

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

ACTUARIAL VALUATION REPORT
(Based on a June 30, 1978 Census)

 **FILE COPY**

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PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

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COMPENSATION & CAPITAL INCORPORATED

125 SOUTH WACKER DRIVE

CHICAGO, ILLINOIS 60606

TELEPHONE 312 332-4420

November 20, 1978

Board of Trustees
Public Employees Retirement Association
203 Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101

Gentlemen:

In accordance with your request, we have made an actuarial valuation of the Public Employees Retirement Association of the State of Minnesota for the year ended June 30, 1978, in order to determine the adequacy of the contributions being made to that system and to prepare the financial and actuarial reports as required by the laws of the State of Minnesota.

The results of our analysis are set forth in the following report. The basic financial and employee data are those submitted to us by the Association office; the summaries and actuarial figures are those prepared by us from such data.

On the basis of the foregoing, and the assumptions indicated herein, we hereby certify that, to the best of our knowledge and belief, the attached statements are true and correct. A copy of this report will supply the data required by the legislative commission for the year ended June 30, 1978.

Respectfully submitted,

COMPENSATION & CAPITAL INCORPORATED

Davis H. Roenisch
Davis H. Roenisch
Enrolled Actuary No. 174

DHR:tmk

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

SUMMARY OF ACTUARIAL REQUIREMENTS
(July 1, 1978)

<u>General Fund</u>	<u>Police and</u>
<u>Exhibit 8</u>	<u>Fire Fund</u>
<u>Page 20</u>	<u>Exhibit 20</u>
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AMORTIZATION RATE REQUIREMENTS

Present Value of Benefits (For Both Past and Future Service)	\$1,461,639,497	\$231,428,414
Obligation for Service Rendered to Date	1,023,270,439	119,141,132
Net Assets	702,543,189	98,015,315
Accrued Unfunded Obligation	320,727,250	21,125,817
Funding Ratio	69%	82%
Amortization (19-Year) Requirement	\$ 26,538,580	\$ 1,748,056
Covered Payroll	763,483,570	59,933,726
Amortization (19-Year) Rate Requirement	<u>3.476%</u>	<u>2.917%</u>

ENTRY AGE NORMAL RATE REQUIREMENTS

Value of Benefits to be Earned in the Future	\$ 438,369,058	\$112,287,282
Present Value of Future Payroll	5,336,116,700	707,661,300
Normal Cost Rate Requirement	8.215%	15.867%
Employee Contribution Rate	4.910 *	8.000
Employer Normal Cost Rate Requirement	<u>3.305%</u>	<u>7.867%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law	6.637% *	12.000%
Amortization (19-Year) Rate Requirement	3.476%	2.917%
Normal Cost Rate Requirement	3.305	7.867
Allowance for Expenses	<u>0.148</u>	<u>0.089</u>
Total Requirement	<u>6.929%</u>	<u>10.873%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement	<u>(0.292%)</u>	<u>1.127%</u>

* Weighted by Covered Payroll 22.74% Basic and 77.26% Coordinated

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Value of Benefits Earned to June 30, 1978

	<u>General Fund</u>	
	<u>Without 5% per year increase *</u>	<u>With 5% per year increase *</u>
Benefits Payable to Retired Members and their Beneficiaries	\$276,149,069	\$ 276,149,069
Deferred Annuitants	10,016,621	10,016,621
Former Members without Vested Rights	5,946,856	5,946,856
Active Members:		
a. Eligible for Normal Retirement	28,182,516	28,182,516
b. Eligible for Early Retirement	90,571,280	90,571,280
c. Eligible for Deferred Benefits	295,751,958	553,852,968
d. Under 10 years service (Refund of Contributions only)	<u>59,298,912</u>	<u>59,298,912</u>
<u>Total</u>	<u>\$765,917,212</u>	<u>\$1,024,018,222</u>

	<u>Police and Fire Fund</u>	
Benefits Payable to Retired Member and Their Beneficiaries	\$ 24,762,020	\$ 24,762,020
Deferred Annuitants	2,282,189	2,282,189
Former Members without Vested Rights	176,447	176,447
Active Members:		
a. Eligible for Normal Retirement	16,996,160	16,996,160
b. Eligible for Early Retirement	-	-
c. Eligible for Deferred Benefits	46,051,152	72,435,744
d. Under 10 years service (Refund of Contributions only)	<u>9,874,402</u>	<u>9,874,402</u>
<u>Total</u>	<u>\$100,142,370</u>	<u>\$ 126,526,962</u>

* Applies only to present active with 10 or more years of service. The value for Deferred Vested Benefits of inactive members includes 5% per year increases to Normal Retirement Date and refund of contributions to inactive members with less than 10 years of service.

Accounting Balance Sheet

- June 30, 1978 -

Assets

Cash:

On hand	\$	100.00	
On deposit		<u>35,301.90</u>	\$ 35,401.90

Accounts Receivable:

State General Fund	\$	68,492.42	
Employer contributions		42,740.96	
From Police and Fire Fund		65,354.54	
Accrued interest on bonds and short-term notes		4,747,229.04	
Accrued dividends		1,004,700.79	
Interest on late employer contributions and delinquent payrolls		17,161.23	
Other		<u>1,097.15</u>	<u>5,946,776.13</u>

Total Current Assets			\$ 5,982,178.03
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Investments:

Bonds - at amortized cost -			
U. S. Government	\$	6,500,674.53	
Municipal		1,174,000.00	
Corporate		173,586,741.67	
Canadian Government insured		40,200,981.18	
G.N.M.A. (Government National Mortgage Assn.)		30,157,127.31	
Stock - common - at cost - See Note #1		<u>227,166,621.87</u>	478,786,146.61

Minnesota Adjustable Fixed Benefit Fund -
at omitted value

	\$232,324,341.38	
Less annuity stabilization - See Note #2	<u>-18,545,363.14</u>	213,778,978.24
Deferred yield adjustment - see Note #3		4,328,331.77

Miscellaneous:

Office equipment - less accumulated depreciation	\$	31,595.20	
Prepaid expense		10,723.40	
Prepaid employee and employer contributions - See Note #4		<u>(274,936.74)</u>	<u>(232,618.14)</u>

Total Assets			<u>\$702,643,016.51</u>
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Current Liabilities and Reserves

Liabilities:

Accounts payable	\$	39,678.34
Accounts payable to Police and Fire Fund		<u>60,149.39</u>

Total Liabilities	\$	99,827.73
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Accounting Balance Sheet (Continued)Current Liabilities and Reserves (Continued)

Reserves:

Members accumulated contributions	\$208,427,479.73
Benefits reserve	280,336,730.51
Reserve for participation in Minnesota	
Adjustable Fixed Benefit Fund	<u>213,778,978.24</u>
Total Liabilities and Reserves	<u>\$702,643,016.51</u>

- Note #1 - Market Value of Stock as of June 30, 1978 was \$226,444,423.17
- Note #2 - The MAFB Fund's balance is a net amount of \$213,778,978.24, with the annuity stabilization account of \$18,545,363.14 making the gross balance \$232,324,341.38
- Note #3 - According to laws of the state of Minnesota, gains or losses on the sales of long-term bonds must be recorded in this account and amortized yearly, up to the years these bonds would have become due, had they remained in the possession of P.E.R.A.
- Note #4 - Due to a procedural change in handling its payroll the city of St. Paul has been unable to give us a break down between employee and employer contributions for the period of December 17, 1977 through January 13, 1978. This amount has not been recorded as income and is the reason for appearing on the balance sheet as a prepaid item.

General FundSOURCES AND USES OF FUNDS

- July 1, 1977 - June 30, 1978 -

<u>SOURCES</u>		<u>USES</u>	
<u>Employee Contributions</u>	\$ 37,083,157.40	<u>Refunds</u>	
<u>Employer Contributions</u>	50,022,122.39	Employee	\$ 7,579,670.77
<u>Investment Income</u>	29,687,888.34	Employer	146,316.06
<u>Investment Sales and Redemptions</u>		<u>Interest Paid on Refunds</u>	361,733.84
Bonds and Notes	379,768,323.36	<u>Penalties Refunded</u>	145.26
Stocks sold	3,660,685.36	<u>Donations Refunded</u>	28,912.83
<u>Cancelled Warrants</u>	209,102.67	<u>Payments to Minnesota Adjustable</u>	
<u>Interest Other than Invest-</u>		<u>Fixed Benefit Fund</u>	16,754,007.14
<u>ment Interest</u>	196,995.30	<u>Benefits Paid</u>	
<u>Transfers from Other State</u>		Retirement	27,024,916.93
<u>Agencies</u>	33,753.34	Survivor	5,157,567.88
<u>Transfers from Police and</u>		Disability	1,863,568.73
<u>Fire Fund</u>	18,063.75	<u>Direct Expense</u>	1,139,163.86
<u>Prepayment from St. Paul City</u>	274,936.74	<u>Investment Purchases</u>	
<u>Miscellaneous Receipts</u>	7,286.53	Bonds	416,353,843.15
	<u>\$500,962,315.18</u>	Stocks	<u>24,812,387.53</u>
<u>Add Cash Balance, July 1, 1977</u>	295,220.75		
<u>Less Cash Balance,</u>			
<u>July 1, 1978</u>	<u>(35,301.90)</u>		
	<u>\$501,222,234.03</u>		<u>\$501,222,234.03</u>

Accounting Statement of Income and Expense

- July 1, 1977 to June 30, 1978 -

Income

Employer contributions 8%	\$13,901,133.79	
Employer contributions 2 $\frac{1}{2}$ %	4,344,104.32	
Employer contributions 4%	23,003,052.77	
Employer contributions 1 $\frac{1}{2}$ %	8,626,144.80	
Additional employer contributions	<u>101,948.82</u>	\$ 49,976,384.50
Member contributions		37,758,756.05
Transferred from Police and Fire Fund:		
Members contributions	\$ 7,981.80	
Employer contributions	<u>3,272.26</u>	11,254.06
Realized income of the Minnesota Adjustable Fixed Benefit Fund		11,844,075.74
1976-77 income from MAFB Fund for one-time payment		1,362,662.50
Investment income		29,074,247.55
Gain on sales of stock		1,454,017.81
Interest on back payments and omitted contributions		3,881.72
Interest on refunds repaid		141,969.94
Interest on delinquent employer contributions and late payrolls		57,403.69
Adjustments for prior year entries		(97,220.04)
Other income		<u>672.61</u>
Total Income		\$131,588,106.13

Expense

Retirement annuities (all paid from Minnesota Adjustable Fixed Benefit Fund)		\$26,829,188.16
Survivor Benefits Paid:		
Old Law	\$1,865,698.00	
With children	713,212.79	
Without children	<u>1,462,735.84</u>	4,041,646.63
Disability benefits paid		1,846,543.61
Disability Survivors Paid:		
With children	\$ 124,250.94	
Without children	<u>244,077.81</u>	368,328.75
Payment of death benefit		500.00
Refunds of Deposits:		
Active members due to withdrawal	\$7,075,050.28	
Active members due to death	<u>373,776.28</u>	7,448,826.56

Accounting Income and Expense (Continued)Expense (Continued)

Refunds of Deposits: (Continued)

Deferred members due to withdrawals	\$ 30,084.36	
Deferred members due to death	<u>20,778.94</u>	50,863.30
Annuitant due to death	\$ 28,823.33	
Disabilitant due to death	<u>16,365.29</u>	45,188.62

Interest paid on refunds		357,675.57
Refund of employer contributions		65,630.67
Refunds from donations (over 15 years inactive)		249.60

Transfers to Police and Fire Fund:

Active members contributions	\$ 38,250.12	
Deferred members contributions	9,930.47	
Employer contributions	<u>11,920.82</u>	60,101.41

Loss on sales of bonds and notes	\$ 516,671.51	
Loss on sales of stock	<u>178,188.43</u>	694,859.94

Administrative Expenses:

Salaries	\$ 656,396.95	
Legal services	9,537.00	
Rent -		
Office space	\$55,429.52	
Parking space	79.50	
Electronic data processing equipment	<u>72,621.24</u>	128,130.26

