Public Employees Police and Fire Fund
ACTUARIAL VALUATION REPORT

July 1, 1994

Revised January 23, 1995

MILLIMAN & ROBERTSON, INC.

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January 23, 1995

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, 1994.

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.
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Consulting Actuary

TKC/WVH/bh

Public Employees Police and Fire Fund

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Report Highlights

(dollars in thousands)

	07/01/93 Valuation	07/01/94 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	19.50%	19.00%
2. Required Contributions - Chapter 356 % of Payroll	17.45%	17.28%
3. Sufficiency (Deficiency): (A.1. - A.2.)	2.05%	1.72%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	$1,118,342	$1,234,961
b. Current Benefit Obligations (Table 8)	$932,332	$1,020,950
c. Funding Ratio: (a/b)	119.95%	120.96%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	$1,118,342	$1,234,961
b. Actuarial Accrued Liability (Table 9)	$1,009,226	$1,099,221
c. Funding Ratio: (a/b)	110.81%	112.35%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	$1,786,787	$1,959,463
b. Current and Expected Future Benefit Obligations	$1,697,388	$1,858,416
c. Funding Ratio: (a/b)	105.27%	105.44%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	6,785	7,043
b. Projected Annual Earnings	$270,813	$295,299
c. Average Annual Earnings (Actual $)	$39,913	$41,928
d. Average Age	38.2	38.3
e. Average Service	10.8	10.5
2. Others		
a. Service Retirements (Table 4)	1,250	1,347
b. Disability Retirements (Table 5)	94	116
c. Survivors (Table 6)	394	411
d. Deferred Retirements (Table 7)	215	234
e. Terminated Other Non-vested (Table 7)	121	140
f. Total	2,074	2,248

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 120.96%. The corresponding ratio for the prior year was 119.95%.

° 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 1994 the ratio is 112.35%, which is an increase from the 1993 value of 110.81%.

° The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 105.44% 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:

° 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

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, 1994 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	$364,945,000
Current Employees	
Accumulated employee contributions including allocated investment income	$174,899,000
Employer-financed vested	353,392,000
Employer-financed nonvested	127,714,000
Total Pension Benefit Obligation	$1,020,950,000
Net Assets Available for Benefits at Cost	$1,229,767,000
Total Benefit Obligation less Assets	($208,817,000)
Funded Ratio	120.45%

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:

- 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 17.28%.

Changes in Actuarial Assumptions

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

Changes in Plan Provisions

There were no changes in plan provisions since the last valuation which impacted funding costs. However, this report reflects full recognition of the reduction in statutory contribution rates which were enacted in the 1993 legislative session but were effective January 1, 1994.

Public Employees Police and Fire Fund

Accounting Balance Sheet

(dollars in thousands)

JULY 1, 1994

	Market Value	Cost Value
A. ASSETS		
1. Cash, Equivalents, Short-term Securities	$27,242	$27,242
2. Investments		
a. Fixed Income	270,572	280,361
b. Equity	609,441	579,663
c. Real Estate	40,550	44,962
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	301,732	301,732
4. Other	176	176
B. TOTAL ASSETS	$1,249,713	$1,234,136
C. AMOUNTS CURRENTLY PAYABLE	$4,369	$4,369
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	$180,499	$180,499
2. Employer Reserves	763,113	747,536
3. MPRIF Reserves	301,732	301,732
4. Non-MPRIF Reserves	0	0
5. Total Assets Available for Benefits	$1,245,344	$1,229,767
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	$1,249,713	$1,234,136

F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS

1. Cost Value of Assets Available for Benefits (D5)		$1,229,767
2. Market Value (D5)	$1,245,344	
3. Cost Value (D5)	1,229,767	
4. Market Over Cost: (F2-F3)	$15,577	
5. 1/3 of Market Over Cost: (F4)/3		5,192
6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		$1,234,959

Public Employees Police and Fire Fund

Change In Assets Available For Benefits

(dollars in thousands)

YEAR ENDING JUNE 30, 1994

	Market Value	Cost Value
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	$1,173,312	$1,090,857
B. OPERATING REVENUES		
1. Member Contributions	$21,806	$21,806
2. Employer Contributions	32,536	32,536
3. Investment Income	86,763	86,763
4. MPRIF Income	28,162	28,162
5. Net Realized Gain (Loss)	0	0
6. Other	271	271
7. Net Change in Unrealized Gain (Loss)	(66,878)	0
8. Total Revenue	$102,660	$169,538
C. OPERATING EXPENSES		
1. Service Retirements	$24,100	$24,100
2. Disability Benefits	1,892	1,892
3. Survivor Benefits	2,135	2,135
4. Refunds	760	760
5. Investment Fees	1,363	1,363
6. Administrative Expenses	312	312
7. Other	66	66
8. Total Disbursements	$30,628	$30,628
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	$1,245,344	$1,229,767

