

Public Employees Retirement Fund
ACTUARIAL VALUATION REPORT

JULY 1, 1998

 **FILE COPY**



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December 2, 1998

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

RE: Public 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 Public Employees Retirement Fund.

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.

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Public Employees Retirement Fund

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Public Employees Retirement Fund

Report Highlights

(dollars in thousands)

	07/01/97 Valuation	07/01/98 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	9.46%	10.03%
2. Required Contributions - Chapter 356 % of Payroll	9.80%	9.84%
3. Sufficiency (Deficiency): (A.1. - A.2.)	<u>-0.34%</u>	<u>0.19%</u>
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$6,658,410	\$7,636,668
b. Current Benefit Obligations (Table 8)	<u>\$7,330,038</u>	<u>\$7,956,280</u>
c. Funding Ratio: (a/b)	90.84%	95.98%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$6,658,410	\$7,636,668
b. Actuarial Accrued Liability (Table 9)	<u>\$8,049,666</u>	<u>\$8,769,303</u>
c. Funding Ratio: (a/b)	82.72%	87.08%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$9,959,797	\$10,927,927
b. Current and Expected Future Benefit Obligations	<u>\$9,805,141</u>	<u>\$10,819,348</u>
c. Funding Ratio: (a/b)	101.58%	101.00%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	130,865	136,166
b. Projected Annual Earnings	\$3,214,578	\$3,385,720
c. Average Annual Earnings (Actual \$)	\$24,564	\$24,865
d. Average Age	43.8	43.8
e. Average Service	8.5	8.3
2. Others		
a. Service Retirements (Table 4)	34,168	36,187
b. Survivors (Table 5)	5,531	5,732
c. Disability Retirements (Table 6)	1,115	1,223
d. Deferred Retirements (Table 7)	10,817	12,238
e. Terminated Other Non-vested (Table 7)	<u>15,162</u>	<u>15,847</u>
f. Total	66,793	71,227

Public 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 95.98%. The corresponding ratio for the prior year was 90.84%
- 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 87.08%, which is an increase from the 1997 value of 82.72%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 101.00% 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 6.00% 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 10.03% compared to the Required Contribution Rate of 9.84%.

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 the plan provisions since the last valuation.

TABLE 1

Public 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	\$43,436	\$43,436
2. Fixed Income	953,666	939,520
3. Equity	2,959,405	2,424,082
4. Real Estate	154,102	120,982
5. Equity in MPRIF	3,929,426	3,929,426
6. Other	537	537
Subtotal	<u>\$8,040,572</u>	<u>\$7,457,983</u>
B. ASSETS RECEIVABLE	1,221	1,221
C. LIABILITIES	(16,732)	(16,732)
<hr/>		
D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
1. MPRIF Reserves	3,929,426	3,929,426
2. Member Reserves	1,151,861	1,151,861
3. Other Non-MPRIF Reserves	2,943,774	2,361,185
4. Total Assets Available for Benefits	<u>\$8,025,061</u>	<u>\$7,442,472</u>
<hr/>		
E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D4)		\$7,442,472
2. Market Value (D4)	\$8,025,061	
3. Cost Value (D4)	7,442,472	
4. Market Over Cost: (E2-E3)	<u>\$582,589</u>	
5. One-third of Market Over Cost: (E4)/3		194,196
6. Actuarial Value of Assets (E1+E5) (Same as "Current Assets")		<u>\$7,636,668</u>

TABLE 2

Public 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	\$6,870,819	\$6,552,205
B. ADDITIONS		
1. Member Contributions	\$140,385	\$140,385
2. Employer Contributions	151,499	151,499
3. Contributions From Other Sources	0	0
4. MPRIF Income	547,311	547,311
5. Net Investment Income		
a. Interest and Dividends	424,207	424,207
b. Net Realized Gain (Loss)	68,991	68,991
c. Net Change in Unrealized Gain (Loss)	263,977	0
d. Investment Expenses	<u>(5,466)</u>	<u>(5,466)</u>
Net Subtotal	751,709	487,732
6. Other	1,382	1,382
7. Total Additions	<u>\$1,592,286</u>	<u>\$1,328,311</u>
C. OPERATING EXPENSES		
1. Service Retirements paid from MPRIF	\$385,356	\$385,356
2. Service Retirements paid from plan assets	2,274	2,274
2. Disability Benefits	9,773	9,773
3. Survivor Benefits	15,343	15,343
4. Refunds	16,922	16,922
6. Administrative Expenses	7,076	7,076
7. Other	<u>1,300</u>	<u>1,300</u>
8. Total Disbursements	<u>\$438,044</u>	<u>\$438,044</u>
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u><u>\$8,025,061</u></u>	<u><u>\$7,442,472</u></u>

TABLE 3

PUBLIC 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	2,129	2,175	30	0	0	0	0	0	4,334
25-29	2,439	6,045	1,176	25	0	0	0	0	9,685
30-34	1,928	5,571	3,584	1,144	17	0	0	0	12,244
35-39	2,366	6,791	4,952	3,292	1,396	62	0	0	18,859
40-44	2,003	6,961	6,290	3,985	2,869	1,483	62	0	23,653
45-49	3,322	7,588	6,140	4,552	2,857	2,613	970	26	28,068
50-54	738	2,834	3,800	3,825	2,712	2,111	1,474	415	17,909
55-59	436	1,694	2,155	2,307	2,020	1,664	1,203	628	12,107
60-64	227	921	1,101	1,187	1,061	997	767	310	6,571
65+	204	682	635	450	275	222	168	100	2,736
ALL	15,792	41,262	29,863	20,767	13,207	9,152	4,644	1,479	136,166

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	9,642	12,740	15,901	0	0	0	0	0	11,240
25-29	13,210	19,125	23,878	28,273	0	0	0	0	18,236
30-34	13,048	20,352	28,194	29,264	24,464	0	0	0	22,336
35-39	11,520	17,911	27,174	33,337	31,367	33,030	0	0	23,280
40-44	11,479	16,981	24,073	32,101	35,686	34,823	34,635	0	24,382
45-49	10,103	15,571	22,850	29,464	35,858	39,921	38,907	36,911	23,927
50-54	13,598	17,822	23,198	27,005	31,154	38,247	43,606	43,617	27,896
55-59	10,987	16,189	21,972	25,615	27,791	30,649	36,750	43,066	26,187
60-64	9,639	12,869	19,881	24,017	26,174	27,876	29,463	37,538	23,472
65+	7,388	8,903	14,391	16,851	20,563	21,740	24,535	32,733	15,415
ALL	11,413	17,220	24,191	29,106	32,035	35,223	37,703	41,255	23,494

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	180	711	722	604	423	322	175	61	3,199

TABLE 4

PUBLIC 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	3	0	0	0	0	0	0	3
50-54	20	9	1	0	0	0	0	30
55-59	660	1,024	12	0	0	0	0	1,696
60-64	1,161	2,679	1,188	8	0	0	0	5,036
65-69	759	4,103	3,053	786	1	0	0	8,702
70-74	130	1,007	4,206	2,888	115	1	0	8,347
75-79	29	223	866	3,731	1,149	28	2	6,028
80-84	8	33	131	799	2,615	295	1	3,882
85+	2	10	20	97	404	1,432	498	2,463
ALL	2,772	9,088	9,477	8,309	4,284	1,756	501	36,187

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	12,996	0	0	0	0	0	0	12,996
50-54	19,675	12,786	12,452	0	0	0	0	17,368
55-59	10,563	8,167	18,092	0	0	0	0	9,169
60-64	8,751	10,996	10,410	23,440	0	0	0	10,360
65-69	7,748	8,303	10,120	15,185	6,404	0	0	9,514
70-74	5,144	7,814	7,900	14,304	26,311	14,984	0	10,317
75-79	3,676	5,897	6,533	10,391	14,394	12,019	16,172	10,410
80-84	3,167	5,337	4,606	7,617	10,250	15,725	7,295	9,877
85+	2,416	3,863	5,088	3,655	7,563	9,583	7,692	8,571
ALL	8,748	8,957	8,767	11,872	11,538	10,657	7,725	9,932

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	24,250	81,401	83,085	98,644	49,429	18,714	3,870	359,409

TABLE 5

PUBLIC 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	24	119	48	20	10	0	1	222
50-54	11	52	22	20	5	4	0	114
55-59	20	104	87	28	13	7	1	260
60-64	15	130	140	92	36	14	5	432
65-69	4	106	212	255	52	30	23	682
70-74	3	31	205	475	214	61	45	1,034
75-79	0	20	77	356	394	143	83	1,073
80-84	0	11	48	120	307	288	122	896
85+	6	43	75	111	137	322	325	1,019
ALL	83	616	914	1,477	1,168	869	605	5,732