Maintenance service contracts -

Main office	\$ 3,661.21	
Data processing department	<u>847.42</u>	4,508.63

Medical expense	33,502.97	
Actuarial services	13,750.00	
Telephone and telegraph	7,528.60	
Postage	95,919.71	
Travel	12,332.60	

Stationery and office supplies -

Main office	\$24,312.60	
Data processing department	<u>2,749.21</u>	27,061.81
Publications and subscriptions	1,045.62	
Printing	32,736.86	
Mailing services	3,489.18	

Insurance - fire, theft, vandalism, and surety bond	212.06	
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Employee insurance and hospitalization	35,221.29	
Employer Social Security taxes	21,759.84	

Depreciation - equipment and furniture and fixtures	5,442.07	
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COMPENSATION & CAPITAL INCORPORATED

ACTUARIAL SERVICES

Accounting Income and Expense (Continued)Expense (Continued)

Administrative Expenses: (Continued)

Equipment purchased \$25.00 and under	95.79
Tabulating and job processing services	206.72
Public Employees Retirement Association employer con- tribution - 1977-1978	50,015.19
Xerox machine (copying expense)	3,865.62
Workmen's compensation and unemployment payments	2,132.12
Utilities charged to PERA by State Administration Department	24,342.00
Temporary help	1,965.00
Miscellaneous expense	<u>5,335.83</u>

Total Administrative Expense \$1,176,533.72

Less percentage (4.57123678%)
charged to Police and Fire Fund 53,782.14 \$1,122,751.58 \$ 42,932,354.40

Excess of Income over Expense for
the Year Ended June 30, 1978

\$ 88,655,751.73

Reconciliation of Asset Balances

- June 30, 1978 -

Asset Balance, July 1, 1977		\$613,887,437.05
Add:		
Employer contributions	\$49,976,384.50	
Employee contributions	37,758,756.05	
Employer and employee contributions transferred from Police and Fire Fund	11,254.06	
Realized income of the Minnesota Adjustable Fixed Benefit Fund	13,206,738.24	
Investment earnings	29,074,247.55	
Gains on sales of stock	1,454,017.81	
Interest on omitted contributions, delinquent employer contributions and refunds repaid	203,255.35	
Other income	<u>672.61</u>	
Total Additions		<u>\$131,685,326.17</u>
		\$745,572,763.22
Deduct:		
Benefits paid -		
Retirement	\$26,829,188.16	
Survivor	4,409,975.38	
Disability	1,846,543.61	
Death benefit payment	<u>500.00</u>	\$33,086,207.15
Refunds		7,610,758.75
Interest paid on refunds		357,675.57
Transfers to Police and Fire Fund		60,101.41
Adjustments for prior year entries		97,220.04
Losses on sales of bonds and stocks		694,859.94
Administrative expenses		<u>1,122,751.58</u>
Total Deductions		<u>43,029,574.44</u>
		\$702,543,188.78
Current Liabilities and Accounts Payable		<u>99,827.73</u>
Asset Balance, June 30, 1978		<u>\$702,643,016.51</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONASSET ALLOCATION
(July 1, 1978)

	<u>Basic Fund</u>	<u>Coordinated Fund</u>	<u>General Fund Total</u>
Asset Balance, July 1, 1977	\$402,884,475.67	\$211,002,961.38	\$613,887,437.05
MAFBF	158,845,717.12	24,972,515.74	183,818,232.86
General Fund	244,038,758.55	186,030,445.64	430,069,204.19
1. Employer Contributions	19,842,071.42	30,134,313.08	49,976,384.50
2. Employee Contributions	15,413,771.58	22,344,984.47	37,758,756.05
3. Transfers to Police and Fire Fund	48,847.35	-	48,847.35
4. Benefits Paid			
i. Survivor	4,368,531.31	41,444.07	4,409,975.38
ii. Disability and Death	1,632,430.80	214,612.81	1,847,043.61
5. MAFBF Contribution	1,195,983.76	166,678.74	1,362,662.50
6. Refunds	643,195.80	7,325,238.52	7,968,434.32
7. Net (Sum of Items 1, 2 and 5 minus Sum of Items 3, 4 and 6)			
Sum of Items 3, 4 and 6)	29,758,821.50	45,064,680.89	74,823,502.39
8. Benefits Paid from MAFBF	23,478,450.02	3,350,738.14	26,829,188.16
9. Income from MAFBF	10,218,338.74	1,625,737.00	11,844,075.74
10. Investment Income	16,582,577.84	13,357,535.50	29,940,113.34
11. Administrative Expenses	238,493.51	884,258.07	1,122,751.58
12. Net (Sum of Items 9 and 10 minus Sum of Items 8 and 11)	3,083,973.05	10,748,276.29	13,832,249.34
13. Increase for Year (Items 7 plus 12)	<u>32,842,794.55</u>	<u>55,812,957.18</u>	<u>88,655,751.73</u>
Asset Balance, July 1, 1978	<u>\$435,727,270.22</u>	<u>\$266,815,918.56</u>	<u>\$702,543,188.78</u>
Estimated Allocation of MAFBF	<u>\$184,176,657.34</u>	<u>\$ 29,602,320.90</u>	<u>\$213,778,978.24</u>

Public Employees Retirement AssociationGeneral FundACTUARIAL ASSUMPTIONS

The assumptions can be summarized as follows:

Interest:	5%
Mortality:	1965 Group Annuity
Retirement Age:	65 for employees who have less than 30 years of service. For employees with 30 or more years of service - 30% at age 62, 15% at ages 63 and 64, and 100% at age 65.
Disability:	PERA Experience
Turnover:	PERA Experience
Salary Scale:	3 1/2% per year

A detailed statement of the mortality rates, disability rates, turnover factors, and salary scale is set out in the following Tables 1 through 4.

Public Employees Retirement AssociationGeneral FundMale EmployeesMORTALITY RATES
(Per 1,000 Employees)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.517	45	3.002
21	.537	46	3.409
22	.558	47	3.856
23	.581	48	4.344
24	.607	49	4.869
25	.636	50	5.429
26	.667	51	6.027
27	.703	52	6.656
28	.742	53	7.321
29	.784	54	8.019
30	.831	55	8.751
31	.884	56	9.514
32	.941	57	10.312
33	1.005	58	11.154
34	1.074	59	12.057
35	1.152	60	13.043
36	1.237	61	14.143
37	1.331	62	15.390
38	1.435	63	16.828
39	1.550	64	18.504
40	1.677	65	20.475
41	1.838		
42	2.054		
43	2.322		
44	2.639		

Public Employees Retirement AssociationGeneral FundFemale EmployeesMORTALITY RATES
(Per 1,000 Employees)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.311	45	1.672
21	.330	46	1.819
22	.349	47	1.980
23	.369	48	2.158
24	.392	49	2.355
25	.415	50	2.574
26	.439	51	2.783
27	.466	52	3.016
28	.496	53	3.277
29	.527	54	3.570
30	.561	55	3.898
31	.597	56	4.278
32	.637	57	4.727
33	.681	58	5.253
34	.728	59	5.867
35	.780	60	6.572
36	.836	61	7.369
37	.898	62	8.258
38	.966	63	9.232
39	1.040	64	10.284
40	1.122	65	11.402
41	1.213		
42	1.311		
43	1.420		
44	1.540		

Public Employees Retirement AssociationGeneral FundAll Employees
DISABILITY RATES
 (Per 1,000 Employees)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.69	45	3.17
21	.73	46	3.41
22	.77	47	3.67
23	.81	48	3.94
24	.86	49	4.25
25	.91	50	4.61
26	.96	51	5.01
27	1.02	52	5.48
28	1.08	53	6.00
29	1.15	54	6.53
30	1.22	55	7.12
31	1.29	56	7.76
32	1.37	57	8.45
33	1.45	58	9.17
34	1.54	59	9.91
35	1.63	60	10.69
36	1.73	61	11.53
37	1.84	62	12.38
38	1.96	63	13.25
39	2.09	64	14.15
40	2.23		
41	2.38		
42	2.55		
43	2.74		
44	2.94		

Public Employees Retirement AssociationGeneral FundMale EmployeesSEPARATION RATES
(Per 1,000 Employees)

<u>Age</u>	<u>Separation</u>	<u>Age</u>	<u>Separation</u>
20	275.0	40	81.8
21	263.8	41	76.2
22	250.5	42	71.5
23	239.0	43	67.0
24	226.5	44	62.2
25	216.0	45	58.0
26	204.5	46	53.9
27	192.5	47	49.7
28	182.0	48	45.0
29	171.5	49	42.0
30	161.0	50	38.5
31	152.8	51	34.5
32	143.5	52	31.0
33	133.0	53	27.0
34	124.5	54	23.0
35	117.0	55	19.5
36	109.2	56	15.0
37	101.0	57	10.0
38	94.0	58	5.0
39	88.0		

Public Employees Retirement AssociationGeneral FundFemale EmployeesSEPARATION RATES
(Per 1,000 Employees)

<u>Age</u>	<u>Separation</u>	<u>Age</u>	<u>Separation</u>
20	383.2	40	134.0
21	377.7	41	123.0
22	371.2	42	113.0
23	363.1	43	104.5
24	351.6	44	97.2
25	335.6	45	90.0
26	322.6	46	83.0
27	310.3	47	78.7
28	299.7	48	74.5
29	289.1	49	70.4
30	280.5	50	66.3
31	269.4	51	62.8
32	259.0	52	59.5
33	246.3	53	55.5
34	232.5	54	52.2
35	216.0	55	47.8
36	199.0	56	41.0
37	183.0	57	36.2
38	165.0	58	21.0
39	148.5	59	5.0

Public Employees Retirement AssociationGeneral FundALL EMPLOYEESEARNINGS PROGRESSION

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.2127	45	.5024
21	.2201	46	.5200
22	.2278	47	.5382
23	.2358	48	.5570
24	.2441	49	.5765
25	.2526	50	.5967
26	.2614	51	.6176
27	.2705	52	.6392
28	.2800	53	.6616
29	.2898	54	.6848
30	.2999	55	.7088
31	.3104	56	.7336
32	.3213	57	.7593
33	.3325	58	.7859
34	.3441	59	.8134
35	.3561	60	.8419
36	.3686	61	.8714
37	.3815	62	.9019
38	.3949	63	.9335
39	.4087	64	.9662
40	.4230	65	1.0000
41	.4378		
42	.4531		
43	.4690		
44	.4854		

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONFINANCIAL BALANCE SHEET
(Year Commencing July 1, 1978)General FundRESERVES

Entry Age Normal Reserves

Retirement \$ 931,606,630

Vesting 119,613,030

Disability 51,355,601

Survivors 28,444,348

Refund 38,507,342

\$1,169,526,951

Less Value of Benefits
Earned in the Future

438,369,058 \$731,157,893

Deferred Annuitants 10,016,621
Former Members without
Vested Rights 5,946,856

Retired Members:

Minnesota Adjustable Fixed
Benefit Fund Admitted
Assets \$ 213,778,978 *

Disability 14,474,338

Survivors 39,893,945

Reserve for Future
Old Law Survivors 8,445,475Less Net Mortality Gain
Receivable fromMinnesota Adjustable
Fixed Benefit Fund 443,667 276,149,069 \$1,023,270,439Unfunded Obligation 320,727,250Funded Obligation \$ 702,543,189

* Retired Life Reserves are \$227,236,986. The difference, \$13,458,008, is to be provided for out of MAFB investment gains and is approximately equal to the difference between the MAFB recognized and admitted value.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1978)General FundAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$1,461,639,497
Obligation for Service Rendered to Date	\$1,023,270,439	
Net Assets	702,543,189	
Accrued Unfunded Obligation	320,727,250	
Funding Ratio		69%
Amortization (19-Year) Requirement	\$ 26,538,580	
Covered Payroll	763,483,570	
Amortization (19-Year) Rate Requirement		<u>3.476%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	\$ 438,369,058	
Present Value of Future Payroll	5,336,116,700	
Normal Cost Rate Requirement	8.215%	
Employee Contribution Rate*	<u>4.910</u>	
Employer Normal Cost Rate Requirement		<u>3.305%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law*		6.637%
Amortization (19-Year) Rate Requirement	3.476%	
Normal Cost Rate Requirement	3.305	
Allowance for Expenses	<u>0.148</u>	
Total Requirement		<u>6.929%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		(<u>0.292%</u>)