Public Employees Police and Fire Fund

ACTIVE MEMBERS AS OF JUNE 30, 1994

AGE	YEARS OF SERVICE <1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
<25	85	97							182
25-29	179	646	212						1,037
30-34	99	448	724	185	2				1,458
35-39	34	209	414	516	201				1,374
40-44	10	79	197	279	497	160	1		1,223
45-49	19	45	73	119	275	358	65		954
50-54	2	18	38	48	77	148	182	8	521
55-59	2	14	21	12	27	52	61	26	215
60-64	1	2	7	8	12	16	17	5	68
65+		1	1	1	2	2	2	2	11
ALL	431	1,559	1,687	1,168	1,093	736	328	41	7,043

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE <1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
<25	18,971	26,380							22,920
25-29	20,472	33,401	39,088						32,332
30-34	21,344	35,057	41,564	42,654	34,023				38,320
35-39	20,975	35,193	41,567	44,415	42,013				41,223
40-44	27,751	31,732	41,242	44,552	44,148	44,243	38,540		42,844
45-49	17,428	35,716	37,616	42,143	43,321	45,167	46,317		42,760
50-54	29,169	28,794	28,277	32,736	41,224	44,423	47,703	47,450	42,290
55-59	32,495	35,344	33,399	31,716	37,626	42,070	46,020	47,062	41,284
60-64	11,073	24,859	35,748	37,617	27,498	35,379	45,947	51,731	37,467
65+		11,232	2,623	40,673	41,386	37,748	60,221	39,212	37,424
ALL	20,525	33,602	40,597	43,277	42,974	44,365	47,073	47,324	39,368

AGE	PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE <1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
ALL	8,846	52,386	68,487	50,548	46,971	32,653	15,440	1,940	277,269

Public Employees Police and Fire Fund

SERVICE RETIREMENTS AS OF JUNE 30, 1994

AGE	YEARS RETIRED							
	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50								
50-54	17	15						32
55-59	71	174						245
60-64	29	119	160					308
65-69	6	60	126	100				292
70-74		9	61	98	55			223
75-79		3	10	49	60	16		138
80-84			5	7	45	22	1	80
85+		1	1		5	13	9	29
ALL	123	381	363	254	165	51	10	1,347

AVERAGE ANNUAL BENEFIT

AGE	YEARS RETIRED							
	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50								
50-54	23,159	15,484						19,561
55-59	25,025	18,248						20,212
60-64	13,839	20,934	19,479					19,510
65-69	13,112	14,484	19,314	21,059				18,792
70-74		15,812	17,467	16,935	16,124			16,835
75-79		16,495	8,342	11,329	15,981	10,167		13,113
80-84			8,713	7,509	13,856	10,706	10,202	12,067
85+		4,800	10,869		14,769	8,400	8,326	9,436
ALL	21,549	18,279	18,605	17,217	15,412	9,949	8,514	17,726

AGE	TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED							
	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	2,650	6,964	6,753	4,373	2,542	507	85	23,876

Public Employees Police and Fire Fund

SURVIVORS AS OF JUNE 30, 1994

AGE	YEARS SINCE DEATH <1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	8	18	17	9	2			54
50-54	4	6	2	8		1		21
55-59	2	8	11	4	5	2	1	33
60-64		6	12	14	9	1	1	43
65-69		7	16	23	9	8	2	65
70-74			9	22	12	6	1	50
75-79	1	2	8	11	27	9	7	65
80-84		1	4	6	9	8	6	34
85+		6	6	6	6	11	11	46
ALL	15	54	85	103	79	46	29	411

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH <1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	21,880	18,296	14,942	12,535	9,384			16,481
50-54	17,205	14,654	11,596	14,168		9,578		14,422
55-59	18,768	14,028	15,500	12,730	10,228	3,533	2,488	13,087
60-64		12,749	15,017	14,114	9,068	2,607	2,602	12,584
65-69		7,206	13,753	11,940	8,801	6,323	3,155	10,480
70-74			12,251	10,157	9,572	4,880	2,593	9,609
75-79	7,580	4,332	7,044	10,798	8,313	6,692	3,460	7,697
80-84		4,436	5,948	2,478	5,874	5,731	3,995	4,876
85+		5,427	4,984	8,240	5,650	4,050	4,015	5,098
ALL	19,265	13,001	12,568	11,222	8,314	5,429	3,667	10,287

