

PUBLIC EMPLOYEES RETIREMENT FUND

ACTUARIAL VALUATION REPORT

JULY 1, 1987

 **FILE COPY**

THE *Wyatt* COMPANY

ACTUARIES AND CONSULTANTS

EMPLOYEE BENEFITS
COMPENSATION PROGRAMS
EMPLOYEE COMMUNICATIONS
ADMINISTRATIVE SYSTEMS
RISK MANAGEMENT
INTERNATIONAL SERVICES

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OFFICES IN PRINCIPAL CITIES
AROUND THE WORLD

November 1, 1987

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

RE: PUBLIC EMPLOYEES RETIREMENT FUND

Commission Members:

We have prepared an actuarial valuation of the Fund as of July 1, 1987 based on membership and financial data supplied by the Fund.

We certify that to the best of our knowledge and belief this actuarial valuation was performed 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 August 26, 1987.

Respectfully submitted,

THE WYATT COMPANY

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PUBLIC EMPLOYEES RETIREMENT FUND

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COORDINATED

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PUBLIC EMPLOYEES RETIREMENT FUND

REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/86</u> <u>VALUATION</u>	<u>07/01/87</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	9.20%	9.05%
2. Required Contributions - Chapter 356 % of Payroll	8.55%	8.21%
3. Sufficiency (Deficiency) (A1-A2)	0.65%	0.84%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$2,148,114	\$2,457,899
b. Current Benefit Obligations (Table 8)	\$2,590,445	\$2,839,047
c. Funding Ratio (a/b)	82.92%	86.57%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$2,148,114	\$2,457,899
b. Actuarial Accrued Liability (Table 9)	\$2,925,006	\$3,188,962
c. Funding Ratio (a/b)	73.44%	77.08%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$3,773,569	\$4,090,664
b. Current and Expected Future Benefit Obligations	\$3,580,782	\$3,837,047
c. Funding Ratio (a/b)	105.38%	106.61%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	89,336	92,497
b. Projected Annual Earnings	\$1,551,555	\$1,645,876
c. Average Annual Earnings (Actual \$)	\$17,368	\$17,794
d. Average Age	42.2	42.2
e. Average Service	8.0	8.0
2. Others		
a. Service Retirements (Table 4)	18,719	20,341
b. Disability Retirements (Table 5)	633	645
c. Survivors (Table 6)	3,970	4,029
d. Deferred Retirements (Table 7)	1,746	2,152
e. Terminated Other Non-vested (Table 7)	40,023	40,185
f. Total	65,091	67,352

PUBLIC EMPLOYEES RETIREMENT FUND

COMMENTARY

Purpose

The purpose of this valuation is to determine the financial status of the Fund. 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 statutory contributions for the Public Employees Retirement Fund continue to be sufficient. The margin of sufficiency has increased from 0.65% in 1986 to 0.84% in 1987. According to this valuation a contribution rate of 8.21% is required to comply with Minnesota Law.

The financial status of the Fund 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. This ratio is based on Statement No. 5 of the Governmental Accounting Standards Board. This year's ratio is 86.57%. The corresponding ratio for the prior year was 82.92%.
- 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. For 1987 the ratio is 77.08%, which is an

increase from the 1986 value of 73.44%.

- o The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This ratio exceeds 100% and verifies that the current statutory contributions are adequate.

Asset Information

Beginning in 1984, changes in Section 356.215 of Minnesota Statutes require that the asset value used for actuarial purposes reflect a portion of the unrealized gains and losses. Only a portion of these gains and losses are considered because market values are typically volatile and could produce erratic changes in the contribution requirements from year to year.

The calculation of assets for actuarial purposes begins with the reporting of Total Assets by the Fund (Table 1, line B). These Total Assets, reduced by any Amounts Currently Payable (line C), produce the Assets Available for Benefits (line D5), which is the starting value for determining the Actuarial Value of Assets.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines F1 to F6. It combines the cost value and one-third of the difference between market value and cost value.

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.

) Since this Fund participates in the Minnesota Post Retirement Investment Fund, referred to as MPRIF, the asset value shown on line A3 is initially calculated by the State Board of Investment(SBI), and is the expected amount of MPRIF participation assuming the Fund earns 5% interest. The actual amount is determined by calculating the liability based on annuitant information supplied by the Fund. If the actual liability is larger than expected, the difference is labeled a mortality loss and if smaller a gain.

Investment performance by SBI above the 5% level is not shown in the assets but will be added in on January 1, 1988 when benefits will be increased for those annuitants who have been receiving payments for 18 months. Next year's valuation will include the 1988 benefit increase in determining the MPRIF value.

) After the MPRIF liability has been calculated for each participating Fund, SBI will determine each Fund's portion of the excess earnings for the January benefit increase as well as the Fund's allocated market share of MPRIF. An approximation of those values on June 30, 1987 provides the following relative comparison.

MPRIF Reserves	\$1,211,028,000
Reserves Plus Excess Earnings	1,290,000,000
MPRIF Market Value	1,370,000,000

Membership Data

) Tables 3 through 6 summarize statistical information on members by category. Active members are grouped by age and completed years of service in Table 3.

The earnings shown for these members are for the prior fiscal year except in the case of new hires whose earnings have been annualized.

The service retirements in Table 4 include not only those retiring from active status but also disabled members who have attained retirement age. Disabled members under retirement age are shown in Table 5. The survivors category (Table 6) includes spouses and children of deceased members.

Actuarial Balance Sheet

An actuarial balance sheet is required by Section 356.215, Subdivision 4f of Minnesota Law. This balance sheet (Table 8) establishes a method for evaluating both current and future levels of funding.

Current funding levels are evaluated by comparing Current Assets on line A to Current Benefit Obligations on line D5. The difference between the obligations and the assets is shown as Current Unfunded Actuarial Liability on line G.

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of 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 first step in the calculation for active members involves projecting salaries and service to determine future benefits payable under the plan and then discounting those projected benefits to the date of the valuation. The second step is to determine the discounted value of benefits for the non-active

members. For those non-active members whose benefits have not commenced, the liability includes augmentation of benefits to date of commencement. The result of the first two steps is shown on line F, Total Current and Expected Future Benefit Obligations.

The third step is to determine the portion that represents Current Benefit Obligations. In the case of active members the Current Benefit Obligation is computed by attributing an equal benefit amount to each year of credited and expected future employee service. For all others, their entire liability is considered a Current Benefit Obligation.

Current and future funding levels are evaluated by comparing Current and Future Expected Assets on line C to Current and Expected Future Benefit Obligations on line F. The difference between the obligations and the assets is shown as the Current and Future Unfunded Actuarial Liability on line H.

Since line F has already been calculated, the remaining step is to determine the Expected Future Assets. The portion of the statutory contribution rate in excess of the combined normal cost rate and expense rate is first calculated. The amount of assets for line B1 can be determined by projecting from the valuation date to the amortization date (the date for paying off all unfunded liabilities) on the assumption that total payroll is increasing at 6.5% annually and then discounted to the date of the valuation.

The Current Unfunded Actuarial Liability, line G, is a measurement of the status of the funding to the date of the valuation. The Current and Future Unfunded Actuarial Liability is a measurement of the adequacy of the current statutory

contribution level.

GASB Disclosure

Table 8 shows that on July 1, 1987, the Pension Benefit Obligation consisted of the following components:

Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$1,370,652,000
Current Employees -	
Accumulated employee contributions including allocated investment income	588,396,000 *
Employer-financed vested	691,856,000
Employer-financed nonvested	<u>188,143,000</u>
Total Pension Benefit Obligation	\$2,839,047,000

* Estimated

Contribution Sufficiency

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal 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) shows similarities and differences. The similarity is that both approaches calculate the value of all future benefits the same way. This can be verified by comparing line F of Table 8 to line A6, column 1, of Table 9. The

) difference arises from the technique 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.

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal 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. Prior to 1984 these payments were calculated to be a level dollar amount similar to a fixed interest rate mortgage. The method of funding was changed in 1984 to produce a series of payments that remain a constant percentage of payroll each year.

) Under this new approach the payments will increase 6.5% each year since 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.

Projected Cash Flow

) Table 12 illustrates the anticipated cash flow over the amortization period. The cash flow begins with the Non-MPRIF Assets, which are the Current Assets reduced by the MPRIIF Reserves. Contributions are then added based on the present statutory rates for employers and employees. As members become eligible

for payments from MPRIF an amount of reserve is transferred to SBI. The other disbursements represent benefit payments made directly by the Fund.

This projected cash flow assumes that future payrolls increase by 6.5%. For purposes of this table only, new members are assumed to be hired in order to replace those who terminate from the active group. This open group method provides a more realistic picture of future cash flow. The statutory interest rate of 8% is used to project future investment return.

The amounts transferred to MPRIF will be affected by the number of members who reach the assumed retirement age during a given year. The amount for 1988 is large because it includes those already over age 64 who are assumed to retire a year from the valuation date.

Plan Provisions

Vesting eligibility has been reduced from 10 years to 5 years. This change applies to the Deferred Annuity, the Normal Retirement Benefit, the Early Retirement Benefit, the Disability Benefit and the Surviving Spouse Optional Annuity. Coincident with this eligibility change, a different calculation technique was adopted which assumes that the terminating vested member takes the larger of contributions with interest or a deferred annuity. Previously, the technique assumed that a deferred annuity was selected by the terminating vested member if the member terminated after age 40.