* Weighted by Covered Payroll 22.74% Basic and 77.26% Coordinated

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1978)General FundAMORTIZATION RATE REQUIREMENT

	Period			
	<u>10-Year</u>	<u>20-Year</u>	<u>30-Year</u>	<u>40-Year</u>
Accrued Unfunded Obligation	\$320,727,250	\$320,727,250	\$320,727,250	\$320,727,250
Amortization Requirement	41,535,646	25,735,984	20,863,768	18,691,394
Covered Payroll	763,483,570	763,483,570	763,483,570	763,483,570
Amortization Rate Requirement	<u>5.440%</u>	<u>3.371%</u>	<u>2.733%</u>	<u>2.448%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law*	<u>6.637%</u>	<u>6.637%</u>	<u>6.637%</u>	<u>6.637%</u>
Amortization Rate Requirement	5.440%	3.371%	2.733%	2.448%
Normal Cost Rate Requirement	3.305	3.305	3.305	3.305
Allowance for Expenses	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>
Total Requirement	<u>8.893%</u>	<u>6.824%</u>	<u>6.186%</u>	<u>5.901%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement	<u>(2.256%)</u>	<u>(0.187%)</u>	<u>0.451%</u>	<u>0.736%</u>

* Weighted by Covered Payroll

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONGeneral FundSTATEMENT OF REVENUE, EXPENDITURES,
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)
(Year Ending June 30, 1978)Revenue:

Employer Contributions	\$49,976,384.50	
Member Contributions	37,758,756.05	
MAFBF Contribution	1,362,662.50	
Investment Income	29,940,113.34	
Minnesota Adjustable Fixed Benefit Fund Income	<u>11,844,075.74</u>	
Total Revenue		\$130,881,992.13

Expenditure:

Benefits	\$33,086,207.15	
Refund of Contributions	7,968,434.32	
Administrative Expense	1,122,751.58	
Transfer to Police and Fire Fund	<u>48,847.35</u>	
Total Expenditures		<u>42,226,240.40</u>

Increase in Assets (1978) \$ 88,655,751.73

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF CHANGE IN ACTUARIAL RESERVESGeneral FundALLOCATION OF CHANGE IN ACTUARIAL RESERVES

	<u>Increase</u>	<u>Decrease</u>	
Increase in Assets			\$ 88,655,752
Increase to Disabled and Survivors	\$ 1,906,134		
Amortization Payment		\$ 9,571,175	
Excess Interest (1.09% x Average Invested Assets)		4,911,116	
Estimate Excess (Deficit) in Rate	\$ 2,065,508		
Contribution Require- ment Applied to Larger Payroll		4,933,906	
Mortality Gain		443,667	
Increases in Compensation	12,713,094		
Aging of the Group	<u>7,900,517</u>		
Totals	<u>\$24,585,313</u>	\$ <u>19,859,864</u>	
Expected Decrease (Increase) in Unfunded			\$ (4,725,449)
Net Change in Reserves			93,381,201
Experience Variation (Gain) Loss			<u>(473,916)</u>
Total			\$ <u>92,907,285</u>
1978 Actuarial Reserve			\$1,023,270,439
1977 Actuarial Reserve			<u>930,363,154</u>
Increase (Decrease)			\$ <u>92,907,285</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSGeneral Fund

As of July 1, 1977	86,946
New Entrants	15,344
Reinstated	3,913
Transfer	-
<u>Total</u>	<u>106,203</u>

Separations:

a. With Refund of Contributions	
(i) Death	206
(ii) Withdrawal	17,267
b. With Deferred Annuity	166
c. With Disability Annuity	174
d. With Normal Retirement Annuity	921
e. With Survivor Annuity	66
f. With Disability Survivor Annuity	-
<u>Total</u>	<u>18,800</u>

Members as of July 1, 1978	<u>87,403</u>
Inactive Members*	<u>6,075</u>
Members included in Entry Age Normal Cost Calculation	<u>81,328</u>

* Members with no contributions for 12 months or more. The resulting obligation was included with vested and inactive members.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

EXHIBIT 13

RECONCILIATION OF ANNUITANTS

General Fund

Normal Retirement Annuitants

As of July 1, 1977	9,123
Additions During Year	1,067
Deletions During Year	<u>- 367</u>
<u>Total as of July 1, 1978</u>	<u>9,843</u>
Annual Annuity - July 1, 1977	\$22,928,000
- July 1, 1978	\$26,280,128

Disability Annuitants

As of July 1, 1977	499
Additions During Year	174
Deletions During Year	<u>- 101</u>
<u>Total as of July 1, 1978</u>	<u>572</u>
Annual Annuity - July 1, 1977	\$ 1,426,983
- July 1, 1978	\$ 1,884,183

Survivor Annuitants

(a) Spouse Only as of July 1, 1977	2,862
Optional Survivors as of July 1, 1977	86
Additional Spouse Only During Year*	225
Additional Optional Survivors During Year	26
Deletions During Year	<u>- 135</u>

<u>Total as of July 1, 1978</u>	<u>3,064</u>
Annual Annuity - July 1, 1977	\$ 3,713,576
- July 1, 1978	\$ 4,167,623

(b) Survivor with Children	
As of July 1, 1977	218
Additions During Year	25
Deletions During Year*	<u>- 47</u>

<u>Total as of July 1, 1978</u>	<u>196</u>
Annual Annuity - July 1, 1977	\$ 412,269
- July 1, 1978	\$ 444,797

(c) Children	
As of July 1, 1977	455
Additions During Year	70
Deletions During Year	<u>- 117</u>

<u>Total as of July 1, 1978</u>	<u>408</u>
Annual Annuity - July 1, 1977	\$ 414,624
- July 1, 1978	\$ 403,370

Deferred Vested Members

As of July 1, 1977	1,094
Additions During Year	166
Deletions During Year	<u>- 28</u>

<u>Total as of July 1, 1978</u>	<u>1,232</u>
---------------------------------	--------------

* Includes Survivors with children at initial commencement date who have no dependent children at June 30, 1978.

POLICE AND FIRE FUNDAccounting Balance Sheet

- June 30, 1978 -

Assets

Cash on deposit		\$	2,658.14
Accounts Receivable:			
Employer contributions	\$	20,447.88	
From regular fund		60,149.39	
From State General Fund		193.31	
Interest on late employer contributions and delinquent payrolls		3,216.19	
Accrued interest on investments		802,078.80	
Accrued dividends		158,781.55	
Police State Aid		70,505.03	<u>1,115,372.15</u>
Total Current Assets			\$ 1,118,030.29
Investments:			
Bonds - at amortized cost -			
U. S. Government	\$	439,000.00	
Corporate		30,378,202.68	
Canadian Government insured		6,850,000.00	
G.N.M.A. (Government National Mortgage Assn.)		3,246,607.67	
Stock - Common - at cost - see Note 1		<u>36,818,888.01</u>	77,732,698.36
Minnesota Adjustable Fixed Benefit Fund -			
at admitted value	\$19,754,635.87		
Less annuity stabilization - see Note 2	<u>(837,316.18)</u>		18,917,319.69
Deferred yield adjustment - see Note 3			471,680.49
Prepaid employee and employer contributions -			
see Note 4			<u>(159,060.00)</u>
Total Assets			<u>\$98,080,668.83</u>

Current Liabilities and Reserves

Liabilities:			
Accounts payable to Regular Fund		\$	65,354.54
Reserves:			
Members accumulated contributions			24,101,846.52
Benefits reserve			54,996,148.08
Reserve for participation in Minnesota			
Adjustable Fixed Benefit Fund			<u>18,917,319.69</u>
Total Liabilities and Reserves			<u>\$98,080,668.83</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

POLICE AND FIRE FUND

Notes to Accounting Balance Sheet

- June 30, 1978 -

- NOTE 1 - Market value of stock on Police and Fire Fund's books as of June 30, 1978, was \$35,997,981.88.
- NOTE 2 - The MAFB Fund's balance is a net amount of \$18,917,319.69, with the Annuity Stabilization Account of \$837,316.18 making the gross balance \$19,754,635.87.
- NOTE 3 - According to laws of the State of Minnesota, gains or losses on the sales of long-term bonds must be recorded in this account and amortized yearly, up to the years these bonds would have become due, had they remained in the possession of PERA.
- NOTE 4 - City of Eveleth -- Money not distributed between employees and employer at time of statement issuance, because this was unknown at that time.

Police and Fire FundSources and Uses of Funds

- July 1, 1977 - June 30, 1978 -

Sources

<u>Employee Contributions</u>	\$ 4,948,980.89
<u>Employer Contributions</u>	7,861,812.10
<u>Police State Aid</u>	237,460.28
<u>Investment Income</u>	4,737,470.13
<u>Investment Sales and Redemptions</u>	
Bonds	81,145,001.39
Stocks	517,549.28
<u>Cancelled Warrants</u>	11,927.71
<u>Interest Other than Investment</u>	
<u>Interest</u>	42,227.51
	\$99,502,429.29
Add Cash Balance, July 1, 1977	34,038.12
Less Cash Balance, July 1, 1978	(2,658.14)
	<u>\$99,533,809.27</u>

Uses

<u>Refunds</u>	
Employee Contributions	\$ 524,828.41
Employer Contributions	6,773.64
<u>Interest Paid on Refunds</u>	29,386.88
<u>Payments to Minnesota Adjustable</u>	
<u>Fixed Benefit Fund</u>	2,926,707.54
<u>Annuities Paid</u>	
Retirement	1,825,062.58
Survivor	361,187.70
Disability	126,105.89
<u>Investment Purchases</u>	
Bonds	88,438,184.92
Stocks	5,277,507.96
<u>Transfers to Regular Fund</u>	18,063.75
	<u>\$99,533,809.27</u>

POLICE AND FIRE FUNDAccounting Statement of Income and Expense

- July 1, 1977, to June 30, 1978 -

Income

Employer contributions - 1977-1978		\$ 7,057,701.51
Employer contributions - other		72,322.73
Member contributions		4,970,771.43
Special income for Police State Aid		307,965.31
Transfer from Regular Fund:		
Members contributions - active	\$ 48,192.59	
Employer contributions	<u>11,908.82</u>	60,101.41
Realized income of the Minnesota		
Adjustable Fixed Benefit Fund		969,515.33
1976-77 income from MAFB Fund for		
one-time payment		53,250.00
Investment income		4,692,755.68
Gain on sales of stock		192,174.05
Interest on refunds repaid		21,198.77
Interest on delinquent contributions		
and omitted contributions		23,226.88
Adjustment for prior year entries		160.18
Miscellaneous income		10.00
Purchased coverage from new units		<u>592,052.79</u>
Total Income		\$19,013,206.07

Expense

Retirement annuities (paid from Minnesota		
Adjustable Fixed Benefit Fund)	\$ 1,819,833.09	
Survivor benefits paid:		
Old law survivors	\$ 48,484.62	
With children	142,353.68	
Without children	<u>120,697.76</u>	311,536.06
Disability benefits paid		121,540.41
Disability survivor with children		14,178.80
Disability survivor without children		6,047.99
Refund of Deposits:		
Active members due to withdrawal	\$503,449.16	
Active members due to death	<u>1,111.52</u>	504,560.68
Deferred members due to withdrawal		18,400.80
Interest paid on refunds		29,386.88
Refund of employer contributions		6,258.05
Transfers to Regular Fund:		
Member contributions - Active	\$ 7,486.07	
Member contributions - Deferred	509.73	
Employer contributions	<u>3,258.26</u>	11,254.06

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

EXHIBIT 16
(Continued)

POLICE AND FIRE FUND

Accounting Statement of Income and Expense, Cont.

