

THE *Wyatt* COMPANY

ACTUARIAL SERVICES  
COMPENSATION PROGRAMS  
ADMINISTRATIVE SYSTEMS  
INTERNATIONAL SERVICES  
ORGANIZATION SURVEYS

15TH FLOOR  
8400 NORMANDALE LAKE BOULEVARD  
MINNEAPOLIS, MINNESOTA 55437  
(612) 921-8700

EMPLOYEE BENEFITS  
EMPLOYEE COMMUNICATIONS  
RISK MANAGEMENT  
INSURANCE CONSULTING  
HEALTH CARE CONSULTING

October 24, 1989

**PERSONAL AND CONFIDENTIAL**

Mr. James Hacking  
Public Employees Retirement  
Association  
Suite 200 - Skyway Level  
514 St. Peter Street  
St. Paul, MN 55102

Dear Jim:

We have revised page 12 of the 1989 actuarial valuation report for the PERA Police and Fire Consolidation Fund. We made an adjustment to the liability in the Post Fund but did not make the corresponding adjustment in Table 1. We apologize for the inconvenience.

Please substitute this page for the original page in the notebooks.

Very truly yours,

*Robert E. Perkins/s.m.*

Robert E. Perkins  
Consulting Actuary

REP:sm  
Enclosure

cc: Lawrence Martin (with enclosure)  
Rosalie Greeman (with enclosure)  
Ron Hackett (with enclosure)  
Zona DeWitt (with enclosure)  
Representative Rich O'Connor (with enclosure)

TABLE 1

## POLICE AND FIRE CONSOLIDATION FUND

ACCOUNTING BALANCE SHEET  
(ACTUAL DOLLARS)

July 1, 1989

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$604,769	\$604,769
2. Investments		
a. Fixed Income	2,405,998	2,379,142
b. Equity	7,059,151	6,568,688
c. Real Estate	859,750	815,372
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	18,780,185	18,780,185
4. Other	1,371,096	1,371,096
	-----	-----
B. TOTAL ASSETS	\$31,080,949	\$30,519,252
	=====	=====
C. AMOUNTS CURRENTLY PAYABLE	\$811,085	\$811,085
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$2,806,850	\$2,806,850
2. Benefit Reserves	8,682,829	8,121,132
3. MPRIF Reserves	18,780,185	18,780,185
4. Non-MPRIF Reserves	0	0
	-----	-----
5. Total Assets Available for Benefits	\$30,269,864	\$29,708,167
	-----	-----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	\$31,080,949	\$30,519,252
	=====	=====
<hr/>		
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$29,708,167
2. Market Value (D5)	\$30,269,864	
3. Cost Value (D5)	29,708,167	
	-----	
4. Market Over Cost (F2-F3)	\$561,697	
5. 1/3 of Market Over Cost(F4)/3		187,232
		-----
6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		\$29,895,399
		=====

Revised: 10/24/89

TABLE 1

## POLICE AND FIRE CONSOLIDATION FUND

ACCOUNTING BALANCE SHEET  
(ACTUAL DOLLARS)

July 1, 1989

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1. Cash, Equivalents, Short-Term Securities	\$604,769	\$604,769
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F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
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		=====

Revised: 10/24/89

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**PUBLIC EMPLOYEES RETIREMENT FUND**

**ACTUARIAL VALUATION REPORT**

**JULY 1, 1989**

THE *Wyatt* COMPANY

ACTUARIAL SERVICES  
COMPENSATION PROGRAMS  
ADMINISTRATIVE SYSTEMS  
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EMPLOYEE BENEFITS  
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RISK MANAGEMENT  
INSURANCE CONSULTING  
HEALTH CARE CONSULTING

October 12, 1989

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, 1989 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 September 20, 1989.

Respectfully submitted,

THE WYATT COMPANY

*Robert E. Perkins*  
\_\_\_\_\_  
Robert E. Perkins, FSA  
Consulting Actuary

*Michael C. Gunvalson*  
\_\_\_\_\_  
Michael C. Gunvalson, FSA  
Actuary

**PUBLIC EMPLOYEES RETIREMENT FUND**

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# PUBLIC EMPLOYEES RETIREMENT FUND

## REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/88</u> <u>VALUATION</u>	<u>07/01/89</u> <u>VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 353 % of Payroll	8.94%	9.33%
2. Required Contributions - Chapter 356 % of Payroll	9.42%	8.83%
3. Sufficiency (Deficiency) (A1-A2)	-0.48%	0.50%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$2,657,038	\$2,992,285
b. Current Benefit Obligations (Table 8)	\$3,334,423	\$3,714,257
c. Funding Ratio (a/b)	79.69%	80.56%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$2,657,038	\$2,992,285
b. Actuarial Accrued Liability (Table 9)	\$3,755,608	\$4,175,240
c. Funding Ratio (a/b)	70.75%	71.67%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$4,363,206	\$5,228,236
b. Current and Expected Future Benefit Obligations	\$4,517,759	\$5,008,731
c. Funding Ratio (a/b)	96.58%	104.38%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	95,224	99,515
b. Projected Annual Earnings	\$1,767,041	\$1,932,674
c. Average Annual Earnings (Actual \$)	\$18,557	\$19,421
d. Average Age	42.3	42.5
e. Average Service	8.1	8.2
2. Others		
a. Service Retirements (Table 4)	21,882	22,932
b. Disability Retirements (Table 5)	650	689
c. Survivors (Table 6)	4,168	4,251
d. Deferred Retirements (Table 7)	2,094	2,349
e. Terminated Other Non-vested (Table 7)	6,621	6,805
f. Total	35,415	37,026

## 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 are sufficient by an amount of 0.50% of payroll. According to this valuation a contribution rate of 8.83% 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 80.56%. The corresponding ratio for the prior year was 79.69%.
- 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 1989 the ratio is 71.67%, which is an increase from the 1988 value of 70.75%.

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

#### 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 gains 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 Fund participates in the MPRIF (i.e. Minnesota Post Retirement Investment Fund). The asset value shown for MPRIF on line A3 is set equal to the MPRIF

Reserves reported on line D3 for both market and cost value purposes. This reserve is based on a 5% interest assumption.

Investment performance by SBI (i.e. State Board of Investment) above the 5% level is not shown in the assets but will be added in on January 1, 1990 when benefits will be increased for those annuitants who have been receiving payments for at least 7 months. Next year's valuation will include the 1990 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, 1989 is provided below:

MPRIF Reserves	\$1,605,292,000
Reserves Plus Excess Earnings	1,666,000,000
MPRIF Market Value	1,809,000,000

#### Membership Data (Tables 3, 4, 5, 6 and 7)

Tables 3 through 6 summarize statistical information about 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.

A reconciliation of members in Table 7 provides a method for tracking what

happened to members during the past year.

**Actuarial Balance Sheet (Table 8)**

An actuarial balance sheet provides a method for evaluating 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. Current and future funding levels are evaluated by comparing the Total Current and Expected Future Assets on line C to the Total Current and Expected Future Benefit Obligations on line F.

The Current Benefit Obligation used to measure current funding levels is calculated in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

- o For active members - salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- o For non-active members - the discounted value of benefits, including augmentation in cases where benefits have not commenced.

**GASB Disclosure**

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB).

However, Statement No. 5 uses the terms "Actuarial Present Value of Credited

Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1989 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table. This table shows the impact of the changes in plan provisions on the liabilities under the old actuarial assumptions. See page 10 for an explanation of the changes in plan provisions.

	<u>Old Benefits</u>	<u>New Benefits</u>
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$1,784,063,000	\$1,806,570,000
Current Employees -		
Accumulated employee contributions including allocated investment income	\$707,002,000 *	759,856,000 *
Employer-financed vested	960,265,000	1,055,441,000
Employer-financed nonvested	219,609,000	176,544,000
	-----	-----
Total Pension Benefit Obligation	\$3,670,939,000	\$3,798,411,000

\* Estimated

The following table shows the impact of the change in actuarial assumptions using the new plan provisions. See page 11 for an explanation of the change in actuarial assumptions.

	<u>Old Assumptions</u>	<u>New Assumptions</u>
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$1,806,570,000	\$1,800,411,000
Current Employees -		
Accumulated employee contributions including allocated investment income	\$759,856,000 *	\$759,856,000 *
Employer-financed vested	1,055,441,000	985,790,000
Employer-financed nonvested	176,544,000	168,200,000
	-----	-----
Total Pension Benefit Obligation	\$3,798,411,000	\$3,714,257,000

\* Estimated

**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. The major sources of gain and loss, which have been identified, are:

- o A gain from salaries where the average increase was 6.3% compared to the expected 6.5%
- o A gain from Non-MPRIF Assets (i.e. Current Assets reduced by MPRIIF Reserves) because the return was 14.6% instead of the assumed 8%.
- o A loss of \$61,000,000 (reported on line D5) due to fewer active members terminating than anticipated.
- o A loss of \$7,000,000 (reported on line D5) due to fewer active members dying than anticipated.

### Contribution Sufficiency (Table 11)

This report answers the question of "How adequate are the Statutory Contributions?" by comparing the Statutory Contributions to the Required Contributions.

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

- o Normal Costs based on the Entry Age Normal Actuarial Cost Method



- o A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability
- o An Allowance for Expenses

Table 11 shows the Fund has a contribution sufficiency since the Statutory Contribution Rate is 9.33% compared to the Required Contribution Rate of 8.83%.

#### Projected Cash Flow (Table 12)

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 MPRIIF an amount of reserve is transferred to SBI. The other disbursements represent benefit payments and expenses made directly by the Fund. This projected cash flow assumes that future payrolls increase by 6.5%. Table 12 is the only table in this report where 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 8.5% 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 1991 is large because it includes those already over age 64 who are assumed to retire a year from the valuation date.

### Changes in Plan Provisions

There were numerous changes in benefits in 1989 that are recognized in the July 1, 1989 actuarial valuation. The significant changes in benefits are summarized below:

- o The service requirement for the normal retirement benefit, early retirement benefit, disability benefit, surviving spouse optional annuity and deferred benefit was reduced from 5 years to 3 years.
- o Special rules apply to those members who were hired before July 1, 1989. The retirement benefit was changed to be equal to the greater of:
  - 1% of average salary (2% for Basic members) for the first 10 years of service and 1.5% of average salary (2.5% for Basic members) for each additional year. The early retirement reduction is .25% for each month that retirement precedes age 65 or age 62 if 30 years of service. If member meets the Rule of 90 requirement, there is no early retirement reduction; or
  - 1.5% of average salary (2.5% for Basic members) for each year of service. The early retirement reduction is an actuarial equivalent reduction with augmentation at 3% per year to age 65.
- o The deferred annuity is now augmented at 5% a year for each year that the benefit is deferred beyond age 55.

- o The interest rate credited on refund of member contributions was increased from 5% to 6%.
- o The joint and survivor annuity option now provides a bounce back feature without additional reduction.

	<u>Impact Due To Change In Plan Provisions</u>
Actuarial Accrued Liability	\$140,858,000
Pension Benefit Obligation for GASB No. 5	127,472,000
Normal Cost	.59%
Supplemental Contribution	<u>.27%</u>
Required Contribution	.86%

#### Changes in Actuarial Assumptions

The pre-retirement interest rate assumption has been increased from 8.0% to 8.5%. Also the amortization target date has been changed to July 1, 2020.

	<u>Impact Due To Changes In Actuarial Assumptions</u>	
	<u>Interest Rate Change</u>	<u>Amortization Date Change</u>
Actuarial Accrued Liability	(\$98,631,000)	\$ 0
Pension Benefit Obligation for GASB No. 5	(84,154,000)	0
Normal Cost	(.35%)	.00%
Supplemental Contribution	<u>(.16%)</u>	<u>(.83%)</u>
Required Contribution	(.51%)	(.83%)

**Basic and Coordinated**

Additional tables at the end of this report show membership data, statutory contributions and normal costs for the Basic and Coordinated Plans.

TABLE 1

## PUBLIC EMPLOYEES RETIREMENT FUND

ACCOUNTING BALANCE SHEET  
(DOLLARS IN THOUSANDS)

July 1, 1989

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$30,757	\$30,757
2. Investments		
a. Fixed Income	343,669	342,399
b. Equity	1,011,004	865,716
c. Real Estate	122,805	97,438
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	1,605,292	1,605,292
4. Other	791	791
	-----	-----
B. TOTAL ASSETS	<u>\$3,114,318</u>	<u>\$2,942,393</u>
	=====	=====
C. AMOUNTS CURRENTLY PAYABLE	\$7,416	\$7,416
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$534,906	\$534,906
2. Employer Reserves	966,704	794,779
3. MPRIF Reserves	1,605,292	1,605,292
4. Non-MPRIF Reserves	0	0
	-----	-----
5. Total Assets Available for Benefits	<u>\$3,106,902</u>	<u>\$2,934,977</u>
	-----	-----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	<u>\$3,114,318</u>	<u>\$2,942,393</u>
	=====	=====
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$2,934,977
2. Market Value (D5)	\$3,106,902	
3. Cost Value (D5)	2,934,977	
	-----	
4. Market Over Cost (F2-F3)	\$171,925	
5. 1/3 of Market Over Cost(F4)/3		57,308
		-----
6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		<u>\$2,992,285</u>
		=====

TABLE 2

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

**YEAR ENDING JUNE 30, 1989**

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS AVAILABLE AT BEGINNING OF YEAR	\$2,749,289	\$2,610,913
B. OPERATING REVENUES		
1. Member Contributions	\$77,525	\$77,525
2. Employer Contributions	84,306	84,306
3. Investment Income	170,563	170,563
4. MPRIF Income	169,485	169,485
5. Net Realized Gain (Loss)	0	0
6. Other	2,457	2,457
7. Net Change in Unrealized Gain (Loss)	33,549	0
	-----	-----
8. Total Revenue	\$537,885	\$504,336
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$148,601	\$148,601
2. Disability Benefits	3,820	3,820
3. Survivor Benefits	9,709	9,709
4. Refunds	12,463	12,463
5. Expenses	5,337	5,337
6. Other	342	342
	-----	-----
7. Total Disbursements	\$180,272	\$180,272
	-----	-----
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF YEAR	\$3,106,902	\$2,934,977
	=====	=====

TABLE 3

## PUBLIC EMPLOYEES RETIREMENT FUND

## ACTIVE MEMBERS AS OF JUNE 30, 1989

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	1,451	2,215	110						3,776
25-29	1,897	5,290	2,236	163					9,586
30-34	1,876	5,898	3,790	2,219	137				13,920
35-39	1,908	6,231	3,882	3,422	1,362	65			16,870
40-44	2,117	5,828	3,670	2,883	1,866	606	20		16,990
45-49	799	3,358	2,844	2,440	1,644	930	237	18	12,270
50-54	517	2,105	2,023	2,184	1,802	1,040	466	266	10,403
55-59	309	1,406	1,476	1,616	1,771	1,148	578	312	8,616
60-64	174	760	925	1,078	1,170	862	328	155	5,452
65+	76	316	309	346	302	179	56	48	1,632
TOTAL	11,124	33,407	21,265	16,351	10,054	4,830	1,685	799	99,515

## AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	8,619	12,603	16,428						11,183
25-29	10,334	16,710	19,191	20,239					16,087
30-34	9,766	16,660	22,143	22,685	21,908				18,236
35-39	9,298	15,275	22,356	26,345	26,280	25,386			19,402
40-44	8,231	14,106	19,989	25,447	30,006	31,735	27,905		18,960
45-49	9,334	14,058	17,934	21,088	25,589	30,898	31,067	27,184	19,216
50-54	8,925	13,463	17,263	18,676	20,689	26,490	32,971	31,653	18,964
55-59	8,866	12,619	16,045	18,470	19,548	23,895	30,818	33,802	19,083
60-64	8,534	11,484	15,282	18,118	18,707	21,701	26,192	30,514	17,937
65+	5,897	7,656	10,682	13,038	14,198	16,584	22,529	25,853	12,523
ALL	9,200	14,859	19,555	22,218	23,367	26,143	30,238	31,822	18,243

## 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
102,339	496,395	415,835	363,286	234,929	126,273	50,950	25,426	1,815,433

TABLE 4

## PUBLIC EMPLOYEES RETIREMENT FUND

## SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	1							1
50-54	6	8	1					15
55-59	210	711	2					923
60-64	551	2,775	374	1				3,701
65-69	375	3,914	2,096	52	2			6,439
70-74	46	759	4,126	647	8			5,586
75-79	4	89	481	2,747	215	3		3,539
80-84	3	19	60	345	1,183	55		1,665
85+		4	15	44	311	485	204	1,063
TOTAL	1,196	8,279	7,155	3,836	1,719	543	204	22,932

## AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<u>&lt;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	5,107							5,107
50-54	23,213	8,895	15,594					15,069
55-59	5,765	8,225	11,796					7,673
60-64	4,345	7,922	15,530	8,469				8,158
65-69	3,749	5,980	8,551	5,704	9,205			6,686
70-74	3,100	4,405	5,905	9,104	9,225			6,054
75-79	2,574	2,070	4,053	5,517	7,109	4,272		5,324
80-84	852	1,247	2,393	4,780	4,064	4,606		4,132
85+		3,734	2,028	5,129	3,786	4,002	4,358	4,025
ALL	4,440	6,628	7,024	6,055	4,425	4,065	4,358	6,296

## TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<u>&lt;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>
5,311	54,874	50,260	23,225	7,606	2,207	889	144,372



TABLE 5

## PUBLIC EMPLOYEES RETIREMENT FUND

## DISABILITY RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	24	31	10	4				69
50-54	13	50	11	7				81
55-59	13	121	49	17	2			202
60-64	24	160	104	39	7	2		336
65-69				1				1
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	74	362	174	68	9	2	0	689

## AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	2,943	2,849	4,564	1,567				3,056
50-54	3,577	6,019	6,557	5,588				5,663
55-59	6,020	5,932	7,909	7,140	5,460			6,514
60-64	3,891	4,236	6,759	5,765	4,442	2,390		5,163
65-69				7,975				7,975
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	3,902	4,930	6,944	5,876	4,668	2,390	0	5,411

## TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
289	1,784	1,208	400	42	5	0	3,728

TABLE 6

## PUBLIC EMPLOYEES RETIREMENT FUND

## SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	12	34	27	23	4	1	1	102
50-54	7	44	40	18	4	2	1	116
55-59	12	111	55	31	12	10	2	233
60-64	9	156	163	64	29	17	11	449
65-69	9	118	258	114	48	43	28	618
70-74	4	60	194	255	104	78	36	731
75-79	8	60	86	191	167	95	79	686
80-84	8	46	93	115	138	106	67	573
85+	11	72	86	116	156	147	155	743
TOTAL	80	701	1,002	927	662	499	380	4,251

## AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	8,196	6,856	5,759	4,699	3,473	1,878	2,107	6,009
50-54	8,809	7,434	6,867	7,149	1,703	1,606	2,028	6,932
55-59	2,223	6,907	7,583	6,249	2,503	1,902	2,071	6,255
60-64	5,820	7,354	6,785	6,006	2,499	1,975	2,041	6,277
65-69	4,343	6,196	5,348	6,250	3,341	1,886	1,963	5,111
70-74	5,062	4,546	4,959	4,918	3,458	1,969	2,012	4,233
75-79	2,232	2,706	3,329	4,722	3,385	2,044	2,005	3,333
80-84	1,818	2,434	2,390	3,409	3,060	2,299	2,044	2,694
85+	2,207	2,398	2,261	2,531	2,667	2,617	2,225	2,464
ALL	4,438	5,599	4,988	4,713	3,092	2,234	2,101	4,142

## TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
355	3,925	4,997	4,369	2,047	1,115	798	17,606

TABLE 7

## PUBLIC EMPLOYEES RETIREMENT FUND

## RECONCILIATION OF MEMBERS

	<u>ACTIVES</u>	<u>TERMINATED</u>	
		<u>DEFERRED RETIREMENT</u>	<u>OTHER NON-VESTED</u>
A. On June 30, 1988	95,224	2,094	6,621
B. Additions	12,749	890	2,516
C. Deletions:			
1. Service Retirement	(1,343)	(253)	(59)
2. Disability	(99)	(16)	(2)
3. Death	(70)	(9)	(19)
4. Terminated-Deferred	(885)		
5. Terminated-Refund	(4,280)	0	(1,667)
6. Terminated-Other Non-vested	(1,645)		
7. Returned as Active		(121)	(1,079)
D. Data Adjustments	(136)	(236)	494
	Vested		
	Non-Vested		
	74,234		
	25,281		
E. Total on June 30, 1989	99,515	2,349	6,805

	<u>RECIPIENTS</u>		
	<u>RETIREMENT ANNUITANTS</u>	<u>DISABLED</u>	<u>SURVIVORS</u>
A. On June 30, 1988	21,882	650	4,168
B. Additions	1,765	156	300
C. Deletions:			
1. Service Retirement		(59)	
2. Death	(706)	(59)	(203)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	
D. Data Adjustments	(9)	1	(14)
E. Total on June 30, 1989	22,932	689	4,251

TABLE 8

## PUBLIC EMPLOYEES RETIREMENT FUND

ACTUARIAL BALANCE SHEET  
(DOLLARS IN THOUSANDS)

JULY 1, 1989

A. CURRENT ASSETS (TABLE 1, F6)			\$2,992,285
B. EXPECTED FUTURE ASSETS			
1. Present Value of Expected Future Statutory Supplemental Contributions			1,402,460
2. Present Value of Future Normal Costs			833,491
3. Total Expected Future Assets			2,235,951
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS			\$5,228,236
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>
1. Benefit Recipients			
a. Retirement Annuities		\$1,552,008	\$1,552,008
b. Disability Benefits		22,240	22,240
c. Surviving Spouse and Child Benefits		181,891	181,891
2. Deferred Retirements with Future Augmentation		36,632	36,632
3. Former Members without Vested Rights		7,640	7,640
4. Active Members			
a. Retirement Annuities	8,591	1,312,400	1,320,991
b. Disability Benefits	77,004	0	77,004
c. Survivors' Benefits	78,157	0	78,157
d. Deferred Retirements	4,448	317,444	321,892
e. Refund Liability Due to Death or Withdrawal	0	115,802	115,802
5. Total Current Benefit Obligations	\$168,200	\$3,546,057	\$3,714,257
E. EXPECTED FUTURE BENEFIT OBLIGATIONS			\$1,294,474
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS			\$5,008,731
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)			\$721,972
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)			(\$219,505)

TABLE 9

## PUBLIC EMPLOYEES RETIREMENT FUND

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

JULY 1, 1989

	ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS (1)	ACTUARIAL PRESENT VALUE OF FUTURE NORMAL COSTS (2)	ACTUARIAL ACCRUED LIABILITY (3)=(1)-(2)
<b>A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)</b>			
1. Active Members			
a. Retirement Annuities	\$2,283,381	\$448,981	\$1,834,400
b. Disability Benefits	126,195	33,497	92,698
c. Survivors Benefits	127,990	34,112	93,878
d. Deferred Retirements	506,817	156,891	349,926
e. Refunds Due to Death or Withdrawal	163,937	160,010	3,927
f. Total	<u>\$3,208,320</u>	<u>\$833,491</u>	<u>\$2,374,829</u>
2. Deferred Retirements with Future Augmentation	\$36,632		\$36,632
3. Former Members Without Vested Rights	7,640		7,640
4. Annuitants in MPRIF Reserve on 6/30/89 is \$1,605,292 without the bounce back subsidy	1,623,296		1,623,296
5. Recipients Not in MPRIF	132,843		132,843
6. Total	<u>\$5,008,731</u>	<u>\$833,491</u>	<u>\$4,175,240</u>
<b>B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)</b>			
1. AAL (A6)			\$4,175,240
2. Current Assets (Table 1,F6)			2,992,285
3. UAAL (B1-B2)			<u>\$1,182,955</u>
<b>C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE</b>			
1. Present Value of Future Payrolls through the Amortization Date of July 1, 2020			\$43,964,257
2. Supplemental Contribution Rate (B3/C1)			2.69%

TABLE 10

**PUBLIC EMPLOYEES RETIREMENT FUND**  
**CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)**  
**(DOLLARS IN THOUSANDS)**

**YEAR ENDING JUNE 30, 1989**

A. UAAL AT BEGINNING OF YEAR	\$1,098,570
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$109,429
2. Contribution	(161,831)
3. Interest on A, B1, and B2	85,790
	-----
4. Total (B1+B2+B3)	\$33,388
	-----
C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$1,131,958
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$8,029)
2. Investment Return	(82,424)
3. MPRIF Mortality	6,321
4. Mortality of Other Benefit Recipients	0
5. Other Items	92,902
	-----
6. Total	\$8,770
	-----
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6)	\$1,140,728
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	\$140,858
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	(\$98,631)
	-----
H. UAAL AT END OF YEAR (E+F+G)	\$1,182,955
	=====

TABLE 11

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

JULY 1, 1989

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
<b>A. STATUTORY CONTRIBUTIONS - CHAPTER 353</b>		
1. Employee Contributions	4.47%	\$86,463
2. Employer Contributions	4.86%	93,944
3. Total	----- 9.33% =====	----- \$180,407 =====
<b>B. REQUIRED CONTRIBUTIONS - CHAPTER 356</b>		
1. Normal Cost		
a. Retirement Benefits	3.21%	\$61,751
b. Disability Benefits	0.22%	4,321
c. Survivors	0.23%	4,479
d. Deferred Retirement Benefits	1.04%	20,148
e. Refunds Due to Death or Withdrawal	1.15%	22,310
f. Total	----- 5.85% -----	----- \$113,009 -----
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL of \$1,182,955	2.69%	\$51,989
3. Allowance for Expenses	0.29%	\$5,605
4. Total	----- 8.83%	----- \$170,603
<b>C. CONTRIBUTION SUFFICIENCY (DEFICIENCY)</b>		
(A3-B4)	0.50%	\$9,804

Note: Projected Annual Payroll for Fiscal Year Beginning  
on July 1, 1989 is \$1,932,674

TABLE 12

## PUBLIC EMPLOYEES RETIREMENT FUND

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>
1989					\$1,386,993
1990	\$180,407	\$46,125	\$53,533	\$121,326	1,589,068
1991	190,429	205,506	50,602	132,279	1,655,668
1992	201,506	127,112	49,568	141,787	1,822,281
1993	213,374	164,213	48,963	154,902	1,977,381
1994	225,721	168,213	49,735	168,408	2,153,562
1995	239,097	190,085	50,638	182,984	2,334,920
1996	253,363	220,200	52,135	197,662	2,513,610
1997	268,280	226,952	54,367	213,103	2,713,674
1998	284,497	264,560	56,986	229,088	2,905,713
1999	301,759	288,655	60,014	244,992	3,103,795
2000	320,237	294,838	63,222	262,215	3,328,187
2001	339,975	321,004	67,072	280,852	3,560,938
2002	361,110	347,484	71,250	300,231	3,803,545
2003	383,787	390,452	75,931	319,791	4,040,740
2004	408,136	410,164	80,736	339,945	4,297,921
2005	434,251	428,164	86,073	361,924	4,579,859
2006	462,138	437,346	91,912	386,435	4,899,174
2007	491,843	481,415	98,299	412,695	5,223,998
2008	523,546	540,957	104,995	438,838	5,540,430
2009	557,317	582,585	111,801	465,111	5,868,472
2010	593,362	575,215	119,155	494,527	6,261,991
2011	631,843	612,610	126,955	527,691	6,681,960
2012	672,833	617,787	134,985	564,569	7,166,590
2013	716,521	758,257	143,148	601,303	7,583,009
2014	763,078	724,109	151,324	639,781	8,110,435
2015	812,676	723,326	160,017	686,384	8,726,152
2016	865,499	716,577	169,690	740,840	9,446,224
2017	921,756	710,558	180,230	804,245	10,281,437
2018	981,671	868,854	191,484	870,579	11,073,349
2019	1,045,479	872,628	202,799	939,962	11,983,363
2020	1,113,436	894,652	219,273	1,018,565	13,001,439



**PUBLIC EMPLOYEES RETIREMENT FUND**  
**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS**

Interest:	<p>Pre-Retirement:  Effective July 1, 1989: 8.5% per annum  Prior to July 1, 1989: 8.0% per annum</p> <p>Post-Retirement: 5% per annum</p>
Salary Increases:	Reported salary for prior fiscal year, with new hires annualized, increased 6.5% to current fiscal year and 6.5% annually for each future year.
Mortality:	<p>Pre-Retirement:  Male - 1971 Group Annuity Mortality Table male rates projected to 1984 by Scale D  Female - 1971 Group Annuity Mortality Table female rates projected to 1984 by Scale D</p> <p>Post-Retirement:  Male - Same as above  Female - Same as above</p> <p>Post-Disability:  Male - 1965 RRB rates  Female - 1965 RRB rates</p>
Retirement Age:	Age 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. (0.29% of payroll)
Return of Contributions:	All employees withdrawing after becoming eligible for a deferred benefit take the larger of their contributions accumulated with interest or the value of their deferred benefit.
Family Composition:	85% of male Members and 65% of female Members are assumed to be married. Female is four years younger than male. Assume Members have no children.
Social Security:	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:	Married Members assumed to elect subsidized joint and survivor form of annuity as follows: Males - 30% elect 50% J & S option; 45% elect 100% J & S option. Females - 15% elect 50% J & S option; 15% elect 100% J & S option.
Actuarial Cost Method:	Entry Age Normal 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. Effective July 1, 1989 the statutory amortization date is July 1, 2020.
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	5	2	2,750	3,832	9	9	0	0
21	5	2	2,638	3,777	9	9	0	0
22	5	2	2,505	3,712	9	9	0	0
23	5	3	2,390	3,631	10	10	0	0
24	5	3	2,265	3,516	10	10	0	0
25	6	3	2,160	3,356	10	10	0	0
26	6	3	2,045	3,226	10	10	0	0
27	6	3	1,925	3,103	10	10	0	0
28	7	3	1,820	2,997	11	11	0	0
29	7	4	1,715	2,891	11	11	0	0
30	7	4	1,610	2,805	11	11	0	0
31	8	4	1,528	2,694	11	11	0	0
32	8	4	1,435	2,590	11	11	0	0
33	9	5	1,330	2,463	12	12	0	0
34	10	5	1,245	2,325	12	12	0	0
35	10	5	1,170	2,160	12	12	0	0
36	11	6	1,092	1,990	12	12	0	0
37	12	6	1,010	1,830	13	13	0	0
38	13	7	940	1,650	13	13	0	0
39	14	7	880	1,485	14	14	0	0
40	15	8	818	1,340	15	15	0	0
41	16	9	762	1,230	16	16	0	0
42	18	9	715	1,130	17	17	0	0
43	21	10	670	1,045	18	18	0	0
44	24	11	622	972	20	20	0	0
45	27	12	580	900	22	22	0	0
46	30	13	539	830	23	23	0	0
47	34	14	497	787	25	25	0	0
48	39	15	450	745	27	27	0	0
49	44	17	420	704	30	30	0	0
50	49	18	385	663	33	33	0	0
51	54	20	345	628	36	36	0	0
52	60	21	310	595	40	40	0	0
53	65	23	270	555	45	45	0	0
54	72	25	230	522	51	51	0	0

TABLE 13  
(cont)

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
55	78	27	195	478	58	58	0	0
56	85	30	150	410	66	66	0	0
57	92	33	100	362	76	76	0	0
58	100	37	50	210	88	88	0	0
59	110	41	0	50	102	102	0	0
60	121	46	0	0	118	118	0	0
61	133	52	0	0	136	136	0	0
62	146	58	0	0	157	157	0	0
63	160	65	0	0	181	181	0	0
64	176	73	0	0	208	208	10,000	10,000
65	195	81	0	0	0	0	0	0
66	219	90	0	0	0	0	0	0
67	243	99	0	0	0	0	0	0
68	270	109	0	0	0	0	0	0
69	300	123	0	0	0	0	0	0
70	334	140	0	0	0	0	0	0

# PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 3A  
BASIC

ACTIVE MEMBERS AS OF JUNE 30, 1989

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									0
35-39					4	9			13
40-44					7	219	18		244
45-49				1	4	389	184	17	595
50-54		1	2	1	9	475	372	226	1,086
55-59			2		12	495	446	235	1,190
60-64		1	1		8	399	240	105	754
65+					1	93	46	37	177
TOTAL	0	2	5	2	45	2,079	1,306	620	4,059

## 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									0
35-39					8,848	27,756			21,938
40-44					29,681	31,403	27,547		31,069
45-49				44,338	20,833	30,747	30,495	28,679	30,566
50-54		25,556	19,200	29,104	21,856	26,639	31,732	30,951	29,229
55-59			22,255		20,426	23,302	28,715	32,090	27,036
60-64		25,000	11,776		18,859	20,613	24,986	27,346	22,918
65+					21,621	15,538	21,513	25,513	19,210
ALL	0	25,278	18,937	36,721	20,907	25,467	28,870	30,386	27,260

## 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
0	51	95	73	941	52,946	37,704	18,839	110,649

# PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 4A  
BASIC

## SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1							1
50-54	6	7	1					14
55-59	72	360	2					434
60-64	100	1,279	323	1				1,703
65-69	78	1,483	1,307	45	2			2,915
70-74	5	220	2,229	526	6			2,986
75-79	1	17	167	1,837	199	3		2,224
80-84	1	2	22	232	859	55		1,171
85+		1	9	34	222	444	204	914
TOTAL	264	3,369	4,060	2,675	1,288	502	204	12,362

## AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	5,107							5,107
50-54	23,213	9,175	15,594					15,650
55-59	12,168	14,026	11,796					13,707
60-64	9,889	13,048	16,960	8,469				13,601
65-69	7,128	10,408	11,422	5,867	9,205			10,704
70-74	12,802	9,588	8,460	10,054	11,327			8,837
75-79	6,904	6,527	7,923	6,720	7,324	4,272		6,859
80-84	1,026	6,645	4,367	5,683	4,539	4,606		4,766
85+		9,188	2,953	6,098	4,475	4,123	4,358	4,329
ALL	9,990	11,718	10,037	7,264	4,997	4,177	4,358	9,037

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT							
<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
2,637	39,479	40,749	19,431	6,436	2,097	889	111,718

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 5A  
BASIC

DISABILITY RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	2	3	3				9
50-54	1	14	4	6				25
55-59	5	35	29	14	1			84
60-64	5	32	51	24	6	1		119
65-69				1				1
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	12	83	87	48	7	1	0	238

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	8,691	11,008	7,220	1,752				6,402
50-54	13,792	13,716	13,745	6,115				11,899
55-59	12,097	13,715	11,804	8,082	9,167			11,966
60-64	9,663	9,417	10,560	8,317	5,037	2,654		9,417
65-69				7,975				7,975
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	10,941	11,993	11,006	7,556	5,627	2,654	0	10,458

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
131	996	957	363	39	3	0	2,489

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 6A  
BASIC

SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	9	19	19	21	4	1	1	74
50-54	5	23	32	17	4	2	1	84
55-59	5	56	42	26	12	10	2	153
60-64	5	88	126	58	28	17	11	333
65-69	4	64	174	97	46	43	28	456
70-74	4	42	132	207	94	78	36	593
75-79	8	58	76	146	146	92	79	605
80-84	8	44	89	102	124	106	67	540
85+	11	72	85	114	151	142	148	723
TOTAL	59	466	775	788	609	491	373	3,561

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	10,246	9,652	6,408	5,070	3,473	1,878	2,107	7,050
50-54	11,090	11,362	8,022	7,450	1,703	1,606	2,028	8,478
55-59	2,320	11,174	8,842	6,985	2,503	1,902	2,071	8,127
60-64	7,108	10,557	8,171	6,419	2,546	1,975	2,041	7,489
65-69	7,332	8,705	6,845	6,814	3,438	1,886	1,963	5,993
70-74	5,062	5,097	6,081	5,501	3,633	1,969	2,012	4,626
75-79	2,232	2,772	3,375	5,286	3,576	2,006	2,005	3,425
80-84	1,818	2,322	2,266	3,592	3,107	2,299	2,044	2,686
85+	2,207	2,398	2,271	2,543	2,630	2,669	2,260	2,477
ALL	5,102	6,880	5,709	5,095	3,163	2,240	2,112	4,426

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH							
<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
301	3,206	4,424	4,015	1,926	1,100	788	15,760



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

**TABLE 11A**  
**BASIC**

**JULY 1, 1989**

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
<b>A. STATUTORY CONTRIBUTIONS - CHAPTER 353</b>		
1. Employee Contributions	8.23%	\$9,693
2. Employer Contributions	10.73%	12,637
3. Total	----- 18.96% =====	----- \$22,330 =====
<b>B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)</b>		
1. Normal Cost		
a. Retirement Benefits	3.39%	\$3,995
b. Disability Benefits	0.42%	491
c. Survivors	0.91%	1,067
d. Deferred Retirement Benefits	1.24%	1,466
e. Refunds Due to Death or Withdrawal	2.73%	3,212
f. Total	----- 8.69% -----	----- \$10,231 -----

Note: Projected Annual Payroll for Fiscal Year Beginning  
on July 1, 1989 is \$117,776

TABLE 14A  
BASIC

PUBLIC EMPLOYEES RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Eligibility	A public employee who is not covered under the Social Security Act. General exceptions are employees covered by other public funds and certain part-time employees. City managers and persons holding elective office may choose to become Members.
Contributions Member	8.23% of Salary. <u>(Amended 1989)</u>
Employer	10.73% of Salary. <u>(Amended 1989)</u>
Allowable Service	Service during which Member contributions were deducted. May also include certain leaves of absence and military service.
Salary	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes lump sum payments at separation and Workers' Compensation benefits.
Average Salary	Average of the 5 highest successive years of Salary. Average Salary is based on all Allowable Service if less than 5 years. <u>(Amended 1989)</u>
<b>RETIREMENT</b>	
Normal Retirement Benefit Eligibility	<p>First hired before July 1, 1989: Age 65 and 3 years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and 1 year of Allowable Service. <u>(Amended 1989)</u></p> <p>First hired after June 30, 1989: The greater of age 65 or the age eligible for full Social Security retirement benefits and 3 years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and 1 year of Allowable Service. <u>(Amended 1989)</u></p>
Amount	2.5% of Average Salary for each year of Allowable Service. <u>(Amended 1989)</u>

TABLE 14A  
BASIC  
(Cont)

Early Retirement Benefit  
Eligibility

First hired before July 1, 1989:  
Age 55 and 3 years of Allowable Service.  
Any age with 30 years of Allowable Service.  
Rule of 90: Age plus Allowable Service totals 90.  
(Amended 1989)

First hired after June 30, 1989:  
Age 55 with 3 years of Allowable Service.  
(Amended 1989)

Amount

First hired before July 1, 1989:  
The greater of  
2% of Average Salary for each of the first 10  
years of Allowable Service and 2.5% of Average  
Salary for each subsequent year with reduction  
of 0.25% for each month the member is under  
age 65 at time of retirement or age 62 if 30  
years of Allowable Service. No reduction if  
age plus years of Allowable Service totals  
90.

or

2.5% of Average Salary for each year of  
Allowable Service assuming augmentation to  
age 65 at 3% per year and actuarial reduction  
for each month the member is under age 65.