	<u>Impact Due to Change In</u>	
	<u>Technique</u>	<u>Eligibility</u>
Actuarial Accrued Liability	\$14,544,000	\$831,000
Normal Cost	.02%	.09%
Supplemental Contribution	<u>.05</u>	<u>.00</u>
Required Contribution	.07%	.09%

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 1

ACCOUNTING BALANCE SHEET
(DOLLARS IN THOUSANDS)

July 1, 1987

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$81,995	\$81,995
2. Investments		
a. Fixed Income	298,123	307,198
b. Equity	916,482	696,809
c. Real Estate	110,743	95,153
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	1,211,028	1,211,028
4. Other	694	694
	-----	-----
B. TOTAL ASSETS	<u>\$2,619,065</u>	<u>\$2,392,877</u>
	=====	=====
C. AMOUNTS CURRENTLY PAYABLE	\$10,374	\$10,374
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$452,560	\$452,560
2. Employer Reserves	945,103	718,915
3. MPRIF Reserves	1,211,028	1,211,028
4. Non-MPRIF Reserves	0	0
	-----	-----
5. Total Assets Available for Benefits	<u>\$2,608,691</u>	<u>\$2,382,503</u>
	-----	-----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	<u>\$2,619,065</u>	<u>\$2,392,877</u>
	=====	=====

F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS

1. Cost Value of Assets Available for Benefits (D5)		\$2,382,503
2. Market Value (D5)	\$2,608,691	
3. Cost Value (D5)	2,382,503	

4. Market Over Cost (F2-F3)	\$226,188	
5. 1/3 of Market Over Cost(F4)/3		75,396

6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		<u>\$2,457,899</u>
		=====

PUBLIC EMPLOYEES RETIREMENT FUND
CHANGES IN ASSETS AVAILABLE FOR BENEFITS
(DOLLARS IN THOUSANDS)

TABLE 2

YEAR ENDING JUNE 30, 1987

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS AVAILABLE AT BEGINNING OF YEAR	\$2,290,614	\$2,076,864
B. OPERATING REVENUES		
1. Member Contributions	\$67,945	\$67,945
2. Employer Contributions	74,391	74,391
3. Investment Income	170,898	170,898
4. MPRIF Income	140,632	140,632
5. Net Realized Gain (Loss)	0	0
6. Other	2,572	2,572
7. Net Change in Unrealized Gain (Loss)	12,438	0
	-----	-----
8. Total Revenue	\$468,876	\$456,438
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$115,902	\$115,902
2. Disability Benefits	4,620	4,620
3. Survivor Benefits	7,487	7,487
4. Refunds	13,356	13,356
5. Expenses	5,099	5,099
6. Other	32	32
	-----	-----
7. Total Disbursements	\$146,496	\$146,496
	-----	-----
D. OTHER CHANGES IN RESERVES	(4,303)	(4,303)
E. ASSETS AVAILABLE AT END OF YEAR	\$2,608,691	\$2,382,503
	=====	=====

TABLE 3

PUBLIC EMPLOYEES RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1987

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	1,647	2,474	153						4,274
25-29	1,871	5,006	2,953	175					10,005
30-34	1,879	5,024	4,464	2,088	88				13,543
35-39	1,771	5,121	4,264	2,868	1,039	48			15,111
40-44	1,827	4,338	3,680	2,353	1,567	402	19		14,186
45-49	709	2,484	2,911	2,197	1,414	706	232	25	10,678
50-54	511	1,677	2,195	2,061	1,781	761	477	201	9,664
55-59	302	1,149	1,669	1,716	1,800	901	450	226	8,213
60-64	161	608	1,030	1,182	1,273	633	225	184	5,296
65+	56	242	379	363	278	118	42	49	1,527
TOTAL	10,734	28,123	23,698	15,003	9,240	3,569	1,445	685	92,497

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	8,102	12,089	13,991						10,620
25-29	9,425	15,476	17,867	17,856					15,092
30-34	9,552	15,648	20,333	21,314	21,733				17,259
35-39	8,648	14,370	20,426	24,850	25,332	25,808			18,188
40-44	7,279	13,139	17,898	22,541	27,968	28,433	26,605		17,268
45-49	8,315	12,551	15,817	18,333	23,157	27,745	28,848	28,842	17,151
50-54	7,892	12,368	15,246	16,745	19,275	25,942	31,191	30,711	17,371
55-59	8,049	11,495	14,898	16,402	18,248	22,896	27,263	30,919	17,214
60-64	6,661	10,403	13,875	15,980	17,653	20,339	24,711	29,431	16,409
65+	5,466	6,580	9,371	10,967	12,829	17,190	18,754	25,866	11,186
ALL	8,503	13,854	17,759	19,846	21,430	24,525	28,161	30,021	16,717

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

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
91,276	389,629	420,845	297,744	198,014	87,531	40,692	20,565	1,546,296

TABLE 4

PUBLIC EMPLOYEES RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1							1
50-54	5	4						9
55-59	237	620	1					858
60-64	585	2,399	88					3,072
65-69	461	4,079	1,434	28	1			6,003
70-74	43	756	3,884	403	6			5,092
75-79	9	92	376	2,339	129	3		2,948
80-84	1	21	57	351	920	47		1,397
85+		4	17	66	273	415	186	961
TOTAL	1,342	7,975	5,857	3,187	1,329	465	186	20,341

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	6,986							6,986
50-54	12,483	9,963						11,363
55-59	8,096	10,055	7,493					9,511
60-64	6,294	8,195	7,759					7,821
65-69	4,772	5,713	6,178	5,506	8,514			5,752
70-74	4,685	3,902	5,142	7,502	2,065			5,138
75-79	2,044	1,360	4,136	4,585	3,334	4,307		4,365
80-84	316	3,300	2,563	3,649	3,171	3,779		3,286
85+		1,364	4,564	4,592	3,738	3,556	3,621	3,700
ALL	6,028	6,569	5,344	4,859	3,302	3,583	3,621	5,604

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
8,090	52,389	31,301	15,487	4,389	1,666	674	113,996

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 5

DISABILITY RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	9	27	11	2				49
50-54	15	34	13	5				67
55-59	19	103	49	14	1	1		187
60-64	30	140	112	49	5	1		337
65-69		1	4					5
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	73	305	189	70	6	2	0	645

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	3,353	4,516	4,802	3,404				4,321
50-54	4,859	5,905	5,188	5,199				5,479
55-59	4,783	5,802	6,011	5,368	1,839	1,095		5,674
60-64	4,511	4,153	6,446	4,742	2,989	2,792		5,011
65-69		4,561	5,839					5,583
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	4,511	4,939	6,138	4,862	2,797	1,944	0	5,204

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
329	1,507	1,160	340	17	4	0	3,357

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 6

SURVIVORS AS OF JUNE 30, 1987

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	11	41	29	21	4	5		111
50-54	9	48	27	18	5	5		112
55-59	19	102	47	31	17	9	6	231
60-64	18	146	120	64	36	19	5	408
65-69	5	131	215	122	57	46	18	594
70-74	13	74	185	214	83	69	40	678
75-79	13	60	97	192	129	87	58	636
80-84	12	55	97	104	136	106	52	562
85+	13	66	95	145	136	120	122	697
TOTAL	113	723	912	911	603	466	301	4,029

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	7,916	6,887	5,501	4,833	2,060	1,692		5,830
50-54	6,177	5,800	6,305	4,880	1,574	1,202		5,411
55-59	8,407	6,686	5,309	4,645	1,621	1,647	1,784	5,577
60-64	5,822	5,609	5,658	4,731	1,690	1,669	1,775	4,919
65-69	2,787	4,855	5,050	4,195	1,756	1,606	1,747	4,130
70-74	2,801	2,992	4,147	3,651	1,726	1,653	1,779	3,149
75-79	2,634	2,181	2,638	3,588	2,089	1,714	1,760	2,564
80-84	1,854	1,770	2,166	2,896	2,181	1,901	1,792	2,175
85+	2,158	1,876	2,081	1,959	2,096	2,102	1,911	2,014
ALL	4,797	4,524	4,139	3,516	1,988	1,828	1,829	3,324

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
542	3,271	3,774	3,203	1,199	852	551	13,392

PUBLIC EMPLOYEES RETIREMENT FUND
RECONCILIATION OF MEMBERS

TABLE 7

		<u>TERMINATED</u>	
	<u>ACTIVES</u>	<u>DEFERRED RETIREMENT</u>	<u>OTHER NON-VESTED</u>
A. On June 30, 1986	89,336	1,746	40,023
B. Additions	12,220	591	2,422
C. Deletions:			
1. Service Retirement	(1,588)	(434)	(120)
2. Disability	(97)	(9)	(4)
3. Death	(92)	(8)	(13)
4. Terminated-Deferred	(589)		
5. Terminated-Refund	(4,922)	0	(1,567)
6. Terminated-Other Non-vested	(1,638)		
7. Returned as Active		(39)	(1,014)
D. Data Adjustments	(133)	305	458
	Vested 53,640		
	Non-Vested 38,857		
E. Total on June 30, 1987	92,497	2,152	40,185