Expense, Cont.

Loss on sales of stock	\$	18,022.40	
Loss on sales of bonds		45,182.44	
General administrative expense		<u>53,782.14</u>	<u>\$ 2,959,983.80</u>
Excess of Income over Expense for the Year Ended June 30, 1978			<u>\$16,053,222.27</u>

POLICE AND FIRE FUNDReconciliation of Asset Balances

- June 30, 1978 -

Asset Balance, July 1, 1977			\$ 81,962,092.02
Add:			
Employer contributions		\$ 7,130,024.24	
Employee contributions		4,970,771.43	
Special income - Police State Aid		307,965.31	
Employee and employer contributions transferred from Regular Fund		60,101.41	
Realized income of the Minnesota Adjustable Fixed Benefit Fund		1,022,765.33	
Investment earnings		4,692,755.68	
Gains on sales of stock		192,174.05	
Purchased coverage from new units		592,052.79	
Interest on omitted contributions, delinquent contributions and refunds repaid		44,425.65	
Adjustments for prior year entries		160.18	
Miscellaneous income		10.00	19,013,206.07
Total Additions			\$100,975,298.09
Deduct:			
Benefits paid -			
Retirement	\$ 1,819,833.09		
Survivor	331,762.85		
Disability	121,540.41	\$ 2,273,136.35	
Refunds		529,219.53	
Interest paid on refunds		29,386.88	
Transfers to Regular Fund		11,254.06	
Losses on sales of bonds and stocks		63,204.84	
General administrative expense		53,782.14	
Total Deductions			2,959,983.80
			\$ 98,015,314.29
Current Liabilities and Accounts Payable			65,354.54
Asset Balance, June 30, 1978			\$ 98,080,668.83

Public Employees Retirement AssociationPolice and FireACTUARIAL ASSUMPTIONS

The assumptions can be summarized as follows:

Interest:	5%
Mortality:	1965 Group Annuity
Retirement Age:	60
Disability:	See Following Table
Turnover:	See Following Table
Salary Scale:	3 1/2% per year

A detailed statement of the mortality rates, disability rates, turnover factors, and salary scale is set out in the following Table 1 through 4.

Public Employees Retirement AssociationPolice and Fire FundAll EmployeesMORTALITY RATES
(Per 1,000 Employees)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.517	45	3.002
21	.537	46	3.409
22	.558	47	3.856
23	.581	48	4.344
24	.607	49	4.869
25	.636	50	5.429
26	.667	51	6.027
27	.703	52	6.656
28	.742	53	7.321
29	.784	54	8.019
30	.831	55	8.751
31	.884	56	9.514
32	.941	57	10.312
33	1.005	58	11.154
34	1.074	59	12.057
35	1.152	60	13.043
36	1.237		
37	1.331		
38	1.435		
39	1.550		
40	1.677		
41	1.838		
42	2.054		
43	2.322		
44	2.639		

Public Employees Retirement AssociationPolice and Fire FundAll EmployeesDISABILITY RATES
(Per 1,000 Employees)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	1.70	45	10.40
21	1.75	46	11.60
22	1.80	47	12.95
23	1.86	48	14.50
24	1.92	49	16.10
25	1.98	50	17.70
26	2.05	51	19.60
27	2.12	52	21.60
28	2.19	53	23.70
29	2.27	54	25.95
30	2.35	55	28.25
31	2.50	56	30.65
32	2.70	57	33.25
33	2.95	58	36.05
34	3.20	59	38.85
35	3.50		
36	3.90		
37	4.30		
38	4.75		
39	5.25		
40	5.90		
41	6.60		
42	7.40		
43	8.30		
44	9.25		

Public Employees Retirement AssociationPolice and Fire FundAll EmployeesSEPARATION RATES
(Per 1,000 Employees)

<u>Age</u>	<u>Separation</u>	<u>Age</u>	<u>Separation</u>
20	70.0	40	24.5
21	70.0	41	21.3
22	70.0	42	18.5
23	69.9	43	16.0
24	69.8	44	13.7
25	69.7	45	11.8
26	69.4	46	10.2
27	68.9	47	8.7
28	68.0	48	7.3
29	67.0	49	6.1
30	65.8	50	5.0
31	64.3	51	3.9
32	62.4	52	2.9
33	59.8	53	2.2
34	56.1	54	1.5
35	51.1	55	1.1
36	45.4	56	.7
37	39.5	57	.5
38	33.6	58	.3
39	28.7	59	.1

Public Employees Retirement AssociationPolice and Fire FundAll EmployeesEARNINGS PROGRESSION

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.2526	45	.5967
21	.2614	46	.6176
22	.2705	47	.6392
23	.2800	48	.6616
24	.2898	49	.6848
25	.2999	50	.7088
26	.3104	51	.7336
27	.3213	52	.7593
28	.3325	53	.7859
29	.3441	54	.8134
30	.3561	55	.8419
31	.3686	56	.8714
32	.3815	57	.9019
33	.3949	58	.9335
34	.4087	59	.9661
35	.4230	60	1.0000
36	.4378		
37	.4531		
38	.4690		
39	.4854		
40	.5024		
41	.5200		
42	.5382		
43	.5570		
44	.5765		

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONFINANCIAL BALANCE SHEET
(Year Commencing July 1, 1978)Police and Fire FundRESERVES

Entry Age Normal Reserves

Retirement	\$145,244,253
Vesting	12,732,443
Disability	34,737,999
Survivors	7,419,705
Refund	<u>4,073,358</u>

\$204,207,758

Less Value of Benefits to be
Earned in the Future

\$112,287,282 \$91,920,476

Deferred Annuitants

2,282,189

Former Members without
Vested Rights

176,447

Retired Members:

Minnesota Adjustable
Fixed Benefit Fund
Admitted Assets

\$ 18,917,320 *

Disability 1,415,210

Survivors 3,894,467

Reserve for Future
Old Law Survivors

360,901

Plus Net Mortality Loss
Payable toMinnesota Adjustable
Fixed Benefit Fund174,12224,762,020

\$119,141,132

Unfunded Obligation

21,125,817

Funded Obligation

\$ 98,015,315

* Retired Life Reserves are \$19,706,042. The difference, \$788,722, is to be provided for out of MAFB investment gains and is approximately equal to the difference between the MAFB recognized and admitted value.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1978)Police and Fire FundAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$231,428,414
Obligation for Service Rendered to Date	\$119,141,132	
Net Assets	98,015,315	
Accrued Unfunded Obligation	21,125,817	
Funding Ratio		82%
Amortization (19-Year) Requirement	1,748,056	
Covered Payroll	59,933,726	
Amortization (19-Year) Rate Requirement		2.917%

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	\$112,287,282	
Present Value of Future Payroll	707,661,300	
Normal Cost Rate Requirement	15.867%	
Employee Contribution Rate	<u>8.000</u>	
Employer Normal Cost Rate Requirement		<u>7.867%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		12.000%
Amortization (19-Year) Rate Requirement	2.917%	
Normal Cost Rate Requirement	7.867	
Allowance for Expenses	<u>0.089</u>	
Total Requirement		<u>10.873%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>1.127%</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1978)Police and Fire FundAMORTIZATION RATE REQUIREMENT

	Period			
	<u>10-Year</u>	<u>20-Year</u>	<u>30-Year</u>	<u>40-Year</u>
Accrued Unfunded Obligation	\$21,125,817	\$21,125,817	\$21,125,817	\$21,125,817
Amortization Requirement	2,735,890	1,695,190	1,374,265	1,231,174
Covered Payroll	59,933,726	59,933,726	59,933,726	59,933,726
Amortization Rate Requirement	<u>4.565%</u>	<u>2.828%</u>	<u>2.293%</u>	<u>2.054%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law	<u>12.000%</u>	<u>12.000%</u>	<u>12.000%</u>	<u>12.000%</u>
Amortization Rate Requirement	4.565%	2.828%	2.293%	2.054%
Normal Cost Rate Requirement	7.867	7.867	7.867	7.867
Allowance for Expenses	<u>0.089</u>	<u>0.089</u>	<u>0.089</u>	<u>0.089</u>
Total Requirement	<u>12.521%</u>	<u>10.784%</u>	<u>10.249%</u>	<u>10.010%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement	<u>(0.521%)</u>	<u>1.216%</u>	<u>1.751%</u>	<u>1.990%</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPolice and Fire Fund

STATEMENT OF REVENUE, EXPENDITURES,
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)
 (Year Ending June 30, 1978)

Revenue:

Employer Contributions	\$7,130,024.24	
Member Contributions	4,970,771.43	
Special Income	307,965.31	
Investment Income	4,866,320.72	
Transfer from Regular Fund	48,847.35	
Minnesota Adjustable Fixed Benefit Fund Income	969,515.33	
MAFB Contribution	53,250.00	
New Units	<u>592,052.79</u>	
Total Revenue		\$18,938,747.17

Expenditure:

Benefits	\$2,273,136.35	
Refund of Contributions	558,606.41	
Administrative Expense	<u>53,782.14</u>	
Total Expenditures		<u>2,885,524.90</u>
Increase in Assets (1978)		<u>\$16,053,222.27</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION
RECONCILIATION OF CHANGE IN ACTUARIAL RESERVES

Police and Fire Fund

ALLOCATION OF CHANGE IN ACTUARIAL RESERVES

	<u>Increase</u>	<u>Decrease</u>	
Increase in Assets			\$ 16,053,222
Increase to Disabled and Survivors	\$ 158,084		
Amortization Payment		\$ 615,011	
Excess Interest (1.09% x Average Invested Assets)		782,164	
Estimate Excess in Rate		596,439	
Contribution Require- ment Applied to Larger Payroll		1,522,825	
Mortality Loss	174,122		
Other Income		307,965	
Increases in Compensation	5,216,819		
New Units		<u>592,053</u>	
Totals	<u>\$5,549,025</u>	<u>\$4,416,457</u>	
Expected Decrease (Increase) in Unfunded			(1,132,568)
Net Change in Reserves			\$ 17,185,790
Experience Variation (Gain) Loss			<u>(342,399)</u>
Total			\$ <u>16,843,391</u>
1978 Actuarial Reserve			\$119,141,132
1977 Actuarial Reserve			<u>102,297,741</u>
Increase (Decrease)			\$ <u>16,843,391</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSPolice and Fire Fund

As of July 1, 1977	3,958
New Entrants	492
Reinstated	<u>88</u>
<u>Total</u>	<u>4,538</u>

Separations:

a. With Refund of Contributions	
(i) Death	7
(ii) Withdrawal	278
b. With Deferred Annuity	6
c. With Disability Annuity	9
d. With Normal Retirement Annuity	47
e. With Survivor Annuity	<u>7</u>
<u>Total</u>	<u>361</u>

Members as of July 1, 1978	<u>4,184</u>
Inactive Members*	<u>213</u>
Members included in Entry Age Normal Cost Calculation	<u>3,971</u>

* Members with no contributions for 12 months or more. The resulting obligation was included with vested and inactive members.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ANNUITANTSPolice and Fire FundNormal Retirement Annuitants

As of July 1, 1977	395
Additions During Year	53
Deletions During Year	<u>- 8</u>
<u>Total as of July 1, 1978</u>	<u>440</u>
Annual Annuity - July 1, 1977	\$1,519,474
- July 1, 1978	\$1,888,892

Disability Annuitants

As of July 1, 1977	20
Additions During Year	9
Deletions During Year	<u>- 3</u>
<u>Total as of July 1, 1978</u>	<u>28</u>
Annual Annuity - July 1, 1977	\$ 87,775
- July 1, 1978	\$ 139,260

Survivor Annuitants

(a) Spouse Only as of July 1, 1977	105
Optional Survivors as of July 1, 1977	11
Additional Spouse Only During Year*	13
Additional Optional Survivors During Year	3
Deletions During Year	<u>- 2</u>

<u>Total as of July 1, 1978</u>	<u>130</u>
Annual Annuity - July 1, 1977	\$ 186,023
- July 1, 1978	\$ 237,154

(b) Survivor with Children	
As of July 1, 1977	34
Additions During Year	10
Deletions During Year*	<u>- 9</u>

<u>Total as of July 1, 1978</u>	<u>35</u>
Annual Annuity - July 1, 1977	\$ 70,866
- July 1, 1978	\$ 83,331

(c) Children	
As of July 1, 1977	92
Additions During Year	12
Deletions During Year	<u>- 11</u>

<u>Total as of July 1, 1978</u>	<u>93</u>
Annual Annuity - July 1, 1977	\$ 69,474
- July 1, 1978	\$ 72,975

Deferred Vested Members

As of July 1, 1977	194
Additions During Year	27
Deletions During Year	<u>- 21</u>

<u>Total as of July 1, 1978</u>	<u>200</u>
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* Includes Survivors with children at initial commencement date who have no dependent children at June 30, 1978.

