. Average Age	43.6	43.9
e. Average Service	11.7	11.8
2. Others		
a. Service Retirements (Table 4)	14,718	15,185
b. Survivors (Table 5)	1,574	1,697
c. Disability Retirements (Table 6)	905	948
d. Deferred Retirements (Table 7)	9,775	11,415
e. Terminated Other Non-vested (Table 7)	6,447	7,168
f. Total	33,419	36,413

State Employees Retirement Fund

Commentary

Purpose

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

Report Highlights

The financial status of the Plan can be measured by three different funding ratios:

- The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 119.45%. The corresponding ratio for the prior year was 114.34%
- The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 1998 the ratio is 107.70%, which is an increase from the 1997 value of 103.21%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 107.51% shows that the current statutory contributions are inadequate.

Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E1 to E6. It combines the cost value of the Assets Available for benefits and one-third of the difference between the market value and cost value of those assets.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets", the latter phrase will be used in the remainder of this report.

) This Plan participates in the Minnesota Post Retirement Investment Fund (i.e., MPRIF). After the MPRIF liability has been calculated for each participating Plan, the State Board of Investments, (i.e., SBI), will determine each Plan's portion of the excess earnings for the January benefit increase as well as the Plan's allocated market share of MPRIF.

Actuarial Balance Sheet (Table 8)

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated as follows:

- **For Active Members** – Salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- **For Non-Active Members** – The discounted value of benefits, including augmentation in cases where benefits have not commenced.

)

GASB Disclosure

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superseded by Statement No. 25. Tables 14 and 15 of this report have been added to fulfill the new requirements of Statement No. 25.

Actuarial Cost Method (Table 9)

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

) An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the

) remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

Source of Actuarial Gains and Losses (Table 10)

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectations. For a detailed analysis of the major components, refer to Table 10.

Contribution Sufficiency (Table 11)

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

) Table 11 shows the Plan has a contribution sufficiency since the Statutory Contribution Rate is 8.00% compared to the Required Contribution Rate of 7.73%.

Changes in Actuarial Assumptions

There were no changes in actuarial assumptions since the last valuation.

Changes in Plan Provisions

There were no significant changes in plan provisions since the last valuation.

TABLE 1

State Employees Retirement Fund

Statement of Plan Net Assets*(dollars in thousands)*

JULY 1, 1998

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS IN TRUST		
1. Cash, Equivalents, Short-term Securities	\$48,995	\$48,995
2. Fixed Income	880,836	867,292
3. Equity	2,866,965	2,352,473
4. Real Estate	148,446	119,798
5. Equity in MPRIF	1,813,037	1,813,037
6. Other	115	115
Subtotal	<u>\$5,758,394</u>	<u>\$5,201,710</u>
B. ASSETS RECEIVABLE	14,633	14,633
C. LIABILITIES	(11,378)	(11,378)
<hr/>		
D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
1. MPRIF Reserves	1,813,037	1,813,037
2. Member Reserves	653,884	653,884
3. Other Non-MPRIF Reserves	3,294,728	2,738,044
4. Total Assets Available for Benefits	<u>\$5,761,649</u>	<u>\$5,204,965</u>
<hr/>		
E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D4)		\$5,204,965
2. Market Value (D4)	\$5,761,649	
3. Cost Value (D4)	<u>5,204,965</u>	
4. Market Over Cost: (E2-E3)	\$556,684	
5. One-third of Market Over Cost: (E4)/3		<u>185,561</u>
6. Actuarial Value of Assets (E1+E5) (Same as "Current Assets")		<u>\$5,390,526</u>

TABLE 2

State Employees Retirement Fund

Statement of Change In Plan Net Assets*(dollars in thousands)*

YEAR ENDING JUNE 30, 1998

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$4,864,755	\$4,564,401
B. ADDITIONS		
1. Member Contributions	\$62,901	\$62,901
2. Employer Contributions	62,315	62,315
3. Contributions From Other Sources	0	0
4. MPRIF Income	250,658	250,658
5. Net Investment Income		
a. Interest and Dividends	407,267	407,267
b. Net Realized Gain (Loss)	62,619	62,619
c. Net Change in Unrealized Gain (Loss)	256,330	0
d. Investment Expenses	(4,177)	(4,177)
Net Subtotal	<u>722,039</u>	<u>465,709</u>
6. Other	3,500	3,500
7. Total Additions	<u>\$1,101,413</u>	<u>\$845,083</u>
C. OPERATING EXPENSES		
1. Service Retirements paid from MPRIF	\$182,562	\$182,562
2. Service Retirements paid from plan assets	0	0
2. Disability Benefits	0	0
3. Survivor Benefits	0	0
4. Refunds	11,659	11,659
6. Administrative Expenses	2,365	2,365
7. Other	7,933	7,933
8. Total Disbursements	<u>\$204,519</u>	<u>\$204,519</u>
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u><u>\$5,761,649</u></u>	<u><u>\$5,204,965</u></u>

TABLE 3

STATE EMPLOYEES RETIREMENT FUND
ACTIVE MEMBERS AS OF JUNE 30, 1998

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	857	440	1	0	0	0	0	0	1,298
25-29	1,137	1,691	282	9	0	0	0	0	3,119
30-34	874	1,654	1,303	468	32	0	0	0	4,331
35-39	747	1,541	1,716	1,548	839	61	0	0	6,452
40-44	667	1,384	1,683	1,734	1,584	1,045	65	0	8,162
45-49	556	1,135	1,513	1,510	1,537	1,755	833	70	8,909
50-54	328	740	952	1,134	960	1,221	1,102	602	7,039
55-59	171	402	529	643	568	621	560	847	4,341
60-64	78	162	262	301	310	335	241	369	2,058
65+	49	87	99	87	85	78	42	63	590
ALL	5,464	9,236	8,340	7,434	5,915	5,116	2,843	1,951	46,299

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	18,441	19,898	24,327	0	0	0	0	0	18,939
25-29	21,221	24,822	28,902	25,474	0	0	0	0	23,880
30-34	21,469	27,825	32,017	32,643	30,445	0	0	0	28,344
35-39	23,856	29,381	34,078	36,095	33,872	31,762	0	0	32,208
40-44	24,627	29,040	34,744	37,392	38,139	36,806	35,965	0	34,445
45-49	22,669	30,274	35,664	37,968	38,576	41,945	39,549	37,660	36,675
50-54	22,194	30,573	35,689	37,357	38,436	42,785	45,856	43,691	38,673
55-59	24,155	29,672	35,494	36,838	37,034	40,987	43,781	46,881	38,985
60-64	20,974	25,645	35,708	36,803	35,915	38,846	40,903	46,930	37,680
65+	20,165	13,266	33,539	31,290	33,562	37,469	35,595	43,601	30,851
ALL	21,885	27,765	34,321	36,777	37,365	40,587	42,802	45,469	34,011

PRIOR FISCAL YEAR EARNINGS (IN MILLIONS) BY YEARS OF SERVICE

Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
All	119	256	286	273	221	207	121	88	1,574

STATE EMPLOYEES RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1998

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	7	9	0	0	0	0	0	16
55-59	273	342	5	0	0	0	0	620
60-64	469	967	516	5	0	0	0	1,957
65-69	237	1,386	1,385	242	0	0	0	3,250
70-74	31	323	1,702	1,163	50	0	0	3,269
75-79	11	63	305	1,519	735	10	0	2,643
80-84	0	16	29	215	1,266	347	9	1,882
85+	0	0	0	6	67	974	501	1,548
ALL	1,028	3,106	3,942	3,150	2,118	1,331	510	15,185

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	9,765	10,735	0	0	0	0	0	10,311
55-59	9,841	8,578	11,023	0	0	0	0	9,154
60-64	11,429	11,152	11,974	11,571	0	0	0	11,436
65-69	11,365	10,712	12,797	14,414	0	0	0	11,924
70-74	10,304	10,669	10,993	13,120	11,564	0	0	11,720
75-79	5,799	12,728	10,383	10,564	11,613	8,984	0	10,861
80-84	0	10,338	10,302	8,602	9,957	9,426	5,324	9,691
85+	0	0	0	5,114	9,674	7,896	7,076	7,697
ALL	10,887	10,649	11,703	11,661	10,561	8,303	7,045	10,810

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	11,191	33,075	46,133	36,732	22,368	11,051	3,592	164,149

STATE EMPLOYEES RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1998

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	18	62	15	6	0	1	0	102
50-54	7	35	10	8	1	0	0	61
55-59	20	55	36	8	2	0	2	123
60-64	15	52	56	13	3	0	0	139
65-69	24	73	88	34	12	0	2	233
70-74	24	85	82	59	39	5	4	298
75-79	37	81	101	31	55	26	3	334
80-84	15	42	72	14	36	31	16	226
85+	10	22	33	6	12	38	60	181
ALL	170	507	493	179	160	101	87	1,697

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	3,976	6,736	5,998	5,637	0	639	0	6,016
50-54	9,709	8,259	6,360	5,759	4,846	0	0	7,730
55-59	10,064	9,550	9,478	7,197	9,986	0	8,639	9,452
60-64	12,460	9,490	9,823	7,979	6,758	0	0	9,744
65-69	9,889	10,569	10,467	7,620	5,923	0	4,953	9,743
70-74	10,040	11,295	11,103	10,759	9,536	5,892	4,190	10,619
75-79	11,312	9,813	8,578	12,656	9,811	6,428	8,978	9,598
80-84	11,244	9,079	9,530	8,544	9,461	9,186	5,633	9,165
85+	5,997	9,852	7,172	7,388	6,815	8,868	5,765	7,306
ALL	9,725	9,566	9,464	9,449	9,063	8,109	5,827	9,214

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	1,653	4,849	4,665	1,691	1,450	819	506	15,636

STATE EMPLOYEES RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1998

Age	Years Disabled							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	21	77	34	2	1	0	0	135
50-54	18	32	29	7	2	1	0	89
55-59	25	69	39	5	4	0	0	142
60-64	28	70	52	9	3	2	1	165
65-69	2	36	62	22	13	1	0	136
70-74	0	0	22	28	23	11	1	85
75-79	0	0	0	16	56	27	9	108
80-84	0	0	0	0	13	37	8	58
85+	0	0	0	0	1	12	17	30
ALL	94	284	238	89	116	91	36	948

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	6,071	6,719	5,391	3,001	2,467	0	0	6,197
50-54	9,154	7,614	8,047	6,020	9,022	5,200	0	7,946
55-59	8,394	9,232	9,101	7,437	7,090	0	0	8,925
60-64	9,715	9,131	9,532	8,620	5,562	5,052	2,479	9,174
65-69	13,307	6,978	7,663	8,633	6,947	3,792	0	7,625
70-74	0	0	7,083	6,186	9,358	5,296	7,369	7,175
75-79	0	0	0	6,535	8,390	5,713	6,174	7,261
80-84	0	0	0	0	6,901	6,951	5,716	6,769
85+	0	0	0	0	5,200	6,952	5,259	5,934
ALL	8,519	8,058	7,976	7,085	8,068	6,288	5,571	7,728

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	800	2,288	1,898	630	935	572	200	7,326

TABLE 7

State Employees Retirement Fund

Reconciliation Of Members

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 1997	46,289	9,775	6,447
B. ADDITIONS	4,984	1,599	2,187
C. DELETIONS			
1. Service Retirement	(782)	(246)	(5)
2. Disability	(75)	(20)	0
3. Death	(60)	(9)	0
4. Terminated - Deferred	(1,557)	0	(4)
5. Terminated - Refund	(1,470)	(366)	(486)
6. Terminated - Other Non-Vested	(1,888)	(3)	0
7. Returned as Active	335	(182)	(153)
8. Transferred to Other Fund	(16)	0	(807)
D. DATA ADJUSTMENTS	539	867	(11)
Vested	36,652		
Non-Vested	9,647		
E. TOTAL ON JUNE 30, 1998	46,299	11,415	7,168

	Recipients		
	Retirement Annuitants	Disabled	Survivors
A. ON JUNE 30, 1997	14,718	905	1,574
B. ADDITIONS	1,036	98	182
C. DELETIONS			
1. Service Retirement	0	0	0
2. Death	(563)	(58)	(52)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	(6)	3	(7)
E. TOTAL ON JUNE 30, 1998	15,185	948	1,697

TABLE 8**State Employees Retirement Fund****Actuarial Balance Sheet***(dollars in thousands)*

JULY 1, 1998

A. CURRENT ASSETS (TABLE 1, E6)				\$5,390,526
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)				\$68,523
2. Present Value of Future Normal Costs				1,036,719
3. Total Expected Future Assets				<u>\$1,105,242</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				<u>\$6,495,768</u>
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>		<u>Total</u>
1. Benefit Recipients				
a. Retirement Annuities		\$1,599,428		\$1,599,428
b. Disability Benefits		68,091		68,091
c. Surviving Spouse and Child Benefits		148,351		148,351
2. Deferred Retirements with Future Augmentation		339,982		339,982
3. Former Members without Vested Rights		4,641		4,641
4. Active Members				
a. Retirement Annuities	9,813	1,904,138		1,913,951
b. Disability Benefits	93,149	0		93,149
c. Survivor's Benefits	57,989	0		57,989
d. Deferred Retirements	3,793	256,770		260,563
e. Refund Liability Due to Death or Withdrawal	0	26,515		26,515
5. Total Current Benefit Obligations	<u>\$164,744</u>	<u>\$4,347,916</u>		<u>\$4,512,660</u>
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$1,529,224</u>
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$6,041,884</u>
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				(\$877,866)
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				(\$453,884)

State Employees Retirement Fund

**Determination Of Unfunded Actuarial Accrued Liability (UAAL)
And Supplemental Contribution Rate**

(dollars in thousands)

JULY 1, 1998

	Actuarial Present Value of Projected Benefits <u>(1)</u>	Actuarial Present Value of Future Normal Costs <u>(2)</u>	Actuarial Accrued Liability <u>(3)=(1)-(2)</u>
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$3,195,610	\$622,664	\$2,572,946
b. Disability Benefits	159,952	47,827	112,125
c. Survivor's Benefit	94,201	28,286	65,915
d. Deferred Retirements	384,504	166,382	218,122
e. Refunds Due to Death or Withdrawal	47,124	171,560	(124,436)
f. Total	<u>\$3,881,391</u>	<u>\$1,036,719</u>	<u>\$2,844,672</u>
2. Deferred Retirements With Future Augmentation	339,982		339,982
3. Former Members Without Vested Rights	4,641		4,641
4. Annuitants in MPRIF	1,813,037		1,813,037
5. Recipients Not in MPRIF	<u>2,833</u>		<u>2,833</u>
6. Total	<u>\$6,041,884</u>	<u>\$1,036,719</u>	<u>\$5,005,165</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$5,005,165
2. Current Assets (Table 1, E6)			<u>5,390,526</u>
3. UAAL (B1-B2)			<u>(\$385,361)</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$25,378,938
2. Supplemental Contribution Rate (B3/C1)			0.00%

State Employees Retirement Fund

Changes In Unfunded Actuarial Accrued Liability (UAAL)*(dollars in thousands)*

YEAR ENDING JUNE 30, 1998

A. UAAL AT BEGINNING OF YEAR	(\$144,977)
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$122,685
2. Contribution	(125,216)
3. Interest on A, B1 and B2	<u>(12,431)</u>
4. Total (B1+B2+B3)	<u>(\$14,962)</u>
C. EXPECTED UAAL AT END OF YEAR (A+B4)	(\$159,939)
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$45,026)
2. Investment Return	(290,683)
3. MPRIF Mortality	1,089
4. Mortality of Other Benefit Recipients	(198)
5. Other Items	<u>109,396</u>
6. Total	<u>(\$225,422)</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	(\$385,361)
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	<u>0</u>
H. UAAL AT END OF YEAR (E+F+G)	<u>(\$385,361)</u>

State Employees Retirement Fund

Determination Of Contribution Sufficiency*(dollars in thousands)*

JULY 1, 1998

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 352		
1. Employee Contributions	4.00%	\$66,584
2. Employer Contributions	4.00%	66,584
3. Total	<u>8.00%</u>	<u>\$133,168</u>
 B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	4.54%	\$75,618
b. Disability benefits	0.33%	5,551
c. Survivors	0.20%	3,283
d. Deferred Retirement Benefits	1.17%	19,437
e. Refunds Due to Death or Withdrawal	1.34%	22,261
f. Total	<u>7.58%</u>	<u>\$126,150</u>
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	0.00%	0
3. Allowance for Expenses	<u>0.15%</u>	<u>2,497</u>
4. Total	<u>7.73%</u>	<u>\$128,647</u>
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	0.27%	\$4,521

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1998 is \$1,664,588.

State Employees Retirement Fund

Summary of Actuarial Assumptions and Methods

Interest:	Pre-Retirement: 8.5% per annum Post-Retirement: 6.0% per annum
Salary Increases:	Reported salary at valuation date increased according to the rate table below to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for new Members.
Mortality:	<p>Pre-Retirement:</p> <p>Male - 1983 Group Annuity Mortality Table for males setback four years.</p> <p>Female - 1983 Group Annuity Mortality Table for females set back two years.</p> <p>Post-Retirement:</p> <p>Male - 1983 Group Annuity Mortality Table for males.</p> <p>Female - 1983 Group Annuity Mortality Table for females.</p> <p>Post-Disability:</p> <p>Male - Combined Annuity Mortality Table</p> <p>Female - Combined Annuity Mortality Table</p>
Retirement Age:	Graded rates beginning at age 58 as shown in rate table. Members who have attained the highest assumed retirement age will retire in one year. In addition, 25% of Members are assumed to retire each year that they are eligible for the Rule of 90.
Separation:	Graded rates based on actual experience developed by the June 30, 1971 experience analysis. Rates are shown in rate table.
Disability:	Rates adopted by MSRS as shown in rate table.
Expenses:	Prior year administration expenses expressed as a percentage of prior year payroll.

TABLE 12
(Continued)

<i>Return of Contributions:</i>	All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit.				
<i>Family Composition:</i>	85% of Members are assumed to be married. Female is three years younger than male.				
<i>Social Security:</i>	N/A				
<i>Benefit Increases After Retirement:</i>	Payment of earnings on retired reserves in excess of 6% accounted for by 6% post-retirement assumptions.				
<i>Special Consideration:</i>	Married Members assumed to elect subsidized joint and survivor form of annuity as follows: <table><tr><td>Males -</td><td>25% elect 50% J&S option 45% elect 100% J&S option</td></tr><tr><td>Females -</td><td>5% elect 50% J&S option 5% elect 100% J&S option</td></tr></table>	Males -	25% elect 50% J&S option 45% elect 100% J&S option	Females -	5% elect 50% J&S option 5% elect 100% J&S option
Males -	25% elect 50% J&S option 45% elect 100% J&S option				
Females -	5% elect 50% J&S option 5% elect 100% J&S option				
<i>Actuarial Cost Method:</i>	Entry Age Normal Actuarial Cost Method with normal costs expressed as a level percentage of earnings. Under this method, Actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability.				
<i>Asset Valuation Method:</i>	Cost Value plus one-third Unrealized Gains or Losses.				
<i>Payment on the Unfunded Actuarial Accrued Liability:</i>	A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5% per annum.				

TABLE 12

(Continued)

State Employees Retirement Fund

Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

Age	Pre-retirement Death		Withdrawal		Disability		Retirement		Salary Increases
	Male	Female	Male	Female	Male	Female	Male	Female	
20	3	2	2,400	3,700	0	0	0	0	7.75%
21	3	2	2,250	3,550	0	0	0	0	7.1454
22	4	2	2,080	3,390	0	0	0	0	7.1094
23	4	2	1,920	3,230	0	0	0	0	7.0725
24	4	2	1,760	3,070	0	0	0	0	7.0363
25	4	2	1,600	2,910	0	0	0	0	7
26	4	2	1,470	2,750	0	0	0	0	7
27	4	3	1,340	2,600	0	0	0	0	7
28	4	3	1,230	2,430	0	0	0	0	7
29	5	3	1,130	2,270	0	0	0	0	7
30	5	3	1,040	2,120	2	0	0	0	7
31	5	3	950	1,970	2	0	0	0	7
32	5	3	890	1,820	2	0	0	0	7
33	6	4	830	1,680	2	0	0	0	7
34	6	4	770	1,540	2	0	0	0	7
35	6	4	720	1,410	2	1	0	0	7
36	7	4	680	1,300	2	1	0	0	6.9019
37	7	5	640	1,190	2	1	0	0	6.8074
38	8	5	600	1,090	2	1	0	0	6.7125
39	9	5	560	1,000	2	2	0	0	6.6054
40	9	6	530	920	2	2	0	0	6.5
41	10	6	500	850	2	2	0	0	6.354
42	10	7	480	780	2	4	0	0	6.2087
43	11	7	460	720	3	4	0	0	6.0622
44	12	8	430	680	3	4	0	0	5.9048
45	14	8	410	630	3	5	0	0	5.75
46	15	9	390	590	5	6	0	0	5.6940
47	17	10	370	560	7	7	0	0	5.6375
48	19	11	350	530	9	7	0	0	5.5822
49	22	12	340	500	11	10	0	0	5.5405

TABLE 12
(Continued)

State Employees Retirement Fund
Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

<u>Age</u>	<u>Pre-retirement Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>		<u>Salary Increases</u>
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	
50	25	14	320	470	14	10	0	0	5.5%
51	28	15	300	440	16	12	0	0	5.4384
52	31	16	280	410	20	14	0	0	5.3776
53	35	18	260	390	24	16	0	0	5.3167
54	39	19	240	360	28	20	0	0	5.2826
55	43	21	210	330	34	24	0	0	5.25
56	48	23	170	290	40	30	0	0	5.25
57	52	25	140	230	46	36	0	0	5.25
58	57	28	90	170	56	44	50	50	5.25
59	61	31	40	90	66	52	50	50	5.25
60	66	34	0	0	76	62	150	150	5.25
61	71	38	0	0	90	74	150	150	5.25
62	77	42	0	0	110	88	500	500	5.25
63	84	47	0	0	136	104	350	350	5.25
64	92	52	0	0	174	122	1,100	1,100	5.25
65	101	58	0	0	0	0	10,000	10,000	5.25
66	111	64	0	0	0	0	0	0	5.25
67	124	71	0	0	0	0	0	0	5.25
68	139	78	0	0	0	0	0	0	5.25
69	156	87	0	0	0	0	0	0	5.25
70	176	97	0	0	0	0	0	0	5.25

State Employees Retirement Fund

Summary of Plan Provisions**GENERAL**

<i>Eligibility:</i>	State employees, non-academic staff of the University of Minnesota and employees of certain Metro level governmental units, unless excluded by law.
<i>Contributions:</i>	
<i>Member:</i>	4.00% of salary.
<i>Employer:</i>	4.00% of salary.
<i>Allowable Service:</i>	Service during which Member contributions were made. May also include certain leaves of absence, military service and periods while temporary Worker's Compensation is paid. Excludes lump sum vacation pay at termination.
<i>Salary:</i>	Includes wages, allowances and fees. Excludes lump-sum payments at separation, employer contributions to deferred compensation and tax-sheltered annuity plans and benevolent vacation and sick leave donation programs.
<i>Average Salary:</i>	Average of the five highest successive years (60 successive months) of salary. Average Salary is based on all Allowable Service if less than five years.