	<u>RECIPIENTS</u>		
	<u>RETIREMENT ANNUITANTS</u>	<u>DISABLED</u>	<u>SURVIVORS</u>
A. On June 30, 1986	18,719	633	3,970
B. Additions	2,309	134	307
C. Deletions:			
1. Service Retirement		(90)	
2. Death	(727)	(61)	(221)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	
D. Data Adjustments	40	29	(27)
E. Total on June 30, 1987	20,341	645	4,029

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 8

ACTUARIAL BALANCE SHEET
(DOLLARS IN THOUSANDS)

JULY 1, 1987

A. CURRENT ASSETS (TABLE 1, F6)				\$2,457,899
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions				984,680
2. Present Value of Future Normal Costs				648,085
3. Total Expected Future Assets				1,632,765
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				\$4,090,664
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>	
1. Benefit Recipients				
a. Retirement Annuities		\$1,179,066		\$1,179,066
b. Disability Benefits		18,049		18,049
c. Surviving Spouse and Child Benefits		123,644		123,644
2. Deferred Retirements with Future Augmentation		40,661		40,661
3. Former Members without Vested Rights		9,232		9,232
4. Active Members				
a. Retirement Annuities	23,669	972,162		995,831
b. Disability Benefits	66,101			66,101
c. Survivors' Benefits	90,759			90,759
d. Deferred Retirements	7,614	177,764		185,378
e. Refund Liability Due to Death or Withdrawal		130,326		130,326
5. Total Current Benefit Obligations	\$188,143	\$2,650,904		\$2,839,047
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				\$998,000
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				\$3,837,047
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				\$381,148
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				(\$253,617)

TABLE 9

PUBLIC EMPLOYEES RETIREMENT FUND

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

JULY 1, 1987

	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	\$1,722,427	\$337,386	\$1,385,041
b. Disability Benefits	108,470	28,670	79,800
c. Survivors Benefits	148,229	42,711	105,518
d. Deferred Retirements	298,178	81,006	217,172
e. Refunds Due to Death or Withdrawal	189,090	158,312	30,778
f. Total	<u>\$2,466,394</u>	<u>\$648,085</u>	<u>\$1,818,309</u>
2. Deferred Retirements with Future Augmentation	\$40,661		\$40,661
3. Former Members Without Vested Rights	9,232		9,232
4. Annuitants in MPRIF	1,211,028		1,211,028
5. Recipients Not in MPRIF	109,732		109,732
6. Total AAL	<u>\$3,837,047</u>	<u>\$648,085</u>	<u>\$3,188,962</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$3,188,962
2. Current Assets (Table 1,F6)			2,457,899
3. UAAL (B1-B2)			<u>\$731,063</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls through the Amortization Date of July 1, 2009			\$30,112,552
2. Supplemental Contribution Rate (B3/C1)			2.43%

TABLE 10

PUBLIC EMPLOYEES RETIREMENT FUND

CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
(DOLLARS IN THOUSANDS)

YEAR ENDING JUNE 30, 1987

A. UAAL AT BEGINNING OF YEAR	\$776,892
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$93,167
2. Contribution	(142,334)
3. Interest on A, B1, and B2	60,185

4. Total (B1+B2+B3)	\$11,018

C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$787,910
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$28,131)
2. Investment Return	(85,600)
3. MPRIF Mortality	9,827
4. Mortality of Other Benefit Recipients	5,124
5. Other Items	26,558

6. Total	(\$72,222)

E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6)	\$715,688
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	\$831
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	\$14,544

H. UAAL AT END OF YEAR (E+F+G)	\$731,063
	=====

TABLE 11

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

JULY 1, 1987

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	4.31%	\$70,986
2. Employer Contributions	4.74%	77,999
3. Total	----- 9.05% =====	----- \$148,985 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	2.75%	\$45,206
b. Disability Benefits	0.22%	3,657
c. Survivors	0.34%	5,662
d. Deferred Retirement Benefits	0.69%	11,349
e. Refunds Due to Death or Withdrawal	1.45%	23,863
f. Total	----- 5.45% -----	----- \$89,737 -----
2. Supplemental Contribution Amortization by July 1, 2009 of UAAL of \$731,063	2.43%	\$39,995
3. Allowance for Expenses	0.33%	\$5,431
4. Total	----- 8.21%	----- \$135,163
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) (A3-B4)	0.84%	\$13,822

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1987 is \$1,645,876

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 12

PROJECTED CASH FLOW
(DOLLARS IN THOUSANDS)

<u>FISCAL YEAR</u>	<u>STATUTORY CONTRIBUTIONS</u>	<u>TRANSFERS TO MPRIF</u>	<u>OTHER DISBURSEMENTS</u>	<u>INVESTMENT RETURN</u>	<u>NON-MPRIF ASSETS YEAR END</u>
1987					\$1,246,871
1988	148,985	\$28,792	\$47,940	\$102,640	1,421,764
1989	156,789	137,299	45,595	112,697	1,508,356
1990	165,746	87,841	44,738	121,995	1,663,518
1991	175,299	122,738	44,374	133,409	1,805,114
1992	185,168	133,128	44,897	144,695	1,956,952
1993	195,814	154,939	45,553	156,369	2,108,643
1994	206,976	155,289	46,552	168,897	2,282,675
1995	219,091	167,187	47,818	182,777	2,469,538
1996	231,981	188,059	49,492	197,340	2,661,308
1997	245,543	197,208	51,720	212,769	2,870,692
1998	260,300	214,324	54,302	229,322	3,091,688
1999	276,043	224,766	56,998	247,106	3,333,073
2000	292,921	220,603	60,011	267,138	3,612,518
2001	310,964	253,667	63,520	288,753	3,895,048
2002	330,308	277,431	67,396	311,023	4,191,552
2003	351,045	278,069	71,531	335,382	4,528,379
2004	373,328	275,673	75,898	363,141	4,913,277
2005	397,225	282,919	80,857	394,400	5,341,126
2006	422,745	334,543	86,171	427,371	5,770,528
2007	449,925	368,622	91,731	461,225	6,221,325
2008	478,942	371,773	97,433	498,095	6,729,156
2009	509,855	383,060	103,732	539,255	7,291,474
2010	542,848	382,452	110,578	585,311	7,926,603
2011	578,058	504,104	117,660	632,380	8,515,277
2012	615,567	491,174	124,429	681,221	9,196,462

PUBLIC EMPLOYEES RETIREMENT FUND
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Interest:	Pre-Retirement: 8% 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 - UP-1984 Unisex set forward 1 year
	Female - UP-1984 Unisex set back 4 years
	Post-Retirement:
	Male - Same as above
	Female - Same as above
Retirement Age:	Post-Disability:
	Male - 1965 RRB rates
	Female - 1965 RRB rates
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 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. (0.33% of payroll)
Return of Contributions:	All employees withdrawing after age 40 were assumed to leave their contributions on deposit and receive a deferred annuitant benefit.
	Effective July 1, 1987, all employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit.
Family Composition:	85% of male Members and 65% of female Members are assumed to be married. Female is four years younger than male. Assume Members have no children.
Social Security:	NA

TABLE 13
(cont)

Benefit Increases After Retirement:	Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions.
Special Consideration:	NA
Actuarial Cost Method:	Entry Age Normal 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.
Projected Cash Flow Method:	Cash flows from the Non-MPRIF portion of the Fund were projected based on the current plan benefits, participant data, and actuarial assumptions. In addition, new entrants were assumed so that the total payroll would increase by 6.5% per annum.

TABLE 13
(cont)SEPARATIONS EXPRESSED AS THE
NUMBER OF OCCURRENCES PER 10,000

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
20	13	14	2,750	3,832	9	9	0	0
21	12	14	2,638	3,777	9	9	0	0
22	12	14	2,505	3,712	9	9	0	0
23	11	14	2,390	3,631	10	10	0	0
24	11	13	2,265	3,516	10	10	0	0
25	11	13	2,160	3,356	10	10	0	0
26	11	12	2,045	3,226	10	10	0	0
27	11	12	1,925	3,103	10	10	0	0
28	11	11	1,820	2,997	11	11	0	0
29	11	11	1,715	2,891	11	11	0	0
30	11	11	1,610	2,805	11	11	0	0
31	12	11	1,528	2,694	11	11	0	0
32	12	11	1,435	2,590	11	11	0	0
33	13	11	1,330	2,463	12	12	0	0
34	14	11	1,245	2,325	12	12	0	0
35	15	11	1,170	2,160	12	12	0	0
36	16	12	1,092	1,990	12	12	0	0
37	18	12	1,010	1,830	13	13	0	0
38	19	13	940	1,650	13	13	0	0
39	21	14	880	1,485	14	14	0	0
40	23	15	818	1,340	15	15	0	0
41	26	16	762	1,230	16	16	0	0
42	28	18	715	1,130	17	17	0	0
43	31	19	670	1,045	18	18	0	0
44	34	21	622	972	20	20	0	0
45	38	23	580	900	22	22	0	0
46	42	26	539	830	23	23	0	0
47	46	28	497	787	25	25	0	0
48	51	31	450	745	27	27	0	0
49	56	34	420	704	30	30	0	0
50	62	38	385	663	33	33	0	0
51	69	42	345	628	36	36	0	0
52	75	46	310	595	40	40	0	0
53	83	51	270	555	45	45	0	0
54	90	56	230	522	51	51	0	0

TABLE 13
(cont)

