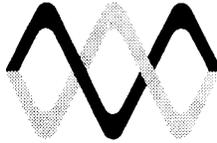


PUBLIC EMPLOYEES RETIREMENT FUND
ACTUARIAL VALUATION REPORT
JULY 1, 1993

MILLIMAN & ROBERTSON, INC.

 **FILE COPY**

LCP & R OCT 29 1993



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October 28, 1993

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

RE: Public Employees Retirement Fund

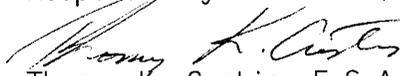
Commission Members:

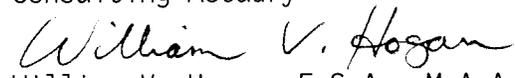
Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1993.

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 on July 8, 1992.

Respectfully submitted, .


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Consulting Actuary


William V. Hogan, F.S.A., M.A.A.A.
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PUBLIC EMPLOYEES RETIREMENT FUND

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PUBLIC EMPLOYEES RETIREMENT FUND

**REPORT HIGHLIGHTS
(DOLLARS IN THOUSANDS)**

	<u>07/01/92</u> <u>Valuation</u>	<u>07/01/93</u> <u>Valuation</u>
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	9.10%	9.04%
2. Required Contributions - Chapter 356 % of Payroll	9.95%	9.58%
3. Sufficiency (Deficiency): (A.1. - A.2.)	-0.85%	-0.54%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$3,978,110	\$4,374,459
b. Current Benefit Obligations (Table 8)	\$4,868,124	\$5,163,767
c. Funding Ratio: (a/b)	81.72%	84.71%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$3,978,110	\$4,374,459
b. Actuarial Accrued Liability (Table 9)	\$5,439,953	\$5,784,318
c. Funding Ratio: (a/b)	73.13%	75.63%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$6,329,838	\$6,899,439
b. Current and Expected Future Benefit Obligations	\$6,782,973	\$7,192,321
c. Funding Ratio: (a/b)	93.32%	95.93%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	110,100	114,932
b. Projected Annual Earnings	\$2,455,401	\$2,578,604
c. Average Annual Earnings (Actual \$)	\$22,302	\$22,436
d. Average Age	43.0	43.2
e. Average Service	8.8	8.9
2. Others		
a. Service Retirements (Table 4)	27,057	28,279
b. Disability Retirements (Table 5)	781	794
c. Survivors (Table 6)	4,721	4,895
d. Deferred Retirements (Table 7)	4,502	5,402
e. Terminated Other Non-vested (Table 7)	8,711	9,307
f. Total	45,772	48,677

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:

- o 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 84.71%. The corresponding ratio for the prior year was 81.72%.
- o 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 1993 the ratio is 75.63%, which is an increase from the 1992 value of 73.13%.
- o The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 95.93% shows that the current statutory contributions are inadequate.

Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes

recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines F1 to F6. 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 in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

- o 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.

- o For Non-active Members - the discounted value of benefits, including augmentation in cases where benefits have not commenced.

GASB Disclosure

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1993 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table:

Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$2,540,062,806
Current Employees	
Accumulated employee contributions including allocated investment income	\$744,025,228
Employer-financed vested	1,632,463,608
Employer-financed nonvested	247,214,840

Total Pension Benefit Obligation	\$5,163,766,482
Net Assets Available for Benefits at Cost	\$4,304,163,000
Total Benefit Obligation less Assets	\$859,603,482
Funded Ratio	83.35%

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 the 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 6.5% 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.

Sources 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 expectation. 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:

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

Table 11 shows the Plan has a contribution deficiency since the Statutory Contribution Rate is 9.04% compared to the Required Contribution Rate of 9.58%.

Changes in Actuarial Assumptions

The actuarial assumptions listed in Table 12 are the same as those used in the prior valuation, however the allowance for expenses as part of the required contributions of Chapter 356 in Table 11 only reflect administrative expenses and not investment expenses. This reduced the required contribution by approximately .11% of payroll.

Significant Changes in Plan Provisions

Death Benefit coverage was extended under the Coordinated plan provisions to active members less than age 50. It is our understanding that this provision does not cover former members with deferred vested benefits.

A temporary early retirement window providing enhanced benefits was enacted to be effective for those retiring between May 1993 and January 1994. Coordinated and Basic Members who have at least 25 years of service and are age 55 or who have at least 1 year of service and are age 65 may elect to retire and receive an increase of .25% to the service credit accrual rate. The increased accrual rate will be applied to each year of service up to a maximum of 30 years.

TABLE 1

PUBLIC EMPLOYEES RETIREMENT FUND

ACCOUNTING BALANCE SHEET
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS		
1. Cash, Equivalents, Short-term Securities	\$66,593	\$66,593
2. Investments		
a. Fixed Income	649,438	625,541
b. Equity	1,422,260	1,228,699
c. Real Estate	85,399	91,968
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	2,299,318	2,299,318
4. Other	893	893
	-----	-----
B. TOTAL ASSETS	\$4,523,901	\$4,313,012
	=====	=====
C. AMOUNTS CURRENTLY PAYABLE	\$8,849	\$8,849
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$780,125	\$780,125
2. Employer Reserves	1,435,609	1,224,720
3. MPRIF Reserves	2,299,318	2,299,318
4. Non-MPRIF Reserves	0	0
	-----	-----
5. Total Assets Available for Benefits	\$4,515,052	\$4,304,163
	-----	-----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	\$4,523,901	\$4,313,012
	=====	=====
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$4,304,163
2. Market Value (D5)	\$4,515,052	
3. Cost Value (D5)	4,304,163	

4. Market Over Cost: (F2-F3)	\$210,889	
5. 1/3 of Market Over Cost: (F4)/3		70,296

6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		\$4,374,459
		=====

TABLE 2

PUBLIC EMPLOYEES RETIREMENT FUND
CHANGE IN ASSETS AVAILABLE FOR BENEFITS
(DOLLARS IN THOUSANDS)
YEAR ENDING JUNE 30, 1993

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$4,068,081	\$3,933,124
B. OPERATING REVENUES		
1. Member Contributions	\$106,359	\$106,359
2. Employer Contributions	113,183	113,183
3. Investment Income	205,675	205,675
4. MPRIF Income	198,872	198,872
5. Net Realized Gain (Loss)	0	0
6. Other	2,431	2,431
7. Net Change in Unrealized Gain (Loss)	75,932	0
	-----	-----
8. Total Revenue	\$702,452	\$626,520
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$217,703	\$217,703
2. Disability Benefits	5,357	5,357
3. Survivor Benefits	13,360	13,360
4. Refunds	11,779	11,779
5. Expenses	3,971	3,971
6. Investment Fees	2,712	2,712
7. Other	599	599
	-----	-----
8. Total Disbursements	\$255,481	\$255,481
	-----	-----
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	\$4,515,052	\$4,304,163
	=====	=====

TABLE 3

PUBLIC EMPLOYEES RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1993

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	1,999	1,173	22						3,194
25-29	2,685	4,389	1,251	10					8,335
30-34	2,574	5,757	3,871	1,493	34				13,729
35-39	2,845	6,737	4,554	3,273	1,416	28			18,853
40-44	2,278	6,273	5,162	3,278	2,695	913	15		20,614
45-49	1,393	4,185	4,418	4,967	2,267	1,452	353	17	19,052
50-54	797	2,467	2,802	2,518	1,926	1,430	679	197	12,816
55-59	495	1,452	1,782	1,844	1,709	1,444	700	434	9,860
60-64	196	950	1,079	1,052	1,058	1,093	495	226	6,149
65+	160	509	456	372	290	322	139	82	2,330
ALL	15,422	33,892	25,397	18,807	11,395	6,682	2,381	956	114,932