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	5,476	6,712	7,548	7,716	14,627	0	4,785	7,197
50-54	7,780	9,318	12,599	9,510	5,319	9,446	0	9,665
55-59	9,934	8,663	9,843	11,762	14,679	10,572	6,229	9,832
60-64	7,314	8,524	9,935	14,553	11,037	11,521	5,958	10,500
65-69	2,544	6,702	7,311	14,693	11,127	11,766	6,250	10,400
70-74	7,319	6,594	7,073	13,780	11,443	10,303	4,909	11,141
75-79	0	3,952	6,085	10,435	9,888	10,269	4,422	9,314
80-84	0	6,652	5,178	7,114	9,880	8,131	4,506	7,924
85+	5,697	5,771	5,257	6,984	7,985	8,403	6,014	7,072
ALL	7,129	7,480	7,656	11,949	10,112	8,942	5,416	9,195

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	592	4,608	6,998	17,649	11,811	7,771	3,277	52,706

TABLE 6

PUBLIC 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	42	144	65	7	0	0	0	258
50-54	45	98	37	11	2	0	0	193
55-59	51	173	64	16	4	1	0	309
60-64	41	186	127	41	9	5	0	409
65-69	1	26	15	11	1	0	0	54
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	180	627	308	86	16	6	0	1,223

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	6,331	5,594	5,133	2,651	0	0	0	5,518
50-54	9,035	7,965	6,741	5,800	7,807	0	0	7,855
55-59	9,136	8,065	8,372	7,708	9,614	1,860	0	8,287
60-64	8,120	7,761	11,515	10,263	14,852	7,312	0	9,364
65-69	8,202	10,594	10,467	6,731	21,601	0	0	9,931
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	8,219	7,497	8,890	8,146	13,084	6,403	0	8,067

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	1,479	4,701	2,738	701	209	38	0	9,866

TABLE 7

Public Employees Retirement Fund

Reconciliation Of Members

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 1997	130,865	10,817	15,162
B. ADDITIONS	17,461	2,655	4,564
C. DELETIONS			
1. Service Retirement	(2,407)	(444)	(93)
2. Disability	(222)	(24)	(3)
3. Death	(193)	(14)	(26)
4. Terminated - Deferred	(2,648)	0	0
5. Terminated - Refund	(3,435)	(1)	(1,606)
6. Terminated - Other Non-Vested	(3,167)	0	0
7. Returned as Active	0	(356)	(891)
8. Transferred to Other Fund	0	0	0
D. DATA ADJUSTMENTS	(88)	(395)	(1,260)
Vested	95,934		
Non-Vested	40,232		
E. TOTAL ON JUNE 30, 1998	136,166	12,238	15,847

	Retirement Annuitants	Recipients	
		Disabled	Survivors
A. ON JUNE 30, 1997	34,168	1,115	5,531
B. ADDITIONS	3,087	269	449
C. DELETIONS			
1. Service Retirement	0	(94)	0
2. Death	(1,053)	(54)	(250)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	(15)	(13)	2
E. TOTAL ON JUNE 30, 1998	36,187	1,223	5,732

TABLE 8

Public Employees Retirement Fund

Actuarial Balance Sheet
(dollars in thousands)

JULY 1, 1998

A. CURRENT ASSETS (TABLE 1, E6)				\$7,636,668
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)				\$1,241,214
2. Present Value of Future Normal Costs				2,050,045
3. Total Expected Future Assets				<u>\$3,291,259</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				<u>\$10,927,927</u>
D. CURRENT BENEFIT OBLIGATIONS	Non-Vested	Vested	Total	
1. Benefit Recipients				
a. Retirement Annuities		\$3,593,238	\$3,593,238	
b. Disability Benefits		100,399	100,399	
c. Surviving Spouse and Child Benefits		469,840	469,840	
2. Deferred Retirements with Future Augmentation		136,963	136,963	
3. Former Members without Vested Rights		6,792	6,792	
4. Active Members				
a. Retirement Annuities	15,944	2,571,498	2,587,442	
b. Disability Benefits	246,408	0	246,408	
c. Survivor's Benefits	65,473	0	65,473	
d. Deferred Retirements	10,067	708,832	718,899	
e. Refund Liability Due to Death or Withdrawal	0	30,826	30,826	
5. Total Current Benefit Obligations	<u>\$337,892</u>	<u>\$7,618,388</u>	<u>\$7,956,280</u>	
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$2,863,068</u>
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$10,819,348</u>
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				\$319,612
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				(\$108,579)

TABLE 9

Public 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 (1)	Actuarial Present Value of Future Normal Costs (2)	Actuarial Accrued Liability (3)=(1)-(2)
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$4,714,978	\$1,186,708	\$3,528,270
b. Disability Benefits	451,007	167,125	283,882
c. Survivor's Benefit	112,465	38,980	73,485
d. Deferred Retirements	1,161,055	599,802	561,253
e. Refunds Due to Death or Withdrawal	72,611	57,430	15,181
f. Total	<u>\$6,512,116</u>	<u>\$2,050,045</u>	<u>\$4,462,071</u>
2. Deferred Retirements With Future Augmentation	136,963		136,963
3. Former Members Without Vested Rights	6,792		6,792
4. Annuitants in MPRIF	3,929,426		3,929,426
5. Recipients Not in MPRIF	<u>234,051</u>		<u>234,051</u>
6. Total	<u>\$10,819,348</u>	<u>\$2,050,045</u>	<u>\$8,769,303</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$8,769,303
2. Current Assets (Table 1, E6)			<u>7,636,668</u>
3. UAAL (B1-B2)			<u>\$1,132,635</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$56,418,826
2. Supplemental Contribution Rate (B3/C1)			2.01%

Public Employees Retirement Fund

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

YEAR ENDING JUNE 30, 1998

A. UAAL AT BEGINNING OF YEAR	\$1,391,256
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$234,245
2. Contribution	(291,885)
3. Interest on A, B1 and B2	<u>115,807</u>
4. Total (B1+B2+B3)	<u>\$58,167</u>
C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$1,449,423
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$127,058)
2. Investment Return	(305,238)
3. MPRIF Mortality	13,961
4. Mortality of Other Benefit Recipients	(6,253)
5. Other Items	<u>107,800</u>
6. Total	<u>(\$316,788)</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	\$1,132,635
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>\$1,132,635</u></u>

TABLE 11

Public Employees Retirement Fund

Determination Of Contribution Sufficiency*(dollars in thousands)*

JULY 1, 1998

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	4.79%	\$162,179 *
2. Employer Contributions	5.24%	177,504 *
3. Total	<u>10.03%</u>	<u>\$339,683 *</u>
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	4.50%	\$152,286
b. Disability benefits	0.61%	20,676
c. Survivors	0.14%	4,611
d. Deferred Retirement Benefits	2.14%	72,548
e. Refunds Due to Death or Withdrawal	0.22%	7,507
f. Total	<u>7.61%</u>	<u>\$257,628</u>
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	2.01%	68,053
3. Allowance for Expenses	<u>0.22%</u>	<u>7,449</u>
4. Total	<u>9.84%</u>	<u>\$333,130</u>
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	0.19%	\$6,553 *

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1998 is \$3,385,720.

Public Employees Retirement Fund

Summary of Actuarial Assumptions and Methods

Interest:	Pre-Retirement: 8.5% per annum
	Post-Retirement: 8.5% per annum
Benefit Increases After Retirement:	Payment of earnings on retired reserves in excess of 6% accounted for by 6% post-retirement assumptions.
Salary Increases:	Reported salary for prior fiscal year, with new hires annualized, increased to current fiscal year and annually for each future year according to the rate table below.
Mortality:	<p>Pre-Retirement: Male - 1983 Group Annuity Mortality Table for males setback five years. Female - 1983 Group Annuity Mortality Table for females setback five years.</p> <p>Post-Retirement: Male - 1983 Group Annuity Mortality Table for males set forward one year. Female - 1983 Group Annuity Mortality Table for females set forward one year.</p> <p>Post-Disability: Male - 1965 RRB rates Female - 1965 RRB rates</p>
Retirement Age:	Age 64 or if over age 64, one year from valuation date. In addition, 50% of employees are assumed to retire under the Rule of 90 when first eligible.
Separation:	Graded rates based on experience as of June 30, 1990. Rates are shown in rate table.
Disability:	Rates as shown in rate table.

TABLE 12
(Continued)

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.
Family Composition:	85% of male Members and 65% of female Members are assumed to be married. Female is four years younger than male. Assume Members have no children.
Social Security:	N/A
Special Consideration:	<p>Married Members assumed to elect subsidized joint and survivor form of annuity as follows:</p> <p>Males - 30% elect 50% J&S option 45% elect 100% J&S option</p> <p>Females - 15% elect 50% J&S option 15% elect 100% J&S option</p>
Actuarial Cost Method:	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.
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 6% per annum.