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
55	99	62	195	478	58	58	0	0
56	108	69	150	410	66	66	0	0
57	119	75	100	362	76	76	0	0
58	130	83	50	210	88	88	0	0
59	142	90	0	50	102	102	0	0
60	155	99	0	0	118	118	0	0
61	170	108	0	0	136	136	0	0
62	187	119	0	0	157	157	0	0
63	205	130	0	0	181	181	0	0
64	226	142	0	0	208	208	10,000	10,000
65	248	155	0	0	0	0	0	0
66	272	170	0	0	0	0	0	0
67	296	187	0	0	0	0	0	0
68	321	205	0	0	0	0	0	0
69	347	226	0	0	0	0	0	0
70	377	248	0	0	0	0	0	0

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 3A
BASIC

ACTIVE MEMBERS AS OF JUNE 30, 1987

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25									0
25-29									0
30-34					1				1
35-39				1	27	38			66
40-44					82	306	18		406
45-49				4	79	513	201	23	820
50-54		1	4	1	127	589	368	183	1,273
55-59		1	3		147	655	350	164	1,320
60-64	1	1			118	465	178	123	886
65+			1	1	33	93	38	34	200
TOTAL	1	3	8	7	614	2,659	1,153	527	4,972

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25									0
25-29									0
30-34					1,233				1,233
35-39				9,450	22,693	26,139			24,476
40-44					29,569	28,091	26,987		28,341
45-49				30,858	24,516	26,875	28,068	29,442	27,032
50-54		23,153	19,081	32,747	19,149	25,134	29,344	30,413	26,498
55-59		28,513	16,909		16,591	21,182	26,037	29,186	22,948
60-64	2,580	22,000			14,116	19,529	23,447	27,510	20,687
65+			6,426	5,625	10,358	16,019	16,224	26,948	16,882
ALL	2,580	24,555	16,685	24,465	19,306	23,552	26,738	29,088	24,340

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

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
3	74	133	171	11,854	62,625	30,829	15,329	121,018

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 4A
BASIC

SERVICE RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1							1
50-54	5	4						9
55-59	126	418	1					545
60-64	234	1,424	81					1,739
65-69	149	1,921	928	22	1			3,021
70-74	12	264	2,374	352	6			3,008
75-79	2	16	193	1,635	120	3		1,969
80-84		9	27	249	681	47		1,013
85+		1	13	57	216	415	186	888
TOTAL	529	4,057	3,617	2,315	1,024	465	186	12,193

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	6,986							6,986
50-54	12,483	9,963						11,363
55-59	12,251	13,692	7,493					13,348
60-64	10,491	11,633	7,949					11,308
65-69	9,359	8,822	8,016	6,380	8,514			8,583
70-74	11,064	7,995	6,791	7,964	2,065			7,042
75-79	5,766	3,849	6,368	5,328	3,393	4,307		5,299
80-84		6,543	4,384	4,204	3,618	3,779		3,816
85+		3,487	5,743	4,975	4,077	3,556	3,621	3,819
ALL	10,599	10,232	7,087	5,610	3,684	3,583	3,621	7,533

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
5,607	41,511	25,634	12,986	3,773	1,666	674	91,851

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 5A
BASIC

DISABILITY RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	5	6	1				13
50-54	3	12	7	5				27
55-59	5	37	32	12		1		87
60-64	6	43	58	40	4	1		152
65-69			1					1
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	15	97	104	58	4	2	0	280

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	12,690	9,759	6,777	5,505				8,281
50-54	11,339	11,745	7,473	5,199				9,380
55-59	9,927	11,838	8,057	5,860		1,095		9,389
60-64	10,218	7,942	10,471	5,493	3,548	2,792		8,203
65-69			19,324					19,324
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	10,510	9,992	9,398	5,544	3,548	1,944	0	8,728

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
158	969	977	322	14	4	0	2,444

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 6A
BASIC

SURVIVORS AS OF JUNE 30, 1987

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	9	33	25	20	4	5		96
50-54	4	27	26	18	5	5		85
55-59	11	64	38	29	17	9	6	174
60-64	12	96	102	57	36	19	5	327
65-69	4	89	166	101	56	46	18	480
70-74	11	60	138	179	81	69	40	578
75-79	12	57	90	154	122	87	58	580
80-84	12	53	94	97	128	106	52	542
85+	13	66	94	144	132	120	119	688
TOTAL	88	545	773	799	581	466	298	3,550

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	9,051	8,071	5,664	5,043	2,060	1,692		6,322
50-54	9,925	8,323	6,480	4,880	1,574	1,202		6,290
55-59	13,040	9,219	6,111	4,773	1,621	1,647	1,784	6,651
60-64	7,944	7,279	6,273	5,155	1,690	1,669	1,775	5,594
65-69	3,256	5,873	5,909	4,681	1,774	1,606	1,747	4,571
70-74	2,691	3,164	4,823	3,862	1,730	1,653	1,779	3,290
75-79	2,796	2,152	2,652	4,039	2,063	1,714	1,760	2,620
80-84	1,854	1,802	2,203	2,906	2,226	1,901	1,792	2,189
85+	2,158	1,876	2,077	1,967	2,112	2,102	1,923	2,021
ALL	5,527	5,201	4,489	3,720	1,995	1,828	1,833	3,470

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH								
<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL	
486	2,834	3,471	2,972	1,159	852	546	12,320	

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

TABLE 11A
BASIC

JULY 1, 1987

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	8.00%	\$10,303
2. Employer Contributions	10.50%	13,523
3. Total	----- 18.50% =====	----- \$23,826 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	3.66%	\$4,694
b. Disability Benefits	0.43%	554
c. Survivors	1.40%	1,809
d. Deferred Retirement Benefits	1.15%	1,486
e. Refunds Due to Death or Withdrawal	2.82%	3,637
f. Total	----- 9.46% -----	----- \$12,180 -----

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1987 is \$128,790

PUBLIC EMPLOYEES RETIREMENT FUND

**TABLE 14A
BASIC**

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. City managers and persons holding elective office may choose to become Members.
Contributions	
Member	8% of Salary.
Employer	10.5% of Salary.
Allowable Service	Service during which Member contributions were deducted. May also include certain leaves of absence, military service, and service prior to Membership.
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 payments at separation and Workers' Compensation benefits.
Average Salary	Average of the 5 highest successive years of Salary.
RETIREMENT	
Normal Retirement Benefit	
Eligibility	Age 65 and 5 years of Allowable Service. <u>(Amended 1987)</u> Age 62 and 30 years of Allowable Service. Rule of 90: Age plus Allowable Service totals 90.
Amount	2% of Average Salary for the first 10 years of Allowable Service and 2.5% of Average Salary for each subsequent year.
Early Retirement Benefit	
Eligibility	Age 55 and 5 years of Allowable Service. <u>(Amended 1987)</u> Any age with 30 years of Allowable Service.
Amount	Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date with reduction of 0.25% for each month the Member is under age 65 at time of retirement (age 62 if 30 years of Allowable Service).

TABLE 14A
BASIC
(cont)

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 50% or 100% bounce back joint and survivor (option is cancelled 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).
DISABILITY	
Disability Benefit Eligibility	Total and permanent disability before age 65 with 5 years of Allowable Service if age 50 or older, or with 5 years of Allowable Service if younger than age 50. <u>(Amended 1987)</u>
Amount	Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction for commencement before age 65. Supplemental benefit of \$5 per month for each year under age 65 at commencement of disability (maximum of \$50 per month). Benefit is reduced by Workers' Compensation. Payments stop at age 65, or earlier if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment.
Form of Payment	Same as for retirement.
Benefit Increases	Adjusted by PERA to provide same increase as MPRIF.
Retirement After Disability Eligibility	Age 65 with continued disability.
Amount	Any optional annuity continues. Otherwise the larger of the disability benefit paid before age 65 or the normal retirement benefit available at age 65, 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.

TABLE 14A
BASIC
(cont)

Amount	50% of Salary averaged over last 6 months. Maximum family benefit is \$1,000 per month. Benefits paid until spouse's death but no payments while spouse is remarried.
	Surviving spouse optional annuity may be elected in lieu of this benefit.
Surviving Dependent Children's Benefit Eligibility	Active Member with 18 months of Allowable Service or Member receiving a disability benefit.
Amount	10% of Salary averaged over last 6 months for each child. Family benefit minimum (including spouse's benefit) of 50% of Salary and maximum of \$1,000 per month. 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 or disability benefits commence, if age 50 with 5 years of Allowable Service or any age with 30 years of Allowable Service. If the Member dies before age 55, benefits commence when Member would have been age 55. <u>(Amended 1987)</u>
Amount	Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated.
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 5% interest over any disability or survivor benefits paid.
TERMINATION	
Refund of Contributions Eligibility	Termination of public service.
Amount	Member's contributions with 5% interest. A deferred annuity may be elected in lieu of a refund.
Deferred Benefit Eligibility	5 years of Allowable Service. <u>(Amended 1987)</u>

TABLE 14A
BASIC
(cont)