First hired after June 30, 1989:  
2.5% of Average Salary for each year of Allowable  
Service assuming augmentation to the age eligible  
for full Social Security retirement benefit at 3%  
per year and actuarial reduction for each month  
the member is under the Social Security  
retirement age. (Amended 1989)

Form of Payment

Life annuity with return on death of any balance of  
contributions over aggregate monthly payments.  
Actuarially equivalent options are:  
50% or 100% joint and survivor with bounce back  
feature without additional reduction (option is  
cancelled if Member is pre-deceased by  
beneficiary) (Amended 1989)

Benefit Increases

Benefits may be increased each January 1 depending  
on the investment performance of the Minnesota Post  
Retirement Investment Fund (MPRIF). A member who  
has been receiving a benefit for at least 12 full  
months as of June 30 will receive a full increase.

TABLE 14A  
BASIC  
(Cont)

Members receiving benefits for at least 1 full month but less than 12 full months will receive a partial increase. (Amended 1989)

Members retired under laws in effect before July 1, 1973 receive an additional lump sum payment each year. In 1989, this lump sum payment is the greater of \$25 times each full year of Allowable Service or the difference between \$400 times each full year of Allowable Service and the sum of the benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the preceding fiscal year July 1, 1988 through June 30, 1989. In each following year, the lump sum payment will increase by the same percentage increase that is applied to regular annuities paid from MPRIF. (Amended 1989)

**DISABILITY**  
Disability Benefit  
Eligibility

Total and permanent disability before normal retirement age with 3 years of Allowable Service. (Amended 1989)

Amount

Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction for commencement before normal retirement age. Supplemental benefit of \$5 per month for each year under normal retirement age at commencement of disability (maximum of \$50 per month). The disability benefit is reduced to that amount which, when added to Workers' Compensation, does not exceed the salary the disabled Member received as of the date of the disability or the salary currently payable for the same employment position substantially similar to the one the person held as of the date of the disability, whichever is greater.

Payments stop at normal retirement age, 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

Normal retirement age with continued disability.

TABLE 14A  
BASIC  
(Cont)

Amount	Any optional annuity continues. Otherwise the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.
Benefit Increases	Same as for retirement.
<b>DEATH</b>	
Surviving Spouse Benefit Eligibility	Active Member with 18 months of Allowable Service or Member receiving a disability benefit.
Amount	50% of Salary averaged over last 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 3 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 1989)</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.

**TABLE 14A**  
**BASIC**  
**(Cont)**

Amount                      The excess of the Member's contributions with 5% interest if death occurred before May 16, 1989, and 6% interest if death occurred on or after May 16, 1989 over any disability or survivor benefits paid. (Amended 1989)

**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. (Amended 1989)

Deferred Benefit  
Eligibility

3 years of Allowable Service. (Amended 1989)

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 January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement. (Amended 1989)

**PUBLIC EMPLOYEES RETIREMENT FUND**

**TABLE 3B  
COORDINATED**

**ACTIVE MEMBERS AS OF JUNE 30, 1989**

<u>AGE</u>	<u>YEARS OF SERVICE</u>								<u>TOTAL</u>
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	
<25	1,451	2,215	110						3,776
25-29	1,897	5,290	2,236	163					9,586
30-34	1,876	5,898	3,790	2,219	137				13,920
35-39	1,908	6,231	3,882	3,422	1,358	56			16,857
40-44	2,117	5,828	3,670	2,883	1,859	387	2		16,746
45-49	799	3,358	2,844	2,439	1,640	541	53	1	11,675
50-54	517	2,104	2,021	2,183	1,793	565	94	40	9,317
55-59	309	1,406	1,474	1,616	1,759	653	132	77	7,426
60-64	174	759	924	1,078	1,162	463	88	50	4,698
65+	76	316	309	346	301	86	10	11	1,455
TOTAL	11,124	33,405	21,260	16,349	10,009	2,751	379	179	95,456

**AVERAGE ANNUAL EARNINGS**

<u>AGE</u>	<u>YEARS OF SERVICE</u>								<u>ALL</u>
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	
<25	8,619	12,603	16,428						11,183
25-29	10,334	16,710	19,191	20,239					16,087
30-34	9,766	16,660	22,143	22,685	21,908				18,236
35-39	9,298	15,275	22,356	26,345	26,331	25,005			19,400
40-44	8,231	14,106	19,989	25,447	30,007	31,923	31,125		18,784
45-49	9,334	14,058	17,934	21,078	25,600	31,005	33,052	1,782	18,638
50-54	8,925	13,458	17,262	18,671	20,683	26,365	37,874	35,617	17,768
55-59	8,866	12,619	16,036	18,470	19,542	24,345	37,921	39,027	17,809
60-64	8,534	11,466	15,286	18,118	18,706	22,639	29,482	37,165	17,138
65+	5,897	7,656	10,682	13,038	14,173	17,715	27,206	26,997	11,710
ALL	9,200	14,858	19,555	22,216	23,378	26,655	34,950	36,797	17,859

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

<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	<u>TOTAL</u>
102,339	496,345	415,740	363,212	233,988	73,327	13,246	6,587	1,704,784

# PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 4B  
COORDINATED

## SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54		1						1
55-59	138	351						489
60-64	451	1,496	51					1,998
65-69	297	2,431	789	7				3,524
70-74	41	539	1,897	121	2			2,600
75-79	3	72	314	910	16			1,315
80-84	2	17	38	113	324			494
85+		3	6	10	89	41		149
TOTAL	932	4,910	3,095	1,161	431	41	0	10,570

## AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54		6,935						6,935
55-59	2,424	2,275						2,317
60-64	3,116	3,539	6,474					3,519
65-69	2,862	3,279	3,796	4,656				3,362
70-74	1,917	2,290	2,903	4,975	2,917			2,857
75-79	1,130	1,018	1,995	3,089	4,432			2,726
80-84	765	612	1,251	2,926	2,806			2,630
85+		1,916	642	1,835	2,066	2,694		2,163
ALL	2,868	3,135	3,073	3,268	2,714	2,694	0	3,089

## TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
2,673	15,395	9,510	3,795	1,170	110	0	32,653



PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 5B  
COORDINATED

DISABILITY RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	23	29	7	1				60
50-54	12	36	7	1				56
55-59	8	86	20	3	1			118
60-64	19	128	53	15	1	1		217
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	62	279	87	20	2	1	0	451

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	2,693	2,287	3,426	1,012				2,554
50-54	2,726	3,025	2,449	2,428				2,878
55-59	2,222	2,764	2,262	2,743	1,752			2,633
60-64	2,372	2,941	3,103	1,682	872	2,125		2,831
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	2,540	2,829	2,883	1,845	1,312	2,125	0	2,748

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
157	789	251	37	3	2	0	1,239

PUBLIC EMPLOYEES RETIREMENT FUND

TABLE 6B  
COORDINATED

SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	3	15	8	2				28
50-54	2	21	8	1				32
55-59	7	55	13	5				80
60-64	4	68	37	6	1			116
65-69	5	54	84	17	2			162
70-74		18	62	48	10			138
75-79		2	10	45	21	3		81
80-84		2	4	13	14			33
85+			1	2	5	5	7	20
TOTAL	21	235	227	139	53	8	7	690

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	2,044	3,314	4,217	800				3,256
50-54	3,107	3,132	2,244	2,034				2,874
55-59	2,154	2,562	3,518	2,422				2,673
60-64	4,212	3,208	2,064	2,018	1,203			2,799
65-69	1,952	3,222	2,245	3,034	1,110			2,631
70-74		3,258	2,569	2,400	1,813			2,545
75-79		787	2,979	2,895	2,055	3,196		2,647
80-84		4,895	5,135	1,968	2,642			2,815
85+			1,395	1,826	3,794	1,120	1,480	1,999
ALL	2,573	3,058	2,526	2,548	2,277	1,899	1,480	2,676

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
54	719	573	354	121	15	10	1,846

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

**TABLE 11B**  
**COORDINATED**

**JULY 1, 1989**

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
<b>A. STATUTORY CONTRIBUTIONS - CHAPTER 353</b>		
1. Employee Contributions	4.23%	\$76,770
2. Employer Contributions	4.48%	81,307
3. Total	----- 8.71% =====	----- \$158,077 =====
<b>B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)</b>		
1. Normal Cost		
a. Retirement Benefits	3.18%	\$57,756
b. Disability Benefits	0.21%	3,830
c. Survivors	0.19%	3,412
d. Deferred Retirement Benefits	1.03%	18,682
e. Refunds Due to Death or Withdrawal	1.05%	19,098
f. Total	----- 5.66% -----	----- \$102,778 -----

Note: Projected Annual Payroll for Fiscal Year Beginning  
on July 1, 1989 is \$1,814,898

PUBLIC EMPLOYEES RETIREMENT FUND 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	4.23% of Salary. <u>(Amended 1989)</u>
Employer	4.48% of Salary. <u>(Amended 1989)</u>
Allowable Service	Service during which Member contributions were deducted. May also include certain leaves of absence and military service.
Salary	Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees and sick leave payments funded by the employer. Excludes lump sum payments at separation and Workers' Compensation benefits.
Average Salary	Average of the 5 highest successive years of Salary. Average Salary is based on all Allowable Service if less than 5 years. <u>(Amended 1989)</u>
RETIREMENT	
Normal Retirement Benefit	
Eligibility	First hired before July 1, 1989: Age 65 and 3 years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and 1 year of Allowable Service. <u>(Amended 1989)</u> First hired after June 30, 1989: The greater of age 65 or the age eligible for full Social Security retirement benefits and 3 years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and 1 year of Allowable Service. <u>(Amended 1989)</u>
Amount	1.5% of Average Salary for each year of Allowable Service. <u>(Amended 1989)</u>

TABLE 14B  
COORDINATED  
(cont)

Early Retirement Benefit  
Eligibility

First hired before July 1, 1989:  
Age 55 and 3 years of Allowable Service.  
Any age with 30 years of Allowable Service.  
Rule of 90: Age plus Allowable Service totals  
90.  
(Amended 1989)

First hired after June 30, 1989:  
Age 55 with 3 years of Allowable Service.  
(Amended 1989)

Amount

First hired before July 1, 1989:  
The greater of  
1% of Average Salary for each of the first 10  
years of Allowable Service and 1.5% of Average  
Salary for each subsequent year with reduction  
of 0.25% for each month the Member is under  
age 65 at time of retirement or age 62 if 30  
years of Allowable Service. No reduction if  
age plus years of Allowable Service totals  
90.  
or  
1.5% of Average Salary for each year of  
Allowable Service assuming augmentation to age  
65 at 3% per year and actuarial reduction for  
each month the Member is under age 65.  
(Amended 1989)

First hired after June 30, 1989:  
1.5% of Average Salary for each year of Allowable  
Service assuming augmentation to the age eligible  
for full Social Security retirement benefits at  
3% per year and actuarial reduction for each  
month the Member is under the Social Security  
retirement age. (Amended 1989)

Form of Payment

Life annuity with return on death of any balance of  
contributions over aggregate monthly payments.  
Actuarially equivalent options are:  
50% or 100% joint and survivor with bounce back  
feature without additional reduction (option is  
cancelled if Member is pre-deceased by  
beneficiary). (Amended 1989)

**TABLE 14B  
COORDINATED  
(cont)**

**Benefit Increases**

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

(Amended 1989)

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 \$25 times each full year of Allowable Service. In each following year, the lump sum payment will increase by the same percentage increase that is applied to regular annuities paid from MPRIF. (Amended 1989)

**DISABILITY**

**Disability Benefit  
Eligibility**

Total and permanent disability before normal retirement age with 3 years of Allowable Service. (Amended 1989)

**Amount**

Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction for commencement before normal retirement age. The disability benefit is reduced to that amount which, when added to Worker's Compensation, does not exceed the salary the disabled Member received as of the date of the disability or the salary currently payable for the same employment position substantially similar to the one the person held as of the date of the disability, whichever is greater.

Payments stop at normal retirement age, 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**

Normal retirement age with continued disability.

TABLE 14B  
COORDINATED  
(cont)

Amount	Any optional annuity continues. Otherwise the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.
Benefit Increases	Same as for retirement.
<b>DEATH</b>	
Surviving Spouse Optional Annuity Eligibility	Member or former Member who dies before retirement or disability benefits commence, if age 50 with 3 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 1989)</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 if death occurred before May 16, 1989, and 6% interest if death occurred on or after May 16, 1989 over any disability or survivor benefits paid. <u>(Amended 1989)</u>
<b>TERMINATION</b>	
Refund of Contributions Eligibility	Termination of public service.
Amount	Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989, or 6% interest if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund. <u>(Amended 1989)</u>
Deferred Benefit Eligibility	3 years of Allowable Service. <u>(Amended 1989)</u>

**TABLE 14B  
COORDINATED  
(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 January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement. (Amended 1989)



**PUBLIC EMPLOYEES POLICE AND FIRE FUND**

**ACTUARIAL VALUATION REPORT**

**JULY 1, 1989**

THE *Wyatt* COMPANY

ACTUARIAL SERVICES  
COMPENSATION PROGRAMS  
ADMINISTRATIVE SYSTEMS  
INTERNATIONAL SERVICES  
ORGANIZATION SURVEYS

15TH FLOOR  
8400 NORMANDALE LAKE BOULEVARD  
MINNEAPOLIS, MINNESOTA 55437  
(612) 921-8700

EMPLOYEE BENEFITS  
EMPLOYEE COMMUNICATIONS  
RISK MANAGEMENT  
INSURANCE CONSULTING  
HEALTH CARE CONSULTING

October 10, 1989

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

**RE: PUBLIC EMPLOYEES POLICE AND FIRE FUND**

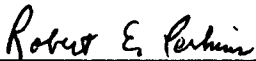
Commission Members:


We have prepared an actuarial valuation of the Fund as of July 1, 1989 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 September 20, 1989.

Respectfully submitted,

THE WYATT COMPANY

  
Robert E. Perkins, FSA  
Consulting Actuary

  
Michael C. Gunvalson, FSA  
Actuary

**PUBLIC EMPLOYEES POLICE AND FIRE FUND**

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# PUBLIC EMPLOYEES POLICE AND FIRE FUND

## REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/88</u> <u>VALUATION</u>	<u>07/01/89</u> <u>VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Statutory Contributions - Chapter 353 % of Payroll	20.00%	20.00%
2. Required Contributions - Chapter 356 % of Payroll	16.69%	16.21%
3. Sufficiency (Deficiency) (A1-A2)	3.31%	3.79%
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$557,669	\$656,654
b. Current Benefit Obligations (Table 8)	\$512,921	\$582,299
c. Funding Ratio (a/b)	108.72%	112.77%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$557,669	\$656,654
b. Actuarial Accrued Liability (Table 9)	\$574,133	\$651,776
c. Funding Ratio (a/b)	97.13%	100.75%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$1,077,023	\$1,211,268
b. Current and Expected Future Benefit Obligations	\$936,934	\$1,035,701
c. Funding Ratio (a/b)	114.95%	116.95%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	5,611	5,891
b. Projected Annual Earnings	\$178,768	\$197,982
c. Average Annual Earnings (Actual \$)	\$31,860	\$33,608
d. Average Age	37.3	37.5
e. Average Service	9.8	10.0
2. Others		
a. Service Retirements (Table 4)	965	995
b. Disability Retirements (Table 5)	73	84
c. Survivors (Table 6)	325	333
d. Deferred Retirements (Table 7)	105	110
e. Terminated Other Non-vested (Table 7)	107	100
f. Total	1,575	1,622

## 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 3.31% in 1988 to 3.79% in 1989. According to this valuation a contribution rate of 16.21% 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 112.77%. The corresponding ratio for the prior year was 108.72%.

- o The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used. For 1989 the ratio is 100.75%, which is an increase from the 1988 value of 97.13%.
- 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 (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 gains 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 Fund participates in the MPRIF (i.e. Minnesota Post Retirement Investment Fund). The asset value shown for MPRIF on line A3 is set equal to the MPRIF Reserves reported on line D3 for both market and cost value purposes. This reserve is based on a 5% interest assumption.

Investment performance by SBI (i.e. State Board of Investment) above the 5% level is not shown in the assets but will be added in on January 1, 1990 when benefits will be increased for those annuitants who have been receiving payments for at least 7 months. Next year's valuation will include the 1990 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, 1989 is provided below:

MPRIF Reserves	\$159,565,000
Reserves Plus Excess Earnings	165,000,000
MPRIF Market Value	180,000,000

**Membership Data (Tables 3, 4, 5, 6 and 7)**

Tables 3 through 6 summarize statistical information about 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.