Police and Fire Fund

SUPPORTING EXHIBITS

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PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPolice and Fire FundRetired Prior to July 1, 1973Payable From Adjustable Fixed Benefit Fund

<u>AGE</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
60	1	\$ 262.34	-	\$ -
61	4	610.36	-	-
62	2	869.27	-	-
63	6	1,545.71	-	-
64	3	1,326.13	1	140.24
65	7	1,561.52	-	-
66	6	1,359.25	-	-
67	3	644.10	-	-
68	8	2,404.09	-	-
69	10	2,800.70	-	-
70	9	2,845.27	1	383.07
71	14	3,663.69	-	-
72	17	5,087.34	1	228.58
73	12	3,794.54	1	99.93
74	9	1,545.68	1	186.11
75	10	2,423.43	-	-
76	14	3,660.43	-	-
77	12	3,752.32	1	244.82
78	11	2,428.68	-	-
79	9	2,454.43	1	73.81
80	4	1,227.56	1	260.07
81	5	1,097.94	-	-
82	5	1,464.10	-	-
83	4	688.63	-	-
84	4	715.28	-	-
89	1	240.36	-	-
TOTAL	<u>190</u>	<u>\$50,473.15</u>	<u>8</u>	<u>\$1,616.63</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPolice and Fire FundRetired Under Law in Force July 1, 1973 and SubsequentPayable From Adjustable Fixed Benefit Fund

<u>AGE</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
55	1	\$ 718.13	-	\$ -
56	15	9,370.96	-	-
57	7	3,103.63	-	-
58	11	7,251.46	-	-
59	12	5,544.86	-	-
60	10	5,560.87	2	1,051.50
61	14	7,039.07	-	-
62	22	8,580.23	1	224.32
63	18	6,613.45	-	-
64	23	9,701.11	-	-
65	21	8,829.65	1	267.86
66	18	9,045.47	2	790.48
67	18	6,295.03	-	-
68	14	4,726.40	1	186.03
69	9	1,782.20	1	539.71
70	11	4,453.57	1	118.79
71	3	1,230.71	-	-
73	3	1,393.11	-	-
74	1	490.74	-	-
76	1	114.37	-	-
81	1	294.15	-	-
<u>TOTALS</u>	<u>233</u>	<u>\$102,139.17</u>	<u>9</u>	<u>\$3,178.69</u>

Survivor AnnuitiesPayable From Adjustable Fixed Benefit Fund

<u>AGE</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
55	-	\$ -	1	\$ 318.46
59	-	-	2	422.83
61	-	-	4	710.44
62	-	-	1	245.14
63	-	-	1	432.47
65	-	-	1	256.04
68	-	-	1	50.02
69	-	-	1	73.80
72	-	-	1	125.43
73	1	160.36	1	36.83
82	-	-	1	45.48
<u>TOTALS</u>	<u>1</u>	<u>\$160.36</u>	<u>15</u>	<u>\$2,716.94</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPolice and Fire FundSurvivor AnnuitiesFEMALES

<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>	<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
27	1	\$ 361.59	63	1	\$ 28.11
31	2	482.58	64	4	363.16
35	1	270.00	65	4	357.30
40	3	307.03	66	2	229.90
41	1	290.81	67	4	447.40
43	4	1,046.30	68	3	281.29
44	1	343.20	69	6	651.51
45	3	540.06	70	7	1,012.08
46	6	1,146.75	71	2	185.38
47	2	428.22	72	3	349.65
48	2	357.50	73	3	404.85
49	2	515.69	74	6	729.36
50	3	647.95	75	2	107.88
51	5	810.15	76	3	387.66
52	2	389.84	77	1	70.92
53	6	1,253.29	78	3	335.00
54	2	175.12	79	6	665.44
55	3	345.02	81	2	268.97
56	1	445.69	82	5	702.83
57	2	736.35	83	2	212.22
58	4	915.35	87	1	105.60
59	3	612.79	88	1	91.14
60	9	1,295.43	90	1	108.35
61	3	426.98			
62	5	1,179.72			
TOTALS				<u>148</u>	<u>\$23,419.41</u>

MALES

<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
48	<u>1</u>	<u>\$410.40</u>

CHILDREN

<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
<u>93</u>	<u>\$6,043.46</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPolice and Fire FundDisability

<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
33	1	\$ 485.50
34	1	246.98
38	1	639.17
40	1	655.46
41	3	1,400.33
42	1	304.10
43	3	1,764.85
44	1	368.04
45	2	836.14
46	3	525.87
48	1	213.21
49	1	186.49
50	1	603.65
51	2	557.57
52	1	418.19
53	2	995.24
54	2	827.19
55	1	576.99
TOTALS	<u>28</u>	<u>\$11,604.97</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Police and Fire Fund

CONSIDERED EARNINGS

Active Male Employees
(Age and Service as of July 1, 1978)

AGE	YEARS OF SERVICE							
	Under 1		1 to 2		2 to 5		5 to 10	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	128	\$ 1,347,719	74	\$ 862,053	71	\$ 879,908	1	\$ 15,082
25 to 30	133	1,510,122	136	1,686,865	397	5,665,240	180	2,716,666
30 to 35	59	664,969	71	915,698	248	3,674,212	381	6,272,047
35 to 40	18	206,833	15	196,351	100	1,463,518	198	3,215,282
40 to 45	12	120,862	8	99,370	45	573,672	129	2,081,581
45 to 50	8	82,425	2	11,923	32	367,384	76	1,155,864
50 to 55	9	110,959	4	30,459	18	267,061	34	506,098
55 to 60	3	44,624	-	-	12	142,497	21	289,530
60 to 65	2	24,722	1	24,308	2	14,007	16	215,559
65 & Up	-	-	1	4,358	6	55,683	3	25,019
<u>TOTAL</u>	<u>372</u>	<u>\$ 4,113,235</u>	<u>312</u>	<u>\$3,831,385</u>	<u>931</u>	<u>\$13,103,182</u>	<u>1,039</u>	<u>\$16,492,728</u>

AGE	YEARS OF SERVICE							
	10 to 15		15 to 20		20 to 25		25 to 30	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 30	1	15,756	-	-	-	-	-	-
30 to 35	86	1,490,357	4	75,273	-	-	-	-
35 to 40	207	3,621,027	29	536,983	1	17,358	-	-
40 to 45	136	2,333,001	59	1,076,536	16	305,891	-	-
45 to 50	75	1,238,972	81	1,475,081	54	1,032,469	9	181,136
50 to 55	54	852,641	61	1,126,824	54	1,034,616	23	438,582
55 to 60	55	848,104	40	648,662	21	357,473	20	368,499
60 to 65	23	296,231	14	217,021	18	300,219	12	227,576
65 & Up	10	144,306	9	156,606	1	20,863	2	30,930
<u>TOTAL</u>	<u>647</u>	<u>\$10,840,395</u>	<u>297</u>	<u>\$5,312,986</u>	<u>165</u>	<u>\$ 3,068,889</u>	<u>66</u>	<u>\$ 1,246,723</u>

AGE	YEARS OF SERVICE							
	30 to 35		35 to 40		40 & Up		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	274	\$ 3,104,762
25 to 30	-	-	-	-	-	-	847	11,594,649
30 to 35	-	-	-	-	-	-	849	13,092,556
35 to 40	-	-	-	-	-	-	568	9,257,352
40 to 45	-	-	-	-	-	-	405	6,590,913
45 to 50	-	-	-	-	-	-	337	5,545,254
50 to 55	3	54,191	-	-	-	-	260	4,421,431
55 to 60	4	90,817	1	23,532	-	-	177	2,813,738
60 to 65	1	24,284	-	-	2	34,827	91	1,378,754
65 & Up	-	-	-	-	1	35,610	33	473,375
<u>TOTAL</u>	<u>8</u>	<u>\$ 169,292</u>	<u>1</u>	<u>\$ 23,532</u>	<u>3</u>	<u>\$ 70,437</u>	<u>3,841</u>	<u>\$58,272,784</u>

Based on census data from the Association as of June 30. Corrections are made during the year as received from the reporting units.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPolice and Fire FundCONSIDERED EARNINGS

Active Female Employees
(Age and Service as of July 1, 1978)

AGE	YEARS OF SERVICE							
	Under 1		1		2 - 4		5 - 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	7	\$ 70,404	9	\$102,464	3	\$380,641	-	\$ -
25 to 30	5	59,579	5	67,557	13	145,743	5	65,980
30 to 35	1	13,031	1	15,428	5	57,592	8	114,486
35 to 40	-	-	1	10,462	4	47,878	7	103,468
40 to 45	-	-	1	12,533	3	35,673	4	49,046
45 to 50	1	7,619	3	26,535	3	35,827	7	102,062
50 to 55	-	-	-	-	2	19,723	5	66,067
55 to 60	-	-	-	-	-	-	4	56,512
60 to 65	-	-	-	-	-	-	-	-
65 & up	1	8,913	-	-	-	-	-	-
<u>TOTAL</u>	<u>15</u>	<u>\$159,946</u>	<u>20</u>	<u>\$234,979</u>	<u>33</u>	<u>\$380,641</u>	<u>40</u>	<u>\$ 557,671</u>

AGE	YEARS OF SERVICE							
	10-14		15-19		20-24		25-29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 30	-	-	-	-	-	-	-	-
30 to 35	-	-	-	-	-	-	-	-
35 to 40	2	27,750	-	-	-	-	-	-
40 to 45	1	29,567	-	-	-	-	-	-
45 to 50	4	47,834	1	11,712	1	16,131	-	-
50 to 55	2	49,586	1	34,645	-	-	-	-
55 to 60	4	38,340	2	20,073	-	-	-	-
60 to 65	2	18,377	1	18,578	-	-	-	-
65 & Up	1	15,512	-	-	-	-	-	-
<u>TOTAL</u>	<u>16</u>	<u>\$226,966</u>	<u>5</u>	<u>\$ 85,008</u>	<u>1</u>	<u>\$ 16,131</u>	<u>-</u>	<u>\$ -</u>

AGE	YEARS OF SERVICE							
	30-34		35-39		40 & UP		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	19	\$ 211,073
25 to 30	-	-	-	-	-	-	28	338,859
30 to 35	-	-	-	-	-	-	15	200,537
35 to 40	-	-	-	-	-	-	14	189,558
40 to 45	-	-	-	-	-	-	9	126,869
45 to 50	-	-	-	-	-	-	20	247,720
50 to 55	-	-	-	-	-	-	10	170,021
55 to 60	-	-	-	-	-	-	10	114,925
60 to 65	-	-	-	-	-	-	3	36,955
65 & Up	-	-	-	-	-	-	2	24,425
<u>TOTAL</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>130</u>	<u>\$1,660,942</u>

PUBLIC EMPLOYEES POLICE AND FIRE FUNDSUMMARY OF PLAN1. Name

Public Employees Police and Fire Fund.

2. Type of Plan

Self-insured, managed by a 15-member Board of Trustees.

3. Employer Included

Any county, city, borough, town within the state.