Amount

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

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 3B
COORDINATED

ACTIVE MEMBERS AS OF JUNE 30, 1987

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	1,647	2,474	153						4,274
25-29	1,871	5,006	2,953	175					10,005
30-34	1,879	5,024	4,464	2,088	87				13,542
35-39	1,771	5,121	4,264	2,867	1,012	10			15,045
40-44	1,827	4,338	3,680	2,353	1,485	96	1		13,780
45-49	709	2,484	2,911	2,193	1,335	193	31	2	9,858
50-54	511	1,676	2,191	2,060	1,654	172	109	18	8,391
55-59	302	1,148	1,666	1,716	1,653	246	100	62	6,893
60-64	160	607	1,030	1,182	1,155	168	47	61	4,410
65+	56	242	378	362	245	25	4	15	1,327
TOTAL	10,733	28,120	23,690	14,996	8,626	910	292	158	87,525

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	8,102	12,089	13,991						10,620
25-29	9,425	15,476	17,867	17,856					15,092
30-34	9,552	15,648	20,333	21,314	21,968				17,261
35-39	8,648	14,370	20,426	24,856	25,402	24,551			18,160
40-44	7,279	13,139	17,898	22,541	27,880	29,520	19,743		16,941
45-49	8,315	12,551	15,817	18,310	23,076	30,058	33,903	21,943	16,329
50-54	7,892	12,362	15,239	16,737	19,284	28,708	37,427	33,744	15,986
55-59	8,049	11,481	14,894	16,402	18,395	27,461	31,552	35,504	16,116
60-64	6,687	10,384	13,875	15,980	18,014	22,582	29,501	33,305	15,549
65+	5,466	6,580	9,379	10,981	13,162	21,547	42,790	23,414	10,328
ALL	8,504	13,853	17,759	19,843	21,581	27,369	33,778	33,135	16,284

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

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
91,273	389,555	420,713	297,573	186,161	24,906	9,863	5,235	1,425,279

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 4B
COORDINATED

SERVICE RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59	111	202						313
60-64	351	975	7					1,333
65-69	312	2,158	506	6				2,982
70-74	31	492	1,510	51				2,084
75-79	7	76	183	704	9			979
80-84	1	12	30	102	239			384
85+		3	4	9	57			73
TOTAL	813	3,918	2,240	872	305	0	0	8,148

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59	3,380	2,527						2,829
60-64	3,496	3,174	5,568					3,271
65-69	2,581	2,946	2,806	2,299				2,883
70-74	2,216	1,706	2,551	4,317				2,390
75-79	981	836	1,782	2,860	2,542			2,485
80-84	316	868	924	2,293	1,896			1,889
85+		656	732	2,164	2,452			2,249
ALL	3,055	2,776	2,530	2,868	2,019	0	0	2,718

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

	<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
	2,483	10,878	5,667	2,501	616	0	0	22,145

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 5B
COORDINATED

DISABILITY RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	8	22	5	1				36
50-54	12	22	6					40
55-59	14	66	17	2	1			100
60-64	24	97	54	9	1			185
65-69		1	3					4
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	58	208	85	12	2	0	0	365

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	2,186	3,325	2,432	1,303				2,891
50-54	3,239	2,719	2,522					2,846
55-59	2,946	2,418	2,160	2,414	1,839			2,442
60-64	3,084	2,473	2,122	1,408	754			2,389
65-69		4,561	1,344					2,148
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	2,959	2,582	2,149	1,567	1,297	0	0	2,500

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
172	536	183	19	3	0	0	913

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 6B
COORDINATED

SURVIVORS AS OF JUNE 30, 1987

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	2	8	4	1				15
50-54	5	21	1					27
55-59	8	38	9	2				57
60-64	6	50	18	7				81
65-69	1	42	49	21	1			114
70-74	2	14	47	35	2			100
75-79	1	3	7	38	7			56
80-84		2	3	7	8			20
85+			1	1	4		3	9
TOTAL	25	178	139	112	22	0	3	479

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	2,812	2,004	4,485	641				2,682
50-54	3,179	2,558	1,761					2,643
55-59	2,036	2,419	1,921	2,795				2,300
60-64	1,580	2,402	2,173	1,272				2,193
65-69	910	2,698	2,139	1,859	720			2,270
70-74	3,408	2,252	2,164	2,573	1,541			2,332
75-79	695	2,729	2,457	1,759	2,542			1,977
80-84		927	988	2,756	1,456			1,788
85+			2,443	718	1,565		1,447	1,529
ALL	2,228	2,453	2,196	2,063	1,796	0	1,447	2,239

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
56	437	305	231	40	0	4	1,073

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

TABLE 11B
COORDINATED

JULY 1, 1987

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	4.00%	\$60,683
2. Employer Contributions	4.25%	64,476
	-----	-----
3. Total	8.25%	\$125,159
	=====	=====
 B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	2.68%	\$40,512
b. Disability Benefits	0.20%	3,103
c. Survivors	0.25%	3,853
d. Deferred Retirement Benefits	0.65%	9,863
e. Refunds Due to Death or Withdrawal	1.33%	20,226
	-----	-----
f. Total	5.11%	\$77,557
	-----	-----

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1987 is \$1,517,086

PUBLIC EMPLOYEES RETIREMENT FUND

**TABLE 14B
COORDINATED**

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% of Salary.
Employer	4.25% of Salary.
Allowable Service	Service during which Member contributions were deducted. May also include certain leaves of absence, military service, and service prior to Membership.
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 payments at separation and Workers' Compensation benefits.

Average Salary Average of the 5 highest successive years of Salary.

RETIREMENT

Normal Retirement Benefit

 Eligibility Age 65 and 5 years of Allowable Service. (Amended 1987)
 Age 62 and 30 years of Allowable Service.
 Rule of 90: Age plus Allowable Service totals 90.

 Amount 1% of Average Salary for the first 10 years of Allowable Service and 1.5% of Average Salary for each subsequent year.

Early Retirement Benefit

 Eligibility Age 55 and 5 years of Allowable Service. (Amended 1987)
 Any age with 30 years of Allowable Service.

 Amount Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date with reduction of 0.25% for each month the Member is under age 65 at time of retirement (age 62 if 30 years of Allowable Service).

TABLE 14B
COORDINATED
(cont)

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 50% or 100% bounce back joint and survivor (option is cancelled 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).
DISABILITY	
Disability Benefit Eligibility	Total and permanent disability before age 65 with 5 years of Allowable Service if age 50 or older, or with 5 years of Allowable Service if younger than age 50. <u>(Amended 1987)</u>
Amount	Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction for commencement before age 65. Benefit is reduced by Workers' Compensation. Payments stop at age 65, or earlier if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment.
Form of Payment	Same as for retirement.
Benefit Increases	Adjusted by PERA to provide same increase as MPRIF.
Retirement After Disability Eligibility	Age 65 with continued disability.
Amount	Any optional annuity continues. Otherwise the larger of the disability benefit paid before age 65 or the normal retirement benefit available at age 65, 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, if age 50 with 5 years of Allowable Service or any age with 30 years of Allowable Service. If the Member dies before age 55,

TABLE 14B
COORDINATED
(cont)

	benefits commence when Member would have been age 55. <u>(Amended 1987)</u>
Amount	Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated.
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 5% interest over any disability or survivor benefits paid.
TERMINATION	
Refund of Contributions Eligibility	Termination of public service.
Amount	Member's contributions with 5% interest. A deferred annuity may be elected in lieu of a refund.
Deferred Benefit Eligibility	5 years of Allowable Service. <u>(Amended 1987)</u>
Amount	Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/71, 5% from 7/1/71 to 1/1/81, and 3% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

PUBLIC EMPLOYEES POLICE AND FIRE FUND

ACTUARIAL VALUATION REPORT

JULY 1, 1987

THE *Wyatt* COMPANY

ACTUARIES AND CONSULTANTS

EMPLOYEE BENEFITS
COMPENSATION PROGRAMS
EMPLOYEE COMMUNICATIONS
ADMINISTRATIVE SYSTEMS
RISK MANAGEMENT
INTERNATIONAL SERVICES

SUITE 1525
8400 NORMANDALE LAKE BOULEVARD
MINNEAPOLIS, MINNESOTA 55437
(612) 921-8700

OFFICES IN PRINCIPAL CITIES
AROUND THE WORLD

November 1, 1987

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

RE: PUBLIC EMPLOYEES POLICE AND FIRE FUND

Commission Members:

We have prepared an actuarial valuation of the Fund as of July 1, 1987 based on membership and financial data supplied by the Fund.

We certify that to the best of our knowledge and belief this actuarial valuation was performed 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 August 26, 1987.