TABLE 12
(Continued)

Public 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>	
20	3	1	2,542	2,913	9	9	0	0	7.7%
21	3	1	2,277	2,666	9	9	0	0	7.7
22	3	2	2,050	2,450	9	9	0	0	7.7
23	4	2	1,854	2,259	10	10	0	0	7.7
24	4	2	1,684	2,091	10	10	0	0	7.7
25	4	2	1,536	1,942	10	10	0	0	7.6
26	4	2	1,406	1,808	10	10	0	0	7.5
27	4	2	1,291	1,688	10	10	0	0	7.4
28	4	2	1,189	1,580	11	11	0	0	7.3
29	4	2	1,099	1,482	11	11	0	0	7.2
30	5	3	1,018	1,394	11	11	0	0	7.2
31	5	3	945	1,313	11	11	0	0	7.1
32	5	3	880	1,239	11	11	0	0	7.1
33	5	3	821	1,172	12	12	0	0	7.0
34	6	3	767	1,110	12	12	0	0	7.0
35	6	3	719	1,053	12	12	0	0	6.9
36	7	4	675	1,000	12	12	0	0	6.8
37	7	4	634	952	13	13	0	0	6.7
38	8	4	597	907	13	13	0	0	6.6
39	9	4	563	865	14	14	0	0	6.5
40	9	5	532	826	15	15	0	0	6.4
41	10	5	503	790	16	16	0	0	6.3
42	10	5	476	756	17	17	0	0	6.3
43	11	6	452	724	18	18	0	0	6.3
44	12	6	429	695	20	20	0	0	6.2
45	14	7	408	667	22	22	0	0	6.2
46	15	7	388	641	23	23	0	0	6.1
47	17	8	370	616	25	25	0	0	6.0
48	19	8	352	593	27	27	0	0	5.9
49	22	9	336	571	30	30	0	0	5.8

TABLE 12
(Continued)

Public 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	22	10	321	550	33	33	0	0	5.7%
51	25	11	316	531	36	36	0	0	5.7
52	28	12	310	513	40	40	0	0	5.7
53	31	14	270	495	45	45	0	0	5.7
54	35	15	230	487	51	51	0	0	5.7
55	39	16	195	478	58	58	0	0	5.7
56	43	18	150	410	66	66	0	0	5.7
57	48	19	100	362	76	76	0	0	5.7
58	52	21	50	210	88	88	0	0	5.7
59	57	23	20	50	102	102	0	0	5.0
60	61	25	0	0	118	118	0	0	5.0
61	66	28	0	0	136	136	0	0	5.0
62	71	31	0	0	157	157	0	0	5.0
63	77	34	0	0	181	181	0	0	5.0
64	83	38	0	0	208	208	10,000	10,000	5.0
65	91	42	0	0	0	0	0	0	5.0
66	101	47	0	0	0	0	0	0	5.0
67	111	52	0	0	0	0	0	0	5.0
68	124	58	0	0	0	0	0	0	5.0
69	139	64	0	0	0	0	0	0	5.0
70	156	71	0	0	0	0	0	0	5.0

TABLE 14

Public 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	3,570,304	4,988,671	1,418,367	71.57%	2,124,409	66.77%
07/01/92	3,978,110	5,439,953	1,461,843	73.13%	2,299,532	63.57%
07/01/93	4,374,459	5,784,318	1,409,859	75.63%	2,403,558	58.66%
07/01/94	4,747,128	6,223,622	1,476,494	76.28%	2,557,522	57.73%
07/01/95	5,138,461	6,622,069	1,483,608	77.60%	2,679,069	55.38%
07/01/96	5,786,398	7,270,073	1,483,675	79.59%	2,814,126	52.72%
07/01/97	6,658,410	8,049,666	1,391,256	82.72%	2,979,260	46.70%
07/01/98	7,636,668	8,769,303	1,132,635	87.08%	3,271,737	34.62%

TABLE 15

Public 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	10.04%	2,124,409	94,413	118,878	101,907	85.72%
1992	9.44%	2,299,532	101,655	115,421	109,203	94.61%
1993	9.95%	2,403,558	106,359	132,795	113,183	85.23%
1994	9.58%	2,557,522	112,940	132,071	119,390	90.40%
1995	9.76%	2,679,069	115,986	145,491	123,984	85.22%
1996	9.61%	2,814,126	121,525	148,913	129,738	87.12%
1997	9.75%	2,979,260	128,234	162,244	136,686	84.25%
1998	9.62% ***	3,271,737	140,385	174,356	151,499	86.89%
1999	9.63% ***					

* Actuarially Required Contributions determined for years ended 6/30/95, 6/30/96, and 6/30/97 did not comply with the parameters of GASB Statement No. 25 since a one-percent growth in covered population is assumed in the amortization calculation.

** Includes contributions from other sources (if applicable).

*** Actuarially Required Contribution Rate calculated according to parameters of GASB 25 with no assumption for growth of covered population.

TABLE 3A
BASIC

PUBLIC 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	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	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	1	5	9	15
50-54	0	0	0	0	0	0	7	231	238
55-59	0	0	0	0	0	0	7	325	332
60-64	0	0	0	0	0	0	3	167	170
65+	0	0	0	0	0	0	2	67	69
ALL	0	0	0	0	0	1	24	799	824

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	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	16,262	37,169	38,974	36,858
50-54	0	0	0	0	0	0	46,831	42,766	42,886
55-59	0	0	0	0	0	0	51,130	41,212	41,421
60-64	0	0	0	0	0	0	25,232	34,462	34,299
65+	0	0	0	0	0	0	16,578	28,515	28,169
ALL	0	0	0	0	0	16,262	40,851	39,161	39,182

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	0	0	0	0	16	980	31,290	32,286

TABLE 4A
BASIC

PUBLIC 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	2	0	0	0	0	0	0	2
50-54	11	6	1	0	0	0	0	18
55-59	158	176	10	0	0	0	0	344
60-64	140	614	359	7	0	0	0	1,120
65-69	63	567	830	405	1	0	0	1,866
70-74	12	119	854	1,350	106	1	0	2,442
75-79	2	18	148	1,485	788	25	2	2,468
80-84	1	4	13	245	1,505	250	1	2,019
85+	0	0	5	16	178	1,017	398	1,614
ALL	389	1,504	2,220	3,508	2,578	1,293	401	11,893

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	16,544	0	0	0	0	0	0	16,544
50-54	26,141	15,872	12,452	0	0	0	0	21,958
55-59	25,595	26,664	18,755	0	0	0	0	25,943
60-64	21,882	27,700	24,693	24,682	0	0	0	25,990
65-69	20,232	22,285	22,572	25,400	6,404	0	0	23,011
70-74	16,089	20,534	17,385	23,804	27,231	14,984	0	21,507
75-79	23,094	23,561	16,285	18,311	18,172	12,919	16,172	18,131
80-84	5,136	15,197	17,330	15,755	14,219	17,034	7,295	14,768
85+	0	0	15,318	12,912	12,415	11,270	8,518	10,747
ALL	23,000	24,840	20,432	21,053	15,835	12,419	8,553	18,989

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	8,947	37,359	45,359	73,853	40,822	16,057	3,429	225,836

TABLE 5A
BASIC

PUBLIC EMPLOYEES RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1998

<u>Age</u>	<u>Years Since Death</u>							<u>ALL</u>
	<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	1	4	10	7	6	0	1	29
50-54	0	5	9	8	3	3	0	28
55-59	1	12	35	14	12	7	1	82
60-64	2	24	41	54	23	14	5	163
65-69	0	19	70	143	37	28	23	320
70-74	0	3	61	275	155	53	44	591
75-79	0	4	33	168	259	120	82	666
80-84	0	8	37	67	206	222	120	660
85+	6	43	70	102	107	252	308	888
ALL	10	122	366	838	808	699	584	3,427

AVERAGE ANNUAL BENEFIT

<u>Age</u>	<u>Years Since Death</u>							<u>ALL</u>
	<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	9,528	9,496	14,487	13,235	19,873	0	4,785	14,105
50-54	0	24,619	20,314	14,270	8,192	12,139	0	17,181
55-59	63,239	22,807	17,915	18,900	15,599	10,572	6,229	18,244
60-64	13,077	17,501	19,484	20,831	14,770	11,521	5,958	17,796
65-69	0	14,369	12,645	21,912	14,270	12,193	6,250	16,577
70-74	0	24,694	11,941	19,072	14,055	11,297	4,959	15,301
75-79	0	5,327	8,165	15,919	12,516	11,289	4,449	11,901
80-84	0	8,663	5,915	9,309	12,331	9,279	4,542	9,177
85+	5,697	5,771	5,495	7,475	8,974	9,272	6,103	7,439
ALL	13,310	12,628	11,585	16,748	12,524	9,961	5,466	11,737