A reconciliation of members in Table 7 provides a method for tracking what happened to members during the past year.

#### Actuarial Balance Sheet (Table 8)

An actuarial balance sheet provides a method for evaluating 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. Current and future funding levels are evaluated by comparing the Total Current and Expected Future Assets on line C to the Total Current and Expected Future Benefit Obligations on line F.

The Current Benefit Obligation used to measure current funding levels is calculated in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

- o For active members - salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- o For non-active members - the discounted value of benefits, including augmentation in cases where benefits have not commenced.

#### GASB Disclosure

The Current Benefit Obligation amounts in Table 8 are required to be disclosed

by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1989 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table. This table shows the impact of the changes in plan provisions on the liabilities under the old actuarial assumptions. See page 10 for an explanation of the changes in plan provisions.

	<u>Old Benefits</u>	<u>New Benefits</u>
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$194,931,000	\$196,490,000
Current Employees -		
Accumulated employee contributions including allocated investment income	141,331,000 *	150,964,000 *
Employer-financed vested	166,519,000	181,045,000
Employer-financed nonvested	77,630,000	79,763,000
	-----	-----
Total Pension Benefit Obligation	\$580,411,000	\$608,262,000

\* Estimated

The table on the following page shows the impact of the changes in actuarial assumptions using the new plan provisions. See page 12 for an explanation of the changes in actuarial assumptions.

	<u>Old Assumptions</u>	<u>New Assumptions</u>
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$196,490,000	\$196,269,000
Current Employees -		
Accumulated employee contributions including allocated investment income	150,964,000 *	150,964,000 *
Employer-financed vested	181,045,000	159,127,000
Employer-financed nonvested	79,763,000	75,939,000
	-----	-----
Total Pension Benefit Obligation	\$608,262,000	\$582,299,000

\* Estimated

#### 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. The major sources of gain and loss, which have been identified, are:

- o A slight gain from salaries where the average increase was the same as the expected increase of 6.5%.
- o A gain from Non-MPRIF Assets (i.e. Current Assets reduced by MPRIFF Reserves) because the return was 14.2% instead of the assumed 8%.

#### Contribution Sufficiency (Table 11)

This report answers the question of "How adequate are the Statutory Contributions?" by comparing the Statutory Contributions to the Required Contributions.

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

- o Normal Costs based on the Entry Age Normal Actuarial Cost Method.
- o A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability. Since a surplus exists, no contribution is required to amortize the Unfunded Actuarial Accrued Liability.
- o An Allowance for Expenses.

Table 11 shows the Fund has a contribution sufficiency since the Statutory Contribution Rate is 20.00% compared to the Required Contribution Rate of 16.21%.

#### Projected Cash Flow (Table 12)

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 MPRIIF an amount of reserve is transferred to SBI. The other disbursements represent benefit payments and expenses made directly by the Fund.

This projected cash flow assumes that future payrolls increase by 6.5%. Table 12 is the only table in this report where 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 8.5% 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 1991 is large because it includes those already over age 60 who are assumed to retire a year from the valuation date.

#### Changes in Plan Provisions

There were numerous changes in benefits in 1989 that are recognized in the July 1, 1989 actuarial valuation. The significant changes in benefits are summarized below:

- o Eligibility for the normal retirement benefit was reduced from age 55 and 5 years of service to age 55 and 3 years of service. The benefit formula was changed from 2.5% of average salary for the first 25 years of service and 2% of average salary for each additional year to a level 2.5% of average salary for each year of service.
- o Early retirement is now allowed at age 50 and 5 years of service. The early retirement benefit is the actuarial equivalent of the normal retirement benefit payable at age 55.
- o The duty disability benefit was changed to be equal to 50% of average salary plus 2.5% of average salary for each year of service in excess of 20 years. The prior formula also started with 50% and granted 2.5% of average salary for years of service in excess of 20 years but not to exceed 25 years and 2% of average salary for each year in excess of 25 years.

- o Eligibility for the normal duty disability benefit was reduced from age 55 and 5 years of service to age 55 and 1 year of service. The benefit was also changed to use a minimum of 15 years instead of 10 years in the formula.
- o The surviving spouse benefit increased from 30% to 50% of salary averaged over the last 6 months.
- o The service requirement for a surviving spouse optional annuity was reduced from 5 years to 3 years.
- o Eligibility for a deferred annuity was reduced to 3 years. In addition, the deferred annuity is now augmented at 5% a year for each year that the benefit is deferred beyond age 55.
- o The interest rate credited on refund of member contributions was increased from 5% to 6%.
- o The joint and survivor annuity option now provides a bounce back feature without additional reduction.

	<u>Impact Due To Change In Plan Provisions</u>
Actuarial Accrued Liability	\$ 24,183,000
Pension Benefit Obligation	
for GASB No. 5	27,851,000
Normal Cost	1.29%
Supplemental Contribution	<u>.35%*</u>
Required Contribution	1.64%

\* Does not reflect any amortization of surplus. If the surplus existing before plan changes was amortized the increase would be .52%.

Changes in Actuarial Assumptions

The pre-retirement interest rate assumption has been increased from 8.0% to 8.5%. Also the amortization target date has been changed to July 1, 2020.

	<u>Impact Due To Changes In Actuarial Assumptions</u>	
	<u>Interest Rate Change</u>	<u>Amortization Date Change</u>
Actuarial Accrued Liability	(\$21,280,000)	\$0
Pension Benefit Obligation		
for GASB No. 5	(25,963,000)	0
Normal Cost	(1.34%)	.00%
Supplemental Contribution	(.35%)*	.00%
Required Contribution	(1.69%)	.00%

\* Does not reflect any amortization of surplus. If the surplus existing after the interest rate change assumption was amortized the decrease would be .46%.



TABLE 1

## PUBLIC EMPLOYEES POLICE AND FIRE FUND

ACCOUNTING BALANCE SHEET  
(DOLLARS IN THOUSANDS)

July 1, 1989

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$14,293	\$14,293
2. Investments		
a. Fixed Income	121,078	120,329
b. Equity	356,187	308,815
c. Real Estate	43,265	35,027
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	159,565	159,565
4. Other	175	175
	-----	-----
B. TOTAL ASSETS	\$694,563	\$638,204
	=====	=====
C. AMOUNTS CURRENTLY PAYABLE	\$336	\$336
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$107,659	\$107,659
2. Employer Reserves	427,003	370,644
3. MPRIF Reserves	159,565	159,565
4. Non-MPRIF Reserves	0	0
	-----	-----
5. Total Assets Available for Benefits	\$694,227	\$637,868
	-----	-----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	\$694,563	\$638,204
	=====	=====
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$637,868
2. Market Value (D5)	\$694,227	
3. Cost Value (D5)	637,868	
	-----	
4. Market Over Cost (F2-F3)	\$56,359	
5. 1/3 of Market Over Cost(F4)/3		18,786
		-----
6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		\$656,654
		=====

TABLE 2

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

**YEAR ENDING JUNE 30, 1989**

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$584,871	\$544,068
B. OPERATING REVENUES		
1. Member Contributions	\$14,832	\$14,832
2. Employer Contributions	22,210	22,210
3. Investment Income	55,384	55,384
4. MPRIF Income	16,563	16,563
5. Net Realized Gain (Loss)	0	0
6. Other	2,052	2,052
7. Net Change in Unrealized Gain (Loss)	15,556	0
	-----	-----
8. Total Revenue	\$126,597	\$111,041
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$13,142	\$13,142
2. Disability Benefits	1,087	1,087
3. Survivor Benefits	1,217	1,217
4. Refunds	969	969
5. Expenses	780	780
6. Other	46	46
	-----	-----
7. Total Disbursements	\$17,241	\$17,241
	-----	-----
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	\$694,227	\$637,868
	=====	=====

TABLE 3

## PUBLIC EMPLOYEES POLICE AND FIRE FUND

## ACTIVE MEMBERS AS OF JUNE 30, 1989

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	107	201							308
25-29	150	615	266	2					1,033
30-34	72	341	542	272	1				1,228
35-39	22	169	278	513	210	1			1,193
40-44	26	76	134	271	365	80			952
45-49	4	31	51	75	162	207	21		551
50-54	2	24	21	48	86	129	62	11	383
55-59	2	9	15	22	35	34	42	10	169
60-64	1	3	9	10	16	10	6	7	62
65+				2	2	3	3	2	12
TOTAL	386	1,469	1,316	1,215	877	464	134	30	5,891

## AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	15,219	23,092							20,357
25-29	15,684	27,625	32,024	25,258					27,019
30-34	16,282	28,111	33,853	33,867	30,039				31,228
35-39	16,354	28,553	34,261	35,073	35,211	29,858			33,635
40-44	11,098	24,960	33,277	34,790	37,510	38,356			34,488
45-49	16,071	22,512	26,345	33,723	35,871	38,617	37,888		34,910
50-54	18,125	25,090	27,313	29,588	35,144	37,939	38,576	35,525	34,807
55-59	16,740	16,450	24,055	27,432	32,845	37,715	39,120	40,714	33,301
60-64	5,576	7,665	18,288	26,835	30,928	36,662	32,426	46,784	29,759
65+				23,023	40,451	30,608	30,559	30,215	30,906
ALL	15,392	26,828	32,897	34,198	36,116	38,205	38,184	39,528	31,556

## 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
5,941	39,410	43,293	41,551	31,674	17,727	5,117	1,186	185,899

TABLE 4

## PUBLIC EMPLOYEES POLICE AND FIRE FUND

## SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54								0
55-59	36	145						181
60-64	8	114	129					251
65-69	5	66	97	68				236
70-74		8	61	74	23			166
75-79		8	8	56	26	5		103
80-84		1		8	21	3		33
85+					3	16	6	25
TOTAL	49	342	295	206	73	24	6	995

## AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54								0
55-59	15,587	15,503						15,520
60-64	9,627	15,199	16,543					15,712
65-69	11,952	13,935	12,563	12,332				12,867
70-74		7,286	9,066	11,862	8,740			10,181
75-79		5,080	4,227	9,650	7,058	6,996		8,091
80-84		8,598		10,526	6,655	3,702		7,384
85+					7,688	5,545	5,059	5,686
ALL	14,243	14,643	13,354	11,364	7,498	5,617	5,059	12,763

## TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<u>&lt;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>
698	5,009	3,939	2,341	547	135	30	12,699

TABLE 5

## PUBLIC EMPLOYEES POLICE AND FIRE FUND

## DISABILITY RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	7	27	10	6				50
50-54	4	15	6	8				33
55-59	1							1
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	12	42	16	14	0	0	0	84

## AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	13,952	12,239	10,547	10,298				11,907
50-54	15,023	15,574	14,059	12,012				14,368
55-59	7,138							7,138
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	13,741	13,430	11,864	11,278	0	0	0	12,817

## TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
165	564	190	158	0	0	0	1,077

TABLE 6

## PUBLIC EMPLOYEES POLICE AND FIRE FUND

SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	4	17	21	3	3			48
50-54		8	6	6	2	1		23
55-59		7	9	8	3		1	28
60-64	1	7	13	10	8	3		42
65-69		3	15	15	7	1		41
70-74	1	8	12	22	8	5	6	62
75-79		4	2	9	11	6	2	34
80-84		5	5	5	10	3	2	30
85+		3	5	6	4	3	4	25
TOTAL	6	62	88	84	56	22	15	333

## AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	7,963	10,032	9,857	5,039	3,162			9,041
50-54		12,519	11,673	8,022	2,654	1,968		9,808
55-59		11,144	9,873	7,113	1,962		2,012	8,274
60-64	5,774	8,761	9,483	6,132	4,144	1,988		6,924
65-69		5,987	8,257	7,440	4,935	1,994		7,072
70-74	3,064	3,919	7,415	5,829	3,668	1,993	2,069	4,893
75-79		3,709	2,489	7,094	2,681	1,872	1,990	3,776
80-84		3,088	3,030	3,266	3,249	1,627	2,075	2,948
85+		2,661	2,359	2,329	1,685	2,460	3,768	2,518
ALL	6,782	8,026	8,340	6,137	3,329	1,972	2,508	6,172

## TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
41	498	734	515	186	43	38	2,055

TABLE 7

## PUBLIC EMPLOYEES POLICE AND FIRE FUND

## RECONCILIATION OF MEMBERS

	<u>ACTIVES</u>	<u>TERMINATED</u>	
		<u>DEFERRED RETIREMENT</u>	<u>OTHER NON-VESTED</u>
A. On June 30, 1988	5,611	105	107
B. Additions	456	32	31
C. Deletions:			
1. Service Retirement	(38)	(9)	(2)
2. Disability	(18)	(3)	0
3. Death	(5)	0	(1)
4. Terminated-Deferred	(32)		
5. Terminated-Refund	(63)	0	(38)
6. Terminated-Other Non-vested	(18)		
7. Returned as Active		(5)	(15)
D. Data Adjustments	(2)	(10)	18
	Vested		
	Non-Vested		
	4,705		
	1,186		
E. Total on June 30, 1989	5,891	110	100

	<u>RECIPIENTS</u>		
	<u>RETIREMENT ANNUITANTS</u>	<u>DISABLED</u>	<u>SURVIVORS</u>
A. On June 30, 1988	965	73	325
B. Additions	57	22	19
C. Deletions:			
1. Service Retirement		(7)	
2. Death	(27)	(2)	(10)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	
D. Data Adjustments	0	(2)	(1)
E. Total on June 30, 1989	995	84	333

TABLE 8

## PUBLIC EMPLOYEES POLICE AND FIRE FUND

ACTUARIAL BALANCE SHEET  
(DOLLARS IN THOUSANDS)

JULY 1, 1989

A. CURRENT ASSETS (TABLE 1, F6)				\$656,654
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions				170,689
2. Present Value of Future Normal Costs				383,925
3. Total Expected Future Assets				554,614
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				\$1,211,268
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>	
1. Benefit Recipients				
a. Retirement Annuities		\$152,118		\$152,118
b. Disability Benefits		10,785		10,785
c. Surviving Spouse and Child Benefits		24,909		24,909
2. Deferred Retirements with Future Augmentation		7,938		7,938
3. Former Members without Vested Rights		519		519
4. Active Members				
a. Retirement Annuities	2,690	268,628		271,318
b. Disability Benefits	34,906	0		34,906
c. Survivors' Benefits	36,978	0		36,978
d. Deferred Retirements	1,365	37,789		39,154
e. Refund Liability Due to Death or Withdrawal	0	3,674		3,674
5. Total Current Benefit Obligations	\$75,939	\$506,360		\$582,299
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				\$453,402
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				\$1,035,701
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				(\$74,355)
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				(\$175,567)



TABLE 9

## PUBLIC EMPLOYEES POLICE AND FIRE FUND

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

JULY 1, 1989

	ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS (1)	ACTUARIAL PRESENT VALUE OF FUTURE NORMAL COSTS (2)	ACTUARIAL ACCRUED LIABILITY (3)=(1)-(2)
<b>A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)</b>			
1. Active Members			
a. Retirement Annuities	\$624,616	\$243,617	\$380,999
b. Disability Benefits	69,760	36,959	32,801
c. Survivors Benefits	71,189	39,807	31,382
d. Deferred Retirements	67,021	54,129	12,892
e. Refunds Due to Death or Withdrawal	6,846	9,413	(2,567)
	-----	-----	-----
f. Total	\$839,432	\$383,925	\$455,507
	-----	-----	-----
2. Deferred Retirements with Future Augmentation	\$7,938		\$7,938
3. Former Members Without Vested Rights	519		519
4. Annuitants in MPRIF	161,439		161,439
Reserve on 6/30/89 is \$159,565 without the bounce back subsidy			
5. Recipients Not in MPRIF	26,373		26,373
	-----	-----	-----
6. Total	\$1,035,701	\$383,925	\$651,776
	=====	=====	=====
<b>B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)</b>			
1. AAL (A6)			\$651,776
2. Current Assets (Table 1,F6)			656,654
3. UAAL (B1-B2)			----- (\$4,878) =====
<b>C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE</b>			
1. Present Value of Future Payrolls through the Amortization Date of July 1, 2020			\$4,503,676
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, 1989**

A. UAAL AT BEGINNING OF YEAR	\$16,464
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$30,220
2. Contribution	(37,042)
3. Interest on A, B1, and B2	1,044
4. Total (B1+B2+B3)	----- (\$5,778) -----
C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$10,686
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$160)
2. Investment Return	(26,322)
3. MPRIF Mortality	(67)
4. Mortality of Other Benefit Recipients	1,779
5. Other Items	6,303
6. Total	----- (\$18,467) -----
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6)	(\$7,781)
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	\$24,183
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	(\$21,280)
H. UAAL AT END OF YEAR (E+F+G)	----- (4,878) =====

TABLE 11

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

JULY 1, 1989

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
<b>A. STATUTORY CONTRIBUTIONS - CHAPTER 353</b>		
1. Employee Contributions	8.00%	\$15,839
2. Employer Contributions	12.00%	23,758
3. Total	20.00% =====	\$39,597 =====
<b>B. REQUIRED CONTRIBUTIONS - CHAPTER 356</b>		
1. Normal Cost		
a. Retirement Benefits	10.11%	\$19,999
b. Disability Benefits	1.51%	2,999
c. Survivors	1.69%	3,343
d. Deferred Retirement Benefits	2.12%	4,192
e. Refunds Due to Death or Withdrawal	0.36%	721
f. Total	15.79% -----	\$31,254 -----
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL of \$(4,878)	0.00%	\$0
3. Allowance for Expenses	0.42% -----	\$832 -----
4. Total	16.21%	\$32,086
<b>C. CONTRIBUTION SUFFICIENCY (DEFICIENCY)     (A3-B4)</b>		
	3.79%	\$7,511

Note: Projected Annual Payroll for Fiscal Year Beginning  
on July 1, 1989 is \$197,982