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	9,221	13,188	17,910						10,738
25-29	12,391	18,739	21,733	17,942					17,143
30-34	12,359	19,382	25,616	24,557	24,468				20,398
35-39	11,812	17,573	25,137	28,736	28,121	28,994			21,278
40-44	11,255	16,879	23,338	29,655	33,383	32,025	30,285		22,745
45-49	12,232	17,082	21,542	19,409	32,305	37,380	36,990	31,072	22,108
50-54	11,410	16,709	20,445	22,979	25,508	31,393	37,186	37,134	22,788
55-59	10,551	15,429	19,200	21,632	22,438	26,216	32,707	37,741	22,029
60-64	9,076	13,858	17,115	20,786	22,624	23,972	29,754	37,341	20,911
65+	6,630	9,458	12,408	17,457	17,794	19,208	22,304	29,386	14,971
ALL	11,474	17,310	22,541	23,960	28,120	29,850	33,383	36,686	21,066

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	177	587	573	451	320	200	80	35	2,421

TABLE 4

PUBLIC EMPLOYEES RETIREMENT FUND
SERVICE RETIREMENTS AS OF JUNE 30, 1993

<u>AGE</u>	<u>YEARS RETIRED</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								
50-54	3	8						11
55-59	355	722	9					1,086
60-64	836	1,995	840					3,671
65-69	642	3,774	3,159	131	1			7,707
70-74	104	843	4,315	1,370	34	2		6,668
75-79	15	133	974	3,354	377	3		4,856
80-84	4	14	106	516	1,972	90	1	2,703
85+		9	15	56	387	828	282	1,577
ALL	1,959	7,498	9,418	5,427	2,771	923	283	28,279

AVERAGE ANNUAL BENEFIT

<u>AGE</u>	<u>YEARS RETIRED</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								
50-54	8,853	10,456						10,019
55-59	8,799	7,264	15,795					7,837
60-64	7,475	7,387	10,110					8,030
65-69	6,127	5,100	9,565	17,457	10,098			7,227
70-74	4,857	4,326	6,847	9,681	7,821	10,976		7,085
75-79	1,530	3,377	5,262	6,910	10,790	3,074		6,765
80-84	2,481	3,481	2,356	5,093	6,486	6,548	10,244	6,040
85+		2,710	1,787	4,573	6,008	5,069	6,231	5,445
ALL	7,081	5,799	7,836	7,667	7,022	5,219	6,245	7,030

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

<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	13,872	43,481	73,799	41,609	19,458	4,817	1,767	198,801

TABLE 5

PUBLIC EMPLOYEES RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1993

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	4	51	35	15	5		1	111
50-54	13	58	23	12	7		1	114
55-59	12	82	82	33	16	4	1	230
60-64	13	118	192	46	31	11	13	424
65-69	8	99	310	187	61	31	21	717
70-74	1	56	254	315	118	39	63	846
75-79	4	36	97	272	274	67	85	835
80-84	7	48	73	108	270	115	135	756
85+	5	58	102	110	167	164	256	862
ALL	67	606	1,168	1,098	949	431	576	4,895

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	9,783	6,692	6,491	6,788	5,450		3,140	6,665
50-54	7,024	7,038	7,154	9,413	6,826		4,322	7,273
55-59	5,068	5,814	9,086	8,026	7,584	4,031	4,667	7,347
60-64	3,316	4,828	8,982	7,721	7,968	5,155	3,584	7,177
65-69	4,311	4,439	8,907	7,536	7,072	3,418	3,763	7,337
70-74	679	4,375	6,757	7,093	6,867	3,866	2,717	6,299
75-79	3,196	4,322	4,819	6,621	5,857	3,805	2,976	5,448
80-84	3,271	3,994	5,357	5,989	5,745	5,275	3,250	5,091
85+	3,552	4,478	5,058	5,460	5,922	5,875	4,804	5,309
ALL	4,821	5,095	7,460	6,856	6,143	4,999	3,872	6,101

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	323	3,088	8,713	7,528	5,830	2,155	2,230	29,864

TABLE 6

PUBLIC EMPLOYEES RETIREMENT FUND
DISABILITY RETIREMENTS AS OF JUNE 30, 1993

<u>AGE</u>	<u>YEARS DISABLED</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>	
<50	22	87	18	2	1		130
50-54	13	54	21	4	1		93
55-59	22	114	46	12	6		200
60-64	29	138	121	36	10		334
65-69		21	11	5			37
70-74							
75-79							
80-84							
85+							
ALL	86	414	217	59	18		794

AVERAGE ANNUAL BENEFIT

<u>AGE</u>	<u>YEARS DISABLED</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>	
<50	4,331	3,451	2,916	4,966	6,266		3,570
50-54	4,242	5,803	4,949	6,250	1,206		5,362
55-59	8,081	7,698	7,253	8,393	5,272		7,606
60-64	5,176	7,263	7,096	10,177	9,925		7,415
65-69		4,459	3,038	5,760			4,212
70-74							
75-79							
80-84							
85+							
ALL	5,562	6,249	6,369	8,997	7,686		6,444

<u>AGE</u>	<u>TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED</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>	
ALL	478	2,587	1,382	531	138		5,117

TABLE 7

PUBLIC EMPLOYEES RETIREMENT FUND
RECONCILIATION OF MEMBERS

	<u>Actives</u>	<u>Terminated</u>	
		<u>Deferred Retirement</u>	<u>Other Non-Vested</u>
A. ON JUNE 30, 1992	110,100	4,502	8,711
B. ADDITIONS	13,736	1,572	3,089
C. DELETIONS			
1. Service Retirement	(1,667)	(292)	(58)
2. Disability	(115)	(17)	(5)
3. Death-Survivor	(41)	(2)	(1)
4. Death-Other	(49)	(4)	(4)
5. Terminated - Deferred	(1,503)	0	0
6. Terminated - Refund	(3,245)	0	(1,237)
7. Terminated - Other Non-Vested	(2,110)	0	0
8. Returned as Active	0	(223)	(834)
D. DATA ADJUSTMENTS	(174)	(134)	(354)
Vested	80,302		
Non-Vested	34,630		
E. TOTAL ON JUNE 30, 1993	114,932	5,402	9,307
		<u>Recipients</u>	
	<u>Retirement Annuitants</u>	<u>Disabled</u>	<u>Survivors</u>
A. ON JUNE 30, 1992	27,057	781	4,721
B. ADDITIONS	2,125	162	366
C. DELETIONS			
1. Service Retirement	0	(81)	0
2. Death	(900)	(55)	(187)
3. Annuity Expired	0	(8)	(3)
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	(3)	(5)	(2)
E. TOTAL ON JUNE 30, 1993	28,279	794	4,895

TABLE 8

PUBLIC EMPLOYEES RETIREMENT FUND

ACTUARIAL BALANCE SHEET
(DOLLARS IN THOUSANDS)

JULY 1, 1993

A.	CURRENT ASSETS (TABLE 1, F6)			\$4,374,459
B.	EXPECTED FUTURE ASSETS			
1.	Present Value of Expected Future Statutory Supplemental Contributions			\$1,116,977
2.	Present Value of Future Normal Costs			1,408,003
3.	Total Expected Future Assets			<u>\$2,524,980</u>
C.	TOTAL CURRENT AND EXPECTED FUTURE ASSETS			<u>\$6,899,439</u>
D.	CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>
1.	Benefit Recipients			
a.	Retirement Annuities		\$2,138,722	\$2,138,722
b.	Disability Benefits		50,054	50,054
c.	Surviving Spouse and Child Benefits		278,643	278,643
2.	Deferred Retirements With Future Augmentation		69,402	69,402
3.	Former Members Without Vested Rights		3,242	3,242
4.	Active Members			
a.	Retirement Annuities	10,123	1,876,871	1,886,994
b.	Disability Benefits	128,492	0	128,492
c.	Survivor's Benefits	101,382	0	101,382
d.	Deferred Retirements	7,218	461,579	468,797
e.	Refund Liability Due to Death or Withdrawal	0	38,039	38,039
5.	Total Current Benefit Obligations	<u>\$247,215</u>	<u>\$4,916,552</u>	<u>\$5,163,767</u>
E.	EXPECTED FUTURE BENEFIT OBLIGATIONS			<u>\$2,028,554</u>
F.	TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS			<u>\$7,192,321</u>
G.	CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)			<u>\$789,308</u>
H.	CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)			\$292,882