AGE	TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH <1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	288	702	1,068	1,155	656	249	106	4,227

Public Employees Police and Fire Fund

DISABILITY RETIREMENTS AS OF JUNE 30, 1994

	YEARS DISABLED							
AGE	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	9	33	22	1	2			67
50-54	9	9	13	8	3			42
55-59	4	2						6
60-64	1							1
65-69								
70-74								
75-79								
80-84								
85+								
ALL	23	44	35	9	5			116

AVERAGE ANNUAL BENEFIT

	YEARS DISABLED							
AGE	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
<50	10,905	17,081	17,809	6,524	10,508			16,137
50-54	21,112	19,319	15,456	16,632	12,665			17,520
55-59	22,602	22,350						22,518
60-64	9,185							9,185
65-69								
70-74								
75-79								
80-84								
85+								
ALL	16,859	17,778	16,935	15,509	11,802			16,908

	TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED							
AGE	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	387	782	592	139	59			1,961

Public Employees Police and Fire Fund

Reconciliation Of Members

	Actives	Terminated: Deferred Retirement	Terminated: Other Non-Vested
A. ON JUNE 30, 1993	6,785	215	121
B. ADDITIONS	485	44	38
C. DELETIONS			
1. Service Retirement	(89)	(21)	(6)
2. Disability	(22)	(8)	0
3. Death	(13)	0	(2)
4. Terminated - Deferred	(41)	0	0
5. Terminated - Refund	(34)	0	(26)
6. Terminated - Other Non-Vested	(24)	0	0
7. Returned as Active	0	(9)	(10)
8. Transferred to Other Fund	0	0	0
D. DATA ADJUSTMENTS	(4)	13	25
Vested	5,818		
Non-Vested	1,225		
E. TOTAL ON JUNE 30, 1994	7,043	234	140

	Recipients: Retirement Annuitants	Recipients: Disabled	Recipients: Survivors
A. ON JUNE 30, 1993	1,250	94	394
B. ADDITIONS	126	34	31
C. DELETIONS			
1. Service Retirement	0	(9)	0
2. Death	(29)	(4)	(14)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	0	1	0
E. TOTAL ON JUNE 30, 1994	1,347	116	411

Public Employees Police and Fire Fund

Actuarial Balance Sheet

(dollars in thousands)

JULY 1, 1994

A.	CURRENT ASSETS (TABLE 1, F6)			$1,234,959
B.	EXPECTED FUTURE ASSETS			
	1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)			($34,691)
	2. Present Value of Future Normal Costs			759,195
	3. Total Expected Future Assets			$724,504
C.	TOTAL CURRENT AND EXPECTED FUTURE ASSETS			$1,959,463

	CURRENT BENEFIT OBLIGATIONS	Non-Vested	Vested	Total
D.	1. Benefit Recipients			
	a. Retirement Annuities		$279,826	$279,826
	b. Disability Benefits		21,409	21,409
	c. Surviving Spouse and Child Benefits		50,126	50,126
	2. Deferred Retirements with Future Augmentation		13,400	13,400
	3. Former Members without Vested Rights		184	184
	4. Active Members			
	a. Retirement Annuities	3,548	476,554	480,102
	b. Disability Benefits	63,666	0	63,666
	c. Survivor's Benefits	59,396	0	59,396
	d. Deferred Retirements	1,104	50,026	51,130
	e. Refund Liability Due to Death or Withdrawal	0	1,711	1,711
	5. Total Current Benefit Obligations	$127,714	$893,236	$1,020,950

E.	EXPECTED FUTURE BENEFIT OBLIGATIONS	$837,466
F.	TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS	$1,858,416
G.	CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)	($214,009)
H.	CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)	($101,047)

Public Employees Police and Fire Fund

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

(dollars in thousands)

JULY 1, 1994

	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	$1,137,531	$521,923	$615,608
b. Disability Benefits	133,380	82,806	50,574
c. Survivor's Benefit	121,215	74,226	46,989
d. Deferred Retirements	97,524	77,574	19,950
e. Refunds Due to Death or Withdrawal	3,822	2,666	1,156
f. Total	$1,493,472	$759,195	$734,277
2. Deferred Retirements With Future Augmentation	13,400		13,400
3. Former Members Without Vested Rights	184		184
4. Annuitants in MPRIF	301,732		301,732
5. Recipients Not in MPRIF	49,628		49,628
6. Total	$1,858,416	$759,195	$1,099,221