TABLE 12

## PUBLIC EMPLOYEES POLICE AND FIRE FUND

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>
1989					\$497,089
1990	\$39,597	\$1,663	\$3,634	\$43,710	575,099
1991	42,170	19,308	3,977	49,686	643,670
1992	44,911	6,894	4,379	56,142	733,450
1993	47,830	12,073	4,862	63,656	828,001
1994	50,939	13,192	5,336	71,758	932,170
1995	54,251	20,299	5,883	80,427	1,040,666
1996	57,777	22,060	6,450	89,700	1,159,633
1997	61,532	22,258	7,106	99,936	1,291,737
1998	65,532	34,698	7,822	110,776	1,425,525
1999	69,791	39,168	8,643	122,104	1,569,609
2000	74,328	46,223	9,518	134,207	1,722,403
2001	79,159	45,340	10,371	147,401	1,893,252
2002	84,305	54,822	11,295	161,699	2,073,139
2003	89,784	78,445	12,199	176,180	2,248,459
2004	95,620	75,450	13,256	191,413	2,446,786
2005	101,836	84,547	14,401	208,100	2,657,774
2006	108,455	97,890	15,617	225,696	2,878,418
2007	115,505	122,830	16,934	243,635	3,097,794
2008	123,012	177,448	18,287	260,222	3,285,293
2009	131,008	166,671	19,712	276,896	3,506,814
2010	139,524	188,737	21,238	295,085	3,731,448
2011	148,593	197,662	22,807	314,118	3,973,690
2012	158,251	196,550	24,529	335,093	4,245,955
2013	168,538	217,967	26,318	357,687	4,527,895
2014	179,493	245,664	28,171	380,862	4,814,415
2015	191,160	252,401	30,067	405,345	5,128,452
2016	203,585	248,670	32,097	432,638	5,483,908
2017	216,818	231,967	34,226	464,034	5,898,567
2018	230,911	231,012	36,440	499,825	6,361,851
2019	245,920	262,960	38,643	538,391	6,844,559
2020	261,905	271,286	42,317	579,590	7,372,451

TABLE 13

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

Interest:	Pre-Retirement: Effective July 1, 1989: 8.5% per annum Prior to July 1, 1989: 8.0% 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 shown in rate table.
Disability:	Rates as shown in rate table.
Expenses:	Prior year expenses expressed as percentage of prior year payroll. (0.42% of 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:	NA

TABLE 13  
(cont)

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 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. Effective July 1, 1989 the statutory amortization date is July 1, 2020.
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	5	2	700	700	11	11	0	0
21	5	2	700	700	11	11	0	0
22	5	2	700	700	12	12	0	0
23	5	3	699	699	12	12	0	0
24	5	3	698	698	13	13	0	0
25	6	3	697	697	13	13	0	0
26	6	3	694	694	14	14	0	0
27	6	3	689	689	14	14	0	0
28	7	3	680	680	14	14	0	0
29	7	4	670	670	15	15	0	0
30	7	4	658	658	16	16	0	0
31	8	4	643	643	16	16	0	0
32	8	4	624	624	17	17	0	0
33	9	5	598	598	17	17	0	0
34	10	5	561	561	18	18	0	0
35	10	5	511	511	19	19	0	0
36	11	6	454	454	20	20	0	0
37	12	6	395	395	22	22	0	0
38	13	7	336	336	23	23	0	0
39	14	7	287	287	24	24	0	0
40	15	8	245	245	26	26	0	0
41	16	9	213	213	28	28	0	0
42	18	9	185	185	29	29	0	0
43	21	10	160	160	31	31	0	0
44	24	11	137	137	34	34	0	0
45	27	12	118	118	36	36	0	0
46	30	13	102	102	41	41	0	0
47	34	14	87	87	46	46	0	0
48	39	15	73	73	52	52	0	0
49	44	17	61	61	60	60	0	0
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

TABLE 13  
(cont)

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
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



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.
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 payments at separation and Workers' Compensation benefits.
Average Salary	Average of the 5 highest successive years of Salary. Average salary is based on all Allowable Service if less than 5 years. <u>(Amended 1989)</u>
<b>RETIREMENT</b>	
Normal Retirement Benefit	
Eligibility	Age 55 and 3 years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and 1 year of Allowable Service. For Members hired after June 30, 1989, Proportionate Retirement Annuity is available at the greater of age 65 or the age first eligible for full Social Security benefits and 1 year of Allowable Service. <u>(Amended 1989)</u>
Amount	2.5% of Average Salary for each year of Allowable Service. <u>(Amended 1989)</u>
Early Retirement Benefit	
Eligibility	Age 50 and 5 years of Allowable Service. <u>(Amended 1989)</u>
Amount	Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date reduced to the actuarial equivalent of the benefit that would be payable if the member deferred the benefit until age 55. <u>(Amended 1989)</u>

**TABLE 14**  
**(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 with bounce back feature without additional reduction (option cancelled if Member is pre-deceased by beneficiary. <u>(Amended 1989)</u>
Benefit Increases	Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Benefit recipients receiving benefits for at least 1 full month but less than 12 full months will receive a partial increase. <u>(Amended 1989)</u>  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. <u>(Amended 1989)</u>
<b>DISABILITY</b>	
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 years of Allowable Service. The disability benefit is reduced to that amount which when added to Workers' Compensation, does not exceed Average Salary. Payments cease at age 55. <u>(Amended 1989)</u>
Non-Duty Disability Benefit Eligibility	Totally and permanently disabled before age 55 with 1 year of Allowable Service. <u>(Amended 1989)</u>

**TABLE 14**  
**(cont)**

Amount	Normal Retirement Benefit based on Allowable Service (minimum of 15 years) and Average Salary at disability without reduction for commencement before age 55. Payments cease at age 55. <u>(Amended 1989)</u>
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.
<b>DEATH</b>	
Surviving Spouse Benefit Eligibility	Active Member with surviving spouse.
Amount	50% of Salary averaged over last 6 months. Benefit paid until spouse's death but no payments while spouse is remarried. <u>(Amended 1989)</u>
Surviving Dependent Child Benefit Eligibility	Active Member with dependent child.
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 70% of Salary. Benefits paid until child marries, dies, or attains age 18. (Age 23 if full-time student). <u>(Amended 1989)</u>
Surviving Spouse Optional Annuity Eligibility	Member who dies before termination if age 50 with 3 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 1989)</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.

TABLE 14  
(cont)

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. (Amended 1989)

Deferred Annuity  
Eligibility

3 years of Allowable Service. (Amended 1989)

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 January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement. (Amended 1989)

**POLICE AND FIRE CONSOLIDATION FUND**

**ACTUARIAL VALUATION REPORT**

**JULY 1, 1989**

THE *Wyatt* COMPANY

ACTUARIAL SERVICES  
COMPENSATION PROGRAMS  
ADMINISTRATIVE SYSTEMS  
INTERNATIONAL SERVICES  
ORGANIZATION SURVEYS

15TH FLOOR  
8400 NORMANDALE LAKE BOULEVARD  
MINNEAPOLIS, MINNESOTA 55437  
(612) 921-8700

EMPLOYEE BENEFITS  
EMPLOYEE COMMUNICATIONS  
RISK MANAGEMENT  
INSURANCE CONSULTING  
HEALTH CARE CONSULTING

October 10, 1989

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

**RE: POLICE AND FIRE CONSOLIDATION FUND**

Commission Members:

We have prepared an actuarial valuation of the Consolidation Accounts as of July 1, 1989 based on membership and financial data supplied by PERA Police and Fire.

We certify that to the best of our knowledge and belief this actuarial valuation was performed in accordance with the requirements of Section 353A.09 and Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission on September 20, 1989.

Respectfully submitted,

THE WYATT COMPANY

*Robert E. Perkins*  
Robert E. Perkins, FSA  
Consulting Actuary

*Michael C. Gunvalson*  
Michael C. Gunvalson, FSA  
Actuary

## POLICE AND FIRE CONSOLIDATION FUND

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# POLICE AND FIRE CONSOLIDATION FUND

## REPORT HIGHLIGHTS (ACTUAL DOLLARS)

	<u>07/01/88</u> <u>VALUATION</u>	<u>07/01/89</u> <u>VALUATION</u>
<b>A. CONTRIBUTIONS (TABLE 11)</b>		
1. Employee Contribution	8.00%	8.00%
2. Required Municipal Contribution	12.00%	12.00%
3. Additional Municipal Contribution	\$1,323,094	\$1,006,971
<b>B. FUNDING RATIOS</b>		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$22,648,279	\$29,895,399
b. Current Pension Benefit Obligation (Table 8)	\$38,407,541	\$42,745,655
c. Funding Ratio (a/b)	58.97%	69.94%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$22,648,279	\$29,895,399
b. Actuarial Accrued Liability (Table 9)	\$35,221,498	\$40,603,577
c. Funding Ratio (a/b)	64.30%	73.63%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$42,911,574	\$47,834,163
b. Current and Expected Future Pension Benefit Obligation	\$42,911,574	\$47,834,163
c. Funding Ratio (a/b)	100.00%	100.00%
<b>C. PLAN PARTICIPANTS</b>		
1. Active Members		
a. Number (Table 3)	93	102
b. Projected Annual Earnings	\$2,179,551	\$3,679,158
c. Average Annual Earnings	\$29,242	\$36,070
d. Average Age	44.0	44.6
e. Average Service	18.0	19.0
2. Others		
a. Service Retirements (Table 4)	85	91
b. Disability Retirements (Table 5)	0	4
c. Survivors (Table 6)	41	45
d. Deferred Retirements (Table 7)	5	1
e. Terminated Other Non-vested (Table 7)	0	1
f. Total	131	142
<b>D. NUMBER OF CONSOLIDATION FUND ACCOUNTS</b>	<b>2</b>	<b>3</b>

## POLICE AND FIRE CONSOLIDATION FUND

### COMMENTARY

#### Purpose

The purpose of this valuation is to determine if the current assets and future anticipated contributions for each Consolidation Account are adequate to provide for future benefits. If future contributions are more than adequate, an actuarial gain arises which will be amortized over 15 years and will reduce the Additional Municipal Contribution. Conversely, if future contributions are inadequate, an actuarial loss is produced which will be amortized over 15 years and will increase the Additional Municipal Contribution.

#### Report Highlights

This commentary reports the aggregate results for all three Accounts. West St. Paul Fire is a new Account this year. Information is provided in the tables at the end of this report for each individual Account listed below:

- o Buhl Police
- o Duluth Police
- o West St. Paul Fire

The Additional Municipal Contribution for the Relief Association Consolidation Accounts decreased by \$316,123 from \$1,323,094 to produce a new Additional Municipal Contribution of \$1,006,971. The new Additional Municipal Contribution is based on the new PERA plan provisions and a change in assumptions (see pages 10 and 12 for more information regarding these changes).

) The financial status of the Accounts 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 69.94%. The corresponding ratio for the prior year was 58.97%
- 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 1989 the ratio is 73.63%, which is an increase from the 1988 value of 64.30%.
- o The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This ratio, which is 100%, verifies that the contributions are adequate based on the new level of Additional Municipal Contributions.

) 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 gains 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 performed in total for all

) Consolidation Accounts as shown in Table 1 on lines F1 to F6. The aggregate result is allocated to each individual Consolidation Account based on its proportionate share of the cost value of the Assets Available for Benefits for all Consolidated Accounts. The Actuarial Value of Assets 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.

) The Accounts participate in the MPRIF (i.e. Minnesota Post Retirement Investment Fund). The asset value shown for MPRIF on line A3 is set equal to the MPRIF Reserves reported on line D3 for both market and cost value purposes. This reserve is based on a 5% interest assumption.

Investment performance by SBI (i.e. State Board of Investment) above the 5% level is not shown in the assets but will be added in on January 1, 1990 when benefits will be increased for those annuitants who have been receiving payments for at least 7 months. Next year's valuation will include the 1990 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, 1989 is provided below:

MPRIF Reserves	\$18,931,455
Reserves Plus Excess Earnings	19,600,000
MPRIF Market Value	21,300,000

#### Membership Data (Tables 3, 4, 5, 6 and 7)

Tables 3 through 6 summarize statistical information about 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.

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

A reconciliation of members in Table 7 provides a method for tracking what happened to members during the past year.

#### Actuarial Balance Sheet (Table 8)

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

Current funding levels are evaluated by comparing Current Assets on line A to the Pension Benefit Obligation on line D3. Current and future funding levels are evaluated by comparing the Total Current and Expected Future Assets on line C to the Total Current and Expected Future Pension Obligation on line F.

The process used in this valuation will always produce an exact balance when measured on a "current and future" basis (i.e. line C will equal line F). This exact balance is possible because of the annual adjustment in the Additional

## Municipal Contribution.

The Pension Benefit Obligation (PBO) used to measure current funding levels is calculated in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

- o For active members - salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- o For non-active members - the PBO is the discounted value of benefits, including augmentation in cases where benefits have not commenced.

### GASB Disclosure

The Pension Benefit Obligation reported in Table 8 is for GASB reporting purposes. The table below shows the impact of the change in plan provisions on the liabilities under the old actuarial assumptions. See page 9 for an explanation of the change in plan provisions.

	Old Benefits	New Benefits
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$22,625,069	\$22,638,095
Current Employees -		
Accumulated employee contributions including allocated investment income	4,085,745 *	4,469,719 *
Employer-financed vested	18,843,191	18,682,855
Employer-financed nonvested	0	0
	-----	-----
Total Pension Benefit Obligation	\$45,554,005	\$45,790,669

\* Estimated

The table below shows the impact of the changes in actuarial assumptions using the new plan provisions. See page 11 for an explanation of the changes in actuarial assumptions.

	<u>Old Assumptions</u>	<u>New Assumptions</u>
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$22,638,095	\$22,195,275
Current Employees -		
Accumulated employee contributions including allocated investment income	4,469,719 *	4,469,719 *
Employer-financed vested	18,682,855	16,080,661
Employer-financed nonvested	0	0
Total Pension Benefit Obligation	\$45,790,669	\$42,745,655

\* Estimated

#### Entry Age Normal Cost Calculations (Table 9)

Subdivision 7 of Section 353A.09 of Minnesota Statutes requires disclosure of the Actuarial Accrued Liability, Current Assets, Unfunded Actuarial Accrued Liability and Normal Cost using the Entry Age Normal Actuarial Cost Method.

These items are shown for informational purposes and are not used in calculating contributions.

Table 9 displays the individual elections as of the valuation date. If a member has not elected, the liability shown is the larger of the local Relief Association benefit liability or the PERA Police and Fire benefit liability. The normal cost, although shown as a single number, is also calculated based on the elections made.



Calculation of Net Actuarial Loss (Gain) (Table 10)

The calculation of the actuarial gain or loss produces the annual adjustment in the Additional Municipal Contribution.

The concept is the same as that presented in the Actuarial Balance Sheet (Table 8), however the order is turned around. The Balance Sheet approach shows:

Assets  
+ Employee Contributions  
+ Regular Municipal Contributions  
+ Additional Municipal Contributions (after the current year's adjustment)  
= Total Current and Expected Future Pension Benefit Obligation

The Actuarial gain or loss calculation renames the "Total Current and Expected Future Pension Benefit Obligation" as the "Actuarial Value of Projected Benefits" and calculates the gain or loss as shown below:

Actuarial Value of Projected Benefits  
- Employee Contributions  
- Regular Municipal Contributions  
- Assets  
- Additional Municipal Contributions (before the current year's adjustment)  
= Loss (Gain)

The loss (gain) funded as a level dollar amount over 15 years determines the current year's adjustment to the Additional Municipal Contribution.

In the analysis of the gains and losses, the significant amount of gain reported under Other (line G3) is attributable to the new plan provisions and changes in assumptions. See page 9 for more information regarding the plan provision changes and page 11 regarding the changes in actuarial assumptions.

#### Statutory Contributions (Table 11)

The Statutory Contributions are reported either as a percentage that must be applied to the appropriate compensation to determine the corresponding dollar contributions or as a dollar amount derived from actual calculations.

The amounts to be contributed by the Municipality should be adjusted to reflect any available State Aid.

Each year the Additional Municipal Contribution will be adjusted up (down) depending on the amount of actual loss (gain) that is calculated. Another adjustment will occur as each 15 year amortization period is completed.

#### Projected Cash Flow (Table 12)

Cash flow (which is normally reported in Table 12) has not been projected for the Consolidation Accounts.

#### Changes in Plan Provisions

Changes in PERA Police and Fire benefits in 1989 that are first effective with the July 1, 1989 actuarial valuation are summarized below:

- o Eligibility for the normal retirement benefit was reduced from age 55 and 5 years of service to age 55 and 3 years of service. The benefit

formula was changed from 2.5% of average salary for the first 25 years of service and 2% of average salary for each additional year to a level 2.5% of average salary for each year of service.

- o Early retirement is now allowed at age 50 and 5 years of service. The early retirement benefit is the actuarial equivalent of the normal retirement benefit payable at age 55.
- o The duty disability benefit was changed to be equal to 50% of average salary plus 2.5% of average salary for each year of service in excess of 20 years. The prior formula started with 50% and granted 2.5% of average salary for years of service in excess of 20 years but not to exceed 25 years and 2% of average salary for each year in excess of 25 years.
- o Eligibility for the normal duty disability benefit was reduced from age 55 and 5 years of service to age 55 and 1 year of service. The benefit was also changed to use a minimum of 15 years instead of 10 years in the formula.
- o The surviving spouse benefit increased from 30% to 50% of salary averaged over the last 6 months.
- o The service requirement for a surviving spouse optional annuity was reduced from 5 years to 3 years.

- o Eligibility for a deferred annuity was reduced to 3 years. In addition, the deferred annuity is now augmented at 5% a year for each year that the benefit is deferred beyond age 55.
- o The interest rate credited on refund of member contributions was increased from 5% to 6%.
- o The joint and survivor annuity option now provides a bounce back feature without additional reduction.

	<u>Impact Due To Change In Plan Provisions</u>
Actuarial Present Value of Projected Benefits	\$276,897
Pension Benefit Obligation for GASB No. 5	236,664
Additional Municipal Contribution	60,910

#### Changes in Actuarial Assumptions

The pre-retirement interest rate assumption has been increased from 8.0% to 8.5%. The post-retirement interest rate assumption for use with the Relief Association benefits has also been increased from 8.0% to 8.5%. The 5% post-retirement interest rate assumption used with the PERA Police and Fire benefits remains unchanged.

	<u>Impact Due To Change In Actuarial Assumptions</u>
Actuarial Present Value of Projected Benefits	\$(3,331,521)
Pension Benefit Obligation for GASB No. 5	(3,045,014)
Additional Municipal Contribution	(313,431)

#### Individual Consolidation Accounts

Additional tables at the end of this report show membership data, liabilities and contributions for the individual Consolidation Accounts.