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<u>Age</u>	<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>	<u>ALL</u>
All	133	1,540	4,240	14,034	10,119	6,962	3,192	40,222

TABLE 6A
BASIC

PUBLIC 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	0	0	0	0	0	0	0	0
50-54	3	5	0	1	1	0	0	10
55-59	3	14	8	3	1	0	0	29
60-64	1	12	25	8	7	4	0	57
65-69	0	7	3	1	1	0	0	12
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	7	38	36	13	10	4	0	108

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	32,583	33,601	0	15,826	7,366	0	0	28,895
55-59	39,648	19,299	22,729	18,827	16,827	0	0	22,216
60-64	7,770	19,989	29,581	29,783	17,576	8,033	0	24,221
65-69	0	22,781	18,587	24,133	21,601	0	0	21,747
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	32,066	22,040	27,142	25,747	16,883	8,033	0	23,841

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	224	837	977	334	168	32	0	2,574

TABLE 11A
Basic

Public Employees Retirement Fund

Determination Of Contribution Sufficiency
(dollars in thousands)

JULY 1, 1998

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	8.75%	\$2,981
2. Employer Contributions	11.43%	3,894
3. Total	<u>20.18%</u>	<u>\$6,875</u>
 B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	4.04%	\$1,377
b. Disability benefits	0.74%	251
c. Survivors	0.43%	146
d. Deferred Retirement Benefits	3.38%	1,150
e. Refunds Due to Death or Withdrawal	<u>0.01%</u>	<u>2</u>
f. Total	<u>8.60%</u>	<u>\$2,926</u>

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1998 is \$34,066.

Public Employees Retirement Fund

Summary of Plan Provisions

GENERAL

<i>Eligibility:</i>	A public employee who is not covered under the Social Security Act. General exceptions are employees covered by other public funds and certain part-time employees.
<i>Contributions:</i>	
<i>Member:</i>	8.75%* of total salary thereafter.
<i>Employer:</i>	11.43%* of total salary. Additional 2.68% is repealed at full funding.
<i>Allowable Service:</i>	Service during which Member contributions were deducted. May also include certain leaves of absence and military service.
<i>Salary:</i>	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes unused annual leave and sick leave payments, severance payments, Workers' Compensation benefits and employer-paid flexible spending accounts, cafeteria plans, healthcare expense accounts, day-care expenses, fringe benefits and the cost of insurance coverage.
<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.

**Contribution rate increases are effective first full pay period after 12/31/97.*

RETIREMENT

Normal Retirement Benefit:

<i>Eligibility:</i>	Age 65 and three years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.
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Amount: The greater of:
2.2% of Average Salary for each of the first 10 years of Allowable Service and 2.7% of Average Salary for each subsequent year;
OR
2.7% of Average Salary for each year of Allowable Service.

Early Retirement Benefit:

Eligibility: 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.

Amount: The greater of
2.2% of Average Salary for each of the first 10 years of Allowable Service and 2.7% 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
2.7% 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.

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

25%, 50%, 75% or 100% joint and survivor with bounce back feature without additional reduction (option canceled if Member is pre-deceased by beneficiary).

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. Members receiving benefits for at least one full month but less than 12 full months will receive a partial increase.

Benefit Increases: (continued) 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 the difference between \$400 times each full year of Allowable Service and the sum of the benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the preceding fiscal year July 1, 1988 through June 30, 1989. 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. Supplemental benefit of \$25 per month payable to the later of the normal retirement age or the 5-year anniversary at commencement of disability. The disability benefit is reduced to that amount which, when added to Workers' Compensation, does not exceed the salary the disabled Member received as of the date of the disability or the salary currently payable for the same employment position substantially similar to the one the person held as of the date of the disability, whichever is greater.

If a Member became disabled prior to July 1, 1997 but did not commence their benefit before July 1, 1997, the benefit payable is calculated under the laws in effect at the time the Member became disabled, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Payments stop if disability ceases. If death occurs prior to age 65 or within five years of disability, the surviving spouse can receive a refund or a survivor benefit. Dependent children are entitled to dependent child benefits subject to the 70% family maximum. Payments change 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: Adjusted by PERA to provide same increase as MPRIF.

Retirement After Disability

Eligibility: Normal retirement age.

Amount: Any optional annuity continues. Otherwise, the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.

Benefit Increases: Same as for retirement.

DEATH

Surviving Spouse Benefit

Eligibility: Active Member with 18 months of Allowable Service or Member receiving a disability benefit.

Amount: 50% of salary averaged over last six months. Family benefit is maximum of 70% and minimum of 50% of average salary. Benefit paid until spouse's death but no payments while spouse is remarried prior to July 1, 1991.

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, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

TABLE 13A
BASIC
(Continued)

Surviving spouse optional annuity may be elected in lieu of this benefit.

Surviving Dependent Child Benefit

Eligibility: Active Member with 18 months of Allowable Service or Member receiving a disability benefit.

Amount: 10% of salary averaged over last six months for each child. Family benefit minimum (including spouse's benefit) of 50% of salary and maximum of 70% of average salary. Benefits paid until child marries, dies, or attains age 18 (age 22 if full-time student.)

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, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Surviving Spouse Optional Annuity

Eligibility: Member or former Member who dies before retirement benefits commence and other survivor annuity is waived by spouse.

Amount: Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer.

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, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

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

Refund of Contributions

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

Amount: The excess of the Member's contributions with 6% interest over any disability or survivor benefits paid.

TERMINATION

Refund of Contributions

Eligibility: Termination of public 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 Benefit

Eligibility: Three years of Allowable Service.

Amount: Benefit computed under law in effect at termination and increased by the following percentage compounded annually: 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%.

SUMMARY OF SIGNIFICANT CHANGES

No significant changes were recognized for this valuation.

**TABLE 3B
COORDINATED**

PUBLIC 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	2,129	2,175	30	0	0	0	0	0	4,334
25-29	2,439	6,045	1,176	25	0	0	0	0	9,685
30-34	1,928	5,571	3,584	1,144	17	0	0	0	12,244
35-39	2,366	6,791	4,952	3,292	1,396	62	0	0	18,859
40-44	2,003	6,961	6,290	3,985	2,869	1,483	62	0	23,653
45-49	3,322	7,588	6,140	4,552	2,857	2,612	965	17	28,053
50-54	738	2,834	3,800	3,825	2,712	2,111	1,467	184	17,671
55-59	436	1,694	2,155	2,307	2,020	1,664	1,196	303	11,775
60-64	227	921	1,101	1,187	1,061	997	764	143	6,401
65+	204	682	635	450	275	222	166	33	2,667
ALL	15,792	41,262	29,863	20,767	13,207	9,151	4,620	680	135,342

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	9,642	12,740	15,901	0	0	0	0	0	11,240
25-29	13,210	19,125	23,878	28,273	0	0	0	0	18,236
30-34	13,048	20,352	28,194	29,264	24,464	0	0	0	22,336
35-39	11,520	17,911	27,174	33,337	31,367	33,030	0	0	23,280
40-44	11,479	16,981	24,073	32,101	35,686	34,823	34,635	0	24,382
45-49	10,103	15,571	22,850	29,464	35,858	39,930	38,916	35,819	23,920
50-54	13,598	17,822	23,198	27,005	31,154	38,247	43,591	44,686	27,695
55-59	10,987	16,189	21,972	25,615	27,791	30,649	36,666	45,055	25,758
60-64	9,639	12,869	19,881	24,017	26,174	27,876	29,480	41,129	23,185
65+	7,388	8,903	14,391	16,851	20,563	21,740	24,631	41,297	15,085
ALL	11,413	17,220	24,191	29,106	32,035	35,225	37,687	43,716	23,399

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	180	711	722	604	423	322	174	30	3,167

**TABLE 4B
COORDINATED**

PUBLIC 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	1	0	0	0	0	0	0	1
50-54	9	3	0	0	0	0	0	12
55-59	502	848	2	0	0	0	0	1,352
60-64	1,021	2,065	829	1	0	0	0	3,916
65-69	696	3,536	2,223	381	0	0	0	6,836
70-74	118	888	3,352	1,538	9	0	0	5,905
75-79	27	205	718	2,246	361	3	0	3,560
80-84	7	29	118	554	1,110	45	0	1,863
85+	2	10	15	81	226	415	100	849
ALL	2,383	7,584	7,257	4,801	1,706	463	100	24,294