Respectfully submitted,

THE WYATT COMPANY

Robert E. Perkins

Robert E. Perkins, FSA
Consulting Actuary

Michael C. Gunvalson

Michael C. Gunvalson, ASA
Associate Actuary

PUBLIC EMPLOYEES POLICE AND FIRE FUND

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PUBLIC EMPLOYEES POLICE AND FIRE FUND

REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/86</u> <u>VALUATION</u>	<u>07/01/87</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	20.00%	20.00%
2. Required Contributions - Chapter 356 % of Payroll	17.10%	15.97%
3. Sufficiency (Deficiency) (A1-A2)	2.90%	4.03%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$424,936	\$506,153
b. Current Benefit Obligations (Table 8)	\$402,314	\$437,229
c. Funding Ratio (a/b)	105.62%	115.76%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$424,936	\$506,153
b. Actuarial Accrued Liability (Table 9)	\$447,742	\$486,674
c. Funding Ratio (a/b)	94.91%	104.00%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$836,973	\$946,283
b. Current and Expected Future Benefit Obligations	\$752,324	\$805,164
c. Funding Ratio (a/b)	111.25%	117.53%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	5,127	5,385
b. Projected Annual Earnings	\$153,714	\$164,975
c. Average Annual Earnings (Actual \$)	\$29,981	\$30,636
d. Average Age	37.3	37.2
e. Average Service	9.6	9.6
2. Others		
a. Service Retirements (Table 4)	838	895
b. Disability Retirements (Table 5)	58	66
c. Survivors (Table 6)	302	310
d. Deferred Retirements (Table 7)	555	97
e. Terminated Other Non-vested (Table 7)	461	462
f. Total	2,214	1,830

PUBLIC EMPLOYEES POLICE AND FIRE FUND

COMMENTARY

Purpose

The purpose of this valuation is to determine the financial status of the Fund. 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 statutory contributions for the PERA Police and Fire Fund continue to be sufficient. The margin of sufficiency has increased from 2.90% in 1986 to 4.03% in 1987. According to this valuation a contribution rate of 15.97% is required to comply with Minnesota Law. The Fund is in a surplus position and the Supplemental Contribution for amortizing the Unfunded Actuarial Accrued Liability is zero.

The financial status of the Fund 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. This ratio is based on Statement No. 5 of the Governmental Accounting Standards Board. This year's ratio is 115.76%.

The corresponding ratio for the prior year was 105.62%.

- 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. For 1987 the ratio is 104.00%, which is an increase from the 1986 value of 94.91%.
- o The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This ratio exceeds 100% and verifies that the current statutory contributions are adequate.

Asset Information

Beginning in 1984, changes in Section 356.215 of Minnesota Statutes require that the asset value used for actuarial purposes reflect a portion of the unrealized gains and losses. Only a portion of these gains and losses are considered because market values are typically volatile and could produce erratic changes in the contribution requirements from year to year.

The calculation of assets for actuarial purposes begins with the reporting of Total Assets by the Fund (Table 1, line B). These Total Assets, reduced by any Amounts Currently Payable (line C), produce the Assets Available for Benefits (line D5), which is the starting value for determining the Actuarial Value of Assets.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines F1 to F6. It combines the cost value and one-third of the difference between

market value and cost value.

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.

Since this Fund participates in the Minnesota Post Retirement Investment Fund, referred to as MPRIF, the asset value shown on line A3 is initially calculated by the State Board of Investment(SBI), and is the expected amount of MPRIF participation assuming the Fund earns 5% interest. The actual amount is determined by calculating the liability based on annuitant information supplied by the Fund. If the actual liability is larger than expected, the difference is labeled a mortality loss and if smaller a gain.

Investment performance by SBI above the 5% level is not shown in the assets but will be added in on January 1, 1988 when benefits will be increased for those annuitants who have been receiving payments for 18 months. Next year's valuation will include the 1988 benefit increase in determining the MPRIF value.

After the MPRIF liability has been calculated for each participating Fund, SBI will determine each Fund's portion of the excess earnings for the January benefit increase as well as the Fund's allocated market share of MPRIF. An approximation of those values on June 30, 1987 provides the following relative comparison.

MPRIF Reserves	\$116,011,000
Reserves Plus Excess Earnings	123,000,000
MPRIF Market Value	132,000,000

Membership Data

Tables 3 through 6 summarize statistical information on members by category. Active members are grouped by age and completed years of service in Table 3. The earnings shown for these members are for the prior fiscal year except in the case of new hires whose earnings have been annualized.

The service retirements in Table 4 include not only those retiring from active status but also disabled members who have attained retirement age. Disabled members under retirement age are shown in Table 5. The survivors category (Table 6) includes spouses and children of deceased members.

Actuarial Balance Sheet

An actuarial balance sheet is required by Section 356.215, Subdivision 4f of Minnesota Law. This balance sheet (Table 8) establishes a method for evaluating both current and future levels of funding.

Current funding levels are evaluated by comparing Current Assets on line A to Current Benefit Obligations on line D5. The difference between the obligations and the assets is shown as Current Unfunded Actuarial Liability on line G.

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of 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 first step in the calculation for active members involves projecting salaries and service to determine future benefits payable under the plan and then discounting those projected benefits to the date of the valuation. The second step is to determine the discounted value of benefits for the non-active members. For those non-active members whose benefits have not commenced, the liability includes augmentation of benefits to date of commencement. The result of the first two steps is shown on line F, Total Current and Expected Future Benefit Obligations.

)

The third step is to determine the portion that represents Current Benefit Obligations. In the case of active members the Current Benefit Obligation is computed by attributing an equal benefit amount to each year of credited and expected future employee service. For all others, their entire liability is considered a Current Benefit Obligation.

Current and future funding levels are evaluated by comparing Current and Future Expected Assets on line C to Current and Expected Future Benefit Obligations on line F. The difference between the obligations and the assets is shown as the Current and Future Unfunded Actuarial Liability on line H.

)

Since line F has already been calculated, the remaining step is to determine the Expected Future Assets. The statutory contribution rate in excess of the combined normal cost rate and expense rate is first calculated. The amount of assets for line B1 can be determined by projecting from the valuation date to the amortization date (the date for paying off all unfunded liabilities) on the assumption that total payroll is increasing at 6.5% annually and then discounted

to the date of the valuation.

The Current Unfunded Actuarial Liability, line G, is a measurement of the status of the funding to the date of the valuation. The Current and Future Unfunded Actuarial Liability is a measurement of the adequacy of the current statutory contribution level.

GASB Disclosure

Table 8 shows that on July 1, 1987, the Pension Benefit Obligation consisted of the following components:

Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$141,324,000
Current Employees -	
Accumulated employee contributions including allocated investment income	110,121,000 *
Employer-financed vested	120,992,000
Employer-financed nonvested	<u>64,792,000</u>
Total Pension Benefit Obligation	\$437,229,000

* Estimated

Contribution Sufficiency

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal 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) shows similarities and differences. The similarity is that both approaches calculate the value of all future benefits the same way. This can be verified by comparing line F of Table 8 to line A6, column 1, of Table 9. The difference arises from the technique 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.

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal 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. This year, for the first time, the amount shown on line B3 is negative. Since a surplus exists, no contribution is required to amortize the Unfunded Actuarial Accrued Liability.

Projected Cash Flow

Table 12 illustrates the anticipated cash flow over the amortization period, which was established prior to the creation of the surplus. The cash flow begins with the Non-MPRIF Assets, which are the Current Assets reduced by the MPRIIF Reserves. Contributions are then added based on the present statutory rates for employers and employees. As members become eligible for payments from MPRIIF an amount of reserve is transferred to SBI. The other disbursements represent benefit payments made directly by the Fund.

This projected cash flow assumes that future payrolls increase by 6.5%. For purposes of this table only, new members are assumed to be hired in order to replace those who terminate from the active group. This open group method provides a more realistic picture of future cash flow. The statutory interest rate of 8% is used to project future investment return.

The amounts transferred to MPRIIF will be affected by the number of members who reach the assumed retirement age during a given year. The amount for 1988 is large because it includes those already over age 60 who are assumed to retire a year from the valuation date.

Plan Provisions

Vesting eligibility has been reduced from 10 years to 5 years. This change applies to the Deferred Annuity, the Normal Retirement Benefit and the Surviving Spouse Optional Annuity. Coincident with this eligibility change, a different calculation technique was adopted which assumes that the terminating vested

member takes the larger of contributions with interest or a deferred annuity. Previously, the technique assumed that a deferred annuity was selected by the terminating vested member.

	<u>Impact Due to Change In</u>	
	<u>Technique</u>	<u>Eligibility</u>
Actuarial Accrued Liability	\$ 178,000	\$ (2,164,000)
Normal Cost	.01%	.23%
Supplemental Contribution	<u>.01</u>	<u>(.07)</u>
Required Contribution	.02%	.16%

PUBLIC EMPLOYEES POLICE AND FIRE FUND

TABLE 1

ACCOUNTING BALANCE SHEET
(DOLLARS IN THOUSANDS)

July 1, 1987

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$28,940	\$28,940
2. Investments		
a. Fixed Income	91,231	94,017
b. Equity	280,596	217,069
c. Real Estate	33,889	29,558
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	116,011	116,011
4. Other	233	233
	-----	-----
B. TOTAL ASSETS	\$550,900	\$485,828
	=====	=====
C. AMOUNTS CURRENTLY PAYABLE	\$1,366	\$1,366
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$85,542	\$85,542
2. Benefit Reserves	347,981	282,909
3. MPRIF Reserves	116,011	116,011
4. Non-MPRIF Reserves	0	0
	-----	-----
5. Total Assets Available for Benefits	\$549,534	\$484,462
	-----	-----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	\$550,900	\$485,828
	=====	=====
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$484,462
2. Market Value (D5)	\$549,534	
3. Cost Value (D5)	484,462	

4. Market Over Cost (F2-F3)	\$65,072	
5. 1/3 of Market Over Cost(F4)/3		21,691

6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		\$506,153
		=====

TABLE 2

PUBLIC EMPLOYEES POLICE AND FIRE FUND
CHANGES IN ASSETS AVAILABLE FOR BENEFITS
(DOLLARS IN THOUSANDS)