TABLE 1

## POLICE AND FIRE CONSOLIDATION FUND

ACCOUNTING BALANCE SHEET  
(ACTUAL DOLLARS)

July 1, 1989

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
<b>A. ASSETS</b>		
1. Cash, Equivalents, Short-Term Securities	\$604,769	\$604,769
2. Investments		
a. Fixed Income	2,405,998	2,379,142
b. Equity	7,059,151	6,568,688
c. Real Estate	859,750	815,372
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	18,780,185	18,780,185
4. Other	1,371,096	1,371,096
	-----	-----
<b>B. TOTAL ASSETS</b>	<b>\$31,080,949</b>	<b>\$30,519,252</b>
	=====	=====
<b>C. AMOUNTS CURRENTLY PAYABLE</b>	<b>\$811,085</b>	<b>\$811,085</b>
<b>D. ASSETS AVAILABLE FOR BENEFITS</b>		
1. Member Reserves	\$2,806,850	\$2,806,850
2. Benefit Reserves	8,682,829	8,121,132
3. MPRIF Reserves	18,780,185	18,780,185
4. Non-MPRIF Reserves	0	0
	-----	-----
5. Total Assets Available for Benefits	<b>\$30,269,864</b>	<b>\$29,708,167</b>
	-----	-----
<b>E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS</b>	<b>\$31,080,949</b>	<b>\$30,519,252</b>
	=====	=====
<b>F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS</b>		
1. Cost Value of Assets Available for Benefits (D5)		\$29,708,167
2. Market Value (D5)	\$30,269,864	
3. Cost Value (D5)	29,708,167	
	-----	
4. Market Over Cost (F2-F3)	\$561,697	
5. 1/3 of Market Over Cost(F4)/3		187,232
		-----
6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		<b>\$29,895,399</b>
		=====

Revised: 10/24/89

TABLE 2

**POLICE AND FIRE CONSOLIDATION FUND**  
**CHANGES IN ASSETS AVAILABLE FOR BENEFITS**  
**(ACTUAL DOLLARS)**

**YEAR ENDING JUNE 30, 1989**

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$22,795,583	\$22,573,841
B. OPERATING REVENUES		
1. Member Contributions	\$262,424	\$262,424
2. Employer Contributions	1,869,422	1,869,422
3. Investment Income	918,139	918,139
4. MPRIF Income	1,852,098	1,852,098
5. Net Realized Gain (Loss)	0	0
6. Other	83,179	83,179
7. Net Change in Unrealized Gain (Loss)	339,955	0
	-----	-----
8. Total Revenue	\$5,325,217	\$4,985,262
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$1,743,655	\$1,743,655
2. Disability Benefits	25,535	25,535
3. Survivor Benefits	74,894	74,894
4. Refunds	63,785	63,785
5. Expenses	28,830	28,830
6. Other	15,820	15,820
	-----	-----
7. Total Disbursements	\$1,952,519	\$1,952,519
	-----	-----
D. OTHER CHANGES IN RESERVES	4,101,583	4,101,583
E. ASSETS AVAILABLE AT END OF PERIOD	\$30,269,864	\$29,708,167
	=====	=====

TABLE 3

## POLICE AND FIRE CONSOLIDATION FUND

ACTIVE MEMBERS AS OF JUNE 30, 1989

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			3	2					5
35-39			7	8	1				16
40-44			1	4	22	6			33
45-49				2	5	18	5		30
50-54						6	3	2	11
55-59							1	5	6
60-64								1	1
65+									0
TOTAL	0	0	11	16	28	30	9	8	102

## 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			33,586	33,713					33,637
35-39			32,849	33,111	30,169				32,812
40-44			29,629	31,898	34,092	34,024			33,678
45-49				31,915	31,750	32,719	31,922		32,371
50-54						32,007	40,910	41,876	36,229
55-59							47,876	36,929	38,754
60-64								47,876	47,876
65+									0
ALL	0	0	32,757	32,733	33,534	32,837	36,691	39,534	33,869

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

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
0	0	360,328	523,734	938,939	985,118	330,216	316,273	3,454,608

TABLE 4

## POLICE AND FIRE CONSOLIDATION FUND

## SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54	1	6						7
55-59		8	2	1				11
60-64	1	7	4	2	3			17
65-69		2	4	4	4	2	2	18
70-74			4	5	4	6	3	22
75-79				4	2	3	1	10
80-84					1		2	3
85+						1	2	3
TOTAL	2	23	14	16	14	12	10	91

## AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54	11,954	14,707						14,313
55-59		17,676	17,284	13,810				17,253
60-64	17,487	18,712	17,718	17,719	15,257			17,679
65-69		19,197	17,346	16,310	17,718	14,027	15,764	16,860
70-74			17,530	17,718	17,067	16,271	15,547	16,875
75-79				17,718	17,719	17,429	14,244	17,284
80-84					17,718		14,027	15,257
85+						17,718	15,764	16,415
ALL	14,721	17,349	17,496	17,122	17,005	16,307	15,200	16,847

## TOTAL ANNUAL ANNUITY (ACTUAL DOLLARS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
29,441	399,022	244,942	273,951	238,068	195,684	151,995	1,533,103



TABLE 5

## POLICE AND FIRE CONSOLIDATION FUND

## DISABILITY RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS DISABLED							TOTAL
	<u>&lt;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	2							2
50-54	1	1						2
55-59								0
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	3	1	0	0	0	0	0	4

## AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<u>&lt;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	13,084							13,084
50-54	15,841	13,989						14,915
55-59								0
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	14,003	13,989	0	0	0	0	0	14,000

## TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS OF DISABILITY

<u>&lt;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>
42,009	13,989	0	0	0	0	0	55,998

TABLE 6

## POLICE AND FIRE CONSOLIDATION FUND

SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	1	1					3
50-54		1						1
55-59	1							1
60-64		1	2				1	4
65-69	1	1	2	2			1	7
70-74		2	2	1		1	1	7
75-79		2		1	2		1	6
80-84		2		1	1	1	2	7
85+			1	2	1		5	9
TOTAL	3	10	8	7	4	2	11	45

## AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	7,518	7,518	3,474					6,170
50-54		8,685						8,685
55-59	9,813							9,813
60-64		8,685	9,634				8,685	9,160
65-69	10,492	10,492	9,589	8,686			8,685	9,460
70-74		8,686	8,686	8,685		8,038	8,685	8,593
75-79		8,686		8,685	8,686		8,038	8,578
80-84		8,102		8,685	8,685	8,685	8,686	8,518
85+			8,685	8,362	8,685		8,685	8,613
ALL	9,274	8,633	8,497	8,593	8,685	8,362	8,626	8,636

## TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
27,823	86,325	67,975	60,149	34,741	16,723	94,891	388,627

TABLE 7

## POLICE AND FIRE CONSOLIDATION FUND

## RECONCILIATION OF MEMBERS

	<u>ACTIVES</u>	<u>TERMINATED</u>	
		<u>DEFERRED RETIREMENT</u>	<u>OTHER NON-VESTED</u>
A. On July 1, 1988	93	5	0
B. Additions	13	0	0
C. Deletions:			
1. Service Retirement	(2)	(1)	0
2. Disability	(1)	0	0
3. Death	0	0	(1)
4. Terminated-Deferred	0		
5. Terminated-Refund	(1)	0	(1)
6. Terminated-Other Non-vested	0		
7. Returned as Active		0	0
D. Data Adjustments	0	(3)	3
	Vested		
	Non-Vested		
	102		
	0		
E. Total on June 30, 1989	102	1	1

	<u>RETIREMENT ANNUITANTS</u>	<u>RECIPIENTS</u>	
		<u>DISABLED</u>	<u>SURVIVORS</u>
A. On July 1, 1988	85	0	41
B. Additions	8	4	6
C. Deletions:			
1. Service Retirement		0	
2. Death	(2)	0	(2)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	
D. Data Adjustments	0	0	0
E. Total on June 30, 1989	91	4	45

TABLE 8

## POLICE AND FIRE CONSOLIDATION FUND

ACTUARIAL BALANCE SHEET  
(ACTUAL DOLLARS)

JULY 1, 1989

A. CURRENT ASSETS (TABLE 1, F6)		\$29,895,399
B. EXPECTED FUTURE ASSETS		
1. Present Value of Employee Contributions		2,883,976
2. Present Value of Regular Municipal Contributions		4,325,964
3. Present Value of Additional Municipal Contributions		10,728,824
		-----
4. Total Expected Future Assets		\$17,938,764
		-----
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS		\$47,834,163
		=====
D. CURRENT PENSION BENEFIT OBLIGATION		
1. Retirees and Beneficiaries Currently Receiving Benefits and Terminated Employees Not Yet Receiving Benefits		\$22,195,275
2. Current Employees		
a. Accumulated employee contributions including allocated investment income*	4,469,719	
b. Employer-financed vested	16,080,661	
c. Employer-financed nonvested	0	
d. Total		20,550,380
		-----
3. Total Pension Benefit Obligation		\$42,745,655
		-----
E. EXPECTED FUTURE PENSION BENEFIT OBLIGATION		\$5,088,508
		-----
F. TOTAL CURRENT AND EXPECTED FUTURE PENSION BENEFIT OBLIGATION		\$47,834,163
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D3-A)		\$12,850,256
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)		\$0

\* Estimated

TABLE 9

**POLICE AND FIRE CONSOLIDATION FUND**  
**SUMMARY OF ENTRY AGE NORMAL COST CALCULATIONS**  
**(ACTUAL DOLLARS)**

JULY 1, 1989

	<u>NUMBER OF PARTICIPANTS</u>	<u>ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS</u>	<u>ACTUARIAL ACCRUED LIABILITY</u>
<b>A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)</b>			
1. Active Members			
a. Elected PERA Police and Fire	13	\$3,894,782	\$3,377,582
b. No Election (Greater Value)	89	21,744,106	15,030,720
	---	-----	-----
c. Total	102	\$25,638,888	\$18,408,302
2. Former Members			
a. Elected PERA Police and Fire	0	\$0	\$0
b. No Election (Greater Value)	2	487,102	487,102
	---	-----	-----
c. Total	2	\$487,102	\$487,102
3. Benefit Recipients			
a. Elected PERA Police and Fire	128	\$18,931,455	\$18,931,455
b. Elected Relief Association	12	2,776,718	2,776,718
	---	-----	-----
c. Total	140	\$21,708,173	\$21,708,173
4. Total			
a. Elected PERA Police and Fire	141	\$22,826,237	\$22,309,037
b. Elected Relief Association	12	2,776,718	2,776,718
c. No Election (Greater Value)	91	22,231,208	15,517,822
	---	-----	-----
d. Total	244	\$47,834,163	\$40,603,577
	===	=====	=====
<b>B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)</b>			
1. AAL (A4)			\$40,603,577
2. Current Assets (Table 1,F6)			29,895,399
			-----
3. UAAL (B1-B2)			\$10,708,178
			=====
<b>C. NORMAL COST</b>			<b>\$704,245</b>

TABLE 10

**POLICE AND FIRE CONSOLIDATION FUND**  
**CALCULATION OF NET ACTUARIAL LOSS (GAIN)**  
**(ACTUAL DOLLARS)**

**YEAR ENDING JUNE 30, 1989**

<b>A. ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS (TABLE 9)</b>	
1. Elected PERA Police and Fire	\$22,826,237
2. Elected Relief Association	2,776,718
3. No Election (Greater Value)	22,231,208
	-----
4. Total	\$47,834,163
	-----
<b>B. PRESENT VALUE OF FUTURE EMPLOYEE CONTRIBUTIONS</b>	
1. Elected PERA Police and Fire	\$257,116
2. No Election (Greater Value)	2,626,860
	-----
3. Total	\$2,883,976
	-----
<b>C. PRESENT VALUE OF FUTURE REGULAR MUNICIPAL CONTRIBUTIONS</b>	
1. Elected PERA Police and Fire	\$385,675
2. No Election (Greater Value)	3,940,289
	-----
3. Total	\$4,325,964
	-----
<b>D. CURRENT VALUE OF ASSETS (TABLE 1, F6)</b>	\$29,895,399
<b>E. PRESENT VALUE OF FUTURE ADDITIONAL MUNICIPAL CONTRIBUTIONS</b>	
1. Initial Contribution - Annual Payment of \$1,452,044 through the Amortization Date of December 31, 2010	\$14,585,963
2. 7/1/88 Loss (Gain) - Annual Payment of \$23,742 through the Amortization Date of December 31, 2010	\$198,094
	-----
3. Total	\$14,784,057
	-----
<b>F. LOSS (GAIN) [A-B-C-D-E]</b>	(\$4,055,233)
	=====
<b>G. ANALYSIS OF LOSS (GAIN)</b>	
1. MPRIF Mortality	\$698,041
2. Election of PERA Police and Fire Fund	(1,202,185)
3. Other	(3,551,089)
	-----
4. Total	(\$4,055,233)
	=====
<b>H. 15 YEAR AMORTIZATION OF LOSS (GAIN)</b>	(\$468,815)

TABLE 11

**POLICE AND FIRE CONSOLIDATION FUND**  
**DETERMINATION OF STATUTORY CONTRIBUTIONS**  
**(ACTUAL DOLLARS)**

JULY 1, 1989

		<u>AMOUNT</u> <u>%</u>	<u>AMOUNT</u> <u>\$</u>
A. EMPLOYEE CONTRIBUTIONS		8.00%	
B. EMPLOYER CONTRIBUTIONS (BEFORE ADJUSTMENT FOR STATE AID)			
1. Regular Municipal Contribution		12.00%	
2. Additional Municipal Contribution			
	<u>Established</u>	<u>Current Balance</u>	<u>Last Payment</u>
a. Initial		14,585,963	12/31/2010
b. 7/1/88		198,094	12/31/2002
c. 7/1/89		(4,055,233)	12/31/2003
d. Total			<div style="border-top: 1px dashed black; display: inline-block;">1,452,044</div> <div style="border-top: 1px dashed black; display: inline-block;">23,742</div> <div style="border-top: 1px dashed black; display: inline-block;">(468,815)</div> <div style="border-top: 1px dashed black; display: inline-block;">\$1,006,971 *</div> <div style="border-top: 1px dashed black; display: inline-block;">=====</div>
C. TOTAL STATUTORY CONTRIBUTION IS 20.00% OF COMPENSATION PLUS \$1,006,971			

\* Contribution is assumed to be paid on December 31, 1989.

TABLE 13

**POLICE AND FIRE CONSOLIDATION FUND**  
**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS**

Interest:	Pre-Retirement: Effective July 1, 1989: 8.5% per annum Prior to July 1, 1989: 8.0% per annum  Post-Retirement: PERA Police and Fire: 5.0% per annum Relief Association: Effective July 1, 1989: 8.5% per annum Prior to July 1, 1989: 8.0% per annum
Salary Increases:	Reported salary for prior fiscal year, 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:	
PERA Police and Fire	Age 60, or if over age 60, one year from the valuation date.
Buhl Police	Age 58 and 20 years of service, or if over 58, one year from the valuation date.
Duluth Police	Age 58 and 5 years of service, or if over 58, one year from the valuation date.
West St. Paul Fire	Age 58 and 20 years of service, or if over 58, one year from the valuation date.
Separation:	Graded rates shown in rate table.
Disability:	Rates as shown in rate table.
Return of Contributions:	
PERA Police and Fire	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.



TABLE 13  
(cont)

Relief Association	If a relief association allows for the return of contributions, the contributions are returned to the Member if the Member is not eligible for any other 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:	
PERA Police and Fire	Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement interest assumption.
Buhl Police	3.5% per annum
Duluth Police	6.5% per annum
West St. Paul Fire	6.5% per annum
Special Consideration:	
PERA Police and Fire	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.
Buhl Police	NA
Duluth Police	NA
West St. Paul Fire	NA
Actuarial Cost Method:	Calculations of the Actuarial Accrued Liability and Normal Cost under the Entry Age Normal Cost Method are disclosed in the report.  The Additional Municipal Contribution is derived by subtracting the following items from the Actuarial Present Value of Projected Benefits: - Present Value of Future Employee Contributions - Present Value of Future Regular Municipal Contributions - Current Value of Assets - Present Value of Additional Municipal Contributions (amount determined in the prior year) Any excess (deficit) is a loss (gain) to be funded over 15 years and is added to the prior year Additional Municipal Contributions.

**TABLE 13**  
**(cont)**

Asset Valuation Method:      Cost Value plus one-third Unrealized Gains or  
Losses.

TABLE 13  
(cont)

SEPARATIONS EXPRESSED AS THE  
NUMBER OF OCCURRENCES PER 10,000

Age	PERA P&F Death		PERA P&F Withdrawal		PERA P&F Disability		PERA P&F Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
20	5	2	700	700	11	11	0	0
21	5	2	700	700	11	11	0	0
22	5	2	700	700	12	12	0	0
23	5	3	699	699	12	12	0	0
24	5	3	698	698	13	13	0	0
25	6	3	697	697	13	13	0	0
26	6	3	694	694	14	14	0	0
27	6	3	689	689	14	14	0	0
28	7	3	680	680	14	14	0	0
29	7	4	670	670	15	15	0	0
30	7	4	658	658	16	16	0	0
31	8	4	643	643	16	16	0	0
32	8	4	624	624	17	17	0	0
33	9	5	598	598	17	17	0	0
34	10	5	561	561	18	18	0	0
35	10	5	511	511	19	19	0	0
36	11	6	454	454	20	20	0	0
37	12	6	395	395	22	22	0	0
38	13	7	336	336	23	23	0	0
39	14	7	287	287	24	24	0	0
40	15	8	245	245	26	26	0	0
41	16	9	213	213	28	28	0	0
42	18	9	185	185	29	29	0	0
43	21	10	160	160	31	31	0	0
44	24	11	137	137	34	34	0	0
45	27	12	118	118	36	36	0	0
46	30	13	102	102	41	41	0	0
47	34	14	87	87	46	46	0	0
48	39	15	73	73	52	52	0	0
49	44	17	61	61	60	60	0	0
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

TABLE 13  
(cont)

Age	PERA P&F Death		PERA P&F Withdrawal		PERA P&F Disability		PERA P&F Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
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

TABLE 14

**POLICE AND FIRE CONSOLIDATION FUND**  
**SUMMARY OF PERA POLICE AND FIRE PLAN PROVISIONS**

Eligibility	All full time, and certain part time, police officers and firefighters, who are not contributing to any other local retirement fund.
Contributions	
Member	8% of Salary.
Employer	12% 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 payments at separation and Workers' Compensation benefits.
Average Salary	Average of the 5 highest successive years of Salary. Average salary is based on all Allowable Service if less than 5 years. <u>(Amended 1989)</u>
<b>RETIREMENT</b>	
Normal Retirement Benefit	
Eligibility	Age 55 and 3 years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and 1 year of Allowable Service. For Members hired after June 30, 1989, Proportionate Retirement Annuity is available at the greater of age 65 or the age first eligible for full Social Security benefits and 1 year of Allowable Service. <u>(Amended 1989)</u>
Amount	2.5% of Average Salary for each year of Allowable Service. <u>(Amended 1989)</u>
Early Retirement Benefit	
Eligibility	Age 50 and 5 years of Allowable Service. <u>(Amended 1989)</u>
Amount	Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date reduced to the actuarial equivalent of the benefit that would be payable if the member deferred the benefit until age 55. <u>(Amended 1989)</u>

TABLE 14  
(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 with bounce back feature without additional reduction (option cancelled if Member is pre-deceased by beneficiary. <u>(Amended 1989)</u>
Benefit Increases	Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). A benefit recipient who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Benefit recipients receiving benefits for at least 1 full month but less than 12 full months will receive a partial increase. <u>(Amended 1989)</u>  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. <u>(Amended 1989)</u>
<b>DISABILITY</b>	
Duty Disability Benefit Eligibility	Under age 55 and physically unfit to perform his duties as a police officer or firefighter 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 years of Allowable Service. The disability benefit is reduced to that amount which when added to Workers' Compensation, does not exceed Average Salary. Payments cease at age 55. <u>(Amended 1989)</u>
Non-Duty Disability Benefit Eligibility	Totally and permanently disabled before age 55 with 1 year of Allowable Service. <u>(Amended 1989)</u>

**TABLE 14**  
**(cont)**

Amount	Normal Retirement Benefit based on Allowable Service (minimum of 15 years) and Average Salary at disability without reduction for commencement before age 55. Payments cease at age 55. <u>(Amended 1989)</u>
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.
<b>DEATH</b>	
Surviving Spouse Benefit Eligibility	Active Member with surviving spouse.
Amount	50% of Salary averaged over last 6 months. Benefit paid until spouse's death but no payments while spouse is remarried. <u>(Amended 1989)</u>
Surviving Dependent Child Benefit Eligibility	Active Member with dependent child.
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 70% of Salary. Benefits paid until child marries, dies, or attains age 18. (Age 23 if full-time student). <u>(Amended 1989)</u>
Surviving Spouse Optional Annuity Eligibility	Member who dies before termination if age 50 with 3 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 1989)</u>
Amount	Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated.