TABLE 9

PUBLIC EMPLOYEES RETIREMENT FUND

DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
AND SUPPLEMENTAL CONTRIBUTION RATE
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	Actuarial Present Value of Projected Benefits <u>(1)</u>	Actuarial Present Value of Future Normal Costs <u>(2)</u>	Actuarial Accrued Liability <u>(3)=(1)-(2)</u>
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$3,390,399	\$807,496	\$2,582,903
b. Disability Benefits	234,641	94,582	\$140,059
c. Survivor's Benefit	172,369	61,232	\$111,137
d. Deferred Retirements	783,983	395,096	\$388,887
e. Refunds Due to Death or Withdrawal	70,866	49,597	\$21,269
f. Total	<u>\$4,652,258</u>	<u>\$1,408,003</u>	<u>\$3,244,255</u>
2. Deferred Retirements With Future Augmentation	69,402		69,402
3. Former Members Without Vested Rights	3,242		3,242
4. Annuitants in MPRIF	2,299,318		2,299,318
5. Recipients Not in MPRIF	168,101		168,101
6. Total	<u>\$7,192,321</u>	<u>\$1,408,003</u>	<u>\$5,784,318</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$5,784,318
2. Current Assets (Table 1, F6)			4,374,459
3. UAAL (B1-B2)			<u>\$1,409,859</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$54,222,190
2. Supplemental Contribution Rate (B3/C1)			2.60%

TABLE 10

PUBLIC EMPLOYEES RETIREMENT FUND
 CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
 (DOLLARS IN THOUSANDS)
 YEAR ENDING JUNE 30, 1993

A.	UAAL AT BEGINNING OF YEAR	\$1,461,843
B.	CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
	1. Normal Cost and Expenses	\$176,799
	2. Contribution	(219,542)
	3. Interest on A, B1 and B2	122,440
	4. Total (B1+B2+B3)	----- \$79,697
C.	EXPECTED UAAL AT END OF YEAR (A+B4)	\$1,541,540
D.	INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
	1. Salary Increases	(\$194,983)
	2. Investment Return	(70,650)
	3. MPRIF Mortality	7,350
	4. Mortality of Other Benefit Recipients	(1,211)
	5. Other Items	111,488
	6. Total	----- (\$148,006)
E.	UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D5)	\$1,393,534
F.	CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	16,325
G.	CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	0
H.	UAAL AT END OF YEAR (E+F+G)	----- \$1,409,859 -----

TABLE 11

PUBLIC EMPLOYEES RETIREMENT FUND
DETERMINATION OF CONTRIBUTION SUFFICIENCY
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	4.36%	\$112,433
2. Employer Contributions	4.68%	120,767
3. Total	----- 9.04%	----- \$233,200
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	4.00%	\$103,196
b. Disability benefits	0.45%	11,726
c. Survivors	0.29%	7,358
d. Deferred Retirement Benefits	1.84%	47,512
e. Refunds Due to Death or Withdrawal	0.24%	6,166
f. Total	----- 6.82%	----- \$175,958
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	2.60%	67,044
3. Allowance for Expenses	0.16%	4,126
4. Total	----- 9.58%	----- \$247,128
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) (A3-B4)	-0.54%	(\$13,928)

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1993 is \$2,578,604.

PUBLIC EMPLOYEES RETIREMENT FUND
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Interest:	Pre-Retirement: 8.5% per annum Post-Retirement: 5.0% per annum
Salary Increases:	Reported salary for prior fiscal year, with new hires annualized, increased 6.5% to current fiscal year and 6.5% annually for each future year.
Mortality:	<p>Pre-Retirement:</p> <p>Male - 1971 Group Annuity Mortality Table male rates projected to 1984 by Scale D</p> <p>Female - 1971 Group Annuity Mortality Table female rates projected to 1984 by Scale D</p> <p>Post-Retirement:</p> <p>Male - Same as above</p> <p>Female - Same as above</p> <p>Post-Disability:</p> <p>Male - 1965 RRB rates</p> <p>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.
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.

PUBLIC EMPLOYEES RETIREMENT FUND
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

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
Benefit Increases After Retirement:	Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions.
Special Consideration:	Married Members assumed to elect subsidized joint and survivor form of annuity as follows: Males - 30% elect 50% J&S option 45% elect 100% J&S option Females - 15% elect 50% J&S option 15% elect 100% J&S option
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 6.5% per annum.

TABLE 12
(Continued)

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

SEPARATIONS EXPRESSED AS THE NUMBER OF OCCURRENCES PER 10,000:

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
20	5	2	2,542	2,913	9	9	0	0
21	5	2	2,277	2,666	9	9	0	0
22	5	2	2,050	2,450	9	9	0	0
23	5	3	1,854	2,259	10	10	0	0
24	5	3	1,684	2,091	10	10	0	0
25	6	3	1,536	1,942	10	10	0	0
26	6	3	1,406	1,808	10	10	0	0
27	6	3	1,291	1,688	10	10	0	0
28	7	3	1,189	1,580	11	11	0	0
29	7	4	1,099	1,482	11	11	0	0
30	7	4	1,018	1,394	11	11	0	0
31	8	4	945	1,313	11	11	0	0
32	8	4	880	1,239	11	11	0	0
33	9	5	821	1,172	12	12	0	0
34	10	5	767	1,110	12	12	0	0
35	10	5	719	1,053	12	12	0	0
36	11	6	675	1,000	12	12	0	0
37	12	6	634	952	13	13	0	0
38	13	7	597	907	13	13	0	0
39	14	7	563	865	14	14	0	0
40	15	8	532	826	15	15	0	0
41	16	9	503	790	16	16	0	0
42	18	9	476	756	17	17	0	0
43	21	10	452	724	18	18	0	0
44	24	11	429	695	20	20	0	0
45	27	12	408	667	22	22	0	0
46	30	13	388	641	23	23	0	0
47	34	14	370	616	25	25	0	0
48	39	15	352	593	27	27	0	0
49	44	17	336	571	30	30	0	0

TABLE 12
(Continued)

PUBLIC EMPLOYEES RETIREMENT FUND
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

SEPARATIONS EXPRESSED AS THE NUMBER OF OCCURRENCES PER 10,000:

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
50	49	18	321	550	33	33	0	0
51	54	20	316	531	36	36	0	0
52	60	21	310	513	40	40	0	0
53	65	23	270	495	45	45	0	0
54	72	25	230	487	51	51	0	0
55	78	27	195	478	58	58	0	0
56	85	30	150	410	66	66	0	0
57	92	33	100	362	76	76	0	0
58	100	37	50	210	88	88	0	0
59	110	41	20	50	102	102	0	0
60	121	46	0	0	118	118	0	0
61	133	52	0	0	136	136	0	0
62	146	58	0	0	157	157	0	0
63	160	65	0	0	181	181	0	0
64	176	73	0	0	208	208	10,000	10,000
65	195	81	0	0	0	0	0	0
66	219	90	0	0	0	0	0	0
67	243	99	0	0	0	0	0	0
68	270	109	0	0	0	0	0	0
69	300	123	0	0	0	0	0	0
70	334	140	0	0	0	0	0	0

TABLE 3A
BASIC

PUBLIC EMPLOYEES RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1993

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25									
25-29									
30-34									
35-39									
40-44		1			1	6	10		18
45-49						8	244	17	269
50-54					1	10	437	161	609
55-59	1	1				8	503	318	831
60-64				1		8	342	156	507
65+	1					3	97	62	163
ALL	2	2		1	2	43	1,633	714	2,397