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	5,900	0	0	0	0	0	0	5,900
50-54	11,773	6,614	0	0	0	0	0	10,483
55-59	5,832	4,328	14,778	0	0	0	0	4,902
60-64	6,951	6,030	4,225	14,750	0	0	0	5,890
65-69	6,619	6,062	5,472	4,327	0	0	0	5,830
70-74	4,031	6,110	5,484	5,966	15,488	0	0	5,690
75-79	2,238	4,347	4,524	5,155	6,150	4,521	0	5,059
80-84	2,886	3,978	3,205	4,019	4,870	8,453	0	4,577
85+	2,416	3,863	1,679	1,827	3,742	5,451	4,408	4,435
ALL	6,422	5,808	5,199	5,164	5,047	5,737	4,408	5,499

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	15,303	44,047	37,729	24,792	8,610	2,656	440	133,592

**TABLE 5B
COORDINATED**

PUBLIC 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	23	115	38	13	4	0	0	193
50-54	11	47	13	12	2	1	0	86
55-59	19	92	52	14	1	0	0	178
60-64	13	106	99	38	13	0	0	269
65-69	4	87	142	112	15	2	0	362
70-74	3	28	144	200	59	8	1	443
75-79	0	16	44	188	135	23	1	407
80-84	0	3	11	53	101	66	2	236
85+	0	0	5	9	30	70	17	131
ALL	73	494	548	639	360	170	21	2,305

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	5,300	6,616	5,723	4,745	6,759	0	0	6,160
50-54	7,780	7,691	7,258	6,338	1,010	1,368	0	7,219
55-59	7,129	6,819	4,410	4,624	3,645	0	0	5,958
60-64	6,428	6,492	5,981	5,634	4,434	0	0	6,080
65-69	2,544	5,028	4,683	5,477	3,377	5,790	0	4,940
70-74	7,319	4,655	5,011	6,504	4,581	3,718	2,733	5,592
75-79	0	3,609	4,525	5,535	4,847	4,953	2,213	5,081
80-84	0	1,291	2,701	4,340	4,882	4,272	2,372	4,421
85+	0	0	1,935	1,421	4,458	5,277	4,418	4,586
ALL	6,283	6,209	5,033	5,656	4,701	4,753	4,038	5,416

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	458	3,067	2,758	3,614	1,692	808	84	12,483

TABLE 6B
COORDINATED

PUBLIC 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	42	144	65	7	0	0	0	258
50-54	42	93	37	10	1	0	0	183
55-59	48	159	56	13	3	1	0	280
60-64	40	174	102	33	2	1	0	352
65-69	1	19	12	10	0	0	0	42
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	173	589	272	73	6	2	0	1,115

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	6,331	5,594	5,133	2,651	0	0	0	5,518
50-54	7,354	6,587	6,741	4,798	8,248	0	0	6,706
55-59	7,230	7,076	6,321	5,143	7,210	1,860	0	6,845
60-64	8,129	6,918	7,088	5,532	5,319	4,429	0	6,959
65-69	8,202	6,105	8,437	4,991	0	0	0	6,556
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	7,255	6,559	6,475	5,012	6,753	3,145	0	6,540

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	1,255	3,863	1,761	365	40	6	0	7,292

Public Employees Retirement Fund

Determination Of Contribution Sufficiency
(dollars in thousands)

JULY 1, 1998

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	4.75%	\$159,199
2. Employer Contributions	5.18%	173,610
3. Total	<u>9.93%</u>	<u>\$332,809</u>
 B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	4.50%	\$150,909
b. Disability benefits	0.61%	20,426
c. Survivors	0.13%	4,465
d. Deferred Retirement Benefits	2.13%	71,398
e. Refunds Due to Death or Withdrawal	<u>0.22%</u>	<u>7,505</u>
f. Total	<u>7.59%</u>	<u>\$254,703</u>

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1998 is \$3,351,551.

Public Employees Retirement Fund

Summary of Plan Provisions

GENERAL

<i>Eligibility</i>	A public employee who is covered under the Social Security Act. General exceptions are employees covered by other public funds and certain part-time employees. City managers and persons holding elective office may choose to become Members.
<i>Contributions</i>	
<i>Member:</i>	4.75%* of total salary.
<i>Employer:</i>	5.18%* of total salary. Additional 0.43% is repealed at full funding.
<i>Allowable Service:</i>	Service during which Member contributions were deducted. May also include certain leaves of absence and military service.
<i>Salary:</i>	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes unused annual leave and sick leave payments, severance payments, Workers' Compensation benefits and employer-paid flexible spending accounts, cafeteria plans, healthcare expense accounts, day-care expenses, fringe benefits and the cost of insurance coverage.
<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.

**Contribution rate increases are effective first full pay period after 12/31/97.*

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.
<i>Amount:</i>	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; <div style="text-align: center;">OR</div> 1.7% of Average Salary for each year of Allowable Service.
<i>Eligibility:</i>	First hired after June 30, 1989: The greater of age 65 or the age eligible for full Social Security retirement benefits but no later than age 66 and three years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service.
<i>Amount:</i>	1.7% of Average Salary for each year of Allowable Service.

Early Retirement Benefit

<i>Eligibility:</i>	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.
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<i>Amount:</i>	<p>First hired before July 1, 1989:</p> <p>The greater of</p> <p>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;</p> <p style="text-align: center;">OR</p> <p>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.</p> <p>First hired after June 30, 1989:</p> <p>1.7% of Average Salary for each year of allowable Service assuming augmentation to the age eligible for full Social Security retirement benefits at 3% per year and actuarial reduction for each month the Member is under the Social Security retirement age, but no later than age 66.</p>
<i>Form of Payment:</i>	<p>Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are:</p> <p>25%, 50%, 75% or 100% joint and survivor with bounce back feature without additional reduction (option canceled if Member is pre-deceased by beneficiary).</p>
<i>Benefit Increases:</i>	<p>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.</p>

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 \$25 times each full year of Allowable Service. 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. The disability benefit is reduced to that amount which, when added to Workers' Compensation, does not exceed the salary the disabled Member received as of the date of the disability or the salary currently payable for the same employment position substantially similar to the one the person held as of the date of the disability, whichever is greater.

If a Member became disabled prior to July 1, 1997 but did not commence their benefit before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and 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 change 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: Adjusted by PERA to provide same increase as MPRIF.

Retirement After Disability

<i>Eligibility:</i>	Normal retirement age.
<i>Amount:</i>	Any optional annuity continues. Otherwise, the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.
<i>Benefit Increases:</i>	Same as for retirement.

DEATH

Surviving Spouse Optional Annuity

<i>Eligibility:</i>	Member or former Member who dies before retirement or disability benefits commence.
<i>Amount:</i>	<p>Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer.</p> <p>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, the benefit payable is calculated under the laws in effect before July 1, 1997, and 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 PERA to provide same increase as MPRIF.

Refund of Contributions

<i>Eligibility:</i>	Member dies before receiving any retirement benefits and survivor benefits are not payable.
<i>Amount:</i>	The excess of the Member's contributions with 6% interest over any disability or survivor benefits paid.

TERMINATION

Refund of Contributions

<i>Eligibility:</i>	Termination of public service.
<i>Amount:</i>	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 Benefit

<i>Eligibility:</i>	Three years of Allowable Service.
<i>Amount:</i>	<p>Benefit computed under law in effect at termination and increased by the following percentage compounded annually: 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.</p> <p>If a Member terminated employment prior to July 1, 1997 but was not eligible to commence their pension before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.</p>

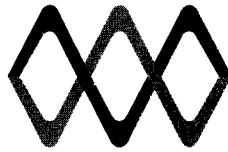
SUMMARY OF SIGNIFICANT CHANGES

No significant changes were recognized for this valuation.

Public Employees Police and Fire Fund
ACTUARIAL VALUATION REPORT

July 1, 1998

 **FILE COPY**



MILLIMAN & ROBERTSON, INC.

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December 2, 1998

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

RE: Public Employees Police and Fire 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 Public Employees Retirement Association.