TABLE 14  
(cont)

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. (Amended 1989)

Deferred Annuity  
Eligibility

3 years of Allowable Service. (Amended 1989)

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 January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement. (Amended 1989)



TABLE 15

## POLICE AND FIRE CONSOLIDATION FUND

## SUMMARY OF LOCAL POLICE OR FIREFIGHTER PLAN PROVISIONS

Eligibility	A Member of a local relief association consolidating with PERA Police and Fire Fund who elects to retain benefit coverage in the local relief association benefit plan.
Contributions	
Member	8% of Contribution Salary.
Employer	12% of Contribution Salary.
Allowable Service	Any service rendered in the municipality in which the Local relief association is located before the effective date of consolidation and any service rendered by a covered employee as a police officer or firefighter in the municipality in which the local relief association is located.
Salary	
Benefit Salary	
Buhl Police	Final salary.
Duluth Police	Salary of a First Class Patrol Officer with 16 years of service.
West St. Paul Fire	Salary of a First Class Firefighter.
Contribution Salary	
Buhl Police	Benefit Salary.
Duluth Police	Greater of Benefit Salary or actual salary.
West St. Paul Fire	Greater of Benefit Salary or actual salary.
<b>RETIREMENT</b>	
Normal Retirement Benefit	
Eligibility	
Buhl Police	Age 50 and 20 years of Allowable Service.
Duluth Police	Age 50 and 5 years of Allowable Service.
West St. Paul Fire	Age 55 and 20 years of Allowable Service.
Amount	
Buhl Police	4.25% of Benefit Salary for each of the first 20 years of Allowable Service and \$120 per year for each year of Allowable Service in excess of 20 years of Allowable Service but no more than 25 years of Allowable Service.

**TABLE 15**  
**(cont)**

Duluth Police	1.9875% of Benefit Salary for each of the first 20 years of Allowable Service, 1.25% of Benefit Salary for the 21st year of Allowable Service, and 2.5% of Benefit Salary for each year of Allowable Service in excess of 21 years but not more than 25 years of Allowable Service.
West St. Paul Fire	2% of Benefit Salary for each of the first 20 years of Allowable Service, 1% of Allowable Service in excess of 20 years but not more than 24 years of Allowable Service, 3% of Benefit Salary for the 25th year of Allowable Service, and 1% of Benefit Salary for each year of Allowable Service in excess of 25 but not more than 30 years of Allowable Service.
Form of Payment	Life annuity.
Benefit Increases	
Buhl Police	3.5% if there is any increase in the salary base.
Duluth Police	Same increase that Benefit Salary is increased.
West St. Paul Fire	Same increase that Benefit Salary is increased.
<b>DISABILITY</b>	
Duty Disability Benefit Eligibility	Not eligible for a retirement benefit and physically unfit to perform his duties as a police officer or firefighter as a direct result of an act of duty.
Amount	
Buhl Police	The retirement benefit calculated using the Benefit Salary as of the date of disability and the Allowable Service as of the date of disability with a minimum of 20 years of Allowable Service. Payments cease at age 50.
Duluth Police	The retirement benefit calculated using the Benefit Salary as of the date of disability and the Allowable Service as of the date of disability with a minimum of 20 years of Allowable Service. Payments cease at age 50.
West St. Paul Fire	An amount equal to 40% of the Benefit Salary.
Non-Duty Disability Benefit Eligibility	Not eligible for a retirement benefit and physically unfit to perform his duties as a police officer or firefighter which did not arise as a direct result of an act of duty.

**TABLE 15**  
**(cont)**

Amount	
Buhl Police	Same as the Duty Disability Benefit.
Duluth Police	Same as the Duty Disability Benefit.
West St. Paul Fire	Same as the Duty Disability Benefit.
Form of Payment	Same as for retirement.
Benefit Increases	Same as for retirement.
Retirement Benefits	
Eligibility	
Buhl Police	Age 50 and continued disability.
Duluth Police	Age 50 and continued disability.
West St. Paul Fire	Age 55 and continued disability.
Amount	The larger of the disability benefit paid before Eligibility or the retirement benefit available at Eligibility.
Benefit Increases	Same as for retirement.
<b>DEATH</b>	
Surviving Spouse Benefit	
Eligibility	Any active, retired, disabled or deferred Member with surviving spouse.
Amount	
Buhl Police	72.25% of Benefit Salary.
Duluth Police	25% of the Benefit Salary.
West St. Paul Fire	30% of the Benefit Salary.
Benefit Increases	
Buhl Police	None.
Duluth Police	Same as retirement.
West St. Paul Fire	Same as retirement.
Surviving Dependent	
Child Benefit	
Eligibility	
Buhl Police	Any active, deferred, retired or disabled Member with a child younger than age 18, or if the child is a full-time student, younger than age 22.
Duluth Police	Any active, deferred, retired or disabled Member with a child younger than age 18, or if the child is a full-time student, younger than age 22.
West St. Paul Fire	Any active, deferred, retired or disabled Member with a child younger than age 18.

**TABLE 15**  
**(cont)**

Amount	
Buhl Police	\$1,500 per year if surviving spouse benefit is payable. If no surviving spouse benefit is payable, then surviving spouse benefit is payable divided in equal shares to all surviving children.
Duluth Poice	10% of Benefit Salary.
West St. Paul Fire	5% of Benefit Salary.
Benefit Increases	
Buhl Police	None.
Duluth Police	Same as retirement.
West St. Paul Fire	Same as retirement.
<b>TERMINATION</b>	
Refund of Contributions	
Eligibility	Termination of public service and not eligible for any other benefits.
Amount	
Buhl Police	Members' accumulated contributions without interest.
Duluth Police	No refunds.
West St. Paul Fire	Members' accumulated contributions without interest.
Deferred Annuity	
Eligibility	Any active Member with sufficient Allowable Service for the retirement benefit, but does not meet the age requirement for the retirement benefit.
Amount	
Buhl Police	The amount calculated under the retirement benefit using the Allowable Service and Benefit Salary as of date of termination.
Duluth Police	The amount calculated under the retirement benefit using the Allowable Service and Benefit Salary as of date of termination.
West St. Paul Fire	For the first 20 years of Allowable Service, 0.5% of Benefit Salary for each year of Allowable Service rendered before October 1, 1965, and 2% of Benefit Salary for each year of Allowable Service rendered after September 30, 1965, and 1% of Benefit Salary for each year of Allowable Service in excess of 20 years but not more than 52% of Benefit Salary.
Benefit Increases	
Buhl Police	Same as retirement.
Duluth Police	Same as retirement.
West St. Paul Fire	Same as retirement.

TABLE 3A

## BUHL POLICE CONSOLIDATION ACCOUNT

## ACTIVE MEMBERS AS OF JUNE 30, 1989

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									0
35-39									0
40-44									0
45-49									0
50-54									0
55-59								1	1
60-64									0
65+									0
TOTAL	0	0	0	0	0	0	0	1	1

## 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									0
35-39									0
40-44									0
45-49									0
50-54									0
55-59								31,510	31,510
60-64									0
65+									0
ALL	0	0	0	0	0	0	0	31,510	31,510

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

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
0	0	0	0	0	0	0	31,510	31,510

TABLE 4A

## BUHL POLICE CONSOLIDATION ACCOUNT

## SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54		1						1
55-59								0
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	0	1	0	0	0	0	0	1

## AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54		20,350						20,350
55-59								0
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
ALL	0	20,350	0	0	0	0	0	20,350

## TOTAL ANNUAL ANNUITY (ACTUAL DOLLARS) BY YEARS OF RETIREMENT

<u>&lt;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>
0	20,350	0	0	0	0	0	20,350

TABLE 6A

## BUHL POLICE CONSOLIDATION ACCOUNT

SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54								0
55-59								0
60-64			1					1
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	0	0	1	0	0	0	0	1

## AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54								0
55-59								0
60-64			10,583					10,583
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
ALL	0	0	10,583	0	0	0	0	10,583

## TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH

<u>&lt;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>	TOTAL
0	0	10,583	0	0	0	0	10,583

TABLE 7A

## BUHL POLICE CONSOLIDATION ACCOUNT

## RECONCILIATION OF MEMBERS

	<u>ACTIVES</u>	<u>TERMINATED</u>	
		<u>DEFERRED RETIREMENT</u>	<u>OTHER NON-VESTED</u>
A. On July 1, 1988	1	0	0
B. Additions	0	0	0
C. Deletions:			
1. Service Retirement	0	0	0
2. Disability	0	0	0
3. Death	0	0	0
4. Terminated-Deferred	0		
5. Terminated-Refund	0	0	0
6. Terminated-Other Non-vested	0		
7. Returned as Active		0	0
D. Data Adjustments	0	0	0
	Vested		
	Non-Vested		
	1		
	0		
E. Total on June 30, 1989	1	0	0

	<u>RECIPIENTS</u>		
	<u>RETIREMENT ANNUITANTS</u>	<u>DISABLED</u>	<u>SURVIVORS</u>
A. On July 1, 1988	1	0	1
B. Additions	0	0	0
C. Deletions:			
1. Service Retirement		0	
2. Death	0	0	0
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	
D. Data Adjustments	0	0	0
E. Total on June 30, 1989	1	0	1



TABLE 8A

## BUHL POLICE CONSOLIDATION ACCOUNT

ACTUARIAL BALANCE SHEET  
(ACTUAL DOLLARS)

JULY 1, 1989

A. CURRENT ASSETS (2.40% OF TABLE 1, F6)		\$717,490
B. EXPECTED FUTURE ASSETS		
1. Present Value of Employee Contributions		2,685
2. Present Value of Regular Municipal Contributions		4,027
3. Present Value of Additional Municipal Contributions		99,100
		-----
4. Total Expected Future Assets		\$105,812
		-----
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS		\$823,302
		=====
D. CURRENT PENSION BENEFIT OBLIGATION		
1. Retirees and Beneficiaries Currently Receiving Benefits and Terminated Employees Not Yet Receiving Benefits		\$425,542
2. Current Employees		
a. Accumulated employee contributions including allocated investment income*	49,794	
b. Employer-financed vested	335,825	
c. Employer-financed nonvested	0	
d. Total		385,619
		-----
3. Total Pension Benefit Obligation		\$811,161
		-----
E. EXPECTED FUTURE PENSION BENEFIT OBLIGATION		\$12,141
		-----
F. TOTAL CURRENT AND EXPECTED FUTURE PENSION BENEFIT OBLIGATION		\$823,302
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D3-A)		\$93,671
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)		\$0

\* Estimated

TABLE 9A

**BUHL POLICE CONSOLIDATION ACCOUNT**  
**SUMMARY OF ENTRY AGE NORMAL COST CALCULATIONS**  
**(ACTUAL DOLLARS)**

JULY 1, 1989

	<u>NUMBER OF PARTICIPANTS</u>	<u>ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS</u>	<u>ACTUARIAL ACCRUED LIABILITY</u>
<b>A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)</b>			
1. Active Members			
a. Elected PERA Police and Fire	0	\$0	\$0
b. No Election (Greater Value)	1	397,760	390,333
	---	---	---
c. Total	1	\$397,760	\$390,333
2. Former Members			
a. Elected PERA Police and Fire	0	\$0	\$0
b. No Election (Greater Value)	0	0	0
	---	---	---
c. Total	0	\$0	\$0
3. Benefit Recipients			
a. Elected PERA Police and Fire	2	\$425,542	\$425,542
b. Elected Relief Association	0	0	0
	---	---	---
c. Total	2	\$425,542	\$425,542
4. Total			
a. Elected PERA Police and Fire	2	\$425,542	\$425,542
b. Elected Relief Association	0	0	0
c. No Election (Greater Value)	1	397,760	390,333
	---	---	---
d. Total	3	\$823,302	\$815,875
	===	=====	=====
<b>B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)</b>			
1. AAL (A4)			\$815,875
2. Current Assets (2.40% of Table 1,F6)			717,490
			-----
3. UAAL (B1-B2)			\$98,385
			=====
<b>C. NORMAL COST</b>			
			\$7,427

TABLE 10A

**BUHL POLICE CONSOLIDATION ACCOUNT**  
**CALCULATION OF NET ACTUARIAL LOSS (GAIN)**  
**(ACTUAL DOLLARS)**

**YEAR ENDING JUNE 30, 1989**

<b>A. ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS (TABLE 9A)</b>	
1. Elected PERA Police and Fire	\$425,542
2. Elected Relief Association	0
3. No Election (Greater Value)	397,760
	-----
4. Total	\$823,302
	-----
<b>B. PRESENT VALUE OF FUTURE EMPLOYEE CONTRIBUTIONS</b>	
1. Elected PERA Police and Fire	\$0
2. No Election (Greater Value)	2,685
	-----
3. Total	\$2,685
	-----
<b>C. PRESENT VALUE OF FUTURE REGULAR MUNICIPAL CONTRIBUTIONS</b>	
1. Elected PERA Police and Fire	\$0
2. No Election (Greater Value)	4,027
	-----
3. Total	\$4,027
	-----
<b>D. CURRENT VALUE OF ASSETS (2.40% OF TABLE 1, F6)</b>	<b>\$717,490</b>
<b>E. PRESENT VALUE OF FUTURE ADDITIONAL MUNICIPAL CONTRIBUTIONS</b>	
1. Initial Contribution - Annual Payment of \$9,556 through the Amortization Date of December 31, 2010	\$95,991
2. 7/1/88 Loss (Gain) - Annual Payment of \$357 through the Amortization Date of December 31, 2002	\$2,979
	-----
3. Total	\$98,970
	-----
<b>F. LOSS (GAIN) [A-B-C-D-E]</b>	<b>\$130</b>
	=====
<b>G. ANALYSIS OF LOSS (GAIN)</b>	
1. MPRIF Mortality	\$1,463
2. Election of PERA Police and Fire Fund	0
3. Other	(1,333)
	-----
4. Total	\$130
	=====
<b>H. 15 YEAR AMORTIZATION OF LOSS (GAIN)</b>	<b>\$15</b>

TABLE 11A

**BUHL POLICE CONSOLIDATION ACCOUNT**  
**DETERMINATION OF STATUTORY CONTRIBUTIONS**  
**(ACTUAL DOLLARS)**

JULY 1, 1989

	<u>AMOUNT</u> <u>%</u>	<u>AMOUNT</u> <u>\$</u>
A. EMPLOYEE CONTRIBUTIONS	8.00%	
B. EMPLOYER CONTRIBUTIONS (BEFORE ADJUSTMENT FOR STATE AID)		
1. Regular Municipal Contribution	12.00%	
2. Additional Municipal Contribution		
	<u>Current</u>	
	<u>Balance</u>	
	<u>Last</u>	
	<u>Payment</u>	
a. <u>Established</u> Initial	95,991	12/31/2010
b.    7/1/88	2,979	12/31/2002
c.    7/1/89	130	12/31/2003
d.    Total		9,556
		357
		15
		-----
		\$9,928 *
		=====
C. TOTAL STATUTORY CONTRIBUTION IS 20.00% OF COMPENSATION PLUS \$9,928		

\* Contribution is assumed to be paid on December 31, 1989.