RETIREMENT*Normal Retirement Benefit:*

<i>Eligibility:</i>	First hired before July 1, 1989: Age 65 and three years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.
---------------------	--

TABLE 13
(Continued)

First hired after June 30, 1989:

The greater of age 65 or the age eligible for full Social Security retirement benefits (but not higher than age 66) and three years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service.

Amount: 1.7% of Average Salary for each year of Allowable Service.

Early Retirement Benefit:

Eligibility:

First hired before July 1, 1989:

Age 55 and three years of Allowable Service.
Any age with 30 years of Allowable Service.
Rule of 90: Age plus Allowable Service totals 90.

First hired after June 30, 1989:

Age 55 with three years of Allowable Service.

Amount

First hired before July 1, 1989:

The greater of

1.2% of Average Salary for each of the first 10 years of Allowable Service and 1.7% of Average Salary for each subsequent year with reduction of 0.25% for each month the Member is under age 65 at time of retirement or age 62 if 30 years of Allowable Service. No reduction if age plus years of Allowable Service totals 90;

OR

1.7% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3% per year and actuarial reduction for each month the Member is under age 65.

First hired after June 30, 1989:

1.7% of Average Salary for each year of Allowable Service assuming augmentation to the age eligible for full Social Security retirement benefit (but not higher than age 66) at 3% per year and actuarial reduction for each month the Member is under the Social Security retirement age (but not higher than age 66).

Form of Payment: Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are:

50% or 100% joint and survivor with bounce back feature without additional reduction. 15 year certain and life thereafter.

Benefit Increases: Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Benefit recipients receiving benefits for at least one full month but less than 12 full months will receive a partial increase.

Members retired under laws in effect before July 1, 1973 receive an additional lump-sum payment each year. In 1989, this lump-sum payment is the greater of \$25 times each full year of Allowable Service or \$400 per full year of service less any Social Security benefits received or annuity from a Minnesota public employee pension plan. In each following year, the lump-sum payment will increase by the same percentage increase that is applied to regular annuities paid from MPRIF.

DISABILITY

Disability Benefit:

Eligibility: Total and permanent disability before normal retirement age with three years of Allowable Service.

Amount: Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction for commencement before normal retirement age.

TABLE 13
(Continued)

If a Member became disabled prior to July 1, 1997 but was not eligible to commence their benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Payments stop if disability ceases or death occurs. Payments revert to a retirement annuity at normal retirement age. Benefits may be reduced on resumption of partial employment.

Form of Payment: Same as for retirement.

Benefit Increases: Same as for retirement.

Retirement After Disability:

Eligibility: Normal retirement age with continued disability.

Amount: Any optional annuity continues. Otherwise, a normal retirement benefit equal to the disability benefit paid before normal retirement age, or an actuarially equivalent optional annuity.

Benefit Increases: Same as for retirement.

DEATH

Surviving Spouse Optional Benefit:

Eligibility: Member or former Member who dies before retirement or disability benefits commence with three years of Allowable Service. If a former Member dies before age 55 and has less than 30 years of Allowable Service, benefits commence when the former Member would have been age 55. If an active Member dies, benefits may commence immediately, regardless of age.

TABLE 13
(Continued)

Amount: Surviving spouse receives the 100% joint and survivor benefit the Member could have elected if terminated. If commencement is prior to age 55, the appropriate early retirement formula described above applies except that one-half the monthly reduction factor is used from age 55 to the commencement age and the Rule of 90 does not apply. In lieu of this benefit, the surviving spouse may elect a refund of contributions with interest or an actuarially equivalent term certain annuity.

If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Benefit Increases: Same as for retirement.

Surviving Dependent Children's Benefit:

Eligibility: If no surviving spouse, all dependent children (biological or adopted) below age 20 who are dependent for more than half of their support on deceased Member.

Amounts: Actuarially equivalent to surviving spouse 100% joint and survivor annuity payable to the later of age 20 or five years. The amount is to be proportionally divided among surviving children.

If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Refund of Contributions:

Eligibility: Active employee dies and survivor benefits are not payable, or a former employee dies before annuity begins, or a former employee who is not entitled to an annuity dies.

TABLE 13
(Continued)

<i>Amount:</i>	The Member's contributions with 5% interest if death occurred before May 16, 1989, and 6% interest if death occurred on or after May 16, 1989.
<i>Eligibility:</i>	Retired or disabled annuitant who did not select an optional annuity dies, or the remaining recipient of an option dies.
<i>Amount:</i>	The excess of the Member's contributions over all benefits paid.

TERMINATION

Refund of Contributions:

<i>Eligibility:</i>	Termination of state service.
<i>Amount:</i>	Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest compounded annually if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund.

Deferred Benefit:

<i>Eligibility:</i>	Three years of Allowable Service.
<i>Amount:</i>	Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/71; 5% from 7/1/71 to 1/1/81; and 3% thereafter until January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

If a Member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

SIGNIFICANT CHANGES

No significant changes were recognized for this valuation.

TABLE 14

State Employees Retirement Fund
SCHEDULE OF FUNDING PROGRESS
(dollars in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (A)	Actuarial Accrued Liability (AAL) (B)	Unfunded AAL (UAAL) (B - A)	Funded Ratio (A)/(B)	Actual Covered Payroll (Previous FY) (C)	UAAL as % of Covered Payroll (B - A) / (C)
07/01/91	2,304,311	2,883,603	579,292	79.91%	1,370,964	42.25%
07/01/92	2,613,472	3,125,299	511,827	83.62%	1,409,108	36.32%
07/01/93	2,905,578	3,563,492	657,914	81.54%	1,482,005	44.39%
07/01/94	3,158,068	3,876,584	718,516	81.47%	1,536,978	46.75%
07/01/95	3,462,098	3,795,926	333,828	91.21%	1,514,177	22.05%
07/01/96	3,975,832	4,087,273	111,441	97.27%	1,560,369	7.14%
07/01/97	4,664,519	4,519,542	(144,977)	103.21%	1,568,747	-9.24%
07/01/98	5,390,526	5,005,165	(385,361)	107.70%	1,557,880	-24.74%

TABLE 15

State Employees Retirement Fund
SCHEDULE OF EMPLOYER CONTRIBUTIONS
(dollars in thousands)

Year Ended June 30	Actuarially Required Contribution Rate (A)	Actual Covered Payroll (B)	Actual Member Contributions (C)	Annual Required Contribution [(A) x (B)] - (C)	Actual Employer Contribution*	Percentage Contributed
1991	8.17%	1,370,964	56,895	55,113	57,986	105.21%
1992	7.86%	1,409,108	58,478	52,278	59,244	113.32%
1993	8.27%	1,482,005	59,132	63,430	58,982	92.99%
1994	8.93%	1,536,978	62,555	74,697	60,741	81.32%
1995	9.15%	1,514,177	61,627	76,920	63,161	82.11%
1996	8.05%	1,560,369	63,507	62,103	65,557	105.56%
1997	7.21%	1,568,747	63,848	49,259	66,568	135.14%
1998	7.13% **	1,557,880	62,901	48,176	62,315	129.35%
1999	6.48% **					

* Includes contributions from other sources (if applicable).

** Actuarially Required Contribution Rate calculated according to parameters of GASB 25 using a 30-year amortization of the negative unfunded accrued liability

State Employees Retirement Fund

Military Affairs Calculation

Section 352.85 of Chapter 352 of Minnesota Statutes provides that certain military affairs personnel may retire, with an unreduced benefit, at age 60. In addition, they may receive disability benefits upon being found disqualified for retention in active military duty. To fund these special benefits, employees and employer contribute an extra 1.6% of payroll.

To recognize the effect of the unreduced early retirement benefit available at age 60, we have assumed that all military affairs personnel will retire at age 60 or, if over age 60, one year from the valuation date.

The results of our calculations are as follows:

1.	Number of Active Members	6
2.	Projected Annual Earnings	\$179,155
3.	Normal Cost	
	a. Dollar Amount	\$ 18,589
	b. Percent of Payroll	10.38%

State Employees Retirement Fund

Pilots Calculation

Section 352.86 of chapter 352 of Minnesota Statutes provides that certain transportation department pilots may retire, with an unreduced benefit, at age 62. In addition, they may receive disability benefits upon being found disqualified for retention as pilots. To fund these special benefits, employees and employer contribute an extra 1.6% of payroll.

To recognize the effect of the unreduced early retirement benefit available at age 62, we have assumed that all pilots will retire at age 62 or, if over age 62, one year from the valuation date.

The results of our calculations are as follows:

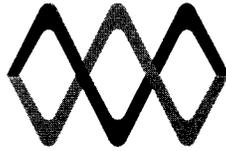
1.	Number of Active Members	5
2.	Projected Annual Earnings	\$296,598
3.	Normal Cost	
	a. Dollar Amount	\$ 33,828
	b. Percent of Payroll	11.41%

State Patrol Retirement Fund
ACTUARIAL VALUATION REPORT

July 1, 1998

 **FILE COPY**

LCP & R DEC 10 1998



MILLIMAN & ROBERTSON, INC.
Actuaries & Consultants

Internationally WOODROW MILLIMAN

Suite 400, 15800 Bluemound Road, Brookfield, Wisconsin 53005-6069

Telephone: 414/784-2250

Fax: 414/784-7287

December 9, 1998

Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

RE: State Patrol Retirement Fund

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1998.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. We have relied on the basic employee data and asset figures as submitted by the Minnesota State Retirement System.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission.

Respectfully submitted,

MILLIMAN & ROBERTSON, INC.

Thomas K. Custis, F.S.A., M.A.A.A.
Consulting Actuary

William V. Hogan, F.S.A., M.A.A.A.
Consulting Actuary

TKC/WVH/bh

State Patrol Retirement Fund

Table of Contents

	<u>PAGE</u>
REPORT HIGHLIGHTS	1
COMMENTARY	
Purpose	2
Report Highlights	2
Asset Information	2
Actuarial Balance Sheet	3
GASB Disclosure	3
Actuarial Cost Method	3
Sources of Actuarial Gains and Losses	4
Contribution Sufficiency	4
Changes in Actuarial Assumptions	4
Changes in Plan Provisions	4
ASSET INFORMATION	
Table 1 - Statement of Plan Net Assets	5
Table 2 - Statement of Change in Plan Net Assets	6
MEMBERSHIP DATA	
Table 3 - Active Members	7
Table 4 - Service Retirements	8
Table 5 - Survivors	9
Table 6 - Disability Retirements	10
Table 7 - Reconciliation of Members	11

State Patrol Retirement Fund

Table of Contents

(Continued)

	<u>PAGE</u>
FUNDING STATUS	
Table 8 - Actuarial Balance Sheet	12
Table 9 - Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate	13
Table 10 - Changes in Unfunded Actuarial Accrued Liability (UAAL)	14
Table 11 - Determination of Contribution Sufficiency	15
 ACTUARIAL ASSUMPTIONS	
Table 12 - Summary of Actuarial Assumptions and Methods	16
 PLAN PROVISIONS	
Table 13 - Summary of Plan Provisions	20
 GASB25 DISCLOSURES	
Table 14 - Schedule of Funding Progress	26
Table 15 - Schedule of Employer Contributions	27

State Patrol Retirement Fund

Report Highlights
(dollars in thousands)

	07/01/97 Valuation	07/01/98 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 352B % of Payroll	21.00%	21.00%
2. Required Contributions - Chapter 356 % of Payroll	15.67%	14.14%
3. Sufficiency (Deficiency): (A.1. - A.2.)	5.33%	6.86%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$375,650	\$430,011
b. Current Benefit Obligations (Table 8)	\$321,807	\$360,381
c. Funding Ratio: (a/b)	116.73%	119.32%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$375,650	\$430,011
b. Actuarial Accrued Liability (Table 9)	\$332,427	\$371,369
c. Funding Ratio: (a/b)	113.00%	115.79%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$459,199	\$517,813
b. Current and Expected Future Benefit Obligations	\$423,151	\$470,546
c. Funding Ratio: (a/b)	108.52%	110.05%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	795	806
b. Projected Annual Earnings	\$43,084	\$45,217
c. Average Annual Earnings (Actual \$)	\$54,193	\$56,101
d. Average Age	42.8	42.1
e. Average Service	15.5	14.6
2. Others		
a. Service Retirements (Table 4)	422	462
b. Survivors (Table 5)	128	137
c. Disability Retirements (Table 6)	20	21
d. Deferred Retirements (Table 7)	21	21
e. Terminated Other Non-vested (Table 7)	7	7
f. Total	598	648

State Patrol Retirement Fund

Commentary

Purpose

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

Report Highlights

The financial status of the Plan can be measured by three different funding ratios:

- The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 119.32%. The corresponding ratio for the prior year was 116.73%
- The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 1998 the ratio is 115.79%, which is an increase from the 1997 value of 113.00%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 110.05% verifies that the current statutory contributions are sufficient.

Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E1 to E6. It combines the cost value of the Assets Available for benefits and one-third of the difference between the market value and cost value of those assets.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets", the latter phrase will be used in the remainder of this report.

This Plan participates in the Minnesota Post Retirement Investment Fund (i.e., MPRIF). After the MPRIF liability has been calculated for each participating Plan, the State Board of Investments, (i.e., SBI), will determine each Plan's portion of the excess earnings for the January benefit increase as well as the Plan's allocated market share of MPRIF.

Actuarial Balance Sheet (Table 8)

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated as follows:

- For Active Members – Salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- For Non-Active Members – The discounted value of benefits, including augmentation in cases where benefits have not commenced.

GASB Disclosure

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superceded by Statement No. 25. Tables 14 and 15 of this report have been added to fulfill the new requirements of Statement No. 25.

Actuarial Cost Method (Table 9)

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the

remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

Source of Actuarial Gains and Losses (Table 10)

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectations. For a detailed analysis of the major components, refer to Table 10.

Contribution Sufficiency (Table 11)

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

Table 11 shows the Plan has a contribution sufficiency since the Statutory Contribution Rate is 21.00% compared to the Required Contribution Rate of 14.14%.

Changes in Actuarial Assumptions

There were no changes in actuarial assumptions since the last valuation.

Changes in Plan Provisions

There were no significant changes in plan provisions since the last valuation.

TABLE 1

State Patrol Retirement Fund

Statement of Plan Net Assets*(dollars in thousands)*

JULY 1, 1998

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS IN TRUST		
1. Cash, Equivalents, Short-term Securities	\$3,569	\$3,569
2. Fixed Income	60,650	59,776
3. Equity	197,399	162,520
4. Real Estate	10,221	8,110
5. Equity in MPRIF	185,313	185,313
6. Other	0	0
Subtotal	<u>\$457,152</u>	<u>\$419,288</u>
B. ASSETS RECEIVABLE	601	601
C. LIABILITIES	(2,499)	(2,499)
D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
1. MPRIF Reserves	185,313	185,313
2. Member Reserves	35,702	35,702
3. Other Non-MPRIF Reserves	234,239	196,375
4. Total Assets Available for Benefits	<u>\$455,254</u>	<u>\$417,390</u>
E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D4)		\$417,390
2. Market Value (D4)	\$455,254	
3. Cost Value (D4)	417,390	
4. Market Over Cost: (E2-E3)	<u>\$37,864</u>	
5. One-third of Market Over Cost: (E4)/3		<u>12,621</u>
6. Actuarial Value of Assets (E1+E5) (Same as "Current Assets")		<u>\$430,011</u>

TABLE 2

State Patrol Retirement Fund

Statement of Change In Plan Net Assets
(dollars in thousands)

YEAR ENDING JUNE 30, 1998

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$389,848	\$368,550
B. ADDITIONS		
1. Member Contributions	\$3,634	\$3,634
2. Employer Contributions	5,475	5,475
3. Contributions From Other Sources	0	0
4. MPRIF Income	24,495	24,495
5. Net Investment Income		
a. Interest and Dividends	28,509	28,509
b. Net Realized Gain (Loss)	5,793	5,793
c. Net Change in Unrealized Gain (Loss)	16,565	0
d. Investment Expenses	(290)	(290)
Net Subtotal	<u>50,577</u>	<u>34,012</u>
6. Other	1	1
7. Total Additions	<u>\$84,182</u>	<u>\$67,616</u>
C. OPERATING EXPENSES		
1. Service Retirements paid from MPRIF	\$18,353	\$18,353
2. Service Retirements paid from plan assets	0	0
2. Disability Benefits	0	0
3. Survivor Benefits	0	0
4. Refunds	23	23
6. Administrative Expenses	66	66
7. Other	334	334
8. Total Disbursements	<u>\$18,776</u>	<u>\$18,776</u>
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u>\$455,254</u>	<u>\$417,390</u>

TABLE 3

STATE PATROL RETIREMENT FUND
ACTIVE MEMBERS AS OF JUNE 30, 1998

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	10	2	0	0	0	0	0	0	12
25-29	23	36	2	0	0	0	0	0	61
30-34	10	34	50	15	0	0	0	0	109
35-39	9	25	30	60	12	0	0	0	136
40-44	3	9	22	38	74	9	0	0	155
45-49	1	3	17	9	40	46	17	0	133
50-54	2	0	6	3	18	34	73	9	145
55-59	0	1	1	0	3	6	18	14	43
60-64	0	0	0	0	1	0	2	7	10
65+	0	0	0	0	0	0	0	2	2
ALL	58	110	128	125	148	95	110	32	806

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	24,505	41,121	0	0	0	0	0	0	27,274
25-29	24,020	41,281	52,216	0	0	0	0	0	35,131
30-34	29,818	41,873	53,659	55,571	0	0	0	0	48,059
35-39	29,689	43,318	52,443	54,980	57,425	0	0	0	50,819
40-44	37,675	43,156	54,974	56,542	57,722	57,784	0	0	55,813
45-49	46,043	47,682	55,341	56,725	56,593	59,248	59,463	0	57,447
50-54	44,125	0	58,364	54,932	59,451	56,727	59,416	55,446	58,196
55-59	0	57,261	70,949	0	61,851	62,847	59,888	58,715	60,252
60-64	0	0	0	0	45,352	0	71,828	63,179	63,126
65+	0	0	0	0	0	0	0	56,294	56,294
ALL	27,762	42,397	54,157	55,650	57,603	58,434	59,726	58,621	52,958

PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE

Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
All	1,610	4,663	6,932	6,956	8,525	5,551	6,569	1,875	42,684

STATE PATROL RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1998

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	7	3	0	0	0	0	0	10
55-59	33	51	2	0	0	0	0	86
60-64	5	7	64	0	0	0	0	76
65-69	0	1	21	65	0	0	0	87
70-74	2	3	4	31	60	0	0	100
75-79	0	0	2	3	35	19	0	59
80-84	0	0	0	1	8	15	10	34
85+	0	0	0	0	0	1	9	10
ALL	47	65	93	100	103	35	19	462

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	33,787	24,952	0	0	0	0	0	31,137
55-59	38,755	36,380	34,542	0	0	0	0	37,249
60-64	47,857	40,647	38,727	0	0	0	0	39,505
65-69	0	46,022	43,205	35,657	0	0	0	37,598
70-74	45,301	31,232	25,728	38,607	35,233	0	0	35,980
75-79	0	0	32,210	42,505	35,333	28,241	0	33,308
80-84	0	0	0	32,157	32,132	28,260	23,894	28,002
85+	0	0	0	0	0	25,950	23,635	23,867
ALL	39,262	36,223	38,949	36,742	35,026	28,184	23,771	35,805

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	1,845	2,354	3,622	3,674	3,607	986	451	16,541

STATE PATROL RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1998

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	8	5	0	0	0	1	0	14
50-54	1	4	0	1	0	0	0	6
55-59	2	1	0	0	0	0	0	3
60-64	0	0	5	1	0	0	0	6
65-69	0	3	4	0	5	2	4	18
70-74	1	2	6	1	3	4	1	18
75-79	0	3	9	1	2	5	4	24
80-84	1	4	7	0	0	2	7	21
85+	0	0	3	1	0	2	21	27
ALL	13	22	34	5	10	16	37	137