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

Public Employees Police and Fire Fund

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Public Employees Police and Fire Fund

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Public Employees Police and Fire Fund

Report Highlights
(dollars in thousands)

	07/01/97 Valuation	07/01/98 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	19.00%	19.00%
2. Required Contributions - Chapter 356 % of Payroll	15.21%	11.40%
3. Sufficiency (Deficiency): (A.1. - A.2.)	3.79%	7.60%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$1,974,635	\$2,337,313
b. Current Benefit Obligations (Table 8)	\$1,491,292	\$1,638,101
c. Funding Ratio: (a/b)	132.41%	142.68%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$1,974,635	\$2,337,313
b. Actuarial Accrued Liability (Table 9)	\$1,556,483	\$1,741,344
c. Funding Ratio: (a/b)	126.87%	134.22%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$2,759,995	\$3,218,158
b. Current and Expected Future Benefit Obligations	\$2,518,903	\$2,712,061
c. Funding Ratio: (a/b)	109.57%	118.66%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	8,079	8,499
b. Projected Annual Earnings	\$369,503	\$399,499
c. Average Annual Earnings (Actual \$)	\$45,736	\$47,005
d. Average Age	38.4	38.3
e. Average Service	10.4	10.1
2. Others		
a. Service Retirements (Table 4)	1,608	1,781
b. Survivors (Table 5)	471	492
c. Disability Retirements (Table 6)	215	251
d. Deferred Retirements (Table 7)	292	314
e. Terminated Other Non-vested (Table 7)	201	194
f. Total	2,787	3,032

Public Employees Police and Fire 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 142.68%. The corresponding ratio for the prior year was 132.41%
- 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 134.22%, which is an increase from the 1997 value of 126.87%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 118.66% 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 19.00% compared to the Required Contribution Rate of 11.40%.

This valuation measures sufficiency based on the Statutory Contribution Rates in effect on July 1, 1998. With the completion of this valuation, the conditions for a reduction in Statutory Contribution Rates under the provisions of Minnesota Statutes Chapter 353.65, Subd. 3a have been satisfied. The results of this valuation would suggest that new contribution rates would be set at or near 4.6% for employees and 6.9% for employers for contributions made for the first full payroll period beginning after June 1999.

Based on this expected reduction in Statutory Contribution Rates the Projected Benefit Funding Ratio would become 101.36% instead of the 118.66% shown on page 1.

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 the plan provisions since the last valuation.

TABLE 1

Public Employees Police and Fire 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	\$19,665	\$19,665
2. Fixed Income	450,170	443,732
3. Equity	1,397,211	1,145,036
4. Real Estate	72,796	57,549
5. Equity in MPRIF	584,050	584,050
6. Other	0	0
Subtotal	<u>\$2,523,892</u>	<u>\$2,250,032</u>
B. ASSETS RECEIVABLE	139	139
C. LIABILITIES	(4,145)	(4,145)
<hr/>		
D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
1. MPRIF Reserves	584,050	584,050
2. Member Reserves	245,499	245,499
3. Other Non-MPRIF Reserves	1,690,337	1,416,477
4. Total Assets Available for Benefits	<u>\$2,519,886</u>	<u>\$2,246,026</u>
<hr/>		
E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D4)		\$2,246,026
2. Market Value (D4)	\$2,519,886	
3. Cost Value (D4)	2,246,026	
4. Market Over Cost: (E2-E3)	<u>\$273,860</u>	
5. One-third of Market Over Cost: (E4)/3		91,287
6. Actuarial Value of Assets (E1+E5) (Same as "Current Assets")		<u>\$2,337,313</u>

TABLE 2

Public Employees Police and Fire 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	\$2,075,157	\$1,924,376
B. ADDITIONS		
1. Member Contributions	\$28,552	\$28,552
2. Employer Contributions	42,786	42,786
3. Contributions From Other Sources	0	0
4. MPRIF Income	74,117	74,117
5. Net Investment Income		
a. Interest and Dividends	201,708	201,708
b. Net Realized Gain (Loss)	34,772	34,772
c. Net Change in Unrealized Gain (Loss)	123,079	0
d. Investment Expenses	(2,608)	(2,608)
Net Subtotal	<u>356,951</u>	<u>233,872</u>
6. Other	193	193
7. Total Additions	<u>\$502,599</u>	<u>\$379,520</u>
C. OPERATING EXPENSES		
1. Service Retirements paid from MPRIF	\$46,572	\$46,572
2. Service Retirements paid from plan assets	277	277
2. Disability Benefits	5,888	5,888
3. Survivor Benefits	3,297	3,297
4. Refunds	1,181	1,181
6. Administrative Expenses	525	525
7. Other	<u>130</u>	<u>130</u>
8. Total Disbursements	<u>\$57,870</u>	<u>\$57,870</u>
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u><u>\$2,519,886</u></u>	<u><u>\$2,246,026</u></u>

TABLE 3

PUBLIC EMPLOYEES POLICE AND FIRE 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	120	103	0	0	0	0	0	0	223
25-29	245	904	176	0	0	0	0	0	1,325
30-34	118	597	741	213	0	0	0	0	1,669
35-39	64	286	494	632	196	0	0	0	1,672
40-44	48	103	228	347	479	176	0	0	1,381
45-49	57	99	83	162	276	469	118	0	1,264
50-54	11	24	35	64	91	214	245	26	710
55-59	6	10	18	17	30	34	41	31	187
60-64	0	3	9	13	1	12	11	5	54
65+	0	2	2	4	1	1	1	3	14
ALL	669	2,131	1,786	1,452	1,074	906	416	65	8,499

AVERAGE ANNUAL EARNINGS

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	20,676	28,182	0	0	0	0	0	0	24,143
25-29	23,086	36,487	42,834	0	0	0	0	0	34,852
30-34	27,287	38,939	46,996	48,579	0	0	0	0	42,923
35-39	29,686	39,345	47,273	49,945	51,302	0	0	0	46,726
40-44	32,034	37,604	45,089	50,354	51,209	50,669	0	0	48,234
45-49	23,598	38,740	42,053	48,431	50,388	51,248	52,375	0	47,974
50-54	38,851	41,050	41,431	45,592	49,999	49,939	53,928	54,838	50,219
55-59	32,940	33,631	31,400	37,304	37,397	48,923	52,468	54,658	44,728
60-64	0	47,915	39,517	45,483	23,799	44,716	47,005	55,056	45,248
65+	0	37,586	19,320	13,810	50,686	39,466	30,057	44,628	30,225
ALL	25,059	37,370	45,854	49,194	50,501	50,640	53,103	54,298	44,177

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	16,765	79,636	81,895	71,430	54,238	45,880	22,091	3,529	375,460

TABLE 4

PUBLIC EMPLOYEES POLICE AND FIRE 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	1	0	0	0	0	0	0	1
50-54	73	54	0	0	0	0	0	127
55-59	105	249	23	0	0	0	0	377
60-64	42	133	209	0	0	0	0	384
65-69	4	65	117	152	1	0	0	339
70-74	0	8	60	104	82	0	0	254
75-79	0	2	7	48	75	24	0	156
80-84	0	0	1	8	39	39	7	94
85+	0	0	0	5	4	24	16	49
ALL	225	511	417	317	201	87	23	1,781

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	10,922	0	0	0	0	0	0	10,922
50-54	29,413	20,630	0	0	0	0	0	25,679
55-59	31,789	31,404	21,703	0	0	0	0	30,919
60-64	22,586	31,222	27,876	0	0	0	0	28,456
65-69	18,941	20,812	27,166	29,112	8,201	0	0	26,667
70-74	0	25,833	19,218	27,034	29,282	0	0	25,876
75-79	0	30,058	17,849	24,946	20,541	27,789	0	23,013
80-84	0	0	43,464	12,286	18,017	19,252	8,933	17,636
85+	0	0	0	14,604	18,502	14,231	11,589	13,755
ALL	28,979	28,778	25,960	27,146	23,515	20,222	10,781	26,609

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	6,520	14,705	10,825	8,605	4,726	1,759	247	47,390

TABLE 5

PUBLIC EMPLOYEES POLICE AND FIRE 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	5	16	23	12	2	0	0	58
50-54	1	10	6	8	3	2	0	30
55-59	1	10	11	5	6	1	0	34
60-64	2	4	9	16	9	4	3	47
65-69	0	1	13	21	14	6	2	57
70-74	0	0	8	26	28	11	9	82
75-79	0	0	2	15	26	19	3	65
80-84	1	2	3	10	19	16	13	64
85+	0	0	4	5	10	12	24	55
ALL	10	43	79	118	117	71	54	492

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	24,928	26,035	23,427	19,477	16,819	0	0	23,231
50-54	20,259	26,476	20,470	20,426	19,928	13,854	0	21,958
55-59	7,222	17,747	19,454	21,848	20,906	14,067	0	19,042
60-64	13,758	23,154	21,188	20,949	19,001	14,915	4,600	18,946
65-69	0	12,043	16,319	22,032	14,957	13,162	3,710	17,240
70-74	0	0	9,049	17,442	16,081	12,718	6,124	14,283
75-79	0	0	4,251	11,802	15,543	12,738	5,006	13,026
80-84	6,236	5,505	6,628	10,354	14,983	11,433	6,383	10,801
85+	0	0	6,046	8,683	9,246	7,464	5,668	7,012
ALL	18,587	22,662	17,765	17,642	15,648	11,758	5,748	15,491