TABLE 3B

## DULUTH POLICE CONSOLIDATION ACCOUNT

ACTIVE MEMBERS AS OF JUNE 30, 1989

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			3	2					5
35-39			6	8					14
40-44				4	21	6			31
45-49				1	4	13	5		23
50-54						5	3	1	9
55-59							1	4	5
60-64								1	1
65+									0
TOTAL	0	0	9	15	25	24	9	6	88

## 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			33,586	33,713					33,637
35-39			33,407	33,111					33,238
40-44				31,898	34,109	34,024			33,807
45-49				30,745	32,376	32,429	31,922		32,236
50-54						32,113	40,910	52,384	37,298
55-59							47,876	38,284	40,202
60-64								47,876	47,876
65+									0
ALL	0	0	33,467	32,710	33,831	32,762	36,691	42,233	34,176

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

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
0	0	301,200	490,649	845,786	786,283	330,216	253,395	3,007,529

TABLE 4B

## DULUTH POLICE CONSOLIDATION ACCOUNT

## SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54	1	5						6
55-59		8	2	1				11
60-64		7	4	2	3			16
65-69		2	2	3	4	2	2	15
70-74			3	5	4	6	3	21
75-79				4	2	3	1	10
80-84					1		2	3
85+						1	2	3
TOTAL	1	22	11	15	14	12	10	85

## AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54	11,954	13,578						13,307
55-59		17,676	17,284	13,810				17,253
60-64		18,712	17,718	17,719	15,257			17,692
65-69		19,197	18,079	16,850	17,718	14,027	15,764	17,037
70-74			18,476	17,718	17,067	16,271	15,547	16,979
75-79				17,718	17,719	17,429	14,244	17,284
80-84					17,718		14,027	15,257
85+						17,718	15,764	16,415
ALL	11,954	17,212	17,912	17,284	17,005	16,307	15,200	16,855

## TOTAL ANNUAL ANNUITY (ACTUAL DOLLARS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
11,954	378,672	197,028	259,262	238,068	195,684	151,995	1,432,663

TABLE 5B

## DULUTH POLICE CONSOLIDATION ACCOUNT

## DISABILITY RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS DISABLED							TOTAL
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54	1							1
55-59								0
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	1	0	0	0	0	0	0	1

## AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54	15,841							15,841
55-59								0
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	15,841	0	0	0	0	0	0	15,841

## TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS OF DISABILITY

<u>&lt;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>
15,841	0	0	0	0	0	0	15,841

TABLE 6B

## DULUTH POLICE CONSOLIDATION ACCOUNT

SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	1	1					3
50-54		1						1
55-59								0
60-64		1	1				1	3
65-69			1	2			1	4
70-74		2	2	1		1	1	7
75-79		2		1	2		1	6
80-84		2		1	1	1	2	7
85+			1	2	1		5	9
TOTAL	1	9	6	7	4	2	11	40

## AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	7,518	7,518	3,474					6,170
50-54		8,685						8,685
55-59								0
60-64		8,685	8,685				8,685	8,685
65-69			8,685	8,686			8,685	8,685
70-74		8,686	8,686	8,685		8,038	8,685	8,593
75-79		8,686		8,685	8,686		8,038	8,578
80-84		8,102		8,685	8,685	8,685	8,686	8,518
85+			8,685	8,362	8,685		8,685	8,613
ALL	7,518	8,426	7,817	8,593	8,685	8,362	8,626	8,419

## TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
7,518	75,833	46,900	60,149	34,741	16,723	94,891	336,755



**DULUTH POLICE CONSOLIDATION ACCOUNT**  
**RECONCILIATION OF MEMBERS**

**TABLE 7B**

	<u>ACTIVES</u>	<u>TERMINATED</u>	
		<u>DEFERRED RETIREMENT</u>	<u>OTHER NON-VESTED</u>
A. On July 1, 1988	92	5	0
B. Additions	0	0	0
C. Deletions:			
1. Service Retirement	(2)	(1)	0
2. Disability	(1)	0	0
3. Death	0	0	(1)
4. Terminated-Deferred	0		
5. Terminated-Refund	(1)	0	(1)
6. Terminated-Other Non-vested	0		
7. Returned as Active		0	0
D. Data Adjustments	0	(3)	3
	Vested	88	
	Non-Vested	0	
E. Total on June 30, 1989	88	1	1

	<u>RECIPIENTS</u>		
	<u>RETIREMENT ANNUITANTS</u>	<u>DISABLED</u>	<u>SURVIVORS</u>
A. On July 1, 1988	84	0	40
B. Additions	3	1	2
C. Deletions:			
1. Service Retirement		0	
2. Death	(2)	0	(2)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	
D. Data Adjustments	0	0	0
E. Total on June 30, 1989	85	1	40

TABLE 8B

## DULUTH POLICE CONSOLIDATION ACCOUNT

ACTUARIAL BALANCE SHEET  
(ACTUAL DOLLARS)

JULY 1, 1989

A. CURRENT ASSETS (83.12% OF TABLE 1, F6)	\$24,849,056
B. EXPECTED FUTURE ASSETS	
1. Present Value of Employee Contributions	2,524,454
2. Present Value of Regular Municipal Contributions	3,786,681
3. Present Value of Additional Municipal Contributions	10,133,943
	-----
4. Total Expected Future Assets	\$16,445,078
	-----
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS	\$41,294,134
	=====
D. CURRENT PENSION BENEFIT OBLIGATION	
1. Retirees and Beneficiaries Currently Receiving Benefits and Terminated Employees Not Yet Receiving Benefits	\$19,254,716
2. Current Employees	
a. Accumulated employee contributions including allocated investment income*	3,847,450
b. Employer-financed vested	13,520,422
c. Employer-financed nonvested	0
d. Total	17,367,872
	-----
3. Total Pension Benefit Obligation	\$36,622,588
	-----
E. EXPECTED FUTURE PENSION BENEFIT OBLIGATION	\$4,671,546
	-----
F. TOTAL CURRENT AND EXPECTED FUTURE PENSION BENEFIT OBLIGATION	\$41,294,134
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D3-A)	\$11,773,532
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)	\$0

\* Estimated

TABLE 9B

**DULUTH POLICE CONSOLIDATION ACCOUNT**  
**SUMMARY OF ENTRY AGE NORMAL COST CALCULATIONS**  
**(ACTUAL DOLLARS)**

JULY 1, 1989

	NUMBER OF PARTICIPANTS	ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS	ACTUARIAL ACCRUED LIABILITY
<b>A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)</b>			
1. Active Members			
a. Elected PERA Police and Fire	11	\$3,593,933	\$3,222,493
b. No Election (Greater Value)	77	18,445,485	12,392,384
	---	-----	-----
c. Total	88	\$22,039,418	\$15,614,877
2. Former Members			
a. Elected PERA Police and Fire	0	\$0	\$0
b. No Election (Greater Value)	2	487,102	487,102
	---	-----	-----
c. Total	2	\$487,102	\$487,102
3. Benefit Recipients			
a. Elected PERA Police and Fire	119	\$17,389,247	\$17,389,247
b. Elected Relief Association	7	1,378,367	1,378,367
	---	-----	-----
c. Total	126	\$18,767,614	\$18,767,614
4. Total			
a. Elected PERA Police and Fire	130	\$20,983,180	\$20,611,740
b. Elected Relief Association	7	1,378,367	1,378,367
c. No Election (Greater Value)	79	18,932,587	12,879,486
	---	-----	-----
d. Total	216	\$41,294,134	\$34,869,593
	===	=====	=====
<b>B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)</b>			
1. AAL (A4)			\$34,869,593
2. Current Assets (83.12% of Table 1,F6)			24,849,056
			-----
3. UAAL (B1-B2)			\$10,020,537
			=====
<b>C. NORMAL COST</b>			\$615,326

TABLE 10B

**DULUTH POLICE CONSOLIDATION ACCOUNT**  
**CALCULATION OF NET ACTUARIAL LOSS (GAIN)**  
**(ACTUAL DOLLARS)**

YEAR ENDING JUNE 30, 1989

<b>A. ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS (TABLE 9B)</b>	
1. Elected PERA Police and Fire	\$20,983,180
2. Elected Relief Association	1,378,367
3. No Election (Greater Value)	18,932,587
4. Total	<u>\$41,294,134</u>
<b>B. PRESENT VALUE OF FUTURE EMPLOYEE CONTRIBUTIONS</b>	
1. Elected PERA Police and Fire	\$192,146
2. No Election (Greater Value)	2,332,308
3. Total	<u>\$2,524,454</u>
<b>C. PRESENT VALUE OF FUTURE REGULAR MUNICIPAL CONTRIBUTIONS</b>	
1. Elected PERA Police and Fire	\$288,220
2. No Election (Greater Value)	3,498,461
3. Total	<u>\$3,786,681</u>
<b>D. CURRENT VALUE OF ASSETS (83.12% OF TABLE 1, F6)</b>	
	\$24,849,056
<b>E. PRESENT VALUE OF FUTURE ADDITIONAL MUNICIPAL CONTRIBUTIONS</b>	
1. Initial Contribution - Annual Payment of \$1,289,796 through the Amortization Date of December 31, 2010	\$12,956,162
2. 7/1/88 Loss (Gain) - Annual Payment of \$23,385 through the Amortization Date of December 31, 2002	\$195,115
3. Total	<u>\$13,151,277</u>
<b>F. LOSS (GAIN) [A-B-C-D-E]</b>	
	<u>(\$3,017,334)</u>
<b>G. ANALYSIS OF LOSS (GAIN)</b>	
1. MPRIF Mortality	\$587,220
2. Election of PERA Police and Fire Fund	(605,542)
3. Other	(2,999,012)
4. Total	<u>(\$3,017,334)</u>
<b>H. 15 YEAR AMORTIZATION OF LOSS (GAIN)</b>	
	(\$348,826)

TABLE 11B

**DULUTH POLICE CONSOLIDATION ACCOUNT**  
**DETERMINATION OF STATUTORY CONTRIBUTIONS**  
**(ACTUAL DOLLARS)**

JULY 1, 1989

		AMOUNT %	AMOUNT \$
A. EMPLOYEE CONTRIBUTIONS		8.00%	
B. EMPLOYER CONTRIBUTIONS (BEFORE ADJUSTMENT FOR STATE AID)			
1. Regular Municipal Contribution		12.00%	
2. Additional Municipal Contribution			
	<u>Established</u>	<u>Current Balance</u>	<u>Last Payment</u>
a. Initial		12,956,162	12/31/2010
b. 7/1/88		195,115	12/31/2002
c. 7/1/89		(3,017,334)	12/31/2003
d. Total			<div style="border-top: 1px solid black; border-bottom: 3px double black;">                     1,289,796                      23,385                      (348,826)                      \$964,355 *                 </div>
C. TOTAL STATUTORY CONTRIBUTION IS 20.00% OF COMPENSATION PLUS \$964,355			

\* Contribution is assumed to be paid on December 31, 1989.

TABLE 3C

## WEST ST. PAUL FIRE CONSOLIDATION ACCOUNT

## ACTIVE MEMBERS AS OF JUNE 30, 1989

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									0
35-39			1		1				2
40-44			1		1				2
45-49				1	1	5			7
50-54						1		1	2
55-59									0
60-64									0
65+									0
TOTAL	0	0	2	1	3	6	0	1	13

## 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									0
35-39			29,499		30,169				29,834
40-44			29,629		33,736				31,683
45-49				33,085	29,248	33,472			32,813
50-54						31,477		31,368	31,423
55-59									0
60-64									0
65+									0
ALL	0	0	29,564	33,085	31,051	33,139	0	31,368	31,967

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

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
0	0	59,128	33,085	93,153	198,835	0	31,368	415,569

TABLE 4C

## WEST ST. PAUL FIRE CONSOLIDATION ACCOUNT

## SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54								0
55-59								0
60-64	1							1
65-69			2	1				3
70-74			1					1
75-79								0
80-84								0
85+								0
TOTAL	1	0	3	1	0	0	0	5

## AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54								0
55-59								0
60-64	17,487							17,487
65-69			16,613	14,689				15,971
70-74			14,689					14,689
75-79								0
80-84								0
85+								0
ALL	17,487	0	15,971	14,689	0	0	0	16,018

## TOTAL ANNUAL ANNUITY (ACTUAL DOLLARS) BY YEARS OF RETIREMENT

	<u>&lt;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>
	17,487	0	47,914	14,689	0	0	0	80,090

TABLE 5C

## WEST ST. PAUL FIRE CONSOLIDATION ACCOUNT

## DISABILITY RETIREMENTS AS OF JUNE 30, 1989

<u>AGE</u>	<u>YEARS DISABLED</u>							<u>TOTAL</u>
	<u>&lt;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	2							2
50-54		1						1
55-59								0
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	2	1	0	0	0	0	0	3

## AVERAGE ANNUAL BENEFIT

<u>AGE</u>	<u>YEARS DISABLED</u>							<u>ALL</u>
	<u>&lt;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	13,084							13,084
50-54		13,989						13,989
55-59								0
60-64								0
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	13,084	13,989	0	0	0	0	0	13,386

## TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS OF DISABILITY

<u>&lt;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>
26,168	13,989	0	0	0	0	0	40,157



TABLE 6C

## WEST ST. PAUL FIRE CONSOLIDATION ACCOUNT

SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59	1							1
60-64								0
65-69	1	1	1					3
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	2	1	1	0	0	0	0	4

## AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59	9,813							9,813
60-64								0
65-69	10,492	10,492	10,492					10,492
70-74								0
75-79								0
80-84								0
85+								0
ALL	10,153	10,492	10,492	0	0	0	0	10,322

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH							
<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
20,305	10,492	10,492	0	0	0	0	41,289

TABLE 7C

## WEST ST. PAUL FIRE CONSOLIDATION ACCOUNT

## RECONCILIATION OF MEMBERS

	<u>ACTIVES</u>	<u>TERMINATED</u>	
		<u>DEFERRED RETIREMENT</u>	<u>OTHER NON-VESTED</u>
A. On July 1, 1988	0	0	0
B. Additions	13	0	0
C. Deletions:			
1. Service Retirement	0	0	0
2. Disability	0	0	0
3. Death	0	0	0
4. Terminated-Deferred	0		
5. Terminated-Refund	0	0	0
6. Terminated-Other Non-vested	0		
7. Returned as Active		0	0
D. Data Adjustments	0	0	0
	Vested 13		
	Non-Vested 0		
E. Total on June 30, 1989	13	0	0

	<u>RECIPIENTS</u>		
	<u>RETIREMENT ANNUITANTS</u>	<u>DISABLED</u>	<u>SURVIVORS</u>
A. On July 1, 1988	0	0	0
B. Additions	5	3	4
C. Deletions:			
1. Service Retirement		0	
2. Death	0	0	0
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	
D. Data Adjustments	0	0	0
E. Total on June 30, 1989	5	3	4

TABLE 8C

## WEST ST. PAUL FIRE CONSOLIDATION ACCOUNT

ACTUARIAL BALANCE SHEET  
(ACTUAL DOLLARS)

JULY 1, 1989

A. CURRENT ASSETS (14.48% OF TABLE 1, F6)	\$4,328,853
B. EXPECTED FUTURE ASSETS	
1. Present Value of Employee Contributions	356,837
2. Present Value of Regular Municipal Contributions	535,256
3. Present Value of Additional Municipal Contributions	495,781
	-----
4. Total Expected Future Assets	\$1,387,874
	-----
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS	\$5,716,727
	=====
D. CURRENT PENSION BENEFIT OBLIGATION	
1. Retirees and Beneficiaries Currently Receiving Benefits and Terminated Employees Not Yet Receiving Benefits	\$2,515,017
2. Current Employees	
a. Accumulated employee contributions including allocated investment income*	572,475
b. Employer-financed vested	2,224,414
c. Employer-financed nonvested	0
d. Total	2,796,889
	-----
3. Total Pension Benefit Obligation	\$5,311,906
	-----
E. EXPECTED FUTURE PENSION BENEFIT OBLIGATION	\$404,821
	-----
F. TOTAL CURRENT AND EXPECTED FUTURE PENSION BENEFIT OBLIGATION	\$5,716,727
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D3-A)	\$983,053
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)	\$0

\* Estimated

TABLE 9C

**WEST ST. PAUL FIRE CONSOLIDATION ACCOUNT**  
**SUMMARY OF ENTRY AGE NORMAL COST CALCULATIONS**  
**(ACTUAL DOLLARS)**

JULY 1, 1989

	NUMBER OF PARTICIPANTS	ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS	ACTUARIAL ACCRUED LIABILITY
<b>A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)</b>			
1. Active Members			
a. Elected PERA Police and Fire	2	\$300,849	\$155,089
b. No Election (Greater Value)	11	2,900,861	2,248,003
	---	-----	-----
c. Total	13	\$3,201,710	\$2,403,092
2. Former Members			
a. Elected PERA Police and Fire	0	\$0	\$0
b. No Election (Greater Value)	0	0	0
	---	-----	-----
c. Total	0	\$0	\$0
3. Benefit Recipients			
a. Elected PERA Police and Fire	7	\$1,116,666	\$1,116,666
b. Elected Relief Association	5	1,398,351	1,398,351
	---	-----	-----
c. Total	12	\$2,515,017	\$2,515,017
4. Total			
a. Elected PERA Police and Fire	9	\$1,417,515	\$1,271,755
b. Elected Relief Association	5	1,398,351	1,398,351
c. No Election (Greater Value)	11	2,900,861	2,248,003
	---	-----	-----
d. Total	25	\$5,716,727	\$4,918,109
	===	=====	=====
<b>B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)</b>			
1. AAL (A4)			\$4,918,109
2. Current Assets (14.48% of Table 1,F6)			4,328,853
			-----
3. UAAL (B1-B2)			\$589,256
			=====
<b>C. NORMAL COST</b>			\$81,492

TABLE 10C

## WEST ST. PAUL FIRE CONSOLIDATION ACCOUNT

CALCULATION OF NET ACTUARIAL LOSS (GAIN)  
(ACTUAL DOLLARS)

YEAR ENDING JUNE 30, 1989

A. ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS (TABLE 9C)	
1. Elected PERA Police and Fire	\$1,417,515
2. Elected Relief Association	1,398,351
3. No Election (Greater Value)	2,900,861
	-----
4. Total	\$5,716,727
	-----
B. PRESENT VALUE OF FUTURE EMPLOYEE CONTRIBUTIONS	
1. Elected PERA Police and Fire	\$64,970
2. No Election (Greater Value)	291,867
	-----
3. Total	\$356,837
	-----
C. PRESENT VALUE OF FUTURE REGULAR MUNICIPAL CONTRIBUTIONS	
1. Elected PERA Police and Fire	\$97,455
2. No Election (Greater Value)	437,801
	-----
3. Total	\$535,256
	-----
D. CURRENT VALUE OF ASSETS (14.48% OF TABLE 1, F6)	\$4,328,853
E. PRESENT VALUE OF FUTURE ADDITIONAL MUNICIPAL CONTRIBUTIONS	
1. Initial Contribution - Annual Payment of \$152,692 through the Amortization Date of December 31, 2010	\$1,533,810
	-----
2. Total	\$1,533,810
	-----
F. LOSS (GAIN) [A-B-C-D-E]	(\$1,038,029)
	=====
G. ANALYSIS OF LOSS (GAIN)	
1. MPRIF Mortality	\$109,358
2. Election of PERA Police and Fire Fund	(596,643)
3. Other	(550,744)
	-----
4. Total	(\$1,038,029)
	=====
H. 15 YEAR AMORTIZATION OF LOSS (GAIN)	(\$120,004)

TABLE 11C

**WEST ST. PAUL FIRE CONSOLIDATION ACCOUNT**  
**DETERMINATION OF STATUTORY CONTRIBUTIONS**  
**(ACTUAL DOLLARS)**

JULY 1, 1989

	<u>AMOUNT</u> <u>%</u>	<u>AMOUNT</u> <u>\$</u>
A. EMPLOYEE CONTRIBUTIONS	8.00%	
B. EMPLOYER CONTRIBUTIONS (BEFORE ADJUSTMENT FOR STATE AID)		
1. Regular Municipal Contribution	12.00%	
2. Additional Municipal Contribution		
a. <u>Established</u> Initial	<u>Current</u> <u>Balance</u> 1,533,810	<u>Last</u> <u>Payment</u> 12/31/2010 152,692
b.     7/1/89	(1,038,029)	12/31/2003 (120,004)
c.     Total		----- \$32,688 * =====
C. TOTAL STATUTORY CONTRIBUTION IS 20.00% OF COMPENSATION PLUS \$32,688		

\* Contribution is assumed to be paid on December 31, 1989.