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	9,917	13,242	0	0	0	7,122	0	10,905
50-54	8,268	20,717	0	18,246	0	0	0	18,230
55-59	16,445	24,224	0	0	0	0	0	19,038
60-64	0	0	10,339	23,115	0	0	0	12,468
65-69	0	27,780	13,981	0	32,000	14,891	14,014	21,395
70-74	18,594	24,236	19,905	32,816	40,273	24,235	18,521	25,311
75-79	0	10,802	15,913	25,428	33,001	17,409	15,905	17,405
80-84	11,924	14,225	17,881	0	0	14,464	16,584	16,143
85+	0	0	13,138	26,203	0	15,196	15,746	15,803
ALL	11,616	17,928	15,731	25,162	34,682	17,513	15,810	17,650

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	151	394	534	125	346	280	584	2,418

STATE PATROL RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1998

Age	Years Disabled							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	2	1	0	0	0	0	4
50-54	0	2	2	0	0	0	0	4
55-59	0	1	1	1	1	0	0	4
60-64	0	0	2	0	0	0	0	2
65-69	0	0	0	1	1	1	0	3
70-74	0	0	0	0	0	2	1	3
75-79	0	0	0	0	0	0	1	1
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	1	5	6	2	2	3	2	21

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	6,755	25,574	24,065	0	0	0	0	20,492
50-54	0	35,820	31,122	0	0	0	0	33,471
55-59	0	38,190	12,453	25,755	24,589	0	0	25,247
60-64	0	0	35,574	0	0	0	0	35,574
65-69	0	0	0	40,170	30,409	21,080	0	30,553
70-74	0	0	0	0	0	30,651	28,966	30,089
75-79	0	0	0	0	0	0	13,994	13,994
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	6,755	32,196	28,318	32,963	27,499	27,461	21,480	27,805

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	6,755	160,980	169,908	65,926	54,998	82,383	42,960	583,905

TABLE 7

State Patrol Retirement Fund

Reconciliation Of Members

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 1997	795	21	7
B. ADDITIONS	62	4	0
C. DELETIONS			
1. Service Retirement	(44)	(3)	0
2. Disability	(1)	0	0
3. Death	(1)	0	0
4. Terminated - Deferred	(4)	0	0
5. Terminated - Refund	(1)	0	0
6. Terminated - Other Non-Vested	0	0	0
7. Returned as Active	1	(1)	0
8. Transferred to Other Fund	0	0	0
D. DATA ADJUSTMENTS	(1)	0	0
Vested	695		
Non-Vested	111		
E. TOTAL ON JUNE 30, 1998	806	21	7

	Retirement Annuitants	Recipients	
		Disabled	Survivors
A. ON JUNE 30, 1997	422	20	128
B. ADDITIONS	47	1	14
C. DELETIONS			
1. Service Retirement	0	0	0
2. Death	(7)	0	(4)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	0	0	(1)
E. TOTAL ON JUNE 30, 1998	462	21	137

State Patrol Retirement Fund

Actuarial Balance Sheet*(dollars in thousands)*

JULY 1, 1998

A. CURRENT ASSETS (TABLE 1, E6)				\$430,011
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)				(\$11,375)
2. Present Value of Future Normal Costs				99,177
3. Total Expected Future Assets				<u>\$87,802</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				<u>\$517,813</u>
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>		<u>Total</u>
1. Benefit Recipients				
a. Retirement Annuities		\$159,536		\$159,536
b. Disability Benefits		6,484		6,484
c. Surviving Spouse and Child Benefits		20,324		20,324
2. Deferred Retirements with Future Augmentation		2,518		2,518
3. Former Members without Vested Rights		220		220
4. Active Members				
a. Retirement Annuities	597	151,101		151,698
b. Disability Benefits	10,964	0		10,964
c. Survivor's Benefits	6,217	0		6,217
d. Deferred Retirements	35	2,330		2,365
e. Refund Liability Due to Death or Withdrawal	0	55		55
5. Total Current Benefit Obligations	<u>\$17,813</u>	<u>\$342,568</u>		<u>\$360,381</u>
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$110,165</u>
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$470,546</u>
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				(\$69,630)
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				(\$47,267)

State Patrol Retirement Fund

**Determination Of Unfunded Actuarial Accrued Liability (UAAL)
And Supplemental Contribution Rate**

(dollars in thousands)

JULY 1, 1998

	Actuarial Present Value of Projected Benefits <i>(1)</i>	Actuarial Present Value of Future Normal Costs <i>(2)</i>	Actuarial Accrued Liability <i>(3)=(1)-(2)</i>
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$248,623	\$79,604	\$169,019
b. Disability Benefits	18,392	9,997	8,395
c. Survivor's Benefit	10,376	6,003	4,373
d. Deferred Retirements	3,960	2,926	1,034
e. Refunds Due to Death or Withdrawal	112	647	(535)
f. Total	<u>\$281,463</u>	<u>\$99,177</u>	<u>\$182,286</u>
2. Deferred Retirements With Future Augmentation	2,518		2,518
3. Former Members Without Vested Rights	220		220
4. Annuitants in MPRIF	185,313		185,313
5. Recipients Not in MPRIF	<u>1,032</u>		<u>1,032</u>
6. Total	<u>\$470,546</u>	<u>\$99,177</u>	<u>\$371,369</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$371,369
2. Current Assets (Table 1, E6)			<u>430,011</u>
3. UAAL (B1-B2)			<u>(\$58,642)</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$689,402
2. Supplemental Contribution Rate (B3/C1)			-8.51%

State Patrol Retirement Fund

Changes In Unfunded Actuarial Accrued Liability (UAAL)*(dollars in thousands)*

YEAR ENDING JUNE 30, 1998

A. UAAL AT BEGINNING OF YEAR	(\$43,223)
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$9,508
2. Contribution	(9,109)
3. Interest on A, B1 and B2	<u>(3,657)</u>
4. Total (B1+B2+B3)	<u>(\$3,258)</u>
C. EXPECTED UAAL AT END OF YEAR (A+B4)	(\$46,481)
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	\$1,857
2. Investment Return	(20,863)
3. MPRIF Mortality	2,337
4. Mortality of Other Benefit Recipients	(126)
5. Other Items	<u>4,634</u>
6. Total	<u>(\$12,161)</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	(\$58,642)
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	<u>0</u>
H. UAAL AT END OF YEAR (E+F+G)	<u><u>(\$58,642)</u></u>

State Patrol Retirement Fund

Determination Of Contribution Sufficiency*(dollars in thousands)*

JULY 1, 1998

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 352B		
1. Employee Contributions	8.40%	\$3,798
2. Employer Contributions	12.60%	5,697
3. Total	<u>21.00%</u>	<u>\$9,495</u>
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	18.02%	\$8,147
b. Disability benefits	2.30%	1,039
c. Survivors	1.40%	632
d. Deferred Retirement Benefits	0.64%	290
e. Refunds Due to Death or Withdrawal	0.14%	62
f. Total	<u>22.50%</u>	<u>\$10,170</u>
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	-8.51%	(3,848)
3. Allowance for Expenses	<u>0.15%</u>	<u>68</u>
4. Total	<u>14.14%</u>	<u>\$6,390</u>
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	6.86%	\$3,105

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1998 is \$45,217.

State Patrol Retirement Fund

Summary of Actuarial Assumptions and Methods

Interest:	Pre-Retirement: 8.5% per annum																		
	Post-Retirement: 6.0% per annum																		
Salary Increases:	Reported salary at valuation date increased according to the rate table below to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for new Members.																		
Mortality:	<p>Pre-Retirement:</p> <p>Male - 1983 GAM (Males -1)</p> <p>Female - 1983 GAM (Females)</p> <p>Post-Retirement:</p> <p>Male - 1983 GAM (Males +2)</p> <p>Female - 1983 GAM (Females +2)</p> <p>Post-Disability:</p> <p>Male - Combined Annuity Mortality</p> <p>Female - Combined Annuity Mortality</p>																		
Retirement Age:	Age-related table as follows:																		
	<table> <tr> <td>Ages:</td> <td>50-53</td> <td>2%</td> </tr> <tr> <td></td> <td>54</td> <td>20</td> </tr> <tr> <td></td> <td>55</td> <td>60</td> </tr> <tr> <td></td> <td>56-61</td> <td>20</td> </tr> <tr> <td></td> <td>62-64</td> <td>50</td> </tr> <tr> <td></td> <td>65+</td> <td>100</td> </tr> </table>	Ages:	50-53	2%		54	20		55	60		56-61	20		62-64	50		65+	100
Ages:	50-53	2%																	
	54	20																	
	55	60																	
	56-61	20																	
	62-64	50																	
	65+	100																	
Separation:	Graded rates starting at .022 at age 20 and decreasing to .003 at age 49.																		
Disability:	Rates adopted by MSRS as shown in rate table.																		
Administrative and Investment Expenses:	Prior year expenses expressed as percentage of prior year payroll.																		
Return of Contributions:	All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit.																		

<i>Family Composition:</i>	100% of Members are married. Female is three years younger than male. Each Member is assumed to have two children whose ages are dependent upon the Member's age. Assumed first child is born at Member's age 28 and second child is born at Member's age 31.				
<i>Social Security:</i>	N/A				
<i>Benefit Increases After Retirement:</i>	Payment of earnings on retired reserves in excess of 6% accounted for by 6% post-retirement assumptions.				
<i>Special Consideration:</i>	Married Members assumed to elect subsidized joint and survivor form of annuity as follows: <table style="margin-left: 40px;"> <tr> <td>Males -</td> <td>25% elect 50% J&S option 25% elect 100% J&S option</td> </tr> <tr> <td>Females -</td> <td>5% elect 50% J&S option 5% elect 100% J&S option</td> </tr> </table>	Males -	25% elect 50% J&S option 25% elect 100% J&S option	Females -	5% elect 50% J&S option 5% elect 100% J&S option
Males -	25% elect 50% J&S option 25% elect 100% J&S option				
Females -	5% elect 50% J&S option 5% elect 100% J&S option				
<i>Actuarial Cost Method:</i>	<p>Entry Age Normal Actuarial Cost Method based on earnings and the date the employee entered the plan is applied to all plan benefits. Under this method, Actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability.</p> <p>The actuarial cost method was changed as of July 1, 1997 to permit negative amortization of supplemental contribution surpluses.</p>				
<i>Asset Valuation Method:</i>	Cost Value plus one-third Unrealized Gains or Losses.				
<i>Payment on the Unfunded Actuarial Accrued Liability:</i>	A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5.0% per annum.				

TABLE 12

(Continued)

State Patrol Retirement Fund

Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

<u>Age</u>	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>		<u>Salary Increases</u>
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	
20	4	2	220	220	4	4	0	0	7.75%
21	4	2	210	210	4	4	0	0	7.1454
22	4	2	200	200	5	5	0	0	7.1094
23	4	2	190	190	5	5	0	0	7.0725
24	4	2	180	180	6	6	0	0	7.0363
25	4	3	170	170	6	6	0	0	7
26	5	3	160	160	6	6	0	0	7
27	5	3	150	150	7	7	0	0	7
28	5	3	140	140	7	7	0	0	7
29	5	3	130	130	8	8	0	0	7
30	6	3	120	120	8	8	0	0	7
31	6	4	110	110	9	9	0	0	7
32	6	4	100	100	9	9	0	0	7
33	7	4	90	90	10	10	0	0	7
34	7	4	80	80	10	10	0	0	7
35	8	5	70	70	11	11	0	0	7
36	9	5	60	60	12	12	0	0	6.9019
37	9	5	60	60	13	13	0	0	6.8074
38	10	6	60	60	15	15	0	0	6.7125
39	10	6	60	60	16	16	0	0	6.6054
40	11	7	60	60	18	18	0	0	6.5
41	12	7	60	60	20	20	0	0	6.354
42	14	8	60	60	22	22	0	0	6.2087
43	15	8	60	60	24	24	0	0	6.0622
44	17	9	60	60	26	26	0	0	5.9048
45	19	10	60	60	29	29	0	0	5.75
46	22	11	60	60	32	32	0	0	5.6940
47	25	12	60	60	36	36	0	0	5.6375
48	28	14	60	60	41	41	0	0	5.5822
49	31	15	30	30	46	46	0	0	5.5405

State Patrol Retirement Fund

Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

Age	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>		<u>Salary Increases</u>
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	
50	35	16	0	0	50	50	200	200	5.5%
51	39	18	0	0	57	57	200	200	5.4384
52	43	19	0	0	64	64	200	200	5.3776
53	48	21	0	0	72	72	200	200	5.3167
54	52	23	0	0	80	80	2,000	2,000	5.2826
55	57	25	0	0	88	88	6,000	6,000	5.25
56	61	28	0	0	98	98	2,000	2,000	5.25
57	66	31	0	0	108	108	2,000	2,000	5.25
58	71	34	0	0	118	118	2,000	2,000	5.25
59	77	38	0	0	129	129	2,000	2,000	5.25
60	84	42	0	0	141	141	2,000	2,000	5.25
61	92	47	0	0	154	154	2,000	2,000	5.25
62	101	52	0	0	167	167	5,000	5,000	5.25
63	111	58	0	0	0	0	5,000	5,000	5.25
64	124	64	0	0	0	0	5,000	5,000	5.25
65	129	71	0	0	0	0	10,000	10,000	5.25
66	156	78	0	0	0	0	0	0	5.25
67	176	87	0	0	0	0	0	0	5.25
68	198	97	0	0	0	0	0	0	5.25
69	222	109	0	0	0	0	0	0	5.25
70	248	124	0	0	0	0	0	0	5.25

State Patrol Retirement Fund

Summary of Plan Provisions**GENERAL**

<i>Eligibility:</i>	State trooper, conservation officers and certain crime bureau officers.
<i>Contributions:</i>	
<i>Member:</i>	8.40% of salary.
<i>Employer:</i>	12.60% of salary.
<i>Allowable Service:</i>	Service during which Member contributions were deducted. Includes period receiving temporary Workers' Compensation.
<i>Salary:</i>	Salaries excluding lump-sum payments at separation.
<i>Average Salary:</i>	Average of the five highest successive years of salary. Average Salary is based on all Allowable Service if less than five years.

RETIREMENT***Normal Retirement Benefit:***

<i>Eligibility:</i>	Age 55 and three years of Allowable Service.
<i>Amount:</i>	3.0% of Average Salary for each year of Allowable Service.

Early Retirement Benefit:

<i>Eligibility:</i>	Age 50 and three years of Allowable Service.
<i>Amount:</i>	Normal Retirement Benefit based on Allowable Service and Average Salary at retirement reduced by 2/10% for each month that the member is under age 55.

Form of Payment: Life annuity.

Actuarially equivalent options are:

50% or 100% joint and survivor with bounce back feature without additional reduction.

Benefit Increases: Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Benefit recipients receiving benefits for at least one full month but less than 12 full months will receive a partial increase.

For members retired under laws in effect before June 1, 1973 receive an additional 6% supplement through July 1, 1994. For each of those years, the supplement increases by 6% of the total annuity which includes both MPRIF and supplemental amounts. Thereafter, regular MPRIF increases apply.

Members retired under law in effect before June 1, 1973 receive an additional lump-sum payment each year. In 1989, this lump-sum payment is \$25 times each full year of Allowable Service or \$400 per year of service less any Social Security benefits received or annuity from a Minnesota public employee pension plan. In each following year, the lump-sum payment will increase by the same percentage increase that is applied to regular annuities paid from MPRIF.

DISABILITY

Occupational Disability Benefit:

Eligibility: Member who cannot perform his duties because of a disability directly resulting from an act of duty.

Amount: 60% of Average Salary plus 3.0% of Average Salary for each year in excess of 20 years of Allowable Service (pro rata for completed months).

Payments cease at age 65 or earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability.

If a Member became disabled prior to July 1, 1997 but was not eligible to commence their benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Non-Duty Disability Benefit:

Eligibility: At least one year of Allowable Service and disability not related to covered employment.

Amount: Normal Retirement Benefit based on Allowable Service (minimum of 15 years) and Average Salary at disability without reduction for commencement before age 55.

Payments cease at age 65 or earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability.

If a Member became disabled prior to July 1, 1997 but was not eligible to commence their benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Form of Payment: Same as for retirement.

Benefit Increases: Adjusted by MSRS to provide same increase as MPRIF.

Retirement After Disability:

<i>Eligibility:</i>	Age 65 with continued disability.
<i>Amount:</i>	Optional annuity continues. Otherwise, a normal retirement annuity equal to disability benefit paid, or an actuarially equivalent option.
<i>Form of Payment:</i>	Same as for retirement.
<i>Benefit Increases:</i>	Same as for retirement.

DEATH

Surviving Spouse Benefit:

<i>Eligibility:</i>	Member who is active or receiving a disability benefit.
<i>Amount:</i>	<p>50% of Annual Salary if member was active or occupational disability and either had less than three years of Allowable Service or was under age 55. Payment for life.</p> <p>Surviving spouse receives the 100% joint and survivor benefit commencing on the Member's 55th birthday if Member was active or a disability with three years of Allowable Service. A spouse who had been receiving the 50% benefit shall be entitled to the larger of the two. Payment for life.</p> <p>If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.</p>
<i>Benefit Increases:</i>	Adjusted by MSRS to provide same increase as MPRIF.

Surviving Dependent Children's Benefit:

Eligibility: Member who is active or receiving a disability benefit. Child must be unmarried, under age 18 (or 23 if full-time student) and dependent upon the Member.

Amount: 10% of Average Salary for each child and \$20 per month prorated among all dependent children. Benefit must not be less than 50% nor exceed 70% of Average Salary.

If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Refund of Contributions:

Eligibility: Member dies before receiving any retirement benefits and survivor benefits are not payable.

Amount: Member's contributions with 5% interest if death occurred before May 16, 1989 and 6% interest if death occurred on or after May 16, 1989.

TERMINATION

Refund of Contributions:

Eligibility: Termination of state service.

Amount: Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest if termination occurred on or after May 16, 1989.

Deferred Benefit:

Eligibility: Three years of Allowable Service.

Amount: Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/71; 5% from 7/1/71 to 1/1/81; and 3% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

If a Member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

SIGNIFICANT CHANGES

No significant changes were recognized for this valuation.

TABLE 14

State Patrol Retirement Fund
SCHEDULE OF FUNDING PROGRESS
(dollars in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (A)	Actuarial Accrued Liability (AAL) (B)	Unfunded AAL (UAAL) (B - A)	Funded Ratio (A)/(B)	Actual Covered Payroll (Previous FY) (C)	UAAL as % of Covered Payroll (B - A) / (C)
07/01/91	200,068	224,033	23,965	89.30%	32,365	74.05%
07/01/92	222,314	233,656	11,342	95.15%	32,882	34.49%
07/01/93	244,352	258,202	13,850	94.64%	35,765	38.73%
07/01/94	262,570	275,377	12,807	95.35%	35,341	36.24%
07/01/95	284,918	283,078	(1,840)	100.65%	37,518	-4.90%
07/01/96	323,868	303,941	(19,927)	106.56%	41,476	-48.04%
07/01/97	375,650	332,427	(43,223)	113.00%	41,996	-102.92%
07/01/98	430,011	371,369	(58,642)	115.79%	43,456	-134.95%

TABLE 15

State Patrol Retirement Fund
SCHEDULE OF EMPLOYER CONTRIBUTIONS
(dollars in thousands)

Year Ended June 30	Actuarially Required Contribution Rate (A)	Actual Covered Payroll (B)	Actual Member Contributions (C)	Annual Required Contribution [(A) x (B)] - (C)	Actual Employer Contribution*	Percentage Contributed
1991	22.15%	32,365	2,751	4,418	4,825	109.21%
1992	22.58%	32,882	2,795	4,630	4,893	105.68%
1993	22.27%	35,765	3,040	4,925	5,288	107.37%
1994	21.94%	35,341	3,004	4,750	5,159	108.61%
1995	21.79%	37,518	3,189	4,986	5,583	111.97%
1996	21.34%	41,476	3,484	5,367	5,742	106.99%
1997	21.33%	41,996	3,746	5,212	6,151	118.02%
1998	15.67%	43,456	3,634	3,176	5,475	172.39%

* Includes contributions from other sources (if applicable).

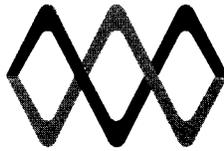
Correctional Employees Retirement Fund
ACTUARIAL VALUATION REPORT

July 1, 1998

LCP & R DEC 15 1998



FILE COPY



MILLIMAN & ROBERTSON, INC.

Actuaries & Consultants

Internationally WOODROW MILLIMAN

Suite 400, 15800 Bluemound Road, Brookfield, Wisconsin 53005-6069

Telephone: 414/784-2250

Fax: 414/784-7287

December 14, 1998

Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

RE: Correctional Employees Retirement Fund

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1998.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. We have relied on the basic employee data and asset figures as submitted by the Minnesota State Retirement System.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission.

Respectfully submitted,

MILLIMAN & ROBERTSON, INC.