5. Employees Included

All full time, and certain part time, police officers and fire fighters, who are not contributing to any other local retirement plan.

5. Allowable Service

All periods of public service during which salary deductions were made or for which payments in lieu of salary deductions were deposited, including authorized leaves of absence, sick leaves, military leaves and layoffs.

6. Considered Salary

Salary means the periodical total compensation of any public employee before deductions for deferred compensation or supplemental retirement plans, and also means wages and includes net income from fees.

7. Employee Contributions

After July 1, 1973, 8% of considered salary.

8. Employer Contributions

An amount equal to 12% of considered salary.

9. Normal Retirement Annuity

After attainment of age 55 and completion of at least 10 years of allowable service.

"Average salary" means an amount equivalent to the highest salary upon which contributions were paid for any five successive years of allowable service.

Annuity equal to:

- (a) 2-1/2% of "Average Salary" for each of the first 20 years of allowable service, plus
- (b) 2% of "Average Salary" for each year of service over 20 years.

10. Late Retirement Annuity

Annual Annuity determined as for Normal Retirement, considering allowable service and salary to actual retirement.

11. Proportionate Annuity

At age 65 or earlier under a mandatory retirement statute or uniformly applied compulsory retirement policy and completion of at least three years but less than 10 years of allowable service.

Annual Annuity determined as for Normal Retirement, considering allowable service and salary to actual retirement.

12. Disability Benefit

In event of disability, which renders member unable to perform the duties of a police officer or fire fighter, after not less than five years of allowable service.

Annual Benefit payable to age 55 determined as for Normal Retirement, considering allowable service and salary to date of disablement, except if service is under 10 years, the benefit shall be the same as though the member had 10 years service.

In the event of disability incurred in line of duty regardless of years of allowable service, the benefit shall be equal to 50% of "Average Salary" plus 2% of such salary for each year of allowable service in excess of 20 years.

If disability continues to age 55, the disability benefit shall terminate and the person shall be deemed to be on retirement status with an annuity in the same amount that he was previously receiving, or he may select an optional annuity.

13. Survivor or Death Benefit

In event of death of an active member, or in event of death of a disabilitant prior to age 55.

Annual Survivor Benefit to dependent spouse, of 30% of average salary during the last six months of allowable service, plus for each dependent child, 10% of such average salary. Maximum family benefit equal to \$450 per month. Minimum family benefit equal to 30% of such average salary, subject to the maximum limitation.

Upon the death of an annuitant who retired under the "savings clause" the surviving spouse, if otherwise eligible, is entitled to a monthly survivor benefit for life or until remarriage, equal to one-half of the original annuity paid plus 25%, maximum \$125 monthly.

In the event of death of a retired annuitant and no survivor benefits are payable, the excess (if any) of his accumulated contributions not paid out in the way of annuities shall be paid to his designated beneficiary, without interest.

In case of death of a member who has no eligible surviving dependents, his accumulated contributions shall be paid to his designated beneficiary with interest thereon at 3-1/2% per annum compounded annually.

14. Separation Benefit

In event of termination after 10 years of allowable service, a deferred vested annuity payable at age 55, provided former member does not withdraw his contributions. (Said 10 years of allowable service need not represent PERA coverage only but may be in conjunction with service covered by other Minnesota funds such as those for state employees and teachers and others which has this same provision; deferred annuity is paid by each fund according to the number of years of allowable service in each fund.)

Annual Annuity determined as for Normal Retirement under the provisions of the Plan at date of termination considering allowable service and salary to date of such termination, augmented by interest at 5%, compounded annually from first of the month following separation from service or from July 1, 1971, whichever is later, to the date annuity begins to accrue.

All former members shall be eligible to receive a refund of their accumulated contributions without interest for the first three years of membership and thereafter with interest at 3-1/2% compounded annually. (Such election is in lieu of any other benefits under the Plan.)

15. Lump Sum Payments for Retired Annuitants, Disabilitants and Surviving Spouse receiving payments on November 30, 1977

Any of the above whose annuity or benefit was computed under laws in effect prior to July 1, 1973, shall receive an additional lump sum payment of \$250 payable December 1, 1977.

Persons receiving benefits from the Minnesota Adjustable Fixed Benefit Fund or the Retirement Fund shall receive the lump sum payment from the same fund.

16. Optional Annuities

A participant may elect to receive an equivalent actuarially reduced annuity in the form of either a 50% or 100% joint and survivor annuity.

17. Expenses

Paid by Association from retirement fund.

18. Actuarial Method

For purpose of reports to the Legislative Commission on Pensions and Retirement, costs for the Plan shall be determined on an "entry-age level normal cost" basis and 5% interest.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONFINANCIAL BALANCE SHEET
(Year Commencing July 1, 1978)Basic MembersRESERVES

Entry Age Normal Reserves

Retirement	\$580,668,422		
Vesting	44,692,032		
Disability	31,294,224		
Survivors	22,976,928		
Refund	<u>1,739,905</u>		
	\$681,371,511		
Less Value of Benefits to be Earned in the Future	170,902,944	\$510,468,567	
Deferred Annuitants		9,181,518	
Former Members without Vested Rights		1,896,871	
Retired Members Minnesota Adjustable Fixed Benefit Fund Admitted Assets	184,176,657 *		
Disability	12,687,831		
Survivors	39,893,945		
Reserve for Future Old Law Survivors	8,445,475		
Less Net Mortality Gain Receivable from Minnesota Adjustable Fixed Benefit Fund	<u>382,232</u>	<u>\$244,821,676</u>	\$766,368,632
Unfunded Obligation			<u>330,641,362</u>
Funded Obligation			<u>\$435,727,270</u>

* Retired Life Reserves are \$195,771,113. The difference, \$11,594,456, is to be provided for out of MAFB investment gains and is approximately equal to the difference between the MAFB recognized and admitted value.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1978)Basic MembersAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$937,271,576
Obligation for Service Rendered to Date	\$766,368,632	
Net Assets	435,727,270	
Accrued Unfunded Obligation	330,641,362	
Funding Ratio		57%
Amortization (19-Year) Requirement	\$ 27,358,923	
Covered Payroll	173,653,842	
Amortization (19-Year) Rate Requirement		<u>15.755%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	\$ 170,902,944	
Present Value of Future Payroll	1,263,298,000	
Normal Cost Rate Requirement	13.528%	
Employee Contribution Rate	<u>8.000%</u>	
Employer Normal Cost Rate Requirement		<u>5.528%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		10.500%
Amortization (19-Year) Rate Requirement	15.755%	
Normal Cost Rate Requirement	5.528	
Allowance for Expenses	<u>0.148</u>	
Total Requirement		<u>21.431%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>(10.931%)</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1978)Basic MembersAMORTIZATION RATE REQUIREMENT

	PERIOD			
	<u>10-Year</u>	<u>20-Year</u>	<u>30-Year</u>	<u>40-Year</u>
Accrued Unfunded Obligation	\$330,641,362	\$330,641,362	\$330,641,362	\$330,641,362
Amortization Requirement	42,819,569	26,531,518	21,508,695	19,269,171
Covered Payroll	173,653,842	173,653,842	173,653,842	173,653,842
Amortization Rate Requirement	<u>24.658%</u>	<u>15.278%</u>	<u>12.386%</u>	<u>11.096%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law	<u>10.500%</u>	<u>10.500%</u>	<u>10.500%</u>	<u>10.500%</u>
Amortization Rate Requirement	24.658%	15.278%	12.386%	11.096%
Normal Cost Rate Requirement	5.528	5.528	5.528	5.528
Allowance for Expenses	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>
Total Requirement	<u>30.334%</u>	<u>20.954%</u>	<u>18.062%</u>	<u>16.772%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement	<u>(19.834%)</u>	<u>(10.454%)</u>	<u>(7.562%)</u>	<u>(6.272%)</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersSTATEMENT OF REVENUE, EXPENDITURES,
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)
(Year Ending June 30, 1978)Revenue:

Employer Contributions	\$19,842,071.42	
Member Contributions	15,413,771.58	
MAFBF Contribution	1,195,983.76	
Investment Income	16,582,577.84	
Minnesota Adjustable Fixed Benefit Fund Income	<u>10,218,338.74</u>	
Total Revenue		\$63,252,743.34

Expenditure:

Benefits	\$29,479,412.13	
Refund of Contributions	643,195.80	
Administrative Expense	238,493.51	
Transfer to Police and Fire Fund	<u>48,847.35</u>	
Total Expenditures		<u>30,409,948.79</u>

Increase in Assets (1978)		<u>\$32,842,794.55</u>
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PUBLIC EMPLOYEES RETIREMENT ASSOCIATION
RECONCILIATION OF CHANGE IN ACTUARIAL RESERVES

Basic Members

ALLOCATION OF CHANGE IN ACTUARIAL RESERVES

	<u>Increase</u>	<u>Decrease</u>	
Increase in Assets			\$ 32,842,794
Increase to Disabled and Survivors	\$ 1,861,985		
Amortization Payment		\$ 9,513,436	
Excess Interest (1.09% x Average Invested Assets)		2,720,062	
Estimated Excess (Deficit) in Rate	17,313,809		
Rate Applied to Lower Payroll		3,209,274	
Mortality Gain		382,232	
Increases in Compensation	6,867,961		
Aging of the Group	<u>7,900,577</u>		
Totals	<u>\$33,944,332</u>	<u>\$15,825,004</u>	
Expected Decrease (Increase) in Unfunded			(18,119,328)
Net Change in Reserves			\$ 50,962,122
Experience Variation (Gain) Loss			<u>(2,044,522)</u>
Total			<u>\$ 48,917,600</u>
1978 Actuarial Reserve			\$766,368,632
1977 Actuarial Reserve			<u>717,451,032</u>
Increase (Decrease)			<u>\$ 48,917,600</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSBasic Members

As of July 1, 1977	19,005
New Entrants	4
Reinstated	124
Transfers	- 1
<u>Total</u>	<u>19,132</u>

Separations:

a. With Refund of Contributions	
(i) Death	71
(ii) Withdrawal	109
b. With Deferred Annuity	108
c. With Disability Annuity	112
d. With Normal Retirement Annuity	654
e. With Survivor Annuity	48
<u>Total</u>	<u>1,102</u>
Members as of July 1, 1978	<u>18,030</u>
Inactive Members*	<u>3,768</u>
Members included in Entry Age Normal Cost Calculation	<u>14,262</u>

* Members with no contributions for 12 months or more. The resulting obligation was included with vested and inactive members.

RECONCILIATION OF ANNUITANTSBasic MembersNormal Retirement Annuitants

As of July 1, 1977	7,303
Additions During Year	762
Deletions During Year	- 331
<u>Total as of July 1, 1978</u>	<u>7,734</u>
Annual Annuity - July 1, 1977	\$20,123,483
- July 1, 1978	\$22,938,967

Disability Annuitants

As of July 1, 1977	372
Additions During Year	112
Deletions During Year	- 79
<u>Total as of July 1, 1978</u>	<u>405</u>
Annual Annuity - July 1, 1977	\$ 1,275,410
- July 1, 1978	\$ 1,651,023

Survivor Annuitants

(a) Spouse Only as of July 1, 1977	2,828
Optional Survivors as of July 1, 1977	86
Additional Spouse Only During Year*	214
Additional Optional Survivors During Year	26
Deletions During Year	- 135

<u>Total as of July 1, 1978</u>	<u>3,019</u>
Annual Annuity - July 1, 1977	\$ 3,675,015
- July 1, 1978	\$ 4,116,203

(b) Survivor with Children	
As of July 1, 1977	218
Additions During Year	25
Deletions During Year*	- 47

<u>Total as of July 1, 1978</u>	<u>196</u>
Annual Annuity - July 1, 1977	\$ 412,269
- July 1, 1978	\$ 444,797

(c) Children	
As of July 1, 1977	455
Additions During Year	70
Deletions During Year	- 117

<u>Total as of July 1, 1978</u>	<u>408</u>
Annual Annuity - July 1, 1977	\$ 414,624
- July 1, 1978	\$ 403,370

Deferred Vested Members

As of July 1, 1977	948
Additions During Year	108
Deletions During Year	- 27

<u>Total as of July 1, 1978</u>	<u>1,029</u>
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* Includes Survivors with children at initial commencement date who have no dependent children at June 30, 1978.