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25									
25-29									
30-34									
35-39									
40-44		15,000			15,881	30,204	32,361		29,762
45-49						36,563	37,172	31,072	36,768
50-54					51,295	44,054	35,663	36,700	36,101
55-59	609	24,732				25,266	32,006	35,863	33,371
60-64				53,211		20,446	27,765	34,257	29,697
65+	9,000					26,833	19,772	25,863	22,153
ALL	4,805	19,866		53,211	33,588	31,639	32,144	34,718	32,878

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

AGE	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
ALL	10	40		53	67	1,361	52,491	24,789	78,809

TABLE 4A
BASIC

PUBLIC EMPLOYEES RETIREMENT FUND
SERVICE RETIREMENTS AS OF JUNE 30, 1993

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54	3	6						9
55-59	114	213	8					335
60-64	199	604	435					1,238
65-69	124	793	1,502	120	1			2,540
70-74	17	144	1,733	928	29	2		2,853
75-79	1	14	310	1,924	319	3		2,571
80-84	1	3	16	227	1,383	81	1	1,712
85+		3	2	27	274	614	272	1,192
ALL	459	1,780	4,006	3,226	2,006	700	273	12,450

AVERAGE ANNUAL BENEFIT

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54	8,853	10,732						10,106
55-59	19,243	16,813	16,557					17,634
60-64	15,653	15,647	16,786					16,048
65-69	13,863	11,283	15,845	18,080	10,098			14,427
70-74	16,034	10,545	12,229	12,275	8,516	10,976		12,143
75-79	1,786	13,646	10,722	9,673	11,664	3,074		10,057
80-84	7,548	12,181	8,512	8,262	7,641	6,770	10,244	7,700
85+		4,823	7,923	7,642	6,949	5,783	6,332	6,220
ALL	15,983	13,373	13,955	10,618	8,200	5,900	6,346	11,535

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	7,336	23,803	55,903	34,253	16,449	4,130	1,732	143,610

TABLE 5A
BASIC

PUBLIC EMPLOYEES RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1993

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	20	15	9	4		1	50
50-54	5	24	11	11	7		1	59
55-59	1	23	48	24	16	4	1	117
60-64	1	43	102	33	28	11	13	231
65-69	3	34	178	143	56	30	21	465
70-74		27	142	217	102	38	63	589
75-79	4	32	60	189	214	65	85	649
80-84	7	46	69	85	203	103	135	648
85+	5	56	100	105	149	155	255	825
ALL	27	305	725	816	779	406	575	3,633

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	20,727	11,920	10,174	9,269	6,592		3,140	10,493
50-54	12,724	12,732	11,183	10,053	6,826		4,322	11,100
55-59	19,532	10,471	13,080	10,112	7,584	4,031	4,667	10,881
60-64	10,397	8,172	13,658	9,734	8,504	5,155	3,584	10,466
65-69	5,858	6,372	12,366	9,064	7,537	3,469	3,763	9,326
70-74		5,426	9,464	8,742	7,492	3,927	2,717	7,593
75-79	3,196	4,528	6,117	8,169	6,655	3,871	2,976	6,159
80-84	3,271	4,144	5,594	6,781	6,495	5,464	3,250	5,395
85+	3,552	4,452	5,060	5,448	6,291	6,035	4,818	5,390
ALL	6,863	6,833	9,794	8,142	6,803	5,113	3,877	7,052

AGE	TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
ALL	185	2,084	7,100	6,643	5,299	2,075	2,229	25,619

TABLE 6A
BASIC

PUBLIC EMPLOYEES RETIREMENT FUND
DISABILITY RETIREMENTS AS OF JUNE 30, 1993

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			1	1	1			3
50-54	2	9	4	1				16
55-59	4	25	11	8	5			53
60-64	2	32	35	24	9			102
65-69		4	1	3				8
70-74								
75-79								
80-84								
85+								
ALL	8	70	52	37	15			182

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			10,226	4,728	6,266			7,073
50-54	10,799	17,498	13,166	10,954				15,169
55-59	18,628	19,735	19,138	10,779	5,748			16,856
60-64	7,374	14,186	17,576	13,972	9,899			14,787
65-69		8,471	10,218	8,197				8,587
70-74								
75-79								
80-84								
85+								
ALL	13,857	16,267	17,284	12,482	8,273			15,023

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED

AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	110	1,138	898	461	124			2,734

TABLE 11A
BASIC

PUBLIC EMPLOYEES RETIREMENT FUND
DETERMINATION OF CONTRIBUTION SUFFICIENCY
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	8.23%	\$6,908
2. Employer Contributions	10.73%	9,006
3. Total	----- 18.96% -----	----- \$15,914 -----
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	4.76%	\$3,993
b. Disability benefits	0.86%	721
c. Survivors	1.09%	918
d. Deferred Retirement Benefits	3.22%	2,703
e. Refunds Due to Death or Withdrawal	0.02%	17
f. Total	----- 9.95% -----	----- \$8,352 -----

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1993 is \$83,934.

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Eligibility:	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.
Contributions	
Member:	8.23% of salary.
Employer:	10.73% of salary.
Allowable Service:	Service during which Member contributions were deducted. May also include certain leaves of absence and military service.
Salary:	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 and day-care expenses.
Average Salary:	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

Eligibility:	Age 65 and three years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.
Amount:	2.5% of average salary for each year of Allowable Service.

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

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% of average salary for each of the first 10 years of Allowable Service and 2.5% 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
2.5% 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:
50% 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). (Note: The MPRIF methodology for this increase will change effective 1/1/94.) 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.

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

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.

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.

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

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.

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.

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

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.)
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.
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.

PUBLIC EMPLOYEES RETIREMENT FUND
SUMMARY OF PLAN PROVISIONS

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.

SUMMARY OF SIGNIFICANT CHANGES

1. Revised definition of salary.
2. Disability supplemental benefit increased to \$25 per month payable to the later of normal retirement age or the fifth anniversary of the disability.
3. Survivor annuity or refund and dependent child benefits payable upon death of the disabled member prior to age 65 or within five years of disability.
4. Upon active or former Member death, immediate commencement of the survivor annuity or the actuarial equivalent term certain annuity with half of the applicable early retirement reduction factor applied to ages prior to 55. If no surviving spouse, then dependent child benefit paid to later of age 20 or five years.

TABLE 3B
COORDINATED

PUBLIC EMPLOYEES RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1993

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	1,999	1,173	22						3,194
25-29	2,685	4,389	1,251	10					8,335
30-34	2,574	5,757	3,871	1,493	34				13,729
35-39	2,845	6,737	4,554	3,273	1,416	28			18,853
40-44	2,278	6,272	5,162	3,278	2,694	907	5		20,596
45-49	1,393	4,185	4,418	4,967	2,267	1,444	109		18,783
50-54	797	2,467	2,802	2,518	1,925	1,420	242	36	12,207
55-59	494	1,451	1,782	1,844	1,709	1,436	197	116	9,029
60-64	196	950	1,079	1,051	1,058	1,085	153	70	5,642
65+	159	509	456	372	290	319	42	20	2,167
ALL	15,420	33,890	25,397	18,806	11,393	6,639	748	242	112,535

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	9,221	13,188	17,910						10,738
25-29	12,391	18,739	21,733	17,942					17,143
30-34	12,359	19,382	25,616	24,557	24,468				20,398
35-39	11,812	17,573	25,137	28,736	28,121	28,994			21,278
40-44	11,255	16,879	23,338	29,655	33,390	32,037	26,133		22,739
45-49	12,232	17,082	21,542	19,409	32,305	37,385	36,583		21,898
50-54	11,410	16,709	20,445	22,979	25,495	31,304	39,936	39,073	22,124
55-59	10,571	15,423	19,200	21,632	22,438	26,221	34,498	42,890	20,985
60-64	9,076	13,858	17,115	20,755	22,624	23,998	34,198	44,212	20,122
65+	6,615	9,458	12,408	17,457	17,794	19,136	28,151	40,307	14,431
ALL	11,475	17,310	22,541	23,959	28,119	29,839	36,088	42,491	20,814