Thomas K. Custis, F.S.A., M.A.A.A.
Consulting Actuary

William V. Hogan, F.S.A., M.A.A.A.
Consulting Actuary

TKC/WVH/bh

Correctional Employees Retirement Fund

Table of Contents

	<u>Page</u>
REPORT HIGHLIGHTS	1
COMMENTARY	
Purpose	2
Report Highlights	2
Asset Information	2
Actuarial Balance Sheet	3
GASB Disclosure	3
Actuarial Cost Method	3
Sources of Actuarial Gains and Losses	4
Contribution Sufficiency	4
Changes in Actuarial Assumptions	4
Changes in Plan Provisions	4
ASSET INFORMATION	
Table 1 - Statement of Plan Net Assets	5
Table 2 - Statement of Change in Plan Net Assets	6
MEMBERSHIP DATA	
Table 3 - Active Members	7
Table 4 - Service Retirements	8
Table 5 - Survivors	9
Table 6 - Disability Retirements	10
Table 7 - Reconciliation of Members	11

Correctional Employees Retirement Fund

Table of Contents

(Continued)

	<u>Page</u>
FUNDING STATUS	
Table 8 - Actuarial Balance Sheet	12
Table 9 - Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate	13
Table 10 - Changes in Unfunded Actuarial Accrued Liability (UAAL)	14
Table 11 - Determination of Contribution Sufficiency	15
ACTUARIAL ASSUMPTIONS	
Table 12 - Summary of Actuarial Assumptions and Methods	16
PLAN PROVISIONS	
Table 13 - Summary of Plan Provisions	20
GASB25 DISCLOSURES	
Table 14 - Schedule of Funding Progress	26
Table 15 - Schedule of Employer Contributions	27

Correctional Employees Retirement Fund

Report Highlights

(dollars in thousands)

	07/01/97 Valuation	07/01/98 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 352 % of Payroll	13.20%	13.20%
2. Required Contributions - Chapter 356 % of Payroll	12.49%	12.99%
3. Sufficiency (Deficiency): (A.1. - A.2.)	0.71%	0.21%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$241,916	\$295,291
b. Current Benefit Obligations (Table 8)	\$190,792	\$234,618
c. Funding Ratio: (a/b)	126.80%	125.86%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$241,916	\$295,291
b. Actuarial Accrued Liability (Table 9)	\$212,638	\$261,869
c. Funding Ratio: (a/b)	113.77%	112.76%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$322,415	\$382,240
b. Current and Expected Future Benefit Obligations	\$312,185	\$378,766
c. Funding Ratio: (a/b)	103.28%	100.92%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	2,600	2,817
b. Projected Annual Earnings	\$91,847	\$106,178
c. Average Annual Earnings (Actual \$)	\$35,326	\$37,692
d. Average Age	39.4	40.1
e. Average Service	7.3	7.6
2. Others		
a. Service Retirements (Table 4)	444	503
b. Survivors (Table 5)	36	39
c. Disability Retirements (Table 6)	39	49
d. Deferred Retirements (Table 7)	282	291
e. Terminated Other Non-vested (Table 7)	90	114
f. Total	891	996

Correctional Employees Retirement Fund

Commentary

Purpose

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

Report Highlights

The financial status of the Plan can be measured by three different funding ratios:

- The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 125.86%. The corresponding ratio for the prior year was 126.80%
- The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 1998 the ratio is 112.76%, which is an increase from the 1997 value of 113.77%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 100.92% shows that the current statutory contributions are inadequate.

Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E1 to E6. It combines the cost value of the Assets Available for benefits and one-third of the difference between the market value and cost value of those assets.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets", the latter phrase will be used in the remainder of this report.

This Plan participates in the Minnesota Post Retirement Investment Fund (i.e., MPRIF). After the MPRIF liability has been calculated for each participating Plan, the State Board of Investments, (i.e., SBI), will determine each Plan's portion of the excess earnings for the January benefit increase as well as the Plan's allocated market share of MPRIF.

Actuarial Balance Sheet (Table 8)

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated as follows:

- For Active Members – Salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- For Non-Active Members – The discounted value of benefits, including augmentation in cases where benefits have not commenced.

GASB Disclosure

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superseded by Statement No. 25. Tables 14 and 15 of this report have been added to fulfill the new requirements of Statement No. 25.

Actuarial Cost Method (Table 9)

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

Source of Actuarial Gains and Losses (Table 10)

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectations. For a detailed analysis of the major components, refer to Table 10.

Contribution Sufficiency (Table 11)

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

Table 11 shows the Plan has a contribution sufficiency since the Statutory Contribution Rate is 13.20% compared to the Required Contribution Rate of 12.99%.

Changes in Actuarial Assumptions

There were no changes in actuarial assumptions since the last valuation.

Changes in Plan Provisions

There were no significant changes in plan provisions since the last valuation.

TABLE 1

Correctional Employees Retirement Fund

Statement of Plan Net Assets*(dollars in thousands)*

JULY 1, 1998

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS IN TRUST		
1. Cash, Equivalents, Short-term Securities	\$8,372	\$8,372
2. Fixed Income	48,723	48,060
3. Equity	158,585	132,435
4. Real Estate	8,211	6,514
5. Equity in MPRIF	79,770	79,770
6. Other	0	0
Subtotal	<u>\$303,661</u>	<u>\$275,151</u>
B. ASSETS RECEIVABLE	10,895	10,895
C. LIABILITIES	(258)	(258)
D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
1. MPRIF Reserves	79,770	79,770
2. Member Reserves	34,827	34,827
3. Other Non-MPRIF Reserves	199,701	171,191
4. Total Assets Available for Benefits	<u>\$314,298</u>	<u>\$285,788</u>
E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D4)		\$285,788
2. Market Value (D4)	\$314,298	
3. Cost Value (D4)	285,788	
4. Market Over Cost: (E2-E3)	<u>\$28,510</u>	
5. One-third of Market Over Cost: (E4)/3		<u>9,503</u>
6. Actuarial Value of Assets (E1+E5) (Same as "Current Assets")		<u>\$295,291</u>

TABLE 2

Correctional Employees Retirement Fund

Statement of Change In Plan Net Assets*(dollars in thousands)*

YEAR ENDING JUNE 30, 1998

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$252,900	\$236,426
B. ADDITIONS		
1. Member Contributions	\$5,954	\$5,954
2. Employer Contributions	8,146	8,146
3. Contributions From Other Sources	0	0
4. MPRIF Income	10,032	10,032
5. Net Investment Income		
a. Interest and Dividends	23,260	23,260
b. Net Realized Gain (Loss)	4,864	4,864
c. Net Change in Unrealized Gain (Loss)	12,036	0
d. Investment Expenses	(229)	(229)
Net Subtotal	<u>39,931</u>	<u>27,895</u>
6. Other	6,375	6,375
7. Total Additions	<u>\$70,438</u>	<u>\$58,402</u>
C. OPERATING EXPENSES		
1. Service Retirements paid from MPRIF	\$8,226	\$8,226
2. Service Retirements paid from plan assets	0	0
2. Disability Benefits	0	0
3. Survivor Benefits	0	0
4. Refunds	378	378
6. Administrative Expenses	154	154
7. Other	282	282
8. Total Disbursements	<u>\$9,040</u>	<u>\$9,040</u>
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u>\$314,298</u>	<u>\$285,788</u>

TABLE 3

CORRECTIONAL EMPLOYEES RETIREMENT FUND
ACTIVE MEMBERS AS OF JUNE 30, 1998

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	26	24	0	0	0	0	0	0	50
25-29	75	268	21	0	0	0	0	0	364
30-34	54	233	147	23	1	0	0	0	458
35-39	55	179	165	91	26	0	0	0	516
40-44	46	145	99	65	99	24	0	0	478
45-49	47	118	83	50	72	83	10	0	463
50-54	33	87	44	39	55	64	29	4	355
55-59	17	21	14	9	11	7	4	1	84
60-64	6	12	7	5	5	9	1	0	45
65+	1	2	0	1	0	0	0	0	4
ALL	360	1,089	580	283	269	187	44	5	2,817

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	18,912	28,587	0	0	0	0	0	0	23,556
25-29	27,943	31,062	35,574	0	0	0	0	0	30,680
30-34	25,040	32,583	35,831	38,105	42,488	0	0	0	33,035
35-39	25,102	32,584	37,079	39,314	40,661	0	0	0	34,818
40-44	35,115	34,802	36,635	39,459	41,323	45,021	0	0	37,709
45-49	29,253	34,456	37,359	40,674	41,286	42,955	45,179	0	37,937
50-54	31,378	35,419	35,771	40,551	40,743	45,192	46,262	39,095	39,165
55-59	31,884	35,025	37,782	45,075	44,355	49,386	44,608	46,970	38,943
60-64	52,709	36,958	34,310	41,394	38,214	44,568	36,895	0	40,799
65+	30,276	31,669	0	46,572	0	0	0	0	35,047
ALL	28,429	32,939	36,557	39,905	41,201	44,304	45,653	40,670	35,563

PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE

Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
All	10,234	35,870	21,203	11,293	11,083	8,284	2,008	203	100,180

CORRECTIONAL EMPLOYEES RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1998

Age	Years Retired							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	8	2	0	0	0	0	0	10
55-59	41	59	2	0	0	0	0	102
60-64	19	32	61	0	0	0	0	112
65-69	3	7	21	54	0	0	0	85
70-74	0	2	5	12	56	0	0	75
75-79	0	0	0	0	17	36	0	53
80-84	0	0	0	0	3	39	1	43
85+	0	0	0	0	0	19	4	23
ALL	71	102	89	66	76	94	5	503

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	15,013	3,589	0	0	0	0	0	12,728
55-59	14,741	12,529	13,397	0	0	0	0	13,435
60-64	12,949	10,138	16,248	0	0	0	0	13,943
65-69	3,477	8,644	12,868	14,930	0	0	0	13,499
70-74	0	13,030	6,859	13,293	16,684	0	0	15,389
75-79	0	0	0	0	13,056	11,945	0	12,301
80-84	0	0	0	0	22,690	7,989	9,176	9,042
85+	0	0	0	0	0	7,939	12,004	8,646
ALL	13,816	11,347	14,859	14,632	16,110	9,494	11,438	13,122

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	980	1,157	1,322	965	1,224	892	57	6,600

CORRECTIONAL EMPLOYEES RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1998

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	5	1	0	0	0	0	6
50-54	2	3	0	1	0	0	0	6
55-59	0	4	1	1	0	0	0	6
60-64	0	3	2	0	1	0	0	6
65-69	0	1	1	0	2	0	0	4
70-74	0	1	1	0	0	0	0	2
75-79	1	2	0	0	0	2	1	6
80-84	0	1	0	0	0	1	0	2
85+	0	0	1	0	0	0	0	1
ALL	3	20	7	2	3	3	1	39

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	4,242	9,388	0	0	0	0	5,100
50-54	4,396	13,985	0	8,912	0	0	0	9,943
55-59	0	10,924	4,458	3,689	0	0	0	8,641
60-64	0	7,281	6,872	0	25,370	0	0	10,160
65-69	0	4,699	7,491	0	6,856	0	0	6,476
70-74	0	15,830	4,912	0	0	0	0	10,371
75-79	11,301	5,039	0	0	0	8,116	2,253	6,644
80-84	0	2,102	0	0	0	6,211	0	4,157
85+	0	0	481	0	0	0	0	481
ALL	6,698	8,071	5,782	6,301	13,027	7,481	2,253	7,651

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	20,094	161,420	40,474	12,602	39,081	22,443	2,253	298,389

CORRECTIONAL EMPLOYEES RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1998

Age	Years Disabled							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	8	13	5	0	0	0	0	26
50-54	4	5	4	1	0	0	0	14
55-59	0	2	2	0	0	0	0	4
60-64	0	0	1	1	0	0	0	2
65-69	0	0	0	0	1	0	0	1
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	2	0	2
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	12	20	12	2	1	2	0	49

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	9,950	10,833	11,321	0	0	0	0	10,655
50-54	12,506	10,575	10,840	7,192	0	0	0	10,961
55-59	0	12,943	9,949	0	0	0	0	11,446
60-64	0	0	10,588	14,000	0	0	0	12,294
65-69	0	0	0	0	11,813	0	0	11,813
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	4,264	0	4,264
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	10,802	10,980	10,871	10,596	11,813	4,264	0	10,637

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	129,624	219,600	130,452	21,192	11,813	8,528	0	521,213

TABLE 7

Correctional Employees Retirement Fund

Reconciliation Of Members

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 1997	2,600	282	90
B. ADDITIONS	389	38	36
C. DELETIONS			
1. Service Retirement	(63)	(8)	0
2. Disability	(11)	(1)	0
3. Death	0	(1)	0
4. Terminated - Deferred	(38)	0	0
5. Terminated - Refund	(53)	(2)	(7)
6. Terminated - Other Non-Vested	(36)	0	0
7. Returned as Active	27	(23)	(4)
8. Transferred to Other Fund	0	0	(7)
D. DATA ADJUSTMENTS	2	6	6
Vested	1,963		
Non-Vested	854		
E. TOTAL ON JUNE 30, 1998	2,817	291	114
		Recipients	
	Retirement Annuitants	Disabled	Survivors
A. ON JUNE 30, 1997	444	39	36
B. ADDITIONS	71	12	3
C. DELETIONS			
1. Service Retirement	0	0	0
2. Death	(12)	(2)	0
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	0	0	0
E. TOTAL ON JUNE 30, 1998	503	49	39

Correctional Employees Retirement Fund

Actuarial Balance Sheet*(dollars in thousands)*

JULY 1, 1998

A. CURRENT ASSETS (TABLE 1, E6)				\$295,291
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)				(\$29,948)
2. Present Value of Future Normal Costs				116,897
3. Total Expected Future Assets				<u>\$86,949</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				<u>\$382,240</u>
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>		<u>Total</u>
1. Benefit Recipients				
a. Retirement Annuities		\$68,152		\$68,152
b. Disability Benefits		8,109		8,109
c. Surviving Spouse and Child Benefits		3,509		3,509
2. Deferred Retirements with Future Augmentation		9,389		9,389
3. Former Members without Vested Rights		207		207
4. Active Members				
a. Retirement Annuities	3,082	113,370		116,452
b. Disability Benefits	9,289	0		9,289
c. Survivor's Benefits	2,874	0		2,874
d. Deferred Retirements	644	13,521		14,165
e. Refund Liability Due to Death or Withdrawal	0	2,472		2,472
5. Total Current Benefit Obligations	<u>\$15,889</u>	<u>\$218,729</u>		<u>\$234,618</u>
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$144,148</u>
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$378,766</u>
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				(\$60,673)
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				(\$3,474)

Correctional Employees Retirement Fund

**Determination Of Unfunded Actuarial Accrued Liability (UAAL)
And Supplemental Contribution Rate**

(dollars in thousands)

JULY 1, 1998

	Actuarial Present Value of Projected Benefits <i>(1)</i>	Actuarial Present Value of Future Normal Costs <i>(2)</i>	Actuarial Accrued Liability <i>(3)=(1)-(2)</i>
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$234,566	\$80,990	\$153,576
b. Disability Benefits	18,263	9,650	8,613
c. Survivor's Benefit	5,416	2,321	3,095
d. Deferred Retirements	26,582	15,120	11,462
e. Refunds Due to Death or Withdrawal	4,573	8,816	(4,243)
f. Total	<u>\$289,400</u>	<u>\$116,897</u>	<u>\$172,503</u>
2. Deferred Retirements With Future Augmentation	9,389		9,389
3. Former Members Without Vested Rights	207		207
4. Annuitants in MPRIF	79,770		79,770
5. Recipients Not in MPRIF	<u>0</u>		<u>0</u>
6. Total	<u>\$378,766</u>	<u>\$116,897</u>	<u>\$261,869</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$261,869
2. Current Assets (Table 1, E6)			<u>295,291</u>
3. UAAL (B1-B2)			<u>(\$33,422)</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$1,618,836
2. Supplemental Contribution Rate (B3/C1)			-2.06%

Correctional Employees Retirement Fund

Changes In Unfunded Actuarial Accrued Liability (UAAL)*(dollars in thousands)*

YEAR ENDING JUNE 30, 1998

A. UAAL AT BEGINNING OF YEAR	(\$29,278)
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$13,327
2. Contribution	(14,100)
3. Interest on A, B1 and B2	<u>(2,521)</u>
4. Total (B1+B2+B3)	<u>(\$3,294)</u>
C. EXPECTED UAAL AT END OF YEAR (A+B4)	(\$32,572)
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	\$2,418
2. Investment Return	(16,349)
3. MPRIF Mortality	(2,358)
4. Mortality of Other Benefit Recipients	0
5. Other Items	<u>15,439</u>
6. Total	<u>(\$850)</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	(\$33,422)
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	<u>0</u>
H. UAAL AT END OF YEAR (E+F+G)	<u><u>(\$33,422)</u></u>

Correctional Employees Retirement Fund

Determination Of Contribution Sufficiency

(dollars in thousands)

JULY 1, 1998

	Percent of Payroll	Dollar Amount
	<hr/>	<hr/>
A. STATUTORY CONTRIBUTIONS - CHAPTER 352		
1. Employee Contributions	5.50%	\$5,840
2. Employer Contributions	7.70%	8,176
3. Total	<hr/> <u>13.20%</u>	<hr/> <u>\$14,016</u>
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	10.56%	\$11,210
b. Disability benefits	1.24%	1,312
c. Survivors	0.27%	288
d. Deferred Retirement Benefits	1.79%	1,899
e. Refunds Due to Death or Withdrawal	1.02%	1,080
f. Total	<hr/> <u>14.88%</u>	<hr/> <u>\$15,789</u>
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	-2.06%	(2,187)
3. Allowance for Expenses	<hr/> <u>0.17%</u>	<hr/> <u>181</u>
4. Total	<hr/> <u>12.99%</u>	<hr/> <u>\$13,783</u>
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	0.21%	\$233

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1998 is \$106,178.

Correctional Employees Retirement Fund

Summary of Actuarial Assumptions and Methods

Interest:	Pre-Retirement: 8.5% per annum Post-Retirement: 6.0% per annum																		
Salary Increases:	Reported salary at valuation date increased according to the rate table below to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for new Members.																		
Mortality:	<p>Pre-Retirement: Male - 1983 GAM (Males -1) Female - 1983 GAM (Females)</p> <p>Post-Retirement: Male - 1983 GAM (Males +2) Female - 1983 GAM (Females +2)</p> <p>Post-Disability: Male - Combined Annuity Mortality Table Female - Combined Annuity Mortality Table</p>																		
Retirement Age:	Age-related table as follows: <table> <tr> <td>Ages:</td> <td>50-53</td> <td>2%</td> </tr> <tr> <td></td> <td>54</td> <td>20</td> </tr> <tr> <td></td> <td>55</td> <td>60</td> </tr> <tr> <td></td> <td>56-61</td> <td>20</td> </tr> <tr> <td></td> <td>62-64</td> <td>50</td> </tr> <tr> <td></td> <td>65+</td> <td>100</td> </tr> </table>	Ages:	50-53	2%		54	20		55	60		56-61	20		62-64	50		65+	100
Ages:	50-53	2%																	
	54	20																	
	55	60																	
	56-61	20																	
	62-64	50																	
	65+	100																	
Separation:	Graded rates based on actual experience developed by the June 30, 1997 experience analysis. Rates are shown in rate table.																		
Disability:	Rates as shown in rate table.																		

TABLE 12
(Continued)

<i>Administrative and Investment Expenses:</i>	Prior year administration expenses expressed as percentage of prior year payroll.				
<i>Return of Contributions:</i>	All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit.				
<i>Family Composition:</i>	85% of Members are assumed to be married. Female is three years younger than male.				
<i>Social Security:</i>	Based on the present law and 6.0% retroactive salary scale. Only earnings history while in state service is used. Future Social Security benefits replace the same proportion of salary as at present.				
<i>Benefit Increases After Retirement:</i>	Payment of earnings on retired reserves in excess of 6% accounted for by 6% post-retirement assumptions.				
<i>Special Consideration:</i>	Married Members assumed to elect subsidized joint and survivor form of annuity as follows: <table><tr><td>Males -</td><td>25% elect 50% J&S option 25% elect 100% J&S option</td></tr><tr><td>Females -</td><td>5% elect 50% J&S option 5% elect 100% J&S option</td></tr></table>	Males -	25% elect 50% J&S option 25% elect 100% J&S option	Females -	5% elect 50% J&S option 5% elect 100% J&S option
Males -	25% elect 50% J&S option 25% elect 100% J&S option				
Females -	5% elect 50% J&S option 5% elect 100% J&S option				
<i>Actuarial Cost Method:</i>	Entry Age Normal Actuarial Cost Method with normal costs expressed as a level percentage of earnings. Under this method, Actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability. The actuarial cost method was changed as of July 1, 1997 to permit negative amortization of supplemental contribution surpluses.				
<i>Asset Valuation Method:</i>	Cost Value plus one-third Unrealized Gains or Losses.				
<i>Payment on the Unfunded Actuarial Accrued Liability:</i>	A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5% per annum.				