Basic Members

SUPPORTING EXHIBITS

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PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersRetired Prior to July 1, 1973Payable From Adjustable Fixed Benefit Fund

<u>Age</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
63	1	\$ 183.79	-	\$ -
64	2	295.22	3	310.78
65	3	480.67	4	613.35
66	7	1,110.70	8	839.89
67	14	2,518.20	15	2,415.33
68	20	4,028.66	28	4,559.40
69	36	7,243.24	26	4,364.56
70	80	18,556.50	60	9,934.63
71	171	37,892.11	135	21,162.16
72	148	32,907.74	142	22,177.03
73	149	32,867.81	115	18,549.87
74	126	27,932.28	125	20,571.32
75	141	31,267.25	122	18,935.99
76	160	35,097.94	133	22,960.86
77	168	38,802.81	103	17,437.23
78	151	33,172.72	103	17,761.38
79	140	30,598.90	110	18,214.50
80	118	25,040.69	89	16,807.02
81	128	25,257.88	83	15,997.13
82	125	28,198.20	76	13,688.62
83	108	24,078.48	70	11,803.15
84	110	24,292.60	55	9,243.87
85	74	15,265.12	43	6,276.71
86	67	15,078.53	48	7,029.41
87	62	12,621.09	34	6,754.13
88	29	6,611.46	30	4,933.52
89	43	9,299.09	30	5,822.10
90	33	6,576.28	18	3,027.97
91	26	4,745.77	13	1,810.52
92	17	2,908.77	9	2,292.88
93	15	2,705.69	11	1,233.24
94	8	1,899.31	6	1,164.99
95	10	1,560.26	2	226.05
96	4	683.93	3	622.45
97	1	172.55	2	195.31
98	1	118.59	2	271.15
100	1	174.12	-	-
101	1	136.25	-	-
104	-	-	1	183.22
<u>Totals</u>	<u>2,499</u>	<u>\$542,381.20</u>	<u>1,857</u>	<u>\$310,191.72</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersRetired Under Law in Force July 1, 1973 and SubsequentPayable From Adjustable Fixed Benefit Fund

<u>Age</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
58	4	\$ 1,911.22	4	\$ 812.70
59	13	4,695.22	9	2,261.74
60	9	5,038.80	12	2,362.56
61	25	9,851.35	16	3,565.65
62	29	14,619.28	32	9,105.81
63	63	35,590.44	62	22,341.77
64	100	48,758.97	60	20,314.62
65	154	62,652.60	145	41,945.05
66	284	109,332.93	280	65,890.50
67	257	93,490.27	235	61,613.62
68	270	99,067.02	232	49,064.50
69	217	70,517.03	207	41,103.64
70	150	53,533.07	132	25,598.66
71	58	20,162.52	47	10,404.87
72	31	10,551.64	30	5,559.13
73	30	8,645.08	15	1,540.89
74	17	3,938.60	16	2,953.79
75	19	9,001.06	13	1,913.47
76	9	1,829.71	7	639.97
77	10	4,179.87	5	757.66
78	7	4,411.23	3	249.74
79	10	1,828.45	9	1,306.19
80	7	1,839.89	2	215.13
81	1	509.44	2	166.74
82	-	-	4	614.53
83	2	975.26	-	-
84	1	25.15	-	-
86	1	787.96	-	-
87	1	818.63	-	-
88	1	34.34	-	-
92	1	100.12	-	-
<u>Total</u>	<u>1,781</u>	<u>\$678,697.15</u>	<u>1,579</u>	<u>\$372,302.93</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersSt. Paul Bureau of Health

<u>Age</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
54	-	\$ -	1	\$ 378.78
57	-	-	1	439.94
58	-	-	1	383.45
59	-	-	1	373.11
66	-	-	1	384.23
68	-	-	1	419.31
71	3	1,286.26	2	958.24
75	1	486.34	-	-
76	1	465.06	-	-
77	-	-	1	487.50
78	-	-	1	482.44
80	1	487.12	-	-
82	-	-	1	485.94
87	-	-	1	489.84
<u>Totals</u>	<u>6</u>	<u>\$2,724.78</u>	<u>12</u>	<u>\$5,282.78</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersBeneficiaries Payable from Minnesota Adjustable Fixed Benefit Fund

<u>Age</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
42	1	\$ 40.93	-	\$ -
44	-	-	1	147.11
50	-	-	1	177.91
51	1	33.70	1	229.57
54	-	-	3	896.09
56	-	-	2	597.07
57	-	-	1	175.71
58	-	-	4	1,063.57
59	1	152.79	3	710.02
60	-	-	5	1,082.60
61	-	-	5	494.18
62	-	-	6	1,443.31
63	-	-	7	1,403.38
64	-	-	7	2,697.90
65	-	-	7	1,292.50
66	-	-	5	531.05
67	1	234.71	6	2,142.36
68	-	-	6	1,547.53
69	-	-	4	533.33
70	-	-	5	1,486.81
71	-	-	6	1,133.05
72	-	-	2	81.15
73	1	144.09	3	465.68
74	1	288.81	5	1,824.09
75	-	-	7	1,575.66
76	1	392.83	2	211.53
77	-	-	4	560.32
78	-	-	1	370.01
79	-	-	1	110.88
81	-	-	4	690.19
82	-	-	4	1,106.06
83	-	-	2	243.74
87	-	-	1	159.90
89	-	-	1	55.27
<u>Totals</u>	<u>7</u>	<u>\$1,287.86</u>	<u>122</u>	<u>\$27,239.53</u>

Annuities Payable for a Certain Period Not Dependent on Age

<u>Number</u>	<u>Monthly Annuity</u>
<u>6</u>	<u>\$1,308.27</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersDISABILITY RETIREMENTS

<u>Age</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
34	1	\$235.04	-	\$ -
41	1	284.45	-	-
42	1	373.80	-	-
43	1	197.85	1	202.37
44	-	-	1	103.65
45	1	447.63	-	-
46	2	811.37	-	-
47	3	1,392.81	-	-
48	4	1,951.03	1	231.41
49	5	2,136.32	2	345.05
50	2	623.73	-	-
51	6	1,864.01	2	329.68
52	4	1,656.45	-	-
53	5	1,725.58	4	749.66
54	9	3,189.73	2	787.43
55	14	5,599.51	7	1,050.71
56	13	4,441.70	7	1,063.56
57	9	4,269.72	6	923.77
58	11	4,412.64	7	1,260.85
59	25	10,281.08	5	1,040.38
60	25	10,259.81	7	2,094.95
61	24	11,042.79	12	2,169.23
62	25	10,383.60	15	3,372.66
63	37	15,549.18	17	3,186.76
64	39	14,218.96	19	2,254.80
65	14	6,877.20	9	2,193.23
<u>TOTALS</u>	<u>281</u>	<u>\$114,225.09</u>	<u>124</u>	<u>\$23,360.15</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersSURVIVOR ANNUITIESFEMALE

<u>Age</u>	<u>Number</u>	<u>Monthly Annuity</u>	<u>Age</u>	<u>Number</u>	<u>Monthly Annuity</u>
34	1	\$ 280.80	68	92	\$ 9,944.11
35	2	480.94	69	88	9,758.33
36	4	964.16	70	82	8,713.95
37	1	282.00	71	95	9,841.78
38	1	280.80	72	86	9,003.47
39	1	305.66	73	108	10,819.60
40	3	593.14	74	100	10,282.08
41	2	175.00	75	115	11,561.49
42	5	1,165.59	76	125	13,214.23
43	6	1,176.92	77	118	12,505.78
44	6	1,440.28	78	104	10,691.50
45	6	1,196.95	79	102	10,330.95
46	9	1,950.00	80	104	11,153.78
47	8	1,432.84	81	111	10,937.57
48	10	2,007.58	82	85	9,042.74
49	19	3,827.55	83	87	8,500.21
50	23	4,291.35	84	77	7,747.41
51	15	1,817.58	85	88	8,790.22
52	24	4,228.16	86	59	5,162.15
53	22	3,777.50	87	57	4,951.13
54	32	6,174.94	88	35	3,079.84
55	25	3,520.13	89	43	3,468.01
56	49	7,548.75	90	36	3,378.20
57	41	6,934.71	91	18	1,470.52
58	49	8,585.92	92	16	1,351.44
59	53	7,891.36	93	17	1,302.37
60	45	7,325.68	94	8	532.61
61	69	8,325.69	95	4	356.34
62	63	8,268.38	96	3	326.56
63	65	7,280.15	97	1	82.34
64	58	6,117.84	98	3	247.19
65	90	10,073.10	99	2	265.12
66	88	9,573.93	100	2	129.98
67	86	9,234.59	104	1	112.25
			<u>TOTALS</u>	<u>3,053</u>	<u>\$348,125.22</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersSURVIVOR ANNUITIESMALE

<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
44	1	\$ 225.93
60	2	169.00
64	2	279.53
65	3	566.91
67	1	67.49
69	1	221.23
70	2	162.88
71	1	91.14
72	1	122.18
73	2	122.07
74	1	90.74
75	1	257.18
76	1	138.78
77	2	232.82
79	2	90.52
80	1	26.74
82	2	254.45
83	5	188.94
88	1	35.95
91	1	86.28
<u>TOTALS</u>	<u>33</u>	<u>\$3,430.76</u>

CHILDREN

<u>Number</u>	<u>Monthly Annuity</u>
<u>408</u>	<u>\$33,841.42</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Basic Members

CONSIDERED EARNINGS

Active Male Employees
(Age and Service as of July 1, 1978)

AGE	YEARS OF SERVICE							
	Under 1		1		2 - 4		5 - 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 30	-	-	-	-	-	-	3	30,920
30 to 35	-	-	-	-	3	35,229	7	111,680
35 to 40	-	-	-	-	4	37,658	8	144,835
40 to 45	-	-	-	-	-	-	10	123,684
45 to 50	-	-	-	-	4	32,988	9	94,434
50 to 55	-	-	-	-	4	48,926	16	168,600
55 to 60	-	-	-	-	6	67,582	12	126,530
60 to 65	-	-	-	-	8	102,382	7	81,510
65 & Up	-	-	-	-	5	58,745	9	45,318
<u>TOTAL</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>34</u>	<u>\$ 383,510</u>	<u>81</u>	<u>\$ 927,511</u>

AGE	YEARS OF SERVICE							
	10-14		15-19		20-24		25-29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 30	3	42,709	-	-	-	-	-	-
30 to 35	169	2,550,768	7	109,569	-	-	-	-
35 to 40	404	6,160,058	138	2,184,344	6	84,425	-	-
40 to 45	435	6,295,126	374	5,950,893	162	2,660,654	16	269,569
45 to 50	405	5,525,367	382	5,980,424	338	5,472,240	111	1,858,938
50 to 55	400	5,194,548	438	6,273,250	420	6,600,344	321	5,464,476
55 to 60	411	5,219,900	491	6,908,585	367	5,701,082	354	5,657,903
60 to 65	328	3,739,200	370	4,665,343	324	4,401,946	313	4,776,502
65 & Up	80	724,369	85	933,381	51	598,970	41	530,640
<u>TOTAL</u>	<u>2,635</u>	<u>\$35,452,045</u>	<u>2,285</u>	<u>\$33,005,789</u>	<u>1,668</u>	<u>\$25,519,661</u>	<u>1,156</u>	<u>\$ 18,558,028</u>