YEAR ENDING JUNE 30, 1987

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$463,159	\$405,825
B. OPERATING REVENUES		
1. Member Contributions	\$12,416	\$12,416
2. Employer Contributions	18,596	18,596
3. Investment Income	47,769	47,769
4. MPRIF Income	12,773	12,773
5. Net Realized Gain (Loss)	0	0
6. Other	675	675
7. Net Change in Unrealized Gain (Loss)	7,738	0
	-----	-----
8. Total Revenue	\$99,967	\$92,229
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$9,662	\$9,662
2. Disability Benefits	736	736
3. Survivor Benefits	916	916
4. Refunds	1,055	1,055
5. Expenses	776	776
6. Other	8	8
	-----	-----
7. Total Disbursements	\$13,153	\$13,153
	-----	-----
D. OTHER CHANGES IN RESERVES	(439)	(439)
E. ASSETS AVAILABLE AT END OF PERIOD	\$549,534	\$484,462
	=====	=====

TABLE 3

PUBLIC EMPLOYEES POLICE AND FIRE FUND

ACTIVE MEMBERS AS OF JUNE 30, 1987

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	130	186							316
25-29	119	514	287	2					922
30-34	59	330	552	249					1,190
35-39	33	142	312	498	143				1,128
40-44	22	61	123	227	305	43			781
45-49	12	23	46	75	169	135	13		473
50-54	4	22	30	48	96	83	57	8	348
55-59		14	19	23	27	31	31	13	158
60-64		5	10	6	18	13	6	4	62
65+				2	1	2	1	1	7
TOTAL	379	1,297	1,379	1,130	759	307	108	26	5,385

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	13,772	21,486							18,312
25-29	15,900	25,754	29,103	27,063					25,527
30-34	16,613	26,353	30,569	30,693					28,734
35-39	13,758	24,634	30,706	32,342	32,574				30,405
40-44	16,284	23,281	27,685	32,012	34,125	36,558			31,281
45-49	20,089	16,011	26,116	31,959	33,364	35,692	34,304		31,946
50-54	20,889	18,393	24,467	26,575	31,591	34,343	36,228	37,116	30,870
55-59		15,712	25,860	25,660	30,712	34,686	37,297	39,239	30,837
60-64		16,900	25,171	26,872	28,466	28,456	33,901	34,004	27,729
65+				39,601	27,389	24,318	30,389	32,631	31,178
ALL	15,302	24,615	29,652	31,480	33,078	34,966	36,120	37,526	28,766

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

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
5,799	31,926	40,890	35,573	25,106	10,735	3,901	976	154,906

TABLE 4

PUBLIC EMPLOYEES POLICE AND FIRE FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59	40	136						176
60-64	18	101	108					227
65-69	8	74	88	36				206
70-74	1	11	76	55	12			155
75-79		6	12	44	10	2		74
80-84			1	5	19	3		28
85+		1		1	11	16		29
TOTAL	67	329	285	141	52	21	0	895

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59	16,075	13,798						14,315
60-64	12,313	12,149	12,768					12,457
65-69	9,734	9,770	11,404	10,128				10,529
70-74	11,680	7,620	9,075	8,016	5,158			8,309
75-79		3,045	6,450	6,704	5,968	3,446		6,179
80-84			4,492	10,156	5,055	2,297		5,651
85+		5,930		5,693	6,318	4,558		5,312
ALL	14,241	11,959	11,067	8,205	5,522	4,129	0	10,697

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
954	3,935	3,154	1,157	287	87	0	9,574

TABLE 5

PUBLIC EMPLOYEES POLICE AND FIRE FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS DISABLED							TOTAL
	<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	8	10	12	5				35
50-54	2	12	11	6				31
55-59								0
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	10	22	23	11	0	0	0	66

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	11,888	8,419	10,643	9,619				10,146
50-54	18,047	12,097	11,606	5,961				11,119
55-59								0
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	13,120	10,425	11,104	7,624	0	0	0	10,603

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<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>TOTAL</u>
131	229	256	84	0	0	0	700

TABLE 6

PUBLIC EMPLOYEES POLICE AND FIRE FUND

SURVIVORS AS OF JUNE 30, 1987

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	5	20	10	3	3	1		42
50-54	2	3	13	5	1			24
55-59	1	8	8	7	4	1		29
60-64		7	12	13	5	1		38
65-69	1	4	16	17	4	4	1	47
70-74		7	9	18	6	5	1	46
75-79		6	5	10	8	5		34
80-84	2	4	6	6	3	4	1	26
85+	1	4	6	5	3	2	3	24
TOTAL	12	63	85	84	37	23	6	310

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	10,518	8,638	6,987	4,731	2,216	1,635		7,564
50-54	14,120	11,120	7,538	5,067	780			7,738
55-59	18,857	6,337	6,348	5,010	2,048	1,741		5,701
60-64		6,698	7,799	5,152	1,464	1,726		5,697
65-69	2,697	7,401	5,715	5,533	2,443	1,782	1,798	5,032
70-74		3,764	5,420	4,610	2,214	1,769	1,764	3,957
75-79		2,250	7,236	2,811	2,219	1,578		3,042
80-84	2,516	2,675	2,628	2,313	2,337	1,507	1,816	2,317
85+	2,735	1,706	1,910	1,758	2,257	1,840	2,058	1,935
ALL	9,179	6,201	6,069	4,397	2,095	1,681	1,925	4,883

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
110	391	515	369	78	39	12	1,514

PUBLIC EMPLOYEES POLICE AND FIRE FUND

TABLE 7

RECONCILIATION OF MEMBERS

	<u>ACTIVES</u>	<u>DEFERRED RETIREMENT</u>	<u>TERMINATED OTHER NON-VESTED</u>
A. On June 30, 1986	5,127	555	461
B. Additions	493	28	53
C. Deletions:			
1. Service Retirement	(63)	(19)	(8)
2. Disability	(10)	(1)	(1)
3. Death	(5)	(1)	(1)
4. Terminated-Deferred	(28)		
5. Terminated-Refund	(84)	0	(29)
6. Terminated-Other Non-vested	(41)		
7. Returned as Active		(4)	(24)
D. Data Adjustments	(4)	(461)	11
	Vested 3,709		
	Non-Vested 1,676		
E. Total on June 30, 1987	5,385	97	462

	<u>RETIREMENT ANNUITANTS</u>	<u>RECIPIENTS DISABLED</u>	<u>SURVIVORS</u>
A. On June 30, 1986	838	58	302
B. Additions	100	14	29
C. Deletions:			
1. Service Retirement		(5)	
2. Death	(46)	(1)	(14)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	
D. Data Adjustments	3	0	(7)
E. Total on June 30, 1987	895	66	310

TABLE 8

PUBLIC EMPLOYEES POLICE AND FIRE FUND

ACTUARIAL BALANCE SHEET
(DOLLARS IN THOUSANDS)

JULY 1, 1987

A. CURRENT ASSETS (TABLE 1, F6)			\$506,153
B. EXPECTED FUTURE ASSETS			
1. Present Value of Expected Future Statutory Supplemental Contributions			121,640
2. Present Value of Future Normal Costs			318,490
3. Total Expected Future Assets			440,130
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS			\$946,283
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>
1. Benefit Recipients			
a. Retirement Annuities		\$110,219	\$110,219
b. Disability Benefits		6,745	6,745
c. Surviving Spouse and Child Benefits		15,639	15,639
2. Deferred Retirements with Future Augmentation		7,909	7,909
3. Former Members without Vested Rights		812	812
4. Active Members			
a. Retirement Annuities	6,315	197,651	203,966
b. Disability Benefits	26,918		26,918
c. Survivors' Benefits	28,404		28,404
d. Deferred Retirements	3,155	29,739	32,894
e. Refund Liability Due to Death or Withdrawal		3,723	3,723
5. Total Current Benefit Obligations	\$64,792	\$372,437	\$437,229
E. EXPECTED FUTURE BENEFIT OBLIGATIONS			\$367,935
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS			\$805,164
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)			(\$68,924)
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)			(\$141,119)

TABLE 9

PUBLIC EMPLOYEES POLICE AND FIRE FUND

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

JULY 1, 1987

	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	\$486,121	\$202,903	\$283,218
b. Disability Benefits	56,064	27,735	28,329
c. Survivors Benefits	57,074	32,936	24,138
d. Deferred Retirements	57,489	44,877	12,612
e. Refunds Due to Death or Withdrawal	7,092	10,039	(2,947)
f. Total	<u>\$663,840</u>	<u>\$318,490</u>	<u>\$345,350</u>
2. Deferred Retirements with Future Augmentation	\$7,909		\$7,909
3. Former Members Without Vested Rights	812		812
4. Annuitants in MPRIF	116,011		116,011
5. Recipients Not in MPRIF	16,592		16,592
6. Total AAL	<u>\$805,164</u> =====	<u>\$318,490</u> =====	<u>\$486,674</u> =====
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$486,674
2. Current Assets (Table 1,F6)			506,153
3. UAAL (B1-B2)			<u>(\$19,479)</u> =====
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls through the Amortization Date of July 1, 2009			\$3,018,350
2. Supplemental Contribution Rate (B3/C1)			0.00%