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	185	974	1,403	2,081	1,830	834	310	7,621

TABLE 6

PUBLIC EMPLOYEES POLICE AND FIRE 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	20	48	23	13	0	0	0	104
50-54	15	29	19	5	2	2	0	72
55-59	3	42	7	0	2	0	0	54
60-64	3	12	0	0	0	0	0	15
65-69	0	6	0	0	0	0	0	6
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	41	137	49	18	4	2	0	251

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	25,258	22,607	21,572	20,173	0	0	0	22,584
50-54	25,761	26,480	25,012	25,050	22,845	15,119	0	25,427
55-59	29,048	31,951	24,438	0	27,998	0	0	30,669
60-64	12,114	21,797	0	0	0	0	0	19,860
65-69	0	19,710	0	0	0	0	0	19,710
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	24,758	26,094	23,315	21,528	25,422	15,119	0	24,907

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	1,015	3,574	1,142	387	101	30	0	6,251

TABLE 7

Public Employees Police and Fire Fund

Reconciliation Of Members

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 1997	8,079	292	201
B. ADDITIONS	776	65	54
C. DELETIONS			
1. Service Retirement	(176)	(25)	(8)
2. Disability	(40)	(4)	(1)
3. Death	(5)	0	(2)
4. Terminated - Deferred	(65)	0	0
5. Terminated - Refund	(33)	0	(37)
6. Terminated - Other Non-Vested	(34)	0	0
7. Returned as Active	0	(14)	(15)
8. Transferred to Other Fund	0	0	0
D. DATA ADJUSTMENTS	(3)	0	2
Vested	6,656		
Non-Vested	1,843		
E. TOTAL ON JUNE 30, 1998	8,499	314	194

	Retirement Annuitants	Recipients	
		Disabled	Survivors
A. ON JUNE 30, 1997	1,608	215	471
B. ADDITIONS	229	50	32
C. DELETIONS			
1. Service Retirement	0	(11)	0
2. Death	(53)	(3)	(8)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	(3)	0	(3)
E. TOTAL ON JUNE 30, 1998	1,781	251	492

TABLE 8

Public Employees Police and Fire Fund

Actuarial Balance Sheet*(dollars in thousands)*

JULY 1, 1998

A. CURRENT ASSETS (TABLE 1, E6)				\$2,337,313
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)				(\$89,872)
2. Present Value of Future Normal Costs				970,717
3. Total Expected Future Assets				<u>\$880,845</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				<u>\$3,218,158</u>
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>		<u>Total</u>
1. Benefit Recipients				
a. Retirement Annuities		\$542,323		\$542,323
b. Disability Benefits		58,300		58,300
c. Surviving Spouse and Child Benefits		82,162		82,162
2. Deferred Retirements with Future Augmentation		28,440		28,440
3. Former Members without Vested Rights		289		289
4. Active Members				
a. Retirement Annuities	7,004	771,491		778,495
b. Disability Benefits	74,655	0		74,655
c. Survivor's Benefits	29,794	0		29,794
d. Deferred Retirements	1,463	41,083		42,546
e. Refund Liability Due to Death or Withdrawal	0	1,097		1,097
5. Total Current Benefit Obligations	<u>\$112,916</u>	<u>\$1,525,185</u>		<u>\$1,638,101</u>
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$1,073,960</u>
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$2,712,061</u>
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				(\$699,212)
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				(\$506,097)

TABLE 9

Public Employees Police and Fire Fund

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

JULY 1, 1998

	Actuarial Present Value of Projected Benefits (1)	Actuarial Present Value of Future Normal Costs (2)	Actuarial Accrued Liability (3)=(1)-(2)
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$1,700,545	\$760,255	\$940,290
b. Disability Benefits	153,895	97,910	55,985
c. Survivor's Benefit	61,018	38,343	22,675
d. Deferred Retirements	82,593	72,028	10,565
e. Refunds Due to Death or Withdrawal	2,496	2,181	315
f. Total	<u>\$2,000,547</u>	<u>\$970,717</u>	<u>\$1,029,830</u>
2. Deferred Retirements With Future Augmentation	28,440		28,440
3. Former Members Without Vested Rights	289		289
4. Annuitants in MPRIF	584,050		584,050
5. Recipients Not in MPRIF	<u>98,735</u>		<u>98,735</u>
6. Total	<u>\$2,712,061</u>	<u>\$970,717</u>	<u>\$1,741,344</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$1,741,344
2. Current Assets (Table 1, E6)			<u>2,337,313</u>
3. UAAL (B1-B2)			<u>(\$595,969)</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$6,657,153
2. Supplemental Contribution Rate (B3/C1)			-8.95%

TABLE 10

Public Employees Police and Fire Fund

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

YEAR ENDING JUNE 30, 1998

A. UAAL AT BEGINNING OF YEAR	(\$418,152)
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$80,500
2. Contribution	(71,339)
3. Interest on A, B1 and B2	<u>(35,154)</u>
4. Total (B1+B2+B3)	<u>(\$25,993)</u>
C. EXPECTED UAAL AT END OF YEAR (A+B4)	(\$444,145)
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$20,756)
2. Investment Return	(147,834)
3. MPRIF Mortality	2,931
4. Mortality of Other Benefit Recipients	1,228
5. Other Items	<u>12,607</u>
6. Total	<u>(\$151,824)</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	(\$595,969)
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>(\$595,969)</u></u>

TABLE 11

Public Employees Police and Fire Fund

Determination Of Contribution Sufficiency*(dollars in thousands)*

JULY 1, 1998

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	7.60%	\$30,362
2. Employer Contributions	11.40%	45,543
3. Total	19.00%	\$75,905
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	15.88%	\$63,424
b. Disability benefits	2.04%	8,135
c. Survivors	0.82%	3,295
d. Deferred Retirement Benefits	1.43%	5,705
e. Refunds Due to Death or Withdrawal	0.04%	160
f. Total	20.21%	\$80,719
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	-8.95%	(35,755)
3. Allowance for Expenses	0.14%	559
4. Total	11.40%	\$45,523
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	7.60%	\$30,382

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1998 is \$399,499.

Public Employees Police and Fire Fund

Summary of Actuarial Assumptions and Methods

<i>Interest:</i>	Pre-Retirement: 8.5% per annum Post-Retirement: 8.5% per annum
<i>Benefit Increases After Retirement:</i>	Payment of earnings on retired reserves in excess of 6% accounted for by 6% post-retirement assumption.
<i>Salary Increases:</i>	Reported salary for prior fiscal year, with new hires annualized, increased to current fiscal year and annually for each future year according to the rate table below.
<i>Mortality:</i>	Pre-Retirement: Male - 1983 Group Annuity Mortality Table for males setback five years. Female - 1983 Group Annuity Mortality Table for females setback five years. Post-Retirement: Male - 1983 Group Annuity Mortality Table for males Female - 1983 Group Annuity Mortality Table for females Post-Disability: Male - 1965 RRB rates Female - 1965 RRB rates
<i>Retirement Age:</i>	Rates as shown in table.
<i>Separation:</i>	Graded rates based on plan experience through June 30, 1992. Rates are shown in rate table.
<i>Disability:</i>	Rates as shown in rate table.
<i>Expenses:</i>	Prior year 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 male Members and 65% of female Members are assumed to be married. Female is four years younger than male. Assume Members have no children.				
<i>Social Security:</i>	N/A				
<i>Special Consideration:</i>	Married Members assumed to elect subsidized joint and survivor form of annuity as follows: <table> <tr> <td>Males -</td><td>40% elect 50% J&S option 45% elect 100% J&S option</td></tr> <tr> <td>Females -</td><td>15% elect 50% J&S option 15% elect 100% J&S option</td></tr> </table>	Males -	40% elect 50% J&S option 45% elect 100% J&S option	Females -	15% elect 50% J&S option 15% elect 100% J&S option
Males -	40% elect 50% J&S option 45% elect 100% J&S option				
Females -	15% elect 50% J&S option 15% 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 6.0% per annum.				