TABLE 12
(Continued)

Correctional Employees Retirement Fund
Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

<u>Age</u>	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>		<u>Salary Increases</u>
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	
20	4	2	2,400	1,600	4	4	0	0	7.75%
21	4	2	2,200	1,560	4	4	0	0	7.1454
22	4	2	2,000	1,520	5	5	0	0	7.1094
23	4	2	1,810	1,480	5	5	0	0	7.0725
24	4	2	1,630	1,450	6	6	0	0	7.0363
25	4	3	1,470	1,420	6	6	0	0	7
26	5	3	1,330	1,400	6	6	0	0	7
27	5	3	1,210	1,380	7	7	0	0	7
28	5	3	1,100	1,370	7	7	0	0	7
29	5	3	1,000	1,360	8	8	0	0	7
30	6	3	910	1,350	8	8	0	0	7
31	6	4	830	1,340	9	9	0	0	7
32	6	4	760	1,330	9	9	0	0	7
33	7	4	700	1,320	10	10	0	0	7
34	7	4	650	1,310	10	10	0	0	7
35	8	5	600	1,290	11	11	0	0	7
36	9	5	560	1,260	12	12	0	0	6.9019
37	9	5	520	1,220	13	13	0	0	6.8074
38	10	6	490	1,170	15	15	0	0	6.7125
39	10	6	460	1,110	16	16	0	0	6.6054
40	11	7	440	1,040	18	18	0	0	6.5
41	12	7	420	960	20	20	0	0	6.354
42	14	8	400	870	22	22	0	0	6.2087
43	15	8	380	780	24	24	0	0	6.0622
44	17	9	360	700	26	26	0	0	5.9048
45	19	10	340	640	29	29	0	0	5.75
46	22	11	320	590	32	32	0	0	5.6940
47	25	12	300	560	36	36	0	0	5.6375
48	28	14	280	530	41	41	0	0	5.5822
49	31	15	260	500	46	46	0	0	5.5405

TABLE 12
(Continued)

Correctional Employees Retirement Fund

Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

<u>Age</u>	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>		<u>Salary Increases</u>
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	
50	35	16	240	470	50	50	200	200	5.5%
51	39	18	220	440	57	57	200	200	5.4384
52	43	19	200	410	64	64	200	200	5.3776
53	48	21	180	390	72	72	200	200	5.3167
54	52	23	160	360	80	80	2,000	2,000	5.2826
55	57	25	140	330	88	88	6,000	6,000	5.25
56	61	28	120	290	98	98	2,000	2,000	5.25
57	66	31	100	230	108	108	2,000	2,000	5.25
58	71	34	70	170	118	118	2,000	2,000	5.25
59	77	38	40	90	129	129	2,000	2,000	5.25
60	84	42	0	0	141	141	2,000	2,000	5.25
61	92	47	0	0	154	154	2,000	2,000	5.25
62	101	52	0	0	167	167	5,000	5,000	5.25
63	111	58	0	0	0	0	5,000	5,000	5.25
64	124	64	0	0	0	0	5,000	5,000	5.25
65	129	71	0	0	0	0	10,000	10,000	5.25
66	156	78	0	0	0	0	0	0	5.25
67	176	87	0	0	0	0	0	0	5.25
68	198	97	0	0	0	0	0	0	5.25
69	222	109	0	0	0	0	0	0	5.25
70	248	124	0	0	0	0	0	0	5.25

Correctional Employees Retirement Fund
Summary of Plan Provisions

GENERAL

<i>Eligibility:</i>	State employees in covered correctional service.
<i>Contributions:</i>	
<i>Member:</i>	5.50% of salary.
<i>Employer:</i>	7.70% of salary.
<i>Allowable Service:</i>	Service during which Member contributions were made. May also include certain leaves of absence, military service and periods while temporary Worker's Compensation is paid.
<i>Salary:</i>	Includes wages, allowances and fees. Excludes lump-sum payments at separation and reduced salary while receiving Worker's Compensation benefits.
<i>Average Salary:</i>	Average of the five highest successive years of salary. Average Salary is based on all Allowable Service if less than five years.

RETIREMENT*Normal Retirement Benefit:*

<i>Eligibility:</i>	Age 55 and three years of Allowable Service under the Correctional and General Plans. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.
<i>Amount:</i>	2.4% of Average Salary for each year of Allowable Service, pro rata for completed months.

Early Retirement Benefit:

<i>Eligibility:</i>	Age 50 and three years of Allowable Service.
<i>Amount:</i>	Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date reduced to the actuarial equivalent of the benefit that would be payable if the Member deferred the benefit until age 55.
<i>Form of Payment:</i>	Life annuity. Actuarially equivalent options are: 50% or 100% joint and survivor with bounce back feature without additional reduction. 15 year certain and life benefits. Level Social Security option either to age 62 or Social Security Retirement Age.
<i>Benefit Increases:</i>	Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one full month but less than 12 full months will receive a partial increase.

DISABILITY

Occupational Disability:

<i>Eligibility:</i>	Member who cannot perform his duties as a direct result of a disability related to an act of duty.
<i>Amount:</i>	50% of Average Salary plus 2.4% of Average Salary for each year in excess of 20 years and 10 months of Allowable Service (pro rata for completed months). Maximum of 75% of Average Salary.

Payment begins at disability and stops at age 62 or earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability.

Non-Occupational Disability:

Eligibility: At least one year of Correctional service and disability not related to covered employment.

Amount: Normal Retirement Benefit based on Allowable Service (minimum of 15 years) and Average Salary at disability.

Payment begins at disability and ends at age 62 or earlier if disability ceases or death occurs. Benefits may be paid upon re-employment but salary plus benefit cannot exceed current salary of position held at time of disability.

Form of Payment: Same as for retirement.

Benefit Increases: Adjusted by MSRS to provide same increase as MPRIF.

Retirement Benefits:

Eligibility: Age 62 with continued disability.

Amount: Benefit computed as a normal retirement benefit under General Plan based on same Allowable Service and without reduction for age.

Form of Payment: Same as for retirement.

Benefit Increases: Same as for retirement.

DEATH

Surviving Spouse Benefit:

Eligibility: Member at any age or former Member age 50 or older who dies before retirement or disability benefits commence with three years of Allowable Service. If a former Member dies before age 55 and has less than 30 years of Allowable Service, benefits commence when the former Member would have been age 55. If an active member dies, benefits may commence immediately, regardless of age.

Amount: Surviving spouse receives the 100% joint and survivor benefit using the Normal Retirement formula above. If commencement is prior to age 55, the appropriate early retirement formula described above applies except that one-half the monthly reduction factor is used from age 55 to the commencement age and the Rule of 90 does not apply. In lieu of this benefit, the surviving spouse may elect a refund of contributions with interest or an actuarially equivalent term certain annuity (lump sum payable to estate at death).

Benefit Increases: Adjusted by MSRS to provide same income as MPRIF.

Surviving Dependent Children's Benefit:

Eligibility: If no surviving spouse, all dependent children (biological or adopted) below age 20 who are dependent for more than half of their support on deceased Member.

Amount: Actuarially equivalent to surviving spouse 100% joint and survivor annuity payable to the later of age 20 or five years. The amount is to be proportionally divided among surviving children.

Refund of Contributions With Interest:

Eligibility: Active employee dies and survivor benefits are not payable or a former employee dies before annuity begins. If accumulated contributions with interest exceed total payments to the surviving spouse and children, then the remainder is paid out.

Amount: The Member's contributions with 5% interest if death occurred before May 16, 1989 and 6% interest if death occurred on or after May 16, 1989.

TERMINATION

Refund of Contributions:

Eligibility: Termination of state service.

Amount: Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund if three or more years of Allowable Service.

Deferred Annuity:

Eligibility: Three years of Correctional and General Service.

Amount: Benefit computed under law in effect at termination.

TABLE 13
(Continued)

SIGNIFICANT CHANGES

No significant changes were recognized for this valuation.

TABLE 14

Correctional Employees Retirement Fund

SCHEDULE OF FUNDING PROGRESS

(dollars in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (A)	Actuarial Accrued Liability (AAL) (B)	Unfunded AAL (UAAL) (B - A)	Funded Ratio (A)/(B)	Actual Covered Payroll (Previous FY) (C)	UAAL as % of Covered Payroll (B - A) / (C)
07/01/91	105,925	112,171	6,246	94.43%	43,429	14.38%
07/01/92	121,051	123,515	2,464	98.01%	47,592	5.18%
07/01/93	135,939	134,280	(1,659)	101.24%	52,122	-3.18%
07/01/94	148,163	152,702	4,539	97.03%	54,673	8.30%
07/01/95	165,427	153,491	(11,936)	107.78%	66,939	-17.83%
07/01/96	193,833	170,959	(22,874)	113.38%	72,959	-31.35%
07/01/97	241,916	212,638	(29,278)	113.77%	112,408	-26.05%
07/01/98	295,291	261,869	(33,422)	112.76%	105,796	-31.59%

TABLE 15

Correctional Employees Retirement Fund
SCHEDULE OF EMPLOYER CONTRIBUTIONS
(dollars in thousands)

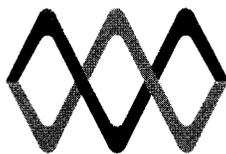
Year Ended June 30	Actuarially Required Contribution Rate (A)	Actual Covered Payroll (B)	Actual Member Contributions (C)	Annual Required Contribution [(A) x (B)] - (C)	Actual Employer Contribution*	Percentage Contributed
1991	10.73%	43,429	2,128	2,532	2,731	107.86%
1992	10.82%	47,592	2,332	2,817	2,955	104.90%
1993	11.41%	52,122	2,554	3,393	3,217	94.81%
1994	10.97%	54,673	2,679	3,319	3,355	101.08%
1995	11.30%	66,939	3,280	4,284	4,195	97.92%
1996	11.11%	72,959	3,575	4,531	4,559	100.62%
1997	11.21%	112,408	5,508	7,093	9,129	128.70%
1998	12.49%	105,796	5,954	7,260	8,146	112.20%

* Includes contributions from other sources (if applicable).

Legislators Retirement Fund
ACTUARIAL VALUATION REPORT

July 1, 1998

 **FILE COPY**



MILLIMAN & ROBERTSON, INC.

Actuaries & Consultants

Internationally WOODROW MILLIMAN

Suite 400, 15800 Bluemound Road, Brookfield, Wisconsin 53005-6069

Telephone: 414/784-2250

Fax: 414/784-7287

December 9, 1998

Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

RE: Legislators Retirement Fund

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1998.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. We have relied on the basic employee data and asset figures as submitted by the Minnesota State Retirement System.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission.

Respectfully submitted,

MILLIMAN & ROBERTSON, INC.

Thomas K. Custis, F.S.A., M.A.A.A.
Consulting Actuary

William V. Hogan, F.S.A., M.A.A.A.
Consulting Actuary

TKC/WVH/bh

Legislators Retirement Fund

Table of Contents

	<u>Page</u>
REPORT HIGHLIGHTS	1
COMMENTARY	
Purpose	2
Report Highlights	2
Asset Information	2
Actuarial Balance Sheet	3
GASB Disclosure	3
Actuarial Cost Method	3
Sources of Actuarial Gains and Losses	4
Contribution Sufficiency	4
Changes in Actuarial Assumptions	4
Changes in Plan Provisions	4
ASSET INFORMATION	
Table 1 - Statement of Plan Net Assets	5
Table 2 - Statement of Change in Plan Net Assets	6
MEMBERSHIP DATA	
Table 3 - Active Members	7
Table 4 - Service Retirements	8
Table 5 - Survivors	9
Table 6 - Disability Retirements	10
Table 7 - Reconciliation of Members	11
FUNDING STATUS	
Table 8 - Actuarial Balance Sheet	12
Table 9 - Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate	13
Table 10 - Changes in Unfunded Actuarial Accrued Liability (UAAL)	14
Table 11 - Determination of Contribution Sufficiency	15

Legislators Retirement Fund

Table of Contents
(Continued)

	<u>Page</u>
ACTUARIAL ASSUMPTIONS	
Table 12 - Summary of Actuarial Assumptions and Methods	16
PLAN PROVISIONS	
Table 13 - Summary of Plan Provisions	18
GASB25 DISCLOSURES	
Table 14 - Schedule of Funding Progress	22
Table 15 - Schedule of Employer Contributions	23

Legislators Retirement Fund

Report Highlights

(dollars in thousands)

	07/01/97 Valuation	07/01/98 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 3A % of Payroll	9.00%	9.00%
2. Required Contributions - Chapter 356 % of Payroll	48.03%	47.19%
3. Sufficiency (Deficiency): (A.1. - A.2.)	-39.03%	-38.19%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$25,678	\$31,212
b. Current Benefit Obligations (Table 8)	\$57,218	\$60,373
c. Funding Ratio: (a/b)	44.88%	51.70%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$25,678	\$31,212
b. Actuarial Accrued Liability (Table 9)	\$60,055	\$62,928
c. Funding Ratio: (a/b)	42.76%	49.60%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$35,245	\$39,505
b. Current and Expected Future Benefit Obligations	\$69,622	\$71,221
c. Funding Ratio: (a/b)	50.62%	55.47%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	201	199
b. Projected Annual Earnings	\$7,626	\$7,289
c. Average Annual Earnings (Actual \$)	\$37,940	\$36,627
d. Average Age	49.8	50.8
e. Average Service	8.4	9.4
2. Others		
a. Service Retirements (Table 4)	181	192
b. Survivors (Table 5)	66	70
c. Disability Retirements (Table 6)	0	0
d. Deferred Retirements (Table 7)	128	111
e. Terminated Other Non-vested (Table 7)	10	4
f. Total	385	377

Legislators Retirement Fund

Commentary

Purpose

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

Report Highlights

The financial status of the Plan can be measured by three different funding ratios:

- The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 51.70%. The corresponding ratio for the prior year was 44.88%
- The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 1998 the ratio is 49.60%, which is an increase from the 1997 value of 42.76%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 55.47% shows that the current statutory contributions are inadequate.

Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E1 to E6. It combines the cost value of the Assets Available for benefits and one-third of the difference between the market value and cost value of those assets.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets", the latter phrase will be used in the remainder of this report.

This Plan participates in the Minnesota Post Retirement Investment Fund (i.e., MPRIF). After the MPRIF liability has been calculated for each participating Plan, the State Board of Investments, (i.e., SBI), will determine each Plan's portion of the excess earnings for the January benefit increase as well as the Plan's allocated market share of MPRIF.

Actuarial Balance Sheet (Table 8)

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated as follows:

- For Active Members – Salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- For Non-Active Members – The discounted value of benefits, including augmentation in cases where benefits have not commenced.

GASB Disclosure

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superseded by Statement No. 25. Tables 14 and 15 of this report have been added to fulfill the new requirements of Statement No. 25.

Actuarial Cost Method (Table 9)

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

The payments will increase 5.00% each year because that is the assumed rate of increase in payroll. Although the payment schedule will be adequate to amortize the existing unfunded, the lower payments in the earlier years will not be sufficient to cover the interest on the unfunded liability. After a few years, the annual payment will cover the interest and also repay a portion of the unfunded.

Source of Actuarial Gains and Losses (Table 10)

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectations. For a detailed analysis of the major components, refer to Table 10.

Contribution Sufficiency (Table 11)

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

Table 11 shows the Plan has a contribution sufficiency since the Statutory Contribution Rate is 9.00% compared to the Required Contribution Rate of 47.19%.

Changes in Actuarial Assumptions

There were no changes in actuarial assumptions since the last valuation.

Changes in Plan Provisions

There were no significant changes in plan provisions since the last valuation.

TABLE 1

Legislators Retirement Fund

Statement of Plan Net Assets*(dollars in thousands)*

JULY 1, 1998

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS IN TRUST		
1. Cash, Equivalents, Short-term Securities	(\$15)	(\$15)
2. Fixed Income	0	0
3. Equity	0	0
4. Real Estate	0	0
5. Equity in MPRIF	24,748	24,748
6. Other	6,779	6,779
Subtotal	<u>\$31,512</u>	<u>\$31,512</u>
B. ASSETS RECEIVABLE	0	0
C. LIABILITIES	(300)	(300)
<hr/>		
D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
1. MPRIF Reserves	24,748	24,748
2. Member Reserves	6,655	6,655
3. Other Non-MPRIF Reserves	(191)	(191)
4. Total Assets Available for Benefits	<u>\$31,212</u>	<u>\$31,212</u>
<hr/>		
E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D4)		\$31,212
2. Market Value (D4)	\$31,212	
3. Cost Value (D4)	31,212	
4. Market Over Cost: (E2-E3)	<u>\$0</u>	
5. One-third of Market Over Cost: (E4)/3		0
6. Actuarial Value of Assets (E1+E5) (Same as "Current Assets")		<u>\$31,212</u>

TABLE 2

Legislators Retirement Fund

Statement of Change In Plan Net Assets
(dollars in thousands)

YEAR ENDING JUNE 30, 1998

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$25,678	\$25,678
B. ADDITIONS		
1. Member Contributions	\$612	\$612
2. Employer Contributions	5,199	5,199
3. Contributions From Other Sources	0	0
4. MPRIF Income	3,176	3,176
5. Net Investment Income		
a. Interest and Dividends	0	0
b. Net Realized Gain (Loss)	0	0
c. Net Change in Unrealized Gain (Loss)	0	0
d. Investment Expenses	0	0
Net Subtotal	<u>0</u>	<u>0</u>
6. Other	0	0
7. Total Additions	<u>\$8,987</u>	<u>\$8,987</u>
C. OPERATING EXPENSES		
1. Service Retirements paid from MPRIF	\$3,276	\$3,276
2. Service Retirements paid from plan assets	0	0
2. Disability Benefits	0	0
3. Survivor Benefits	0	0
4. Refunds	107	107
6. Administrative Expenses	29	29
7. Other	41	41
8. Total Disbursements	<u>\$3,453</u>	<u>\$3,453</u>
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u><u>\$31,212</u></u>	<u><u>\$31,212</u></u>

TABLE 3

**LEGISLATORS RETIREMENT PLAN
ACTIVE MEMBERS AS OF JUNE 30, 1998**

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	0	1	0	0	0	0	0	0	1
25-29	0	3	0	0	0	0	0	0	3
30-34	0	3	5	0	0	0	0	0	8
35-39	0	5	7	1	0	0	0	0	13
40-44	0	10	11	2	0	0	0	0	23
45-49	0	14	18	8	5	2	0	0	47
50-54	0	6	11	5	3	2	4	0	31
55-59	0	9	9	6	6	2	2	0	34
60-64	0	4	8	1	2	3	2	0	20
65+	0	2	4	5	3	2	3	0	19
ALL	0	57	73	28	19	11	11	0	199

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	0	36,279	0	0	0	0	0	0	36,279
25-29	0	36,463	0	0	0	0	0	0	36,463
30-34	0	34,631	34,703	0	0	0	0	0	34,676
35-39	0	33,672	34,530	35,126	0	0	0	0	34,246
40-44	0	35,287	34,399	33,086	0	0	0	0	34,671
45-49	0	34,397	34,178	38,169	36,047	34,447	0	0	35,133
50-54	0	34,865	34,214	30,406	35,395	37,802	35,621	0	34,253
55-59	0	35,293	32,356	35,189	36,362	35,235	35,823	0	34,714
60-64	0	36,648	35,045	38,279	34,336	36,140	35,059	0	35,622
65+	0	36,026	35,051	35,326	34,526	34,282	36,417	0	35,278
ALL	0	35,050	34,205	35,169	35,623	35,632	35,773	0	34,883

PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE

Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
All	0	1,997	2,496	984	676	391	393	0	6,941

LEGISTATORS RETIREMENT PLAN

SERVICE RETIREMENTS AS OF JUNE 30, 1998

Age	Years Retired							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	1	0	0	0	0	1
60-64	10	20	0	0	0	0	0	30
65-69	1	18	29	0	0	0	0	48
70-74	3	11	13	24	0	0	0	51
75-79	0	0	4	5	27	0	0	36
80-84	0	0	1	1	7	6	0	15
85+	0	0	0	0	0	5	6	11
ALL	14	49	48	30	34	11	6	192

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	16,664	0	0	0	0	16,664
60-64	15,178	14,757	0	0	0	0	0	14,897
65-69	14,331	13,406	15,101	0	0	0	0	14,449
70-74	20,452	19,954	15,712	12,052	0	0	0	15,183
75-79	0	0	15,718	15,882	16,411	0	0	16,261
80-84	0	0	8,268	26,037	31,092	11,188	0	21,272
85+	0	0	0	0	0	9,172	14,151	11,888
ALL	16,248	15,427	15,208	13,157	19,434	10,272	14,151	15,452

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	227	755	729	394	660	112	84	2,966

LEGISLATORS RETIREMENT PLAN

SURVIVORS AS OF JUNE 30, 1998

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	4	1	0	0	0	0	0	5
50-54	0	0	0	0	0	0	0	0
55-59	1	1	2	1	2	0	0	7
60-64	0	1	0	1	0	0	0	2
65-69	1	2	3	1	0	1	1	9
70-74	0	6	2	0	1	0	0	9
75-79	1	1	3	3	0	3	0	11
80-84	1	2	5	3	0	0	3	14
85+	1	3	3	0	1	3	2	13
ALL	9	17	18	9	4	7	6	70

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	2,004	3,004	0	0	0	0	0	2,204
50-54	0	0	0	0	0	0	0	0
55-59	11,103	6,434	11,109	32,150	13,013	0	0	13,990
60-64	0	1,294	0	7,624	0	0	0	4,459
65-69	3,702	18,618	6,294	4,229	0	8,055	8,081	8,909
70-74	0	10,777	2,949	0	2,436	0	0	8,111
75-79	11,351	12,376	3,164	5,030	0	6,924	0	6,280
80-84	6,336	11,606	11,534	6,275	0	0	5,949	8,849
85+	10,288	5,848	6,032	0	12,388	8,491	7,059	7,531
ALL	5,644	9,751	7,348	8,658	10,213	7,757	6,674	8,027

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	50,796	165,767	132,264	77,922	40,852	54,299	40,044	561,890

LEGISTATORS RETIREMENT PLAN

DISABILITY RETIREMENTS AS OF JUNE 30, 1998

Age	Years Disabled							ALL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	0	0	0	0	0	0	0

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	0	0	0	0	0	0	0

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED

Age	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	ALL
All	0	0	0	0	0	0	0	0

TABLE 7

Legislators Retirement Fund

Reconciliation Of Members

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 1997	201	128	10
B. ADDITIONS	0	0	0
C. DELETIONS			
1. Service Retirement	0	(14)	0
2. Disability	0	0	0
3. Death	(2)	0	0
4. Terminated - Deferred	0	0	0
5. Terminated - Refund	0	(3)	(2)
6. Terminated - Other Non-Vested	0	0	0
7. Returned as Active	0	0	(1)
8. Transferred to Other Fund	0	0	(4)
D. DATA ADJUSTMENTS	0	0	1
Vested	102		
Non-Vested	97		
E. TOTAL ON JUNE 30, 1998	199	111	4
		Recipients	
	Retirement Annuitants	Disabled	Survivors
A. ON JUNE 30, 1997	181	0	66
B. ADDITIONS	14	0	9
C. DELETIONS			
1. Service Retirement	0	0	0
2. Death	(3)	0	(5)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	0	0	0
E. TOTAL ON JUNE 30, 1998	192	0	70

TABLE 8

Legislators Retirement Fund

Actuarial Balance Sheet*(dollars in thousands)*

JULY 1, 1998

A. CURRENT ASSETS (TABLE 1, E6)				\$31,212
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)				\$0
2. Present Value of Future Normal Costs				8,293
3. Total Expected Future Assets				<u>\$8,293</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				<u>\$39,505</u>
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>		<u>Total</u>
1. Benefit Recipients				
a. Retirement Annuities		\$28,429		\$28,429
b. Disability Benefits		0		0
c. Surviving Spouse and Child Benefits		5,004		5,004
2. Deferred Retirements with Future Augmentation		12,287		12,287
3. Former Members without Vested Rights		52		52
4. Active Members				
a. Retirement Annuities	1,676	10,740		12,416
b. Disability Benefits	0	0		0
c. Survivor's Benefits	202	0		202
d. Deferred Retirements	389	1,425		1,814
e. Refund Liability Due to Death or Withdrawal	0	169		169
5. Total Current Benefit Obligations	<u>\$2,267</u>	<u>\$58,106</u>		<u>\$60,373</u>
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$10,848</u>
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$71,221</u>
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				\$29,161
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				\$31,716

Legislators Retirement Fund

**Determination Of Unfunded Actuarial Accrued Liability (UAAL)
And Supplemental Contribution Rate**

(dollars in thousands)

JULY 1, 1998

	Actuarial Present Value of Projected Benefits <u>(1)</u>	Actuarial Present Value of Future Normal Costs <u>(2)</u>	Actuarial Accrued Liability <u>(3)=(1)-(2)</u>
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$21,564	\$5,894	\$15,670
b. Disability Benefits	0	0	0
c. Survivor's Benefit	359	183	176
d. Deferred Retirements	3,227	1,518	1,709
e. Refunds Due to Death or Withdrawal	298	698	(400)
f. Total	<u>\$25,448</u>	<u>\$8,293</u>	<u>\$17,155</u>
2. Deferred Retirements With Future Augmentation	12,287		12,287
3. Former Members Without Vested Rights	52		52
4. Annuitants in MPRIF	24,748		24,748
5. Recipients Not in MPRIF	<u>8,686</u>		<u>8,686</u>
6. Total	<u>\$71,221</u>	<u>\$8,293</u>	<u>\$62,928</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$62,928
2. Current Assets (Table 1, E6)			<u>31,212</u>
3. UAAL (B1-B2)			<u>\$31,716</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$111,127
2. Supplemental Contribution Rate (B3/C1)			28.54%

Note: If non-segregated member reserves were not counted as assets, the UAAL would be \$38,483, resulting in a Supplemental Contribution Rate of 34.63%.