B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)	
1. AAL (A6)	$1,099,221
2. Current Assets (Table 1, F6)	1,234,959
3. UAAL (B1-B2)	($135,738)
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE	
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020	$5,879,836
2. Supplemental Contribution Rate (B3/C1)	-2.31%

Public Employees Police and Fire Fund

Changes In Unfunded Actuarial Accrued Liability (UAAL)

(dollars in thousands)

YEAR ENDING JUNE 30, 1994

A. UAAL AT BEGINNING OF YEAR	($109,115)
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	$52,473
2. Contribution	(54,342)
3. Interest on A, B1 and B2	(9,354)
4. Total (B1+B2+B3)	($11,223)
C. EXPECTED UAAL AT END OF YEAR (A+B4)	($120,338)
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	($11,329)
2. Investment Return	10,662
3. MPRIF Mortality	3,723
4. Mortality of Other Benefit Recipients	750
5. Repayment of Refunded Contributions	0
6. Other Items	(19,206)
7. Total	($15,400)
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D7)	($135,738)
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	0
H. UAAL AT END OF YEAR (E+F+G)	($135,738)

Public Employees Police and Fire Fund

Determination Of Contribution Sufficiency

(dollars in thousands)

JULY 1, 1994

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	7.60%	$22,443
2. Employer Contributions	11.40%	33,664
3. Total	19.00%	$56,107
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	13.43%	$39,646
b. Disability benefits	2.12%	6,262
c. Survivors	1.97%	5,812
d. Deferred Retirement Benefits	1.89%	5,581
e. Refunds Due to Death or Withdrawal	0.06%	188
f. Total	19.47%	$57,489
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	-2.31%	(6,821)
3. Allowance for Expenses	0.12%	354
4. Total	17.28%	$51,022
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	1.72%	$5,085

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1994 is $294,339.

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:	**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 **Post-Retirement**: Male - Same as above Female - Same as above **Post-Disability**: Male - 1965 RRB rates Female - 1965 RRB rates
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
***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: **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
***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.

Public Employees Police and Fire Fund

Summary of Actuarial Assumptions and Methods

Separations Expressed as the Number of Occurrences per 10,000:

	Death		Withdrawal		Disability		Retirement	
Age	**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

Public Employees Police and Fire Fund

Summary of Actuarial Assumptions and Methods

Separations Expressed as the Number of Occurrences per 10,000:

	Death		Withdrawal		Disability		Retirement	
Age	**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

GENERAL

***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. Beginning July 1, 1994, automatically adjusted downward after four continuous years of sufficiencies at or above .5% of salary.
Employer:	11.4% of salary. Beginning July 1, 1994, automatically adjusted downward after four continuous years of sufficiencies at or above .5% 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.
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.
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 and actual earnings, does not exceed salary or 125% of pay for an employee at same position. 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.
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.

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.

Jul

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Actuaries and Consultants

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January 23, 1995

Mr. Lawrence A. Martin
Executive Director
Minnesota Legislative Commission
on Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155-1201

Dear Larry:

RE: **Revised July 1, 1994 Actuarial Valuation Report; PERA Police and Fire**

Dear Larry:

In preparing the July 1, 1994 Actuarial Valuation Report of the PERA Police and Fire Fund, we made a simple but not insignificant error which went undetected (despite several layers of reviews, including draft reports sent to PERA and GRS) until Phil Kappeler of D.O.F. was reviewing his copy and called me to question why we are showing a combined statutory contribution rate of 19.5% of payroll.

In the July 1, 1993 valuation, we made the conscious decision to reflect 19.5% (since 20.0% would be the rate for the first half of the year and 19.0% would be the rate for the second half of the year). In preparing the 1994 report, we updated all of the liability amounts and the computation of the required contribution; but, inexplicably, carried forward the statutory rates from the 1993 report. Clearly this is incorrect. This error affects numbers in the report in four places. Accordingly, we believe it best to reissue complete revised reports. Your three copies are enclosed and everyone who received copies of the earlier report are receiving complete revised copies.

I apologize for the mistake and any confusion it may have caused.

Sincerely,

Tom Custis

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

TKC/bh

Enclosure

cc: Laurie Hacking, Executive Director PERA (2)
John Gunyou, Commissioner of Finance (2)
Jim Nobles, Legislative Auditor
Legislative Reference Library (2)
Dan Petersen, GRS