TABLE 10

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

YEAR ENDING JUNE 30, 1987

A. UAAL AT BEGINNING OF YEAR	\$22,806
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$25,329
2. Contribution	(31,012)
3. Interest on A, B1, and B2	1,597
4. Total (B1+B2+B3)	----- (\$4,086) -----
C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$18,720
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$8,677)
2. Investment Return	(23,373)
3. MPRIF Mortality	1,138
4. Mortality of Other Benefit Recipients	185
5. Other Items	(5,486)
6. Total	----- (\$36,213) -----
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6)	(\$17,493)
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	(\$2,164)
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	\$178
H. UAAL AT END OF YEAR (E+F+G)	----- (\$19,479) =====

TABLE 11

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

JULY 1, 1987

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	8.00%	\$13,198
2. Employer Contributions	12.00%	19,797
3. Total	----- 20.00% =====	----- \$32,995 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	9.82%	\$16,201
b. Disability Benefits	1.33%	2,193
c. Survivors	1.65%	2,721
d. Deferred Retirement Benefits	2.18%	3,589
e. Refunds Due to Death or Withdrawal	0.49%	816
f. Total	----- 15.47% -----	----- \$25,520 -----
2. Supplemental Contribution Amortization by July 1, 2009 of UAAL of \$(19,479)	0.00%	\$0
3. Allowance for Expenses	0.50%	\$825
4. Total	----- 15.97%	----- \$26,345
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) (A3-B4)	4.03%	\$6,650

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1987 is \$164,975

PUBLIC EMPLOYEES POLICE AND FIRE FUND

TABLE 12

PROJECTED CASH FLOW
(DOLLARS IN THOUSANDS)

<u>FISCAL YEAR</u>	<u>STATUTORY CONTRIBUTIONS</u>	<u>TRANSFERS TO MPRIF</u>	<u>OTHER DISBURSEMENTS</u>	<u>INVESTMENT RETURN</u>	<u>NON-MPRIF ASSETS YEAR END</u>
1987					\$390,142
1988	\$33,078	\$3,129	\$2,141	\$32,324	450,274
1989	35,140	17,070	2,342	36,651	502,653
1990	37,424	4,563	2,565	41,424	574,373
1991	39,856	7,726	2,835	47,122	650,790
1992	42,447	7,848	3,126	53,322	735,585
1993	45,206	17,124	3,473	59,831	820,025
1994	48,145	18,881	3,796	66,621	912,114
1995	51,274	21,090	4,206	74,008	1,012,100
1996	54,607	21,097	4,678	82,121	1,123,053
1997	58,156	22,857	5,135	91,051	1,244,268
1998	61,936	32,354	5,580	100,502	1,368,772
1999	65,962	37,190	6,094	110,409	1,501,859
2000	70,250	42,162	6,680	121,005	1,644,272
2001	74,816	42,697	7,338	132,533	1,801,586
2002	79,679	49,484	7,999	145,015	1,968,797
2003	84,858	73,154	8,531	157,631	2,129,601
2004	90,374	68,344	9,218	170,881	2,313,294
2005	96,248	75,717	9,931	185,488	2,509,382
2006	102,504	86,668	10,670	200,957	2,715,505
2007	109,167	113,754	11,416	216,600	2,916,102
2008	116,263	159,387	12,100	231,079	3,091,957
2009	123,820	142,316	12,824	246,104	3,306,741
2010	131,868	155,562	13,595	263,048	3,532,500
2011	140,440	163,158	14,369	281,117	3,776,530
2012	149,568	177,195	15,097	300,413	4,034,219

TABLE 13

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

Interest:	Pre-Retirement: 8% 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 - UP-1984 Unisex set forward 1 year
	Female - UP-1984 Unisex set back 4 years
	Post-Retirement:
	Male - Same as above
	Female - Same as above
Retirement Age:	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 shown in rate table.
Disability:	Rates as shown in rate table.
Expenses:	Prior year expenses expressed as percentage of prior year payroll. (0.50% of payroll)
Return of Contributions:	All employees withdrawing after 10 years of service were assumed to leave their contributions on deposit and receive a deferred annuitant benefit.
	Effective July 1, 1987, 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:	NA
Benefit Increases After Retirement:	Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions.

TABLE 13
(cont)

Special Consideration:	NA
Actuarial Cost Method:	Entry Age Normal 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.
Projected Cash Flow Method:	Cash flows for the non-MPRIF portion of the Fund were projected based on the current plan benefits, participant data, and actuarial assumptions. In addition, new entrants were assumed so that the total payroll would increase by 6.5% per annum.

TABLE 13
(cont)SEPARATIONS EXPRESSED AS THE
NUMBER OF OCCURRENCES PER 10,000

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
20	13	14	700	700	11	11	0	0
21	12	14	700	700	11	11	0	0
22	12	14	700	700	12	12	0	0
23	11	14	699	699	12	12	0	0
24	11	13	698	698	13	13	0	0
25	11	13	697	697	13	13	0	0
26	11	12	694	694	14	14	0	0
27	11	12	689	689	14	14	0	0
28	11	11	680	680	15	15	0	0
29	11	11	670	670	15	15	0	0
30	11	11	658	658	15	15	0	0
31	12	11	643	643	16	16	0	0
32	12	11	624	624	17	17	0	0
33	13	11	598	598	17	17	0	0
34	14	11	561	561	18	18	0	0
35	15	11	511	511	19	19	0	0
36	16	12	454	454	20	20	0	0
37	18	12	395	395	22	22	0	0
38	19	13	336	336	23	23	0	0
39	21	14	287	287	24	24	0	0
40	23	15	245	245	26	26	0	0
41	26	16	213	213	28	28	0	0
42	28	18	185	185	29	29	0	0
43	31	19	160	160	31	31	0	0
44	34	21	137	137	34	34	0	0
45	38	23	118	118	36	36	0	0
46	42	26	102	102	40	40	0	0
47	46	28	87	87	46	46	0	0
48	51	31	73	73	52	52	0	0
49	56	34	61	61	60	60	0	0
50	62	38	50	50	69	69	0	0
51	69	42	39	39	80	80	0	0
52	75	46	29	29	91	91	0	0
53	83	51	22	22	104	104	0	0
54	90	56	15	15	119	119	0	0

TABLE 13
(cont)

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
55	99	62	11	11	135	135	0	0
56	108	69	7	7	152	152	0	0
57	119	75	5	5	171	171	0	0
58	130	83	3	3	192	192	0	0
59	142	90	1	1	215	215	0	0
60	155	99	0	0	0	0	10,000	10,000
61	170	108	0	0	0	0	0	0
62	187	119	0	0	0	0	0	0
63	205	130	0	0	0	0	0	0
64	226	142	0	0	0	0	0	0
65	248	155	0	0	0	0	0	0
66	272	170	0	0	0	0	0	0
67	296	187	0	0	0	0	0	0
68	321	205	0	0	0	0	0	0
69	347	226	0	0	0	0	0	0
70	377	248	0	0	0	0	0	0

TABLE 14

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	8% of Salary.
Employer	12% of Salary plus \$82,904 from the University of Minnesota on 7/1/85, 7/1/86, and 7/1/87.
Allowable Service	Police and fire service during which Member contributions were deducted. May also include certain leaves of absence, military service, and service prior to Membership.
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 payments at separation and Workers' Compensation benefits.
Average Salary	Average of the 5 highest successive years of Salary.
RETIREMENT	
Normal Retirement Benefit	
Eligibility	Age 55 and 5 years of Allowable Service. <u>(Amended 1987)</u>
Amount	2.5% of Average Salary for the first 25 years of Allowable Service and 2.0% of Average Salary for each subsequent year.
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 50% or 100% bounce back joint and survivor (option is cancelled 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).

TABLE 14
(cont)

DISABILITY

Duty Disability Benefit
Eligibility

Under age 55 and physically unfit to perform his duties as a police officer or fire fighter as a direct result of an act of duty.

Amount

50% of Average Salary plus 2.5% of Average Salary for each year in excess of 20, but not exceeding 25 years of Allowable Service plus 2.0% of Average Salary for each year in excess of 25 years of Allowable Service. Benefit is reduced by Workers' Compensation. Payments cease at age 55.

Normal Disability Benefit
Eligibility

Totally and permanently disabled before age 55 with 5 years of Allowable Service.

Amount

Normal Retirement Benefit based on Allowable Service (minimum of 10 years) and Average Salary at disability without reduction for commencement before age 55. Payments cease 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 with continued disability.

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 Member with surviving spouse.

Amount

30% of Salary averaged over last 6 months. Benefit paid until spouse's death but no payments while spouse is remarried.

Surviving Dependent
Child Benefit
Eligibility

Active Member with dependent child.

TABLE 14
(cont)

Amount	10% of Salary averaged over last 6 months for each child. Family benefit minimum (including spouse's benefit) of 30% of Salary and maximum of 50% of Salary. Benefits paid until child marries, dies, or attains age 18.
Surviving Spouse Optional Annuity	
Eligibility	Member who dies before termination if age 50 with 5 years of Allowable Service. If the Member dies before age 55, benefits commence when Member would have been age 55. <u>(Amended 1987)</u>
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 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. A deferred annuity may be elected in lieu of a refund.
Deferred Annuity	
Eligibility	5 years of Allowable Service. <u>(Amended 1987)</u>
Amount	Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/71, 5% from 7/1/71 to 1/1/81, and 3% thereafter until the annuity begins. Amount is payable as a normal or early retirement.