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	177	587	573	451	320	198	27	10	2,342

TABLE 4B
COORDINATED

PUBLIC EMPLOYEES RETIREMENT FUND
SERVICE RETIREMENTS AS OF JUNE 30, 1993

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54		2						2
55-59	241	509	1					751
60-64	637	1,391	405					2,433
65-69	518	2,981	1,657	11				5,167
70-74	87	699	2,582	442	5			3,815
75-79	14	119	664	1,430	58			2,285
80-84	3	11	90	289	589	9		991
85+		6	13	29	113	214	10	385
ALL	1,500	5,718	5,412	2,201	765	223	10	15,829

AVERAGE ANNUAL BENEFIT

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54		9,629						9,629
55-59	3,860	3,269	9,700					3,467
60-64	4,921	3,801	2,941					3,951
65-69	4,276	3,456	3,874	10,668				3,688
70-74	2,673	3,046	3,235	4,235	3,791			3,304
75-79	1,512	2,169	2,713	3,194	5,988			3,062
80-84	793	1,109	1,262	2,605	3,775	4,551		3,174
85+		1,654	844	1,716	3,727	3,021	3,497	3,048
ALL	4,357	3,442	3,307	3,344	3,936	3,083	3,497	3,488

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	6,535	19,681	17,897	7,360	3,011	687	34	55,211

TABLE 5B
COORDINATED

PUBLIC EMPLOYEES RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1993

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	3	31	20	6	1			61
50-54	8	34	12	1				55
55-59	11	59	34	9				113
60-64	12	75	90	13	3			193
65-69	5	65	132	44	5	1		252
70-74	1	29	112	98	16	1		257
75-79		4	37	83	60	2		186
80-84		2	4	23	67	12		108
85+		2	2	5	18	9	1	37
ALL	40	301	443	282	170	25	1	1,262

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	6,135	3,320	3,730	3,068	883			3,528
50-54	3,463	3,020	3,461	2,377				3,169
55-59	3,754	3,999	3,449	2,466				3,688
60-64	2,726	2,912	3,684	2,614	2,967			3,241
65-69	3,384	3,429	4,244	2,574	1,874	1,891		3,669
70-74	679	3,397	3,326	3,444	2,889	1,562		3,335
75-79		2,680	2,716	3,099	3,013	1,667		2,971
80-84		558	1,273	3,065	3,474	3,657		3,272
85+		5,222	5,008	5,727	2,868	3,137	1,276	3,520
ALL	3,443	3,334	3,642	3,135	3,121	3,156	1,276	3,367

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	137	1,003	1,613	884	530	78	1	4,249

TABLE 6B
COORDINATED

PUBLIC EMPLOYEES RETIREMENT FUND
DISABILITY RETIREMENTS AS OF JUNE 30, 1993

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	22	87	17	1				127
50-54	11	45	17	3	1			77
55-59	18	89	35	4	1			147
60-64	27	106	86	12	1			232
65-69		17	10	2				29
70-74								
75-79								
80-84								
85+								
ALL	78	344	165	22	3			612

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	4,331	3,451	2,486	5,205				3,488
50-54	3,050	3,465	3,016	4,683	1,206			3,325
55-59	5,738	4,317	3,519	3,621	2,895			4,272
60-64	5,014	5,174	2,831	2,587	10,164			4,175
65-69		3,515	2,320	2,106				3,006
70-74								
75-79								
80-84								
85+								
ALL	4,712	4,211	2,930	3,136	4,755			3,893

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED

AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	367	1,448	483	68	14			2,382

TABLE 4

PUBLIC EMPLOYEES POLICE AND FIRE FUND
SERVICE RETIREMENTS AS OF JUNE 30, 1993

<u>AGE</u>	<u>YEARS RETIRED</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								
50-54	10	13						23
55-59	62	152						214
60-64	23	102	168					293
65-69	1	64	125	92				282
70-74		9	64	100	34			207
75-79		1	10	58	53	11		133
80-84			7	10	43	12	1	73
85+	1		1		6	10	7	25
ALL	97	341	375	260	136	33	8	1,250

AVERAGE ANNUAL BENEFIT

<u>AGE</u>	<u>YEARS RETIRED</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								
50-54	14,886	12,666						13,631
55-59	19,622	18,357						18,724
60-64	16,562	18,857	19,062					18,794
65-69	13,352	12,681	17,922	19,445				17,213
70-74		12,308	15,587	14,265	17,127			15,059
75-79		19,764	8,928	12,669	13,274	7,173		12,228
80-84			6,178	11,007	10,725	8,623	8,966	9,958
85+	4,800		10,252		14,695	8,920	6,397	9,488
ALL	18,191	17,069	17,555	15,617	13,494	8,230	6,718	16,311

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

<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	1,764	5,820	6,583	4,060	1,835	271	53	20,388

PUBLIC EMPLOYEES RETIREMENT FUND
DETERMINATION OF CONTRIBUTION SUFFICIENCY
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	4.23%	\$105,525
2. Employer Contributions	4.48%	111,761
3. Total	----- 8.71%	----- \$217,286
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	3.98%	\$99,203
b. Disability benefits	0.44%	11,005
c. Survivors	0.26%	6,440
d. Deferred Retirement Benefits	1.80%	44,809
e. Refunds Due to Death or Withdrawal	0.25%	6,149
f. Total	----- 6.73%	----- \$167,606
	-----	-----

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1993 is \$2,494,669.

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Eligibility: 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.

Contributions

Member: 4.23% of salary.

Employer: 4.48% of salary.

Allowable Service: Service during which Member contributions were deducted. May also include certain leaves of absence and military service.

Salary: 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 and day-care expenses.

Average Salary: 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

Eligibility:

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.

First hired after June 30, 1989:
The greater of age 65 or the age eligible for full Social Security retirement benefits and three years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service.

Amount: 1.5% of Average salary for each year of Allowable Service.

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Early Retirement Benefit

Eligibility:

First hired before July 1, 1989:

Age 55 and three years of Allowable Service.

Any age with 30 years of Allowable Service.

Rule of 90: Age plus Allowable Service totals 90.

First hired after June 30, 1989:

Age 55 with three years of Allowable Service.

Amount:

First hired before July 1, 1989:

The greater of

1% of average salary for each of the first 10 years of Allowable Service and 1.5% of average salary for each subsequent year with reduction of 0.25% for each month the Member is under age 65 at time of retirement or age 62 if 30 years of Allowable Service. No reduction if age plus years of Allowable Service totals 90;

OR

1.5% of average salary for each year of Allowable Service assuming augmentation to age 65 at 3% per year and actuarial reduction for each month the Member is under age 65.

First hired after June 30, 1989:

1.5% 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.

Form of Payment:

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

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

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

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

Members retired under laws in effect before July 1, 1973 receive an additional lump-sum payment each year. In 1989, this lump-sum payment is \$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.

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.

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

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
Optional Annuity

Eligibility: Member or former Member who dies before retirement or disability benefits commence.

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.

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

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

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.

SUMMARY OF SIGNIFICANT CHANGES

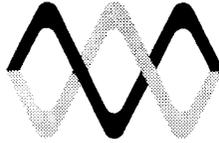
1. Upon Active or former Member death, immediate commencement of the survivor annuity or the actuarial equivalent term certain annuity with half of the applicable early retirement reduction factor applied to ages prior to 55. If no surviving spouse, then dependent child benefit paid to later of age 20 or five years.

PUBLIC EMPLOYEES POLICE AND FIRE FUND
ACTUARIAL VALUATION REPORT
JULY 1, 1993

MILLIMAN & ROBERTSON, INC.

 **FILE COPY**

LCP & R OCT 29 1993



MILLIMAN & ROBERTSON, INC.

Actuaries and Consultants

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15700 Bluemound Road
Brookfield, Wisconsin 53005
Telephone: 414/784-2250
Fax: 414/784-6388

October 28, 1993

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, 1993.