Legislators Retirement Fund

Changes In Unfunded Actuarial Accrued Liability (UAAL)*(dollars in thousands)*

YEAR ENDING JUNE 30, 1998

A. UAAL AT BEGINNING OF YEAR	\$34,377
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$1,474
2. Contribution	(5,811)
3. Interest on A, B1 and B2	2,738
4. Total (B1+B2+B3)	<u>(\$1,599)</u>
C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$32,778
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$2,059)
2. Investment Return	520
3. MPRIF Mortality	271
4. Mortality of Other Benefit Recipients	(1,027)
5. Other Items	1,233
6. Total	<u>(\$1,062)</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	\$31,716
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	0
H. UAAL AT END OF YEAR (E+F+G)	<u><u>\$31,716</u></u>

Legislators Retirement Fund

Determination Of Contribution Sufficiency*(dollars in thousands)*

JULY 1, 1998

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 3A		
1. Employee Contributions	9.00%	\$656
2. Employer Contributions	0.00%	0
3. Total	<u>9.00%</u>	<u>\$656</u>
* Employer contributions are required to cover the portion of the benefit liabilities which are not funded by the member's accumulated contribution at the time of benefit commencement.		
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	13.80%	\$1,006
b. Disability benefits	0.00%	0
c. Survivors	0.38%	28
d. Deferred Retirement Benefits	2.69%	196
e. Refunds Due to Death or Withdrawal	1.40%	102
f. Total	<u>18.27%</u>	<u>\$1,332</u>
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	28.54%	2,080
3. Allowance for Expenses	0.38%	28
4. Total	<u>47.19%</u>	<u>\$3,440</u>
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	-38.19%	(\$2,784)

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1998 is \$7,289.

The deficiency amount shown above is calculated based on reported assets which include a receivable of 6,779 for member contributions that are held in the State's general fund. If this amount was not considered as an asset of the fund in these calculations, the deficiency would be 44.28%.

Legislators Retirement Fund

Summary of Actuarial Assumptions and Methods

GENERAL

Interest: **Pre-Retirement:** 8.5% per annum
Post-Retirement: 5.0% per annum

Salary Increases: 5.0% annually

Mortality: **Pre-Retirement:**
 Male - 1983 GAM (Males -4)
 Female - 1983 GAM (Females -2)
Post-Retirement:
 Male - 1983 GAM (Males)
 Female - 1983 GAM (Females)

Post-Disability:
 Male - N/A
 Female - N/A

Retirement Age: Age 62 or if over age 62, one year from valuation date.

Separation: Rates based on years of service.

<u>Year</u>	<u>House</u>	<u>Senate</u>
1	0%	0%
2	30	0
3	0	0
4	20	25
5	0	0
6	10	0
7	0	0
8	5	10

<i>Disability:</i>	None
<i>Expenses:</i>	Prior year administration expenses expressed as percentage of prior year payroll.
<i>Return of Contributions:</i>	All employees withdrawing after becoming eligible for a deferred benefit were assumed to take the larger of their contributions accumulated with interest or the value of their deferred benefit.
<i>Family Composition:</i>	85% of Members are assumed to be married. Female is three years younger than male. Each Member may have up to two dependent children depending on Member's age. Assumed first child born at Member's age 28 and second child born at member's age 31.
<i>Social Security:</i>	N/A
<i>Benefit Increases After Retirement:</i>	Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions.
<i>Actuarial Cost Method:</i>	Entry Age Normal Actuarial Cost Method based on earnings and the date the employee entered the plan is applied to all plan benefits. Under this method, actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability.
<i>Asset Valuation Method:</i>	Cost Value plus one-third Unrealized Gains or losses.
<i>Payment on the Unfunded Actuarial Accrued Liability:</i>	A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5.0% per annum.

Legislators Retirement Fund

Summary of Plan Provisions**GENERAL**

<i>Eligibility:</i>	Members of the State Legislature elected to office before July 1, 1997 and who elect to retain coverage under this plan (i.e., do not elect Social Security coverage.) A Member of PERA who is elected to the Legislature may elect to remain a Member of PERA and receive credit under PERA for service as a legislator.
<i>Contributions:</i>	
<i>Member:</i>	9% of salary.
<i>Employer:</i>	No specified statutory contribution rate. State must contribute an amount equal to the full annuity value at benefit commencement less accumulated member contributions.
<i>Service:</i>	Granted for the full term unless termination occurs before the end of the term. Service during all or part of four regular legislative sessions is deemed to be eight years of service.
<i>Salary:</i>	Compensation received for service as a Member of the legislature. Salary includes the monthly compensation paid to a legislator and the per diem payments paid during a regular or special session. Salary does not include additional compensation attributable to a leadership position.
<i>Average Salary:</i>	Average of the five highest successive years of salary.

RETIREMENT***Normal Retirement Benefit:***

<i>Eligibility:</i>	Age 62 and either six full years of service or service during all or part of four regular legislative sessions. For eligibility purposes, service does not include credit for time not served when a Member does not serve a full term of office.
----------------------------	---

Amount: A percentage of Average Salary for each year of service as follows:

Prior to 1/1/79	- 5% for the first eight years - 2.5% for subsequent years
After 12/31/78 and Before 7/1/97	- 2.5%
After 6/30/97	- 2.5% actuarially increased for 6.0% post-retirement factor

Early Retirement Benefit:

Eligibility: Age 60 and either six full years of Service or Service during all or part of four regular legislative sessions.

Amount: Normal Retirement Benefit based on service and Average Salary at retirement date assuming augmentation to age 62 at 3% per year and actuarial reduction for each month the Member is under age 62.

Form of Payment: Paid as a joint and survivor annuity to Member, spouse and dependent children. Combined service annuitants with less than six years of Legislator service may elect 100% joint and survivor bounceback annuity or a term certain and life annuity on an actuarially equivalent basis.

Benefit Increases: Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF).

DISABILITY

None

DEATH BENEFITS

Surviving Spouse Benefit:

Eligibility: Death while active, or after termination if service requirements for a Normal Retirement Benefit are met but payments have not begun.

Amount: Survivor's payments of 50% of the retirement benefit of the Member assuming the Member had attained normal retirement age and had a minimum of eight years of service. Benefit is paid for life. A former Member's benefit is augmented as a Deferred Annuity to date of death before determining the portion payable to the spouse. If the legislator was at least age 60 at death, the surviving spouse may elect an optional joint and survivor annuity. If a deferred benefit was not eligible to be in pay status before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Surviving Dependent Children's Benefit:

Eligibility: Same as spouse's benefit.

Amount: Benefit for first child is 25% of the retirement benefit (computed as for surviving spouse) with 12.5% for each additional child. Maximum payable (including spouse) is 100% of the retirement benefit. Benefits cease when a child marries or attains age 18 (22 if a full-time student).

Benefit Increases: Adjusted by MSRS to provide same increase as MPRIF.

Refund of Contributions:

Eligibility: Member dies before receiving any retirement benefits and survivor benefits are not payable.

Amount: Member's contributions without interest.

TERMINATION

Refund of Contributions:

Eligibility: Termination of service.

Amount: Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund.

Deferred Benefit:

Eligibility: Same service requirement as for Normal Retirement.

Amount: Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/73; 5% from 7/1/73 to 1/1/81; and 5% thereafter until the annuity begins. For Members who terminated prior to July 1, 1997 but were not eligible to commence their pensions before July 1, 1997, the benefit shall be increased to reflect the actuarial equivalent change in post-retirement interest rate from 5% to 6%. Amount is payable as a normal or early retirement.

SIGNIFICANT CHANGES

No significant changes were recognized for this valuation.

TABLE 14

Legislators Retirement Fund
SCHEDULE OF FUNDING PROGRESS
(dollars in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (A)	Actuarial Accrued Liability (AAL) (B)	Unfunded AAL (UAAL) (B - A)	Funded Ratio (A)/(B)	Actual Covered Payroll (Previous FY) (C)	UAAL as % of Covered Payroll (B - A) / (C)
07/01/91	14,694	30,403	15,709	48.33%	7,078	221.94%
07/01/92	15,160	33,224	18,064	45.63%	6,556	275.53%
07/01/93	17,169	36,801	19,632	46.65%	7,322	268.12%
07/01/94	18,738	45,448	26,710	41.23%	6,589	405.37%
07/01/95	21,213	50,255	29,042	42.21%	7,056	411.59%
07/01/96	22,532	54,225	31,693	41.55%	6,267	505.71%
07/01/97	25,678	60,055	34,377	42.76%	7,767	442.60%
07/01/98	31,212	62,928	31,716	49.60%	6,802	466.27%

TABLE 15

Legislators Retirement Fund
SCHEDULE OF EMPLOYER CONTRIBUTIONS
(dollars in thousands)

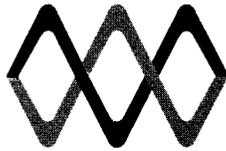
Year Ended June 30	Actuarially Required Contribution Rate (A)	Actual Covered Payroll (B)	Actual Member Contributions (C)	Annual Required Contribution [(A) x (B)] - (C)	Actual Employer Contribution*	Percentage Contributed
1991	32.62%	7,078	637	1,672	1,889	112.98%
1992	27.67%	6,556	590	1,224	601	49.10%
1993	30.49%	7,322	659	1,573	2,284	145.20%
1994	31.12%	6,589	593	1,457	1,618	111.05%
1995	38.34%	7,056	635	2,070	2,938	141.93%
1996	41.54%	6,267	564	2,039	1,511	74.10%
1997	43.96%	7,767	699	2,715	3,176	116.98%
1998	48.03%	6,802	612	2,655	5,199	195.82%

* Includes contributions from other sources (if applicable).

Elective State Officers Retirement Fund
ACTUARIAL VALUATION REPORT

July 1, 1998

 **FILE COPY**



MILLIMAN & ROBERTSON, INC.

Actuaries & Consultants

Internationally WOODROW MILLIMAN

Suite 400, 15800 Bluemound Road, Brookfield, Wisconsin 53005-6069

Telephone: 414/784-2250

Fax: 414/784-7287

December 9, 1998

Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

RE: Elective State Officers Retirement Fund

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1998.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. We have relied on the basic employee data and asset figures as submitted by the Minnesota State Retirement System.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission.

Respectfully submitted,

MILLIMAN & ROBERTSON, INC.

Thomas K. Custis, F.S.A., M.A.A.A.
Consulting Actuary

William V. Hogan, F.S.A., M.A.A.A.
Consulting Actuary

TKC/WVH/bh

Elective State Officers Retirement Fund

Table of Contents

	<u>Page</u>
REPORT HIGHLIGHTS	1
COMMENTARY	
Purpose	2
Report Highlights	2
Asset Information	2
Actuarial Balance Sheet	3
GASB Disclosure	3
Actuarial Cost Method	3
Sources of Actuarial Gains and Losses	4
Contribution Sufficiency	4
Changes in Actuarial Assumptions	4
Changes in Plan Provisions	4
ASSET INFORMATION	
Table 1 - Statement of Plan Net Assets	5
Table 2 - Statement of Change in Plan Net Assets	6
MEMBERSHIP DATA	
Table 3 - Active Members	7
Table 4 - Service Retirements	8
Table 5 - Survivors	9
Table 6 - Disability Retirements	10
Table 7 - Reconciliation of Members	11
FUNDING STATUS	
Table 8 - Actuarial Balance Sheet	12
Table 9 - Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate	13
Table 10 - Changes in Unfunded Actuarial Accrued Liability (UAAL)	14
Table 11 - Determination of Contribution Sufficiency	15

Elective State Officers Retirement Fund

Table of Contents

(Continued)

	<u>Page</u>
ACTUARIAL ASSUMPTIONS	
Table 12 - Summary of Actuarial Assumptions and Methods	16
PLAN PROVISIONS	
Table 13 - Summary of Plan Provisions	18
GASB25 DISCLOSURES	
Table 14 - Schedule of Funding Progress	21
Table 15 - Schedule of Employer Contributions	22

Elective State Officers Retirement Fund

Report Highlights

(dollars in thousands)

	07/01/97 Valuation	07/01/98 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 352C % of Payroll	9.00%	9.00%
2. Required Contributions - Chapter 356 % of Payroll	51.07%	51.66%
3. Sufficiency (Deficiency): (A.1. - A.2.)	-42.07%	-42.66%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$456	\$500
b. Current Benefit Obligations (Table 8)	\$3,071	\$3,222
c. Funding Ratio: (a/b)	14.85%	15.52%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$456	\$500
b. Actuarial Accrued Liability (Table 9)	\$3,214	\$3,369
c. Funding Ratio: (a/b)	14.19%	14.84%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$639	\$653
b. Current and Expected Future Benefit Obligations	\$3,397	\$3,522
c. Funding Ratio: (a/b)	18.81%	18.54%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	6	6
b. Projected Annual Earnings	\$483	\$500
c. Average Annual Earnings (Actual \$)	\$80,469	\$83,280
d. Average Age	54.0	55.0
e. Average Service	12.3	13.3
2. Others		
a. Service Retirements (Table 4)	5	5
b. Survivors (Table 5)	6	6
c. Disability Retirements (Table 6)	0	0
d. Deferred Retirements (Table 7)	4	3
e. Terminated Other Non-vested (Table 7)	0	0
f. Total	15	14

Elective State Officers Retirement Fund

Commentary

Purpose

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

Report Highlights

The financial status of the Plan can be measured by three different funding ratios:

- The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 15.52%. The corresponding ratio for the prior year was 14.85%
- The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 1998 the ratio is 14.84%, which is an increase from the 1997 value of 14.19%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 18.54% shows that the current statutory contributions are inadequate.

Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E1 to E6. It combines the cost value of the Assets Available for benefits and one-third of the difference between the market value and cost value of those assets.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets", the latter phrase will be used in the remainder of this report.

This Plan participates in the Minnesota Post Retirement Investment Fund (i.e., MPRIF). After the MPRIF liability has been calculated for each participating Plan, the State Board of Investments, (i.e., SBI), will determine each Plan's portion of the excess earnings for the January benefit increase as well as the Plan's allocated market share of MPRIF.

Actuarial Balance Sheet (Table 8)

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated as follows:

- For Active Members – Salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- For Non-Active Members – The discounted value of benefits, including augmentation in cases where benefits have not commenced.

GASB Disclosure

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superseded by Statement No. 25. Tables 14 and 15 of this report have been added to fulfill the new requirements of Statement No. 25.

Actuarial Cost Method (Table 9)

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

The payments will increase 5.00% each year because that is the assumed rate of increase in payroll. Although the payment schedule will be adequate to amortize the existing unfunded, the lower payments in the earlier years will not be sufficient to cover the interest on the unfunded liability. After a few years, the annual payment will cover the interest and also repay a portion of the unfunded.

Source of Actuarial Gains and Losses (Table 10)

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectations. For a detailed analysis of the major components, refer to Table 10.

Contribution Sufficiency (Table 11)

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

Table 11 shows the Plan has a contribution sufficiency since the Statutory Contribution Rate is 9.00% compared to the Required Contribution Rate of 51.66%.

Changes in Actuarial Assumptions

There were no changes in actuarial assumptions since the last valuation.

Changes in Plan Provisions

There were no significant changes in plan provisions since the last valuation.

TABLE 1

Elective State Officers Retirement Fund

Statement of Plan Net Assets*(dollars in thousands)*

JULY 1, 1998

	Market Value	Cost Value
A. ASSETS IN TRUST		
1. Cash, Equivalents, Short-term Securities	\$0	\$0
2. Fixed Income	0	0
3. Equity	0	0
4. Real Estate	0	0
5. Equity in MPRIF	0	0
6. Other	500	500
Subtotal	\$500	\$500
B. ASSETS RECEIVABLE	3	3
C. LIABILITIES	(3)	(3)
D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
1. MPRIF Reserves	0	0
2. Member Reserves	497	497
3. Other Non-MPRIF Reserves	3	3
4. Total Assets Available for Benefits	\$500	\$500
E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D4)		\$500
2. Market Value (D4)	\$500	
3. Cost Value (D4)	500	
4. Market Over Cost: (E2-E3)	\$0	
5. One-third of Market Over Cost: (E4)/3		0
6. Actuarial Value of Assets (E1+E5) (Same as "Current Assets")		\$500

TABLE 2

Elective State Officers Retirement Fund

Statement of Change In Plan Net Assets*(dollars in thousands)*

YEAR ENDING JUNE 30, 1998

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$457	\$457
B. ADDITIONS		
1. Member Contributions	\$42	\$42
2. Employer Contributions	175	175
3. Contributions From Other Sources	0	0
4. MPRIF Income	0	0
5. Net Investment Income		
a. Interest and Dividends	0	0
b. Net Realized Gain (Loss)	0	0
c. Net Change in Unrealized Gain (Loss)	0	0
d. Investment Expenses	0	0
Net Subtotal	<u>0</u>	<u>0</u>
6. Other	0	0
7. Total Additions	<u>\$217</u>	<u>\$217</u>
C. OPERATING EXPENSES		
1. Service Retirements paid from MPRIF	\$0	\$0
2. Service Retirements paid from plan assets	171	171
2. Disability Benefits	0	0
3. Survivor Benefits	0	0
4. Refunds	0	0
6. Administrative Expenses	3	3
7. Other	0	0
8. Total Disbursements	<u>\$174</u>	<u>\$174</u>
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u>\$500</u>	<u>\$500</u>

TABLE 3

ELECTIVE STATE OFFICERS RETIREMENT PLAN
ACTIVE MEMBERS AS OF JUNE 30, 1998

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	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	0	0	0	0	0	0
35-39	0	1	0	0	0	0	0	0	1
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	1	0	1	1	0	0	0	3
60-64	0	0	0	0	1	1	0	0	2
65+	0	0	0	0	0	0	0	0	0
ALL	0	2	0	1	2	1	0	0	6

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	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	0	0	0	0	0	0
35-39	0	70,833	0	0	0	0	0	0	70,833
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	64,931	0	64,931	92,217	0	0	0	74,026
60-64	0	0	0	0	118,050	64,931	0	0	91,491
65+	0	0	0	0	0	0	0	0	0
ALL	0	67,882	0	64,931	105,134	64,931	0	0	79,315

PRIOR FISCAL YEAR EARNINGS (IN ACTUAL DOLLARS) BY YEARS OF SERVICE

Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
All	0	135,764	0	64,931	210,268	64,931	0	0	475,890

ELECTIVE STATE OFFICERS RETIREMENT PLAN

SERVICE RETIREMENTS AS OF JUNE 30, 1998

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	1	3	0	0	0	0	4
70-74	1	0	0	0	0	0	0	1
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	1	1	3	0	0	0	0	5

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	2,406	17,391	0	0	0	0	13,645
70-74	11,208	0	0	0	0	0	0	11,208
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	11,208	2,406	17,391	0	0	0	0	13,158