TABLE 12
(Continued)

Public Employees Police and Fire Fund

Summary of Actuarial Assumptions and Methods

Separations Expressed as the 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>	
20	3	1	859	859	11	11	0	0	11.50%
21	3	1	750	750	11	11	0	0	11.50
22	3	2	660	660	12	12	0	0	11.00
23	4	2	583	583	12	12	0	0	10.50
24	4	2	519	519	13	13	0	0	10.00
25	4	2	463	463	13	13	0	0	9.50
26	4	2	416	416	14	14	0	0	9.20
27	4	2	374	374	14	14	0	0	8.90
28	4	2	339	339	14	14	0	0	8.60
29	4	2	307	307	15	15	0	0	8.30
30	5	3	280	280	16	16	0	0	8.00
31	5	3	256	256	16	16	0	0	7.80
32	5	3	234	234	17	17	0	0	7.60
33	5	3	215	215	17	17	0	0	7.40
34	6	3	198	198	18	18	0	0	7.20
35	6	3	183	183	19	19	0	0	7.00
36	6	4	169	169	20	20	0	0	6.80
37	7	4	157	157	22	22	0	0	6.60
38	7	4	146	146	23	23	0	0	6.40
39	8	4	135	135	24	24	0	0	6.20
40	9	5	126	126	26	26	0	0	6.00
41	9	5	118	118	28	28	0	0	5.90
42	10	5	110	110	29	29	0	0	5.80
43	10	6	103	103	31	31	0	0	5.70
44	11	6	97	97	34	34	0	0	5.60
45	12	7	91	91	36	36	0	0	5.50
46	14	7	86	86	41	41	0	0	5.45
47	15	8	81	81	46	46	0	0	5.40
48	17	8	69	69	52	52	0	0	5.35
49	19	9	59	59	60	60	0	0	5.30

TABLE 12
(Continued)

Public Employees Police and Fire Fund

Summary of Actuarial Assumptions and Methods

Separations Expressed as the 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	22	10	50	50	69	69	500	500	5.25%
51	25	11	39	39	80	80	500	500	5.25
52	28	12	29	29	91	91	500	500	5.25
53	31	14	22	22	104	104	500	500	5.25
54	35	15	15	15	119	119	500	500	5.25
55	39	16	11	11	135	135	3,000	3,000	5.25
56	43	18	7	7	152	152	1,000	1,000	5.25
57	48	19	5	5	171	171	1,000	1,000	5.25
58	52	21	3	3	192	192	1,000	1,000	5.25
59	57	23	1	1	215	215	1,000	1,000	5.25
60	61	25	0	0	0	0	2,000	2,000	5.25
61	66	28	0	0	0	0	2,000	2,000	5.25
62	71	31	0	0	0	0	5,000	5,000	5.25
63	77	34	0	0	0	0	5,000	5,000	5.25
64	84	38	0	0	0	0	5,000	5,000	5.25
65	92	42	0	0	0	0	5,000	5,000	5.25
66	101	47	0	0	0	0	5,000	5,000	5.25
67	111	52	0	0	0	0	5,000	5,000	5.25
68	124	58	0	0	0	0	5,000	5,000	5.25
69	134	64	0	0	0	0	5,000	5,000	5.25
70	156	71	0	0	0	0	10,000	10,000	5.25

Public Employees Police and Fire Fund

Summary of Plan Provisions**GENERAL**

<i>Eligibility:</i>	All full-time and certain part-time, police officers and fire fighters, who are not contributing to any other local retirement fund.
<i>Contributions:</i>	
<i>Member:</i>	7.6% of salary. Beginning July 1, 1994, automatically adjusted downward after four continuous years of sufficiencies at or above .5% of salary.
<i>Employer:</i>	11.4% of salary. Beginning July 1, 1994, automatically adjusted downward after four continuous years of sufficiencies at or above .5% of salary.
<i>Allowable Service:</i>	Police and fire service during which Member contributions were deducted. May also include certain leaves of absence and military service.
<i>Salary:</i>	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes lump-sum annual leave and sick leave payments and Workers' 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. Proportionate Retirement Annuity is available at age 65 and one year 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 date and a 0.2%* reduction for each month the Member is under age 55.
<i>Form of Payment:</i>	Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are: 25%, 50%, 75% or 100% joint and survivor with bounce back feature without additional reduction.
<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. Benefit recipients receiving benefits for at least one full month but less than 12 full months will receive a partial increase. Members retired under law 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 the difference between \$400 times each full year of Allowable Service and the sum of the benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the preceding fiscal year July 1, 1988 through June 30, 1989. In each following year, the lump-sum payment will increase by the same percentage increase that is applied to regular annuities paid from MPRIF.

****Effective July 1, 1996. Prior to that date, an actuarial reduction is used assuming augmentation of the normal benefit to age 55 at 3% per year.***

DISABILITY

Duty Disability Benefit:

Eligibility: Physically or mentally unable to perform duties as a police officer or fire fighter as a direct result of 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. The disability benefit is reduced to that amount which when added to Workers' Compensation and actual earnings, does not exceed salary or 125% of pay for an employee at same position. Payments change to retirement annuity at age 65.

If a Member became disabled prior to July 1, 1997 but did not commence their benefit before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in post-retirement interest rates from 5% to 6%.

Non-Duty Disability Benefits:

Eligibility: Physically or mentally unable to perform duties as a police officer or fire fighter with one year of Allowable Service.

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 change to retirement annuity at age 65.

If a Member became disabled prior to July 1, 1997 but did not commence their benefit before July 1, 1997, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in post-retirement interest rates from 5% to 6%.

Form of Payment: Same as for retirement.

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

Retirement Benefits:

<i>Eligibility:</i>	Age 55
<i>Amount:</i>	Any optional annuity continues. Otherwise, the larger of the disability benefit paid before age 55 or the normal retirement benefit available at age 55, or an actuarially equivalent optional annuity.
<i>Benefit Increases:</i>	Same as for retirement.

DEATH

Surviving Spouse Benefit:

<i>Eligibility:</i>	Active or Disabled Member with surviving spouse, married for at least one year unless death in the line of duty.
<i>Amount:</i>	50% of salary averaged over last six months. Benefit paid until spouse's death but no payments while spouse is remarried prior to July 1, 1991.

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, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Surviving Dependent Child Benefit:

<i>Eligibility:</i>	Active or Disabled Member with dependent child.
<i>Amount:</i>	10% of salary averaged over last six months for each child. Family benefit minimum (including spouse's benefit) of 50% of salary and maximum of 70% of salary. Benefits paid until child marries, dies, or attains age 18 (age 23 if full-time student.)

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, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

Surviving Spouse Optional Annuity:

Eligibility: Active or Disabled Member dies before age 55, benefits commence when Member would have been age 55 or as early as age 50 if qualified for early retirement except that benefits commence immediately if Member had 30 years of service.

Amount: Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated.
Alternatively, spouse may elect refund of deceased's contributions with interest if there are no dependent children.

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, the benefit payable is calculated under the laws in effect before July 1, 1997, and an actuarial increase shall be made for the change in the post-retirement interest rates from 5% to 6%.

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

TERMINATION

Refund of Contributions:

Eligibility: Termination of public 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 Allowable Service.

Amount: Benefit computed under law in effect at termination and increased by the following percentage compounded annually: 0% before 7/1/71; 5% from 7/1/71 to 1/1/81; and 3% thereafter until January 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%.

SUMMARY OF SIGNIFICANT CHANGES

No significant changes were recognized for this valuation.

TABLE 14

Public Employees Police and Fire 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	839,560	794,295	(45,265)	105.70%	238,230	-19.00%
07/01/92	979,981	888,826	(91,155)	110.26%	239,158	-38.11%
07/01/93	1,118,342	1,009,226	(109,116)	110.81%	253,666	-43.02%
07/01/94	1,234,961	1,099,221	(135,740)	112.35%	277,566	-48.90%
07/01/95	1,385,901	1,196,795	(189,106)	115.80%	293,919	-64.34%
07/01/96	1,633,010	1,334,202	(298,808)	122.40%	316,189	-94.50%
07/01/97	1,974,635	1,556,483	(418,152)	126.87%	346,319	-120.74%
07/01/98	2,337,313	1,741,344	(595,969)	134.22%	375,131	-158.87%

TABLE 15

Public Employees Police and Fire 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	17.56%	238,230	17,636	24,197	26,440	109.27%
1992	17.54%	239,158	19,217	22,731	28,766	126.55%
1993	18.60%	253,666	20,406	26,776	30,434	113.66%
1994	17.45%	277,566	21,806	26,629	32,536	122.18%
1995	17.28%	293,919	22,356	28,433	33,548	117.99%
1996	16.49%	316,189	24,065	28,075	36,066	128.46%
1997	15.11%	346,319	26,354	25,975	39,508	152.10%
1998	15.69% ***	375,131	28,552	30,306	42,786	141.18%
1999	12.32% ***					

* Actuarially Required Contributions determined for years ended 6/30/95, 6/30/96, and 6/30/97 did not comply with the parameters of GASB Statement No. 25 since a one-percent growth in covered population is assumed in the amortization calculation.

** Includes contributions from other sources (if applicable).

*** Actuarially Required Contribution Rate calculated according to parameters of GASB 25 with no assumption for growth of covered population.