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 on July 8, 1992.

Respectfully submitted,

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

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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)**

	<u>07/01/92 Valuation</u>	<u>07/01/93 Valuation</u>
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	20.00%	19.50%
2. Required Contributions - Chapter 356 % of Payroll	18.60%	17.45%
3. Sufficiency (Deficiency): (A.1. - A.2.)	1.40%	2.05%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$979,981	\$1,118,342
b. Current Benefit Obligations (Table 8)	\$821,604	\$932,332
c. Funding Ratio: (a/b)	119.28%	119.95%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$979,981	\$1,118,342
b. Actuarial Accrued Liability (Table 9)	\$888,826	\$1,009,226
c. Funding Ratio: (a/b)	110.26%	110.81%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$1,669,096	\$1,786,787
b. Current and Expected Future Benefit Obligations	\$1,500,670	\$1,697,388
c. Funding Ratio: (a/b)	111.22%	105.27%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	6,521	6,785
b. Projected Annual Earnings	\$255,270	\$270,813
c. Average Annual Earnings (Actual \$)	\$39,146	\$39,913
d. Average Age	38.1	38.2
e. Average Service	10.7	10.8
2. Others		
a. Service Retirements (Table 4)	1,191	1,250
b. Disability Retirements (Table 5)	93	94
c. Survivors (Table 6)	379	394
d. Deferred Retirements (Table 7)	187	215
e. Terminated Other Non-vested (Table 7)	120	121
f. Total	1,970	2,074

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:

- o The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 119.95%. The corresponding ratio for the prior year was 119.28%.
- o 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 1993 the ratio is 110.81%, which is an increase from the 1992 value of 110.26%.
- o The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 105.27% 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 F1 to F6. 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 in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

- o 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.

- o For Non-active Members - the discounted value of benefits, including augmentation in cases where benefits have not commenced.

GASB Disclosure

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1993 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table:

Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$309,983,316
Current Employees	
Accumulated employee contributions including allocated investment income	\$159,847,815
Employer-financed vested	342,107,839
Employer-financed nonvested	120,393,689

Total Pension Benefit Obligation	\$932,332,659
Net Assets Available for Benefits at Cost	\$1,090,856,000
Total Benefit Obligation less Assets	(\$158,523,341)
Funded Ratio	117.00%

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 the 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 6.5% 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.

Sources 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 expectation. 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:

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

Table 11 shows the Plan has a contribution sufficiency since the Statutory Contribution Rate is 19.50% compared to the Required Contribution Rate of 17.45%.

A statutory change was adopted in the computation of the Required Contribution Rate. Previously, if the Unfunded Actuarial Liability (B3, Table 9) was negative, the Supplemental Contribution Rate (C2, Table 9) was forced to be \$0. Under the new provisions, this negative base is treated the same as a positive base and results in a negative Supplemental Contribution Rate. For this valuation, this change has reduced the Required Contribution Rate from 19.37% to 17.45%.

Changes in Actuarial Assumptions

The actuarial assumptions listed in Table 12 are the same as those used in the prior valuation, however the allowance for expenses as part of the required contributions of Chapter 356 in Table 11 only reflect administrative expenses and not investment expenses. This reduced the required contribution by approximately .42% of payroll.

Significant Changes in Plan Provisions

The benefit accrual rate was increased from 2.5% to 2.65%. Also, the statutory contribution rate was lowered from 8% and 12% to 7.6% and 11.4% for members and employer, respectively (to be adjusted in the future depending upon plan sufficiency or deficiency).

TABLE 1

PUBLIC EMPLOYEES POLICE AND FIRE FUND

ACCOUNTING BALANCE SHEET
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS		
1. Cash, Equivalents, Short-term Securities	\$27,803	\$27,803
2. Investments		
a. Fixed Income	267,016	256,680
b. Equity	584,760	509,183
c. Real Estate	35,111	38,568
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	257,993	257,993
4. Other	180	180
B. TOTAL ASSETS	<u>\$1,172,863</u>	<u>\$1,090,407</u>
C. AMOUNTS CURRENTLY PAYABLE	(\$449)	(\$449)
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$164,516	\$164,516
2. Employer Reserves	750,803	668,347
3. MPRIF Reserves	257,993	257,993
4. Non-MPRIF Reserves	0	0
5. Total Assets Available for Benefits	<u>\$1,173,312</u>	<u>\$1,090,856</u>
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	<u>\$1,172,863</u>	<u>\$1,090,407</u>
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$1,090,856
2. Market Value (D5)	\$1,173,312	
3. Cost Value (D5)	1,090,856	
4. Market Over Cost: (F2-F3)	<u>\$82,456</u>	
5. 1/3 of Market Over Cost: (F4)/3		27,485
6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		<u>\$1,118,341</u>

TABLE 2

PUBLIC EMPLOYEES POLICE AND FIRE FUND
CHANGE IN ASSETS AVAILABLE FOR BENEFITS
(DOLLARS IN THOUSANDS)
YEAR ENDING JUNE 30, 1993

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$1,012,812	\$963,566
B. OPERATING REVENUES		
1. Member Contributions	\$20,406	\$20,406
2. Employer Contributions	30,434	30,434
3. Investment Income	81,482	81,482
4. MPRIF Income	21,927	21,927
5. Net Realized Gain (Loss)	0	0
6. Other	127	127
7. Net Change in Unrealized Gain (Loss)	33,210	0
	-----	-----
8. Total Revenue	\$187,586	\$154,376
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$21,237	\$21,237
2. Disability Benefits	1,516	1,516
3. Survivor Benefits	1,866	1,866
4. Refunds	1,004	1,004
5. Expenses	287	287
6. Investment Fees	1,108	1,108
7. Other	68	68
	-----	-----
8. Total Disbursements	\$27,086	\$27,086
	-----	-----
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	\$1,173,312	\$1,090,856
	=====	=====

TABLE 3

PUBLIC EMPLOYEES POLICE AND FIRE FUND

ACTIVE MEMBERS AS OF JUNE 30, 1993

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	104	81							185
25-29	218	620	192						1,030
30-34	120	463	641	184					1,408
35-39	25	241	340	545	169				1,320
40-44	20	78	173	300	527	90			1,188
45-49	7	37	75	111	281	312	34		857
50-54	3	25	31	39	92	157	149	9	505
55-59		11	23	17	35	56	58	17	217
60-64		3	6	10	12	17	11	7	66
65+		2	1		2	1	2	1	9
ALL	497	1,561	1,482	1,206	1,118	633	254	34	6,785

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	19,204	24,887							21,692
25-29	20,514	32,711	35,817						30,709
30-34	22,521	34,237	39,496	41,155					36,537
35-39	18,991	32,858	39,468	41,501	40,775				38,880
40-44	26,674	29,544	38,275	41,462	42,946	42,311			40,689
45-49	27,168	34,165	35,846	38,942	40,964	44,936	45,314		41,467
50-54	11,730	24,768	31,702	32,491	41,143	42,977	46,083	44,398	40,996
55-59		27,390	35,072	28,807	37,998	41,458	44,268	46,511	39,666
60-64		23,560	17,945	29,999	30,568	38,552	49,071	45,617	35,752
65+		9,212	35,736		36,843	49,704	59,879	29,935	36,360
ALL	20,936	32,444	38,364	40,637	41,673	43,605	45,804	45,280	37,477

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

AGE	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
ALL	10,405	50,645	56,855	49,008	46,590	27,602	11,634	1,540	254,281

TABLE 4

PUBLIC EMPLOYEES POLICE AND FIRE FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1993

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54	10	13						23
55-59	62	152						214
60-64	23	102	168					293
65-69	1	64	125	92				282
70-74		9	64	100	34			207
75-79		1	10	58	53	11		133
80-84			7	10	43	12	1	73
85+	1		1		6	10	7	25
ALL	97	341	375	260	136	33	8	1,250