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS RETIRED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	11,208	2,406	52,173	0	0	0	0	65,790

ELECTIVE STATE OFFICERS RETIREMENT PLAN

SURVIVORS AS OF JUNE 30, 1998

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	1	0	0	0	0	1
60-64	0	0	0	0	0	0	0	0
65-69	0	1	0	0	0	0	0	1
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	1	1	0	0	1	0	3
85+	1	0	0	0	0	0	0	1
ALL	1	2	2	0	0	1	0	6

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	5,334	0	0	0	0	5,334
60-64	0	0	0	0	0	0	0	0
65-69	0	30,740	0	0	0	0	0	30,740
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	14,400	26,590	0	0	6,686	0	15,892
85+	11,806	0	0	0	0	0	0	11,806
ALL	11,806	22,570	15,962	0	0	6,686	0	15,926

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	11,806	45,140	31,924	0	0	6,686	0	95,556

ELECTIVE STATE OFFICERS RETIREMENT PLAN

DISABILITY RETIREMENTS AS OF JUNE 30, 1998

Age	Years Disabled							ALL
	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	0	0	0	0	0	0	0

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	0	0	0	0	0	0	0

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED

Age	<u>≤1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	ALL
All	0	0	0	0	0	0	0	0

TABLE 7

Elective State Officers Retirement Fund

Reconciliation Of Members

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 1997	6	4	0
B. ADDITIONS	0	0	0
C. DELETIONS			
1. Service Retirement	0	(1)	0
2. Disability	0	0	0
3. Death	0	0	0
4. Terminated - Deferred	0	0	0
5. Terminated - Refund	0	0	0
6. Terminated - Other Non-Vested	0	0	0
7. Returned as Active	0	0	0
8. Transferred to Other Fund	0	0	0
D. DATA ADJUSTMENTS	0	0	0
Vested	4		
Non-Vested	2		
E. TOTAL ON JUNE 30, 1998	6	3	0

	Retirement Annuitants	Recipients	
		Disabled	Survivors
A. ON JUNE 30, 1997	5	0	6
B. ADDITIONS	1	0	1
C. DELETIONS			
1. Service Retirement	0	0	0
2. Death	(1)	0	(1)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	0	0	0
E. TOTAL ON JUNE 30, 1998	5	0	6

Elective State Officers Retirement Fund

Actuarial Balance Sheet*(dollars in thousands)*

JULY 1, 1998

A.	CURRENT ASSETS (TABLE 1, E6)			\$500
B.	EXPECTED FUTURE ASSETS			
	1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)			\$0
	2. Present Value of Future Normal Costs			153
	3. Total Expected Future Assets			<u>\$153</u>
C.	TOTAL CURRENT AND EXPECTED FUTURE ASSETS			<u>\$653</u>
D.	CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>
	1. Benefit Recipients			
	a. Retirement Annuities		\$600	\$600
	b. Disability Benefits		0	0
	c. Surviving Spouse and Child Benefits		773	773
	2. Deferred Retirements with Future Augmentation		246	246
	3. Former Members without Vested Rights		0	0
	4. Active Members			
	a. Retirement Annuities	14	1,305	1,319
	b. Disability Benefits	0	0	0
	c. Survivor's Benefits	8	0	8
	d. Deferred Retirements	19	226	245
	e. Refund Liability Due to Death or Withdrawal	0	31	31
	5. Total Current Benefit Obligations	<u>\$41</u>	<u>\$3,181</u>	<u>\$3,222</u>
E.	EXPECTED FUTURE BENEFIT OBLIGATIONS			<u>\$300</u>
F.	TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS			<u>\$3,522</u>
G.	CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)			\$2,722
H.	CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)			\$2,869

Elective State Officers Retirement Fund

**Determination Of Unfunded Actuarial Accrued Liability (UAAL)
And Supplemental Contribution Rate**

(dollars in thousands)

JULY 1, 1998

	Actuarial Present Value of Projected Benefits <i>(1)</i>	Actuarial Present Value of Future Normal Costs <i>(2)</i>	Actuarial Accrued Liability <i>(3)=(1)-(2)</i>
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$1,547	\$42	\$1,505
b. Disability Benefits	0	0	0
c. Survivor's Benefit	10	3	7
d. Deferred Retirements	299	69	230
e. Refunds Due to Death or Withdrawal	46	39	7
f. Total	<u>\$1,902</u>	<u>\$153</u>	<u>\$1,749</u>
2. Deferred Retirements With Future Augmentation	246		246
3. Former Members Without Vested Rights	0		0
4. Annuitants in MPRIF	0		0
5. Recipients Not in MPRIF	<u>1,374</u>		<u>1,374</u>
6. Total	<u>\$3,522</u>	<u>\$153</u>	<u>\$3,369</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$3,369
2. Current Assets (Table 1, E6)			<u>500</u>
3. UAAL (B1-B2)			<u>\$2,869</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$7,618
2. Supplemental Contribution Rate (B3/C1)			37.66%

Note: If non-segregated member reserves were not counted as assets, the UAAL would be \$3,369, resulting in a Supplemental Contribution Rate of 44.22%.

Elective State Officers Retirement Fund

Changes In Unfunded Actuarial Accrued Liability (UAAL)
(dollars in thousands)

YEAR ENDING JUNE 30, 1998

A. UAAL AT BEGINNING OF YEAR	\$2,758
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$71
2. Contribution	(217)
3. Interest on A, B1 and B2	228
4. Total (B1+B2+B3)	\$82
C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$2,840
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$27)
2. Investment Return	40
3. MPRIF Mortality	0
4. Mortality of Other Benefit Recipients	(228)
5. Other Items	244
6. Total	\$29
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	\$2,869
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	0
H. UAAL AT END OF YEAR (E+F+G)	\$2,869

Elective State Officers Retirement Fund

Determination Of Contribution Sufficiency*(dollars in thousands)*

JULY 1, 1998

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 352C		
1. Employee Contributions	9.00%	\$45
2. Employer Contributions	0.00%	0
3. Total	<u>9.00%</u>	<u>\$45</u>
* Employer contributions are required to cover the portion of the benefit liabilities which are not funded by the member's accumulated contribution at the time of benefit commencement.		
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	3.80%	\$19
b. Disability benefits	0.00%	0
c. Survivors	0.20%	1
d. Deferred Retirement Benefits	6.20%	31
e. Refunds Due to Death or Withdrawal	3.20%	16
f. Total	<u>13.40%</u>	<u>\$67</u>
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	37.66%	188
3. Allowance for Expenses	0.60%	3
4. Total	<u>51.66%</u>	<u>\$258</u>
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	-42.66%	(\$213)

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1998 is \$500.

The deficiency amount shown above is calculated based on reported assets which include a receivable of 500 for member contributions that are held in the State's general fund. If this amount was not considered as an asset of the fund in these calculations, the deficiency would be 49.22%.

Elective State Officers Retirement Fund

Summary of Actuarial Assumptions and Methods

Interest: **Pre-Retirement:** 8.5% per annum

Post-Retirement: 5.0% per annum

Salary Increases: 5.0% annually

Mortality: **Pre-Retirement:**

Male - 1983 GAM (Males -4)

Female - 1983 GAM (Females -2)

Post-Retirement:

Male - 1983 GAM (Males)

Female - 1983 GAM (Females)

Post-Disability:

Male - N/A

Female - N/A

Retirement Age: Age 62 or if over age 62, one year from valuation date.

Separation: Rates based on years of service:

<u>Year</u>	<u>Rate</u>
1	0%
2	0
3	0
4	50
5	0
6	0
7	0
8	50

Disability: None

<i>Expenses:</i>	Prior year administration expenses expressed as percentage of prior year payroll.
<i>Return of Contributions:</i>	All employees withdrawing after eight years of service were assumed to leave their contributions on deposit and receive a deferred annuitant benefit.
<i>Family Composition:</i>	85% of Members are assumed to be married. Female is three years younger than male. Each Member may have up to two dependent children depending on the Member's age. Assume first child born at Member's age 28 and second child born at Member's age 31.
<i>Social Security:</i>	N/A
<i>Benefit Increases After Retirement:</i>	Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions.
<i>Actuarial Cost Method:</i>	Entry Age Normal Actuarial Cost Method based on earnings and the date the employee entered the plan is applied to all plan benefits. Under this method, Actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability.
<i>Asset Valuation Method:</i>	Cost Value plus one-third Unrealized Gains or Losses.
<i>Payment on the Unfunded Actuarial Accrued Liability:</i>	A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5.0% per annum.

Elective State Officers Retirement Fund***Summary of Plan Provisions*****GENERAL**

<i>Eligibility:</i>	Employment as a "Constitutional Officer" as elected prior to July 1, 1997 and who elect to retain coverage under this plan (i.e., do not elect Social Security coverage).
<i>Contributions:</i>	
<i>Member:</i>	9% of salary.
<i>Employer:</i>	No specified statutory contribution rate. State must contribute an amount equal to the full annuity value at benefit commencement less accumulated member contributions.
<i>Allowable Service:</i>	Service while in an eligible position.
<i>Salary:</i>	Salary upon which Elective State Officers Retirement Plan contributions have been made.
<i>Average Salary:</i>	Average of the five highest successive years of salary.

RETIREMENT***Normal Retirement Benefit:***

<i>Eligibility:</i>	Age 62 and eight years of Allowable Service.
<i>Amount:</i>	2.5% of Average Salary for each year of Allowable Service. For Members who were employed as of June 30, 1997 and are still employed on July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Early Retirement Benefit:

<i>Eligibility:</i>	Age 60 and eight years of Allowable Service.
----------------------------	--

Amount: Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date with reduction of 0.5% for each month the Member is under age 62 at time of retirement.

Form of Payment: Life annuity

Benefit Increases: Adjusted by MSRS to provide same increase as MPRIF.

DISABILITY

None

DEATH

Surviving Spouse Benefit:

Eligibility: Death while active or after retirement or with at least eight years of Allowable Service.

Amount: Survivor's payment of 50% of the retirement benefit of the Member assuming the Member had attained age 62 and had a minimum of eight years of Allowable Service. Benefit is paid for life. A former Member's benefit is augmented the same as a Deferred Annuity to date of death before determining the portion payable to the spouse.

If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit as of July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Surviving Dependent Child Benefit:

Eligibility: Same as spouse's benefit.

Amount: Benefit for first child is 25% of the retirement benefit (computed as for surviving spouse) with 12.5% for each additional child. Maximum payable (including spouse) is 100% of the retirement benefit. Benefits cease when a child marries or attains age 18 (22 if a full-time student).

If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefit as of July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Benefit Increases: Adjusted by MSRS to provide same increase as MPRIF.

TERMINATION

Refund of Contributions:

Eligibility: Termination of service.

Amount: Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest compounded annually if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund.

Deferred Benefit:

Eligibility: Eight years of Allowable Service.

Amount: Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/79; 5% from 7/1/79 to 1/1/81; and 3% until age 55; and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

If a Member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

SIGNIFICANT CHANGES

No significant changes were recognized for this valuation.

TABLE 14

Elective State Officers Retirement Fund

SCHEDULE OF FUNDING PROGRESS
(dollars in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (A)	Actuarial Accrued Liability (AAL) (B)	Unfunded AAL (UAAL) (B - A)	Funded Ratio (A)/(B)	Actual Covered Payroll (Previous FY) (C)	UAAL as % of Covered Payroll (B - A) / (C)
07/01/91	308	2,249	1,941	13.69%	422	459.95%
07/01/92	334	2,380	2,046	14.03%	378	541.27%
07/01/93	322	2,689	2,367	11.97%	500	473.40%
07/01/94	361	2,848	2,487	12.68%	411	605.11%
07/01/95	378	2,948	2,570	12.82%	422	609.00%
07/01/96	412	2,983	2,571	13.81%	456	563.82%
07/01/97	456	3,214	2,758	14.19%	467	590.58%
07/01/98	500	3,369	2,869	14.84%	461	622.34%

TABLE 15

Elective State Officers Retirement Fund
SCHEDULE OF EMPLOYER CONTRIBUTIONS
(dollars in thousands)

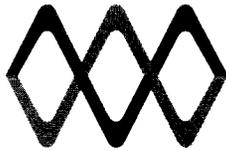
Year Ended June 30	Actuarially Required Contribution Rate (A)	Actual Covered Payroll (B)	Actual Member Contributions (C)	Annual Required Contribution [(A) x (B)] - (C)	Actual Employer Contribution*	Percentage Contributed
1991	34.84%	422	38	109	40	36.70%
1992	33.28%	378	34	92	111	120.65%
1993	36.23%	500	45	136	88	64.71%
1994	38.64%	411	37	122	164	134.43%
1995	42.00%	422	38	139	165	118.71%
1996	43.58%	456	41	158	151	95.57%
1997	43.49%	467	42	161	167	103.73%
1998	51.07%	461	42	193	175	90.67%

* Includes contributions from other sources (if applicable).

Judges Retirement Fund
ACTUARIAL VALUATION REPORT

July 1, 1998

 **FILE COPY**



MILLIMAN & ROBERTSON, INC.

Actuaries & Consultants

Internationally WOODROW MILLIMAN

Suite 400, 15800 Bluemound Road, Brookfield, Wisconsin 53005-6069

Telephone: 414/784-2250

Fax: 414/784-7287

December 9, 1998

Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

RE: Judges Retirement Fund

Commission Members:

Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1998.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. We have relied on the basic employee data and asset figures as submitted by the Minnesota State Retirement System.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission.

Respectfully submitted,

MILLIMAN & ROBERTSON, INC.

Thomas K. Custis, F.S.A., M.A.A.A.
Consulting Actuary

William V. Hogan, F.S.A., M.A.A.A.
Consulting Actuary

TKC/WVH/bh

Judges Retirement Fund

Table of Contents

	<u>Page</u>
REPORT HIGHLIGHTS	1
COMMENTARY	
Purpose	2
Report Highlights	2
Asset Information	2
Actuarial Balance Sheet	3
GASB Disclosure	3
Actuarial Cost Method	3
Sources of Actuarial Gains and Losses	4
Contribution Sufficiency	4
Changes in Actuarial Assumptions	4
Changes in Plan Provisions	4
ASSET INFORMATION	
Table 1 - Statement of Plan Net Assets	5
Table 2 - Statement of Change in Plan Net Assets	6
MEMBERSHIP DATA	
Table 3 - Active Members	7
Table 4 - Service Retirements	8
Table 5 - Survivors	9
Table 6 - Disability Retirements	10
Table 7 - Reconciliation of Members	11
FUNDING STATUS	
Table 8 - Actuarial Balance Sheet	12
Table 9 - Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate	13
Table 10 - Changes in Unfunded Actuarial Accrued Liability (UAAL)	14
Table 11 - Determination of Contribution Sufficiency	15

Judges Retirement Fund

Table of Contents

(Continued)

	<u>Page</u>
ACTUARIAL ASSUMPTIONS	
Table 12 - Summary of Actuarial Assumptions and Methods	16
PLAN PROVISIONS	
Table 13 - Summary of Plan Provisions - Basic	20
Summary of Plan Provisions - Coordinated	24
GASB25 DISCLOSURES	
Table 14 - Schedule of Funding Progress	28
Table 15 - Schedule of Employer Contributions	29

Judges Retirement Fund

Report Highlights (dollars in thousands)

	07/01/97 Valuation	07/01/98 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 490 % of Payroll	28.29%	28.28%
2. Required Contributions - Chapter 356 % of Payroll	27.60%	27.32%
3. Sufficiency (Deficiency): (A.1. - A.2.)	0.69%	0.96%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$74,680	\$86,578
b. Current Benefit Obligations (Table 8)	\$112,362	\$124,728
c. Funding Ratio: (a/b)	66.46%	69.41%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$74,680	\$86,578
b. Actuarial Accrued Liability (Table 9)	\$117,714	\$130,727
c. Funding Ratio: (a/b)	63.44%	66.23%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$157,082	\$172,986
b. Current and Expected Future Benefit Obligations	\$154,421	\$169,215
c. Funding Ratio: (a/b)	101.72%	102.23%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	279	278
b. Projected Annual Earnings	\$24,420	\$25,890
c. Average Annual Earnings (Actual \$)	\$87,526	\$93,130
d. Average Age	53.6	53.7
e. Average Service	10.5	10.6
2. Others		
a. Service Retirements (Table 4)	142	148
b. Survivors (Table 5)	79	83
c. Disability Retirements (Table 6)	6	6
d. Deferred Retirements (Table 7)	7	7
e. Terminated Other Non-vested (Table 7)	1	2
f. Total	235	246

Judges Retirement Fund

Commentary

Purpose

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

Report Highlights

The financial status of the Plan can be measured by three different funding ratios:

- The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 69.41%. The corresponding ratio for the prior year was 66.46%
- The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 1998 the ratio is 66.23%, which is an increase from the 1997 value of 63.44%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 102.23% verifies that the current statutory contributions are sufficient.

Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E1 to E6. It combines the cost value of the Assets Available for benefits and one-third of the difference between the market value and cost value of those assets.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets", the latter phrase will be used in the remainder of this report.

This Plan participates in the Minnesota Post Retirement Investment Fund (i.e., MPRIF). After the MPRIF liability has been calculated for each participating Plan, the State Board of Investments, (i.e., SBI), will determine each Plan's portion of the excess earnings for the January benefit increase as well as the Plan's allocated market share of MPRIF.

Actuarial Balance Sheet (Table 8)

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated as follows:

- For Active Members – Salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- For Non-Active Members – The discounted value of benefits, including augmentation in cases where benefits have not commenced.

GASB Disclosure

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superseded by Statement No. 25. Tables 14 and 15 of this report have been added to fulfill the new requirements of Statement No. 25.

Actuarial Cost Method (Table 9)

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

The payments will increase 5.00% each year because that is the assumed rate of increase in payroll. Although the payment schedule will be adequate to amortize the existing unfunded, the lower payments in the earlier years will not be sufficient to cover the interest on the unfunded liability. After a few years, the annual payment will cover the interest and also repay a portion of the unfunded.

Source of Actuarial Gains and Losses (Table 10)

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectations. For a detailed analysis of the major components, refer to Table 10.

Contribution Sufficiency (Table 11)

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

Table 11 shows the Plan has a contribution sufficiency since the Statutory Contribution Rate is 28.28% compared to the Required Contribution Rate of 27.32%.

Changes in Actuarial Assumptions

There were no changes in actuarial assumptions since the last valuation.

Changes in Plan Provisions

There were no significant changes in plan provisions since the last valuation.