AVERAGE ANNUAL BENEFIT

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54	14,886	12,666						13,631
55-59	19,622	18,357						18,724
60-64	16,562	18,857	19,062					18,794
65-69	13,352	12,681	17,922	19,445				17,213
70-74		12,308	15,587	14,265	17,127			15,059
75-79		19,764	8,928	12,669	13,274	7,173		12,228
80-84			6,178	11,007	10,725	8,623	8,966	9,958
85+	4,800		10,252		14,695	8,920	6,397	9,488
ALL	18,191	17,069	17,555	15,617	13,494	8,230	6,718	16,311

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	1,764	5,820	6,583	4,060	1,835	271	53	20,388

TABLE 5

PUBLIC EMPLOYEES POLICE AND FIRE FUND

SURVIVORS AS OF JUNE 30, 1993

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	5	17	17	6	2			47
50-54		7	4	6	1			18
55-59	1	6	12	9	5	2	1	36
60-64		7	14	14	6	1	1	43
65-69		6	15	19	8	9	1	58
70-74		1	11	20	19	3	1	55
75-79		2	8	15	17	7	8	57
80-84	1	1	3	8	7	10	6	36
85+		5	6	10	4	8	11	44
ALL	7	52	90	107	69	40	29	394

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	19,557	17,160	13,899	12,166	8,852			15,244
50-54		13,695	14,289	13,494	9,034			13,501
55-59	26,469	11,234	14,197	12,414	9,714	3,335	2,346	12,043
60-64		10,312	15,168	10,385	8,665	2,461	2,455	11,322
65-69		7,318	11,805	10,907	7,539	4,167	2,447	9,112
70-74		4,125	9,734	10,448	8,470	3,396	2,434	8,977
75-79		5,627	6,025	9,041	7,753	4,171	4,077	6,819
80-84	4,192	4,328	6,336	7,430	5,580	4,659	2,644	5,236
85+		5,300	4,722	7,361	4,561	3,782	3,837	4,981
ALL	18,349	11,871	11,732	10,242	7,792	4,072	3,461	9,387

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	128	617	1,055	1,095	537	162	100	3,698

TABLE 6

**PUBLIC EMPLOYEES POLICE AND FIRE FUND
DISABILITY RETIREMENTS AS OF JUNE 30, 1993**

AGE	YEARS DISABLED						ALL
	<1	1-4	5-9	10-14	15-19	20-24	
<50	8	29	15	2	2		56
50-54	4	9	12	8	2		35
55-59	1	1	1				3
60-64							
65-69							
70-74							
75-79							
80-84							
85+							
ALL	13	39	28	10	4		94

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED						ALL
	<1	1-4	5-9	10-14	15-19	20-24	
<50	13,651	15,468	14,152	14,754	9,764		14,627
50-54	21,819	18,866	14,975	16,532	14,627		17,094
55-59	18,614	9,779	17,273				15,222
60-64							
65-69							
70-74							
75-79							
80-84							
85+							
ALL	16,546	16,106	14,616	16,176	12,196		15,565

AGE	TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED						ALL
	<1	1-4	5-9	10-14	15-19	20-24	
ALL	215	628	409	161	48		1,463

TABLE 7

PUBLIC EMPLOYEES POLICE AND FIRE FUND
RECONCILIATION OF MEMBERS

	<u>Actives</u>	<u>Terminated</u>	
		<u>Deferred Retirement</u>	<u>Other Non-Vested</u>
A. ON JUNE 30, 1992	6,521	187	120
B. ADDITIONS	472	50	38
C. DELETIONS			
1. Service Retirement	(71)	(11)	(4)
2. Disability	(13)	(1)	0
3. Death-Survivor	(4)	0	0
4. Death-Other	(1)	(1)	0
5. Terminated - Deferred	(48)	0	0
6. Terminated - Refund	(44)	0	(27)
7. Terminated - Other Non-Vested	(26)	0	0
8. Returned as Active	0	(9)	(17)
D. DATA ADJUSTMENTS	(1)	0	11
Vested	5,597		
Non-Vested	1,188		
E. TOTAL ON JUNE 30, 1993	6,785	215	121
		<u>Recipients</u>	
		<u>Retirement Annuitants</u>	<u>Survivors</u>
		<u>Disabled</u>	
A. ON JUNE 30, 1992	1,191	93	379
B. ADDITIONS	100	15	33
C. DELETIONS			
1. Service Retirement	0	(9)	0
2. Death	(39)	(2)	(16)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	(2)	(3)	(2)
E. TOTAL ON JUNE 30, 1993	1,250	94	394

TABLE 8

PUBLIC EMPLOYEES POLICE AND FIRE FUND

ACTUARIAL BALANCE SHEET
(DOLLARS IN THOUSANDS)

JULY 1, 1993

A.	CURRENT ASSETS (TABLE 1, F6)			\$1,118,341
B.	EXPECTED FUTURE ASSETS			
	1. Present Value of Expected Future Statutory Supplemental Contributions			(\$19,716)
	2. Present Value of Future Normal Costs			688,162
	3. Total Expected Future Assets			----- \$668,446
C.	TOTAL CURRENT AND EXPECTED FUTURE ASSETS			----- \$1,786,787
D.	CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>
	1. Benefit Recipients			
	a. Retirement Annuities		\$237,843	\$237,843
	b. Disability Benefits		16,208	16,208
	c. Surviving Spouse and Child Benefits		43,456	43,456
	2. Deferred Retirements With Future Augmentation		12,328	12,328
	3. Former Members Without Vested Rights		148	148
	4. Active Members			
	a. Retirement Annuities	2,848	451,694	454,542
	b. Disability Benefits	60,361	0	60,361
	c. Survivor's Benefits	56,262	0	56,262
	d. Deferred Retirements	923	48,693	49,616
	e. Refund Liability Due to Death or Withdrawal	0	1,568	1,568
	5. Total Current Benefit Obligations	----- \$120,394	----- \$811,938	----- \$932,332
E.	EXPECTED FUTURE BENEFIT OBLIGATIONS			----- \$765,056
F.	TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS			----- \$1,697,388
G.	CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)			----- (\$186,009)
H.	CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)			----- (\$89,399)

TABLE 9

PUBLIC EMPLOYEES POLICE AND FIRE FUND

DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
AND SUPPLEMENTAL CONTRIBUTION RATE
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	Actuarial Present Value of Projected Benefits <u>(1)</u>	Actuarial Present Value of Future Normal Costs <u>(2)</u>	Actuarial Accrued Liability <u>(3)=(1)-(2)</u>
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$1,055,371	\$470,507	\$584,864
b. Disability Benefits	123,746	75,233	\$48,513
c. Survivor's Benefit	112,554	67,473	\$45,081
d. Deferred Retirements	92,324	72,731	\$19,593
e. Refunds Due to Death or Withdrawal	3,411	2,218	\$1,193
f. Total	<u>\$1,387,406</u>	<u>\$688,162</u>	<u>\$699,244</u>
2. Deferred Retirements With Future Augmentation	12,328		12,328
3. Former Members Without Vested Rights	148		148
4. Annuitants in MPRIF	257,993		257,993
5. Recipients Not in MPRIF	39,513		39,513
6. Total	<u>\$1,697,388</u>	<u>\$688,162</u>	<u>\$1,009,226</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$1,009,226
2. Current Assets (Table 1, F6)			1,118,341
3. UAAL (B1-B2)			<u>(\$109,115)</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$5,694,578
2. Supplemental Contribution Rate (B3/C1)			-1.92%

TABLE 10

PUBLIC EMPLOYEES POLICE AND FIRE FUND
CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
(DOLLARS IN THOUSANDS)