TABLE 1

Judges Retirement Fund

Statement of Plan Net Assets*(dollars in thousands)*

JULY 1, 1998

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS IN TRUST		
1. Cash, Equivalents, Short-term Securities	\$3,122	\$3,122
2. Fixed Income	4,402	4,375
3. Equity	14,329	11,955
4. Real Estate	742	598
5. Equity in MPRIF	66,941	66,941
6. Other	0	0
Subtotal	<u>\$89,536</u>	<u>\$86,991</u>
B. ASSETS RECEIVABLE	225	225
C. LIABILITIES	(1,486)	(1,486)
D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
1. MPRIF Reserves	66,941	66,941
2. Member Reserves	10,865	10,865
3. Other Non-MPRIF Reserves	10,469	7,924
4. Total Assets Available for Benefits	<u>\$88,275</u>	<u>\$85,730</u>
E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D4)		\$85,730
2. Market Value (D4)	\$88,275	
3. Cost Value (D4)	85,730	
4. Market Over Cost: (E2-E3)	<u>\$2,545</u>	
5. One-third of Market Over Cost: (E4)/3		848
6. Actuarial Value of Assets (E1+E5) (Same as "Current Assets")		<u>\$86,578</u>

Judges Retirement Fund

Statement of Change In Plan Net Assets
(dollars in thousands)

YEAR ENDING JUNE 30, 1998

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$75,793	\$74,124
B. ADDITIONS		
1. Member Contributions	\$1,570	\$1,570
2. Employer Contributions	7,129	7,129
3. Contributions From Other Sources	0	0
4. MPRIF Income	8,958	8,958
5. Net Investment Income		
a. Interest and Dividends	2,324	2,324
b. Net Realized Gain (Loss)	804	804
c. Net Change in Unrealized Gain (Loss)	875	0
d. Investment Expenses	(22)	(22)
Net Subtotal	<u>3,981</u>	<u>3,106</u>
6. Other	10	10
7. Total Additions	<u>\$21,648</u>	<u>\$20,772</u>
C. OPERATING EXPENSES		
1. Service Retirements paid from MPRIF	\$9,082	\$9,082
2. Service Retirements paid from plan assets	0	0
2. Disability Benefits	0	0
3. Survivor Benefits	0	0
4. Refunds	0	0
6. Administrative Expenses	33	33
7. Other	51	51
8. Total Disbursements	<u>\$9,166</u>	<u>\$9,166</u>
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u><u>\$88,275</u></u>	<u><u>\$85,730</u></u>

TABLE 3

**JUDGES RETIREMENT FUND
ACTIVE MEMBERS AS OF JUNE 30, 1998**

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	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	0	0	0	0	0	0
35-39	1	4	0	0	0	0	0	0	5
40-44	2	10	3	0	0	0	0	0	15
45-49	2	18	24	10	2	0	0	0	56
50-54	5	12	28	23	12	3	0	0	83
55-59	0	12	13	16	13	6	1	0	61
60-64	2	3	2	8	7	12	7	2	43
65+	0	0	5	5	3	1	1	0	15
ALL	12	59	75	62	37	22	9	2	278

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	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	0	0	0	0	0	0
35-39	79,297	89,006	0	0	0	0	0	0	87,064
40-44	84,113	89,847	89,006	0	0	0	0	0	88,914
45-49	82,240	88,863	89,494	89,584	89,006	0	0	0	89,031
50-54	75,165	88,981	86,576	89,485	89,006	90,942	0	0	87,552
55-59	0	89,444	94,023	88,731	89,400	90,716	89,006	0	90,341
60-64	39,543	92,879	91,243	89,562	89,006	90,456	89,006	89,006	87,588
65+	0	0	90,168	89,461	91,526	100,626	89,006	0	90,824
ALL	72,243	89,386	89,262	89,314	89,349	91,056	89,006	89,006	88,708

PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE

Age	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
All	866	5,273	6,694	5,537	3,305	2,003	801	178	24,660

JUDGES RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1998

Age	Years Retired							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	1	0	0	0	0	1
60-64	1	2	0	0	0	0	0	3
65-69	3	9	5	0	0	0	0	17
70-74	8	23	23	4	0	0	0	58
75-79	0	1	21	11	2	0	0	35
80-84	0	0	0	11	7	1	0	19
85+	0	0	0	0	5	8	2	15
ALL	12	35	50	26	14	9	2	148

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	42,222	0	0	0	0	42,222
60-64	60,784	57,707	0	0	0	0	0	58,733
65-69	49,908	46,390	38,070	0	0	0	0	44,564
70-74	32,328	45,250	50,637	42,667	0	0	0	45,426
75-79	0	74,180	46,149	43,348	24,766	0	0	44,848
80-84	0	0	0	51,925	63,304	42,126	0	55,602
85+	0	0	0	0	55,632	43,813	42,915	47,633
ALL	39,094	47,082	47,327	46,872	55,059	43,626	42,915	46,968

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	469	1,647	2,366	1,218	770	392	85	6,951

JUDGES RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1998

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	1	0	2	0	0	0	4
50-54	0	0	0	2	0	0	0	2
55-59	0	1	1	0	0	0	0	2
60-64	1	1	0	1	0	0	0	3
65-69	0	5	1	0	0	0	0	6
70-74	0	5	4	2	1	4	1	17
75-79	2	2	1	2	2	1	1	11
80-84	3	4	0	1	1	3	0	12
85+	1	1	4	1	1	6	12	26
ALL	8	20	11	11	5	14	14	83

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	24,483	29,958	0	32,851	0	0	0	30,036
50-54	0	0	0	38,575	0	0	0	38,575
55-59	0	26,987	28,076	0	0	0	0	27,532
60-64	44,916	31,560	0	26,527	0	0	0	34,334
65-69	0	22,964	13,621	0	0	0	0	21,407
70-74	0	31,408	32,743	25,429	30,858	15,780	27,642	27,088
75-79	27,213	38,550	31,618	41,649	35,331	8,901	54,065	34,552
80-84	42,126	23,960	0	11,999	29,402	23,383	0	27,814
85+	22,139	17,666	22,942	26,806	37,252	20,663	23,108	22,958
ALL	34,043	27,549	26,914	31,122	33,635	19,011	25,643	27,169

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	272	550	296	342	168	266	359	2,255

JUDGES RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1998

Age	Years Disabled							ALL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	1	1	0	1	0	3
75-79	0	0	0	1	0	0	0	1
80-84	0	0	0	2	0	0	0	2
85+	0	0	0	0	0	0	0	0
ALL	0	0	1	4	0	1	0	6

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	47,207	57,788	0	40,284	0	48,426
75-79	0	0	0	78,305	0	0	0	78,305
80-84	0	0	0	38,798	0	0	0	38,798
85+	0	0	0	0	0	0	0	0
ALL	0	0	47,207	53,422	0	40,284	0	50,197

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED

Age	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	ALL
All	0	0	47,207	213,688	0	40,284	0	301,182

TABLE 7

Judges Retirement Fund

Reconciliation Of Members

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 1997	279	7	1
B. ADDITIONS	12	0	0
C. DELETIONS			
1. Service Retirement	(13)	0	0
2. Disability	0	0	0
3. Death	0	0	0
4. Terminated - Deferred	0	0	0
5. Terminated - Refund	0	0	0
6. Terminated - Other Non-Vested	0	0	0
7. Returned as Active	0	0	0
8. Transferred to Other Fund	0	0	0
D. DATA ADJUSTMENTS	0	0	1
Vested	207		
Non-Vested	71		
E. TOTAL ON JUNE 30, 1998	278	7	2

	Retirement Annuitants	Recipients	
		Disabled	Survivors
A. ON JUNE 30, 1997	142	6	79
B. ADDITIONS	13	0	8
C. DELETIONS			
1. Service Retirement	0	0	0
2. Death	(7)	0	(4)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	0	0	0
E. TOTAL ON JUNE 30, 1998	148	6	83

Judges Retirement Fund

Actuarial Balance Sheet*(dollars in thousands)*

JULY 1, 1998

A. CURRENT ASSETS (TABLE 1, E6)				\$86,578
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)				\$47,920
2. Present Value of Future Normal Costs				38,488
3. Total Expected Future Assets				<u>\$86,408</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				<u>\$172,986</u>
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>		<u>Total</u>
1. Benefit Recipients				
a. Retirement Annuities		\$58,080		\$58,080
b. Disability Benefits		2,480		2,480
c. Surviving Spouse and Child Benefits		18,516		18,516
2. Deferred Retirements with Future Augmentation		1,004		1,004
3. Former Members without Vested Rights		14		14
4. Active Members				
a. Retirement Annuities	1,964	37,610		39,574
b. Disability Benefits	2,645	0		2,645
c. Survivor's Benefits	2,150	0		2,150
d. Deferred Retirements	0	0		0
e. Refund Liability Due to Death or Withdrawal	0	265		265
5. Total Current Benefit Obligations	<u>\$6,759</u>	<u>\$117,969</u>		<u>\$124,728</u>
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$44,487</u>
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$169,215</u>
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				\$38,150
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				(\$3,771)

Judges Retirement Fund

**Determination Of Unfunded Actuarial Accrued Liability (UAAL)
And Supplemental Contribution Rate**

(dollars in thousands)

JULY 1, 1998

	Actuarial Present Value of Projected Benefits <u>(1)</u>	Actuarial Present Value of Future Normal Costs <u>(2)</u>	Actuarial Accrued Liability <u>(3)=(1)-(2)</u>
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$79,963	\$33,625	\$46,338
b. Disability Benefits	4,739	2,460	2,279
c. Survivor's Benefit	3,975	2,181	1,794
d. Deferred Retirements	0	0	0
e. Refunds Due to Death or Withdrawal	444	222	222
f. Total	<u>\$89,121</u>	<u>\$38,488</u>	<u>\$50,633</u>
2. Deferred Retirements With Future Augmentation	1,004		1,004
3. Former Members Without Vested Rights	14		14
4. Annuitants in MPRIF	66,941		66,941
5. Recipients Not in MPRIF	<u>12,135</u>		<u>12,135</u>
6. Total	<u>\$169,215</u>	<u>\$38,488</u>	<u>\$130,727</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$130,727
2. Current Assets (Table 1, E6)			<u>86,578</u>
3. UAAL (B1-B2)			<u>\$44,149</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$394,731
2. Supplemental Contribution Rate (B3/C1)			11.18%

Judges Retirement Fund

Changes In Unfunded Actuarial Accrued Liability (UAAL)
(dollars in thousands)

YEAR ENDING JUNE 30, 1998

A. UAAL AT BEGINNING OF YEAR	\$43,034
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$3,999
2. Contribution	(8,700)
3. Interest on A, B1 and B2	<u>3,458</u>
4. Total (B1+B2+B3)	<u>(\$1,243)</u>
C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$41,791
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	\$719
2. Investment Return	(1,887)
3. MPRIF Mortality	1,446
4. Mortality of Other Benefit Recipients	(744)
5. Other Items	<u>2,824</u>
6. Total	<u>\$2,358</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	\$44,149
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	<u>0</u>
H. UAAL AT END OF YEAR (E+F+G)	<u><u>\$44,149</u></u>

Judges Retirement Fund

Determination Of Contribution Sufficiency*(dollars in thousands)*

JULY 1, 1998

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 490		
1. Employee Contributions	6.28%	\$1,626
2. Employer Contributions	22.00%	5,696
3. Total	<u>28.28%</u>	<u>\$7,322</u>
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	14.02%	\$3,629
b. Disability benefits	0.97%	252
c. Survivors	0.91%	235
d. Deferred Retirement Benefits	0.00%	0
e. Refunds Due to Death or Withdrawal	0.10%	25
f. Total	<u>16.00%</u>	<u>\$4,141</u>
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	11.18%	2,895
3. Allowance for Expenses	0.14%	36
4. Total	<u>27.32%</u>	<u>\$7,072</u>
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	0.96%	\$250

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1998 is \$25,890.

Judges Retirement Fund

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Interest:	Pre-Retirement: 8.5% per annum Post-Retirement: 6.0% per annum												
Salary Increases:	5% annually												
Mortality:	<p>Pre-Retirement: Male - 1983 GAM (Males -4) Female - 1983 GAM (Females -2)</p> <p>Post-Retirement: Male - 1983 GAM (Males) Female - 1983 GAM (Females)</p> <p>Post-Disability: Male - Combined Annuity Mortality Female - Combined Annuity Mortality</p>												
Retirement Age:	Age-related table as follows: <table> <tr> <td>Ages:</td> <td>62-64</td> <td>10%</td> </tr> <tr> <td></td> <td>65-67</td> <td>20</td> </tr> <tr> <td></td> <td>68-70</td> <td>30</td> </tr> <tr> <td></td> <td>71+</td> <td>100</td> </tr> </table>	Ages:	62-64	10%		65-67	20		68-70	30		71+	100
Ages:	62-64	10%											
	65-67	20											
	68-70	30											
	71+	100											
Separation:	None												
Disability:	Rates adopted by MSRS based on actual experience, most recently adjusted in 1979, as shown in rate table.												
Expenses:	Prior year administration expenses expressed as percentage of prior year payroll.												
Return of Contributions:	N/A												
Family Composition:	Marital status as indicated by data. Female is three years younger than male.												
Social Security:	N/A												

***Benefit Increases
After Retirement:***

Payment of earnings on retired reserves in excess of 6% accounted for by 6% post-retirement assumptions.

Actuarial Cost Method:

Entry Age Normal Actuarial Cost Method based on earnings and the date the employee entered the plan is applied to all plan benefits. Under this method, Actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability.

Asset Valuation Method:

Cost Value plus one-third Unrealized Gains or Losses.

***Payment on the
Unfunded Actuarial
Accrued Liability:***

A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5.0% per annum.

TABLE 12
(Continued)

Judges Retirement Fund

Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

<u>Age</u>	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
20	3	2	0	0	0	0	0	0
21	3	2	0	0	0	0	0	0
22	4	2	0	0	0	0	0	0
23	4	2	0	0	0	0	0	0
24	4	2	0	0	0	0	0	0
25	4	2	0	0	0	0	0	0
26	4	2	0	0	0	0	0	0
27	4	3	0	0	0	0	0	0
28	4	3	0	0	0	0	0	0
29	5	3	0	0	0	0	0	0
30	5	3	0	0	2	0	0	0
31	5	3	0	0	2	0	0	0
32	5	3	0	0	2	0	0	0
33	6	4	0	0	2	0	0	0
34	6	4	0	0	2	0	0	0
35	6	4	0	0	2	1	0	0
36	7	4	0	0	2	1	0	0
37	7	5	0	0	2	1	0	0
38	8	5	0	0	2	1	0	0
39	9	5	0	0	2	2	0	0
40	9	6	0	0	2	2	0	0
41	10	6	0	0	2	2	0	0
42	10	7	0	0	2	4	0	0
43	11	7	0	0	3	4	0	0
44	12	8	0	0	3	4	0	0
45	14	8	0	0	3	5	0	0
46	15	9	0	0	5	6	0	0
47	17	10	0	0	7	7	0	0
48	19	11	0	0	9	7	0	0
49	22	12	0	0	11	10	0	0

Judges Retirement Fund

Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

<u>Age</u>	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
50	25	14	0	0	14	10	0	0
51	28	15	0	0	16	12	0	0
52	31	16	0	0	20	14	0	0
53	35	18	0	0	24	16	0	0
54	39	19	0	0	28	20	0	0
55	43	21	0	0	34	24	0	0
56	48	23	0	0	40	30	0	0
57	52	25	0	0	46	36	0	0
58	57	28	0	0	56	44	0	0
59	61	31	0	0	66	52	0	0
60	66	34	0	0	76	62	0	0
61	71	38	0	0	90	74	0	0
62	77	42	0	0	110	88	1,000	1,000
63	84	47	0	0	136	104	1,000	1,000
64	92	52	0	0	174	122	1,000	1,000
65	101	58	0	0	0	0	2,000	2,000
66	111	64	0	0	0	0	2,000	2,000
67	124	71	0	0	0	0	2,000	2,000
68	139	78	0	0	0	0	3,000	3,000
69	156	87	0	0	0	0	3,000	3,000
70	176	97	0	0	0	0	3,000	3,000

Judges Retirement Fund

Summary of Plan Provisions

GENERAL

<i>Eligibility:</i>	A judge or justice of any court who is not covered under the Social Security Act. If the Member was active prior to 1/1/74, benefits may be computed according to provisions of the prior plan.
<i>Contributions:</i>	
<i>Member:</i>	8.15% of salary. Members who were active prior to 1/1/74 may contribute 4% to a special survivor retirement account.
<i>Employer:</i>	22% of salary.
<i>Allowable Service:</i>	Service as a judge. Half credit is received for service not compensated at an annual salary or for service while entitled to practice law. Credit may also be earned for uncredited judicial service if the appropriate employee contributions, with interest, are made.
<i>Salary:</i>	Salary set by law.
<i>Average Salary:</i>	Average of the five highest years of salary of the last 10 years prior to retirement.

RETIREMENT

Normal Retirement Benefit:

<i>Eligibility:</i>	Age 65 and five years of Allowable Service. Age 70.
<i>Amount:</i>	2.7% of Average Salary for each year of Allowable Service prior to 7/1/80 and 3.2% of Average Salary for each year of Allowable Service after 6/30/80. Maximum benefit of 70% of salary for the 12 months preceding retirement.

Early Retirement Benefit:

<i>Eligibility:</i>	Age 62 and five years of Allowable Service.
<i>Amount:</i>	Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date with reduction of 0.5% for each month the Member is under age 65 at time of retirement.
<i>Form of Payment:</i>	Life annuity. Actuarial equivalent options are: <ul style="list-style-type: none">- 50% or 100% joint and survivor- 50% or 100% bounce back joint and survivor- 10 or 15 year certain and life
<i>Benefit Increases:</i>	Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF).

DISABILITY

Disability Benefit:

<i>Eligibility:</i>	Permanent inability to perform the functions of judge.
<i>Amount:</i>	No benefit is paid by the Fund. Instead salary is continued for one year but not beyond age 70. Employee contributions continue and Allowable Service is earned.

Retirement After Disability:

<i>Eligibility:</i>	Member is still disabled after salary payments cease after one year or at age 70, if earlier.
<i>Amount:</i>	Larger of 25% of Average Salary or the Normal Retirement Benefit, without reduction.
<i>Benefit Increases:</i>	Same as for retirement.

DEATH

Survivor's Benefit:

Eligibility: Active or disabled Member dies before retirement or a former Member eligible for a deferred annuity dies.

Amount: Larger of 25% of Average Salary or 60% of Normal Retirement Benefit had the Member retired at date of death.

If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefits before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Benefit paid to spouse for life. If no spouse, benefit is paid to surviving dependent children until child marries, dies, or attains age 18 (age 22 if full-time student).

Benefit Increases: Same as for retirement.

Prior Survivors' Benefit:

Eligibility: Retired Member dies who did not elect an optional annuity and such Member retired prior to 1/1/74 or was in office prior to 1/1/74 and continued contributing 4% of pay to provide this post-retirement death benefit.

Amount: 50% of the retired Member's benefit continues to the surviving spouse if married three years. Benefit begins immediately unless spouse is not yet age 40 and continues to death.

If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefits before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Benefit Increases: Adjusted by MSRS to provide same increase as MPRIF.

Refund of Contributions:

<i>Eligibility:</i>	Member dies prior to retirement or former Member eligible for a deferred annuity dies and survivors' benefits are not payable.
<i>Amount:</i>	Member's contributions with 5% interest.

TERMINATION

Refund of Contributions:

<i>Eligibility:</i>	Termination of service as a judge.
<i>Amount:</i>	Member's contributions with 5% interest. A deferred annuity may be elected in lieu of a refund.

Deferred Benefit:

<i>Eligibility:</i>	Five years of Allowable Service.
<i>Amount:</i>	Benefit computed under law in effect at termination. Amount is payable as a normal or early retirement annuity. If a Member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

SIGNIFICANT CHANGES:

No significant changes were recognized for this valuation.

Judges Retirement Fund
Summary of Plan Provisions

GENERAL

Eligibility:	A judge or justice of any court who is covered under the Social Security Act.
Contributions:	
<i>Member:</i>	6.27% of salary. (Amended 1992)
<i>Employer:</i>	22% of salary.
Allowable Service:	Service as a judge. Half credit is received for service not compensated at an annual salary or for service while entitled to practice law. Credit may also be earned for uncredited judicial service if the appropriate employee contributions, with interest, are made.
Salary:	Salary set by law.
Average Salary:	Average of the five highest years of salary of the last 10 years prior to retirement.

RETIREMENT

Normal Retirement Benefit:

Eligibility:	Age 65 and five years of Allowable Service. Age 70.
Amount:	2.7% of Average Salary for each year of Allowable Service prior to 7/1/80 and 3.2% of Average Salary for each year of Allowable Service after 6/30/80. Maximum benefit of 70% of salary for the 12 months preceding retirement.

Early Retirement Benefit:

Eligibility:	Age 62 and five years of Allowable Service.
Amount:	Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date with reduction of 0.5% for each month the Member is under age 65 at time of retirement.

Form of Payment: Life annuity:

- 50% or 100% joint and survivor
- 50% or 100% bounce back joint and survivor
- 10 or 15 year certain and life

Benefit Increases: Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF).

DISABILITY

Disability Benefit:

Eligibility: Permanent inability to perform the functions of judge.

Amount: No benefit is paid by the Fund. Instead salary is continued for one year but not beyond age 70. Employee contributions continue and Allowable Service is earned.

Retirement After Disability:

Eligibility: Member is still disabled after salary payments cease after one year or at age 70, if earlier.

Amount: Larger of 25% of Average Salary or the Normal Retirement Benefit, without reduction.

Benefit Increases: Same as for retirement.

DEATH

Survivor's Benefit:

Eligibility: Active or disabled Member dies before retirement or a former Member eligible for a deferred annuity dies.

Amount: Larger of 25% of Average Salary or 60% of Normal Retirement Benefit had the Member retired at date of death.

If a Member became deceased prior to July 1, 1997 and the beneficiary was not eligible to commence their survivor benefits before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Benefit paid to spouse for life. If no spouse, benefit is paid to surviving dependent children until child marries, dies, or attains age 18 (age 22 if full-time student).

Benefit Increases: Same as for retirement.

Refund of Contributions:

Eligibility: Member dies prior to retirement or former Member eligible for a deferred annuity dies and survivors' benefits are not payable.

Amount: Member's contributions with 5% interest.

TERMINATION

Refund of Contributions:

Eligibility: Termination of service as a judge.

Amount: Member's contributions with 5% interest. A deferred annuity may be elected in lieu of a refund.

Deferred Benefit:

Eligibility: Five years of Allowable Service.

Amount: Benefit computed under law in effect at termination. Amount is payable as a normal or early retirement annuity.

If a Member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

SIGNIFICANT CHANGES:

No significant changes were recognized for this valuation.

TABLE 14

Judges Retirement Fund
SCHEDULE OF FUNDING PROGRESS
(dollars in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (A)	Actuarial Accrued Liability (AAL) (B)	Unfunded AAL (UAAL) (B - A)	Funded Ratio (A)/(B)	Actual Covered Payroll (Previous FY) (C)	UAAL as % of Covered Payroll (B - A) / (C)
07/01/91	33,559	78,429	44,870	42.79%	18,410	243.73%
07/01/92	37,768	83,969	46,201	44.98%	22,765	202.95%
07/01/93	44,156	90,509	46,353	48.79%	22,084	209.89%
07/01/94	50,428	98,313	47,885	51.29%	22,264	215.08%
07/01/95	56,813	102,238	45,425	55.57%	22,877	198.56%
07/01/96	64,851	108,150	43,299	59.96%	22,421	193.12%
07/01/97	74,681	117,714	43,033	63.44%	22,909	187.84%
07/01/98	86,578	130,727	44,149	66.23%	24,965	176.84%

TABLE 15

Judges Retirement Fund

SCHEDULE OF EMPLOYER CONTRIBUTIONS
(dollars in thousands)

Year Ended June 30	Actuarially Required Contribution Rate (A)	Actual Covered Payroll (B)	Actual Member Contributions (C)	Annual Required Contribution [(A) x (B)] - (C)	Actual Employer Contribution*	Percentage Contributed
1991	23.59%	18,410	799	3,544	0	0.00%
1992	25.10%	22,765	988	4,726	4,722	99.92%
1993	26.59%	22,084	1,409	4,463	4,845	108.56%
1994	26.29%	22,264	1,416	4,437	4,912	110.71%
1995	28.27%	22,877	1,455	5,012	5,162	102.99%
1996	27.32%	22,421	1,426	4,699	4,972	105.81%
1997	27.01%	22,909	1,457	4,731	6,632	140.18%
1998	27.60%	24,965	1,570	5,320	7,129	134.00%

* Includes contributions from other sources (if applicable).