YEAR ENDING JUNE 30, 1993

A.	UAAL AT BEGINNING OF YEAR	(\$91,155)
B.	CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
	1. Normal Cost and Expenses	\$47,478
	2. Contribution	(50,840)
	3. Interest on A, B1 and B2	(7,891)
	4. Total (B1+B2+B3)	----- (\$11,253)
C.	EXPECTED UAAL AT END OF YEAR (A+B4)	----- (\$102,408)
D.	INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
	1. Salary Increases	(\$30,808)
	2. Investment Return	(27,062)
	3. MPRIF Mortality	(978)
	4. Mortality of Other Benefit Recipients	(300)
	5. Other Items	13,448
	6. Total	----- (\$45,700)
E.	UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D5)	----- (\$148,108)
F.	CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	38,993
G.	CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	0
H.	UAAL AT END OF YEAR (E+F+G)	----- (\$109,115) =====

TABLE 11

PUBLIC EMPLOYEES POLICE AND FIRE FUND
DETERMINATION OF CONTRIBUTION SUFFICIENCY
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353 *		
1. Employee Contributions	7.80%	\$21,123
2. Employer Contributions	11.70%	31,685
3. Total	----- 19.50%	----- \$52,808
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	13.22%	\$35,808
b. Disability benefits	2.10%	5,699
c. Survivors	1.95%	5,283
d. Deferred Retirement Benefits	1.93%	5,230
e. Refunds Due to Death or Withdrawal	0.06%	155
f. Total	----- 19.26%	----- \$52,175
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	-1.92%	(5,200)
3. Allowance for Expenses	0.11%	298
4. Total	----- 17.45%	----- \$47,273
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) (A3-B4)	2.05%	\$5,535

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1993 is \$270,813.

* Reflects rates of 8% and 12% to 12/31/93 and rates of 7.6% and 11.4% from 1/1/94 to 6/30/94.

PUBLIC EMPLOYEES POLICE AND FIRE FUND
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Interest:	Pre-Retirement: 8.5% per annum Post-Retirement: 5% per annum
Salary Increases:	Reported salary for prior fiscal year, with new hires annualized, increased 6.5% to current fiscal year and 6.5% annually for each future year.
Mortality:	<p>Pre-Retirement: Male - 1971 Group Annuity Mortality Table male rates projected to 1984 by Scale D Female - 1971 Group Annuity Mortality Table female rates projected to 1984 by Scale D</p> <p>Post-Retirement: Male - Same as above Female - Same as above</p> <p>Post-Disability: Male - 1965 RRB rates Female - 1965 RRB rates</p>
Retirement Age:	Age 60, or if over age 60, one year from the valuation date.
Separation:	Graded rates based on plan experience as of June 30, 1989. Rates are shown in rate table.
Disability:	Rates as shown in rate table.
Expenses:	Prior year expenses expressed as percentage of prior year payroll.
Return of Contributions:	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.
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

PUBLIC EMPLOYEES POLICE AND FIRE FUND

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Benefit Increases After Retirement:	Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumption.
Special Consideration:	Married Members assumed to elect subsidized joint and survivor form of annuity as follows: Male - 40% elect 50% J&S option 45% elect 100% J&S option Female - 15% elect 50% J&S option 15% elect 100% J&S option
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 6.5% 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:

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
20	5	2	859	859	11	11	0	0
21	5	2	750	750	11	11	0	0
22	5	2	660	660	12	12	0	0
23	5	3	583	583	12	12	0	0
24	5	3	519	519	13	13	0	0
25	6	3	463	463	13	13	0	0
26	6	3	416	416	14	14	0	0
27	6	3	374	374	14	14	0	0
28	7	3	339	339	14	14	0	0
29	7	4	307	307	15	15	0	0
30	7	4	280	280	16	16	0	0
31	8	4	256	256	16	16	0	0
32	8	4	234	234	17	17	0	0
33	9	5	215	215	17	17	0	0
34	10	5	198	198	18	18	0	0
35	10	5	183	183	19	19	0	0
36	11	6	169	169	20	20	0	0
37	12	6	157	157	22	22	0	0
38	13	7	146	146	23	23	0	0
39	14	7	135	135	24	24	0	0
40	15	8	126	126	26	26	0	0
41	16	9	118	118	28	28	0	0
42	18	9	110	110	29	29	0	0
43	21	10	103	103	31	31	0	0
44	24	11	97	97	34	34	0	0
45	27	12	91	91	36	36	0	0
46	30	13	86	86	41	41	0	0
47	34	14	81	81	46	46	0	0
48	39	15	69	69	52	52	0	0
49	44	17	59	59	60	60	0	0

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:

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
50	49	18	50	50	69	69	0	0
51	54	20	39	39	80	80	0	0
52	60	21	29	29	91	91	0	0
53	65	23	22	22	104	104	0	0
54	72	25	15	15	119	119	0	0
55	78	27	11	11	135	135	0	0
56	85	30	7	7	152	152	0	0
57	92	33	5	5	171	171	0	0
58	100	37	3	3	192	192	0	0
59	110	41	1	1	215	215	0	0
60	121	46	0	0	0	0	10,000	10,000
61	133	52	0	0	0	0	0	0
62	146	58	0	0	0	0	0	0
63	160	65	0	0	0	0	0	0
64	176	73	0	0	0	0	0	0
65	195	81	0	0	0	0	0	0
66	219	90	0	0	0	0	0	0
67	243	99	0	0	0	0	0	0
68	270	109	0	0	0	0	0	0
69	300	123	0	0	0	0	0	0
70	334	140	0	0	0	0	0	0

PUBLIC EMPLOYEES POLICE AND FIRE FUND

SUMMARY OF PLAN PROVISIONS

Eligibility:	All full-time and certain part-time, police officers and fire fighters, who are not contributing to any other local retirement fund.
Contributions	
Member:	7.6% of salary.
Employer:	11.4% of salary.
Allowable Service:	Police and fire service during which Member contributions were deducted. May also include certain leaves of absence and military service.
Salary:	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.
Average Salary:	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

Eligibility:	Age 55 and three years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.
Amount:	2.65% of average salary for each year of Allowable Service.

Early Retirement Benefit

Eligibility:	Age 50 and three years of Allowable Service.
Amount:	Normal Retirement Benefit based on Allowable Service and average salary at retirement date assuming augmentation to age 55 at 3% per year and actuarial reduction for each month the Member is under age 55.

PUBLIC EMPLOYEES POLICE AND FIRE FUND

SUMMARY OF PLAN PROVISIONS

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

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

Benefit Increases: Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). (Note: The MPRIF methodology for this increase will change effective 1/1/94.) 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.

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.

PUBLIC EMPLOYEES POLICE AND FIRE FUND

SUMMARY OF PLAN PROVISIONS

Amount: 53% of average salary plus 2.65% 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, does not exceed salary. Payments change to retirement annuity at age 55.

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 55.

Form of Payment: Same as for retirement.

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

Retirement Benefits

Eligibility: Age 55

Amount: 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.

Benefit Increases: Same as for retirement.

DEATH

Surviving Spouse Benefit

Eligibility: Active or Disabled Member with surviving spouse, married for at least one year unless death in the line of duty.

PUBLIC EMPLOYEES POLICE AND FIRE FUND

SUMMARY OF PLAN PROVISIONS

Amount:	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.
Surviving Dependent Child Benefit	
Eligibility:	Active or Disabled Member with dependent child.
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 salary. Benefits paid until child marries, dies, or attains age 18 (age 23 if full-time student.)
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.
Benefit Increases:	Adjusted by PERA to provide same increase as MPRIF.

PUBLIC EMPLOYEES POLICE AND FIRE FUND
SUMMARY OF PLAN PROVISIONS

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.

SUMMARY OF SIGNIFICANT CHANGES

1. Contributions were decreased from 8% and 12% to 7.6% and 11.4% of salary for Members and Employer, respectively. This is subject to change depending upon future funding sufficiency/deficiency.
2. Retirement factor was increased from 2.5% to 2.65% for both retirement and disability.
3. Age restriction was removed for disability eligibility.
4. Member death while disabled prior to age 65 or within five years of the disability effective date allows surviving spouse the option of Survivor Annuity, regular death benefit or refund. Dependent children are also covered, same as Active Member death.