AGE	YEARS OF SERVICE							
	30-34		35-39		40 & UP		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 30	-	-	-	-	-	-	6	73,629
30 to 35	-	-	-	-	-	-	186	2,807,246
35 to 40	-	-	-	-	-	-	560	8,611,320
40 to 45	-	-	-	-	-	-	997	15,299,926
45 to 50	3	29,262	-	-	-	-	1,252	18,993,653
50 to 55	46	832,966	1	16,161	-	-	1,646	24,599,271
55 to 60	108	1,891,307	12	237,161	-	-	1,761	25,810,050
60 to 65	103	1,622,502	17	314,059	8	148,196	1,478	19,851,640
65 & Up	13	181,815	3	52,303	2	58,668	289	3,184,209
<u>TOTAL</u>	<u>273</u>	<u>\$ 4,557,852</u>	<u>33</u>	<u>\$ 619,684</u>	<u>10</u>	<u>\$ 206,864</u>	<u>8,175</u>	<u>\$119,230,944</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Basic Members

CONSIDERED EARNINGS

Active Female Employees
(Age and Service as of July 1, 1978)

AGE	YEARS OF SERVICE							
	Under 1		1 to 2		2 to 5		5 to 10	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	2	\$ 10,785	-	\$ -
25 to 30	-	-	-	-	1	5,008	5	41,088
30 to 35	-	-	-	-	-	-	13	117,542
35 to 40	-	-	-	-	-	-	11	103,137
40 to 45	-	-	-	-	1	4,371	35	234,493
45 to 50	-	-	-	-	3	7,449	75	453,269
50 to 55	-	-	-	-	3	35,909	109	663,612
55 to 60	-	-	-	-	2	7,212	91	544,686
60 to 65	-	-	-	-	3	36,061	60	372,752
65 & Up	-	-	-	-	3	16,692	11	54,949
<u>TOTAL</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>18</u>	<u>\$ 123,487</u>	<u>410</u>	<u>\$ 2,585,528</u>

AGE	YEARS OF SERVICE							
	10 to 15		15 to 20		20 to 25		25 to 30	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 30	14	142,130	-	-	-	-	-	-
30 to 35	133	1,574,962	17	185,467	-	-	-	-
35 to 40	162	1,813,460	77	929,005	6	76,413	-	-
40 to 45	267	2,404,574	86	1,019,625	38	474,672	5	61,181
45 to 50	518	4,172,376	155	1,582,100	49	598,571	29	333,102
50 to 55	737	5,944,044	283	2,668,614	85	983,243	62	842,826
55 to 60	748	5,748,065	459	4,272,953	165	1,757,914	72	852,767
60 to 65	493	3,567,333	407	3,528,998	155	1,677,141	80	899,231
65 & Up	90	526,801	72	587,715	41	332,589	15	174,041
<u>TOTAL</u>	<u>3,162</u>	<u>\$25,893,745</u>	<u>1,556</u>	<u>\$14,774,477</u>	<u>539</u>	<u>\$ 5,900,543</u>	<u>263</u>	<u>\$ 3,163,148</u>

AGE	YEARS OF SERVICE							
	30 to 35		35 to 40		40 & Up		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	2	\$ 10,785
25 to 30	-	-	-	-	-	-	20	188,226
30 to 35	-	-	-	-	-	-	163	1,877,971
35 to 40	-	-	-	-	-	-	256	2,922,015
40 to 45	-	-	-	-	-	-	432	4,198,916
45 to 50	6	79,805	-	-	-	-	835	7,226,672
50 to 55	27	386,950	3	35,278	-	-	1,309	11,560,476
55 to 60	29	437,875	7	101,455	2	21,656	1,575	13,744,583
60 to 65	27	396,607	19	257,070	10	152,976	1,254	10,888,169
65 & Up	8	101,650	1	10,648	-	-	241	1,805,085
<u>TOTAL</u>	<u>97</u>	<u>\$ 1,402,887</u>	<u>30</u>	<u>\$ 404,451</u>	<u>12</u>	<u>\$ 174,632</u>	<u>6,087</u>	<u>\$54,422,898</u>

Based on census data from the Association as of June 30. Corrections are made during the year as received from the reporting units.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBASIC MEMBERSSUMMARY OF PLAN1. Name

Public Employees Retirement Association.

2. Type of Plan

Self-insured, managed by a 15 member Board of Trustees.

3. Employer Included

Any county, city, borough, town, school district within the state, or a department or unit of the state or any other public body employing any person who is a public employee as defined by the law.

4. Employees Included

All full time and certain part time employees who did not elect coverage under Section 218(d) of the Social Security Act and who are not contributing to any other local retirement plan.

5. Allowable Service

All periods of public service during which salary deductions were made or for which payments in lieu of salary deductions were deposited, including authorized leaves of absence, sick leaves, military leaves and layoffs.

6. Considered Salary

Salary means the periodical total compensation of any public employee before deductions for deferred compensation or supplemental retirement plans, and also means wages and includes net income from fees.

7. Employee Contributions

After July 1, 1973, 8% of considered salary.

8. Employer Contributions

Amount equal to the Employee Contributions plus 2-1/2% of considered salary.

9. Normal Retirement Annuity

After attainment of age 65 and completion of at least 10 years of allowable service.

"Average Salary" means an amount equivalent to the highest salary upon which contributions were paid for any five successive years of allowable service.

Annuity equal to:

- (a) 2% of "Average Salary" for each of the first years of allowable service plus
- (b) 2-1/2% of "Average Salary" for each year of service over 10 years.

10. Late Retirement Annuity

Annual Annuity determined as for Normal Retirement, considering allowable service and salary to actual retirement.

11. Early Retirement Annuity

After attainment of age 58 and completion of 20 years of allowable service.

Annual Annuity determined as for Normal Retirement considering allowable service and salary to actual retirement and reduced by 1/2 of 1% for each month between actual retirement and attainment of age 65 if service is less than 30 years, and between actual retirement and age 62 if service is 30 or more years.

12. Special Early Retirement Annuity

After attainment of age 62 and completion of 30 years of allowable service.

Annual Annuity determined as for Normal Retirement considering allowable service and salary to actual retirement without reduction for such early retirement.

13. Proportionate Annuity

At age 65 or earlier under a mandatory retirement statute or uniformly applied compulsory retirement policy and completion of at least three years but less than 10 years of allowable service.

Annual Annuity determined as for Normal Retirement, considering allowable service and salary to actual retirement.

14. Disability Benefit

In the event of total and permanent disability, after completion of 10 years of allowable service or attainment of age 50 and completion of 5 years of allowable service.

Annual Benefit payable to age 65 determined as for Normal Retirement, considering allowable service and salary to date of disablement, plus a supplement equal to \$5 for each year that age at disablement is less than 65, maximum supplement \$50. Total Benefit is limited to 100% of "Average Salary."

If disability continues to age 65, the disability benefit shall terminate and the person shall be deemed to be on retirement status and may elect to receive the greater of an annuity determined as for Normal Retirement or the disability benefit he was receiving prior to age 65, or he may select an optional annuity.

Any disabilitant attaining age 65 after July 1, 1973 shall have his annuity computed in accordance with the Normal Retirement Annuity formula above.

15. Survivor or Death Benefit

In event of death of an active member after 18 months of allowable service, or in the event of death of a disabilitant prior to age 65.

Annual Survivor Benefit to dependent spouse, of 30% of average salary during the last six months of allowable service, plus for each dependent child, 10% of such average salary. Maximum family benefit equal to \$450 per month. Minimum family benefit equal to 30% of such average Salary, subject to the maximum limitation.

In the event of death of a retired annuitant and no survivor benefits are payable, the excess (if any) of his accumulated contributions not paid out in the way of annuities shall be paid to his designated beneficiary, without interest.

Upon the death of an active member after age 58 and completion of 20 or more years of allowable service or if the member has made application for an annuity or disability benefit and dies prior to commencement of his benefit, the surviving spouse (in lieu of any other survivor benefit) may elect to receive an annuity equal to the 50% joint and survivor annuity the member could have qualified for on the date of his death.

In case of death of a member who has no eligible surviving dependents, his accumulated contributions shall be paid to his designated beneficiary with interest thereon at 3-1/2% per annum compounded annually.

16. Separation Benefit

In event of termination after 10 years of allowable service, a deferred vested annuity payable at age 65, or earlier if otherwise eligible, provided former member does not withdraw his contributions. (Said 10 years of allowable service need

not represent PERA coverage only but may be in conjunction with service covered by other Minnesota funds such as those for state employees and teachers and others which has this same provision; deferred annuity is paid by each fund according to the number of years of allowable service in each fund.)

Annual Annuity determined as for Normal Retirement under the provisions of the Plan at date of termination considering allowable service and salary to date of such termination, augmented by interest at 5% compounded annually from first of the month following separation from service or from July 1, 1971, whichever is later, to the date annuity begins to accrue.

All former members shall be eligible to receive a refund of their accumulated contributions without interest for the first three years of membership and thereafter with interest at 3-1/2% compounded annually. (Such election is in lieu of any other benefits under the Plan.)

17. Lump Sum Payments for Retired Annuitants, Disabilitants and Surviving Spouse receiving payments on November 30, 1977

Any of the above whose annuity or benefit was computed under laws in effect prior to July 1, 1973, shall receive an addition lump sum payment of \$250 payable December 1, 1977.

Persons receiving benefits from the Minnesota Adjustable Fixed Benefit Fund or the Retirement Fund shall receive the lump sum payment from the same fund.

18. Optional Annuities

A participant may elect to receive an equivalent actuarially reduced annuity in the form of either a 50% or 100% joint and survivor annuity.

19. Expenses

Paid by Association from retirement fund.

20. Actuarial Method

For purposes of reports to the Legislative Retirement Study Commission, costs for the Plan shall be determined on an "entry'age level normal cost" basis and 5% interest.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONFINANCIAL BALANCE SHEET
(Year Commencing July 1, 1978)Coordinated MembersRESERVES

Entry Age Normal Reserves

Retirement	\$350,938,208
Vesting	74,920,998
Disability	20,061,377
Survivors	5,467,420
Refund	<u>36,767,437</u>
	\$488,155,440

Less Value of Benefits to be Earned in the Future	267,466,114	\$220,689,326
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Deferred Annuitants		835,103
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Former Members without Vested Rights		4,049,985
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Retired Members		
Minnesota Adjustable Fixed Benefit Fund Admitted Assets	29,602,321 *	

Disability	1,786,507	
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Less Net Mortality Gain Receivable from Minnesota Adjustable Fixed Benefits Fund	<u>61,435</u>	<u>31,327,393</u>	\$256,901,807
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Unfunded Obligation			<u>(9,914,112)</u>
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Funded Obligation			<u>\$266,815,919</u>
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* The Retired Life Reserves are \$31,465,873. The difference, \$1,863,552, is to be provided for out of MAFB investment gains and is approximately equal to the difference between the MAFB recognized and admitted value.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1978)Coordinated MembersAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$524,367,921
Obligation for Service		
Rendered to Date	\$256,901,807	
Net Assets	266,815,919	
Accrued Unfunded Obligation	(9,914,112)	
Funding Ratio		104%
Amortization (19-Year) Requirement	(820,343)	
Covered Payroll	589,829,728	
Amortization (19-Year) Rate Requirement		<u>(0.139%)</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	\$267,466,114	
Present Value of Future Payroll	4,072,818,700	
Normal Cost Rate Requirement	6.567%	
Employee Contribution Rate	<u>4.000</u>	
Employer Normal Cost Rate Requirement		<u>2.567%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		5.500%
Amortization (19-Year) Rate Requirement	(0.139%)	
Normal Cost Rate Requirement	2.567	
Allowance for Expenses	<u>0.148</u>	
Total Requirement		2.576%
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>2.924%</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1978)Coordinated MembersAMORTIZATION RATE REQUIREMENT

	Period			
	10-Year	20-Year	30-Year	40-Year
Accrued Unfunded Obligation	\$ (9,914,112)	\$ (9,914,112)	\$ (9,914,112)	\$ (9,914,112)
Amortization Requirement	(1,283,923)	(795,534)	(644,927)	(577,776)
Covered Payroll	589,829,728	589,829,728	589,829,728	589,829,728
Amortization Rate Requirement	<u>(0.218%)</u>	<u>(0.135%)</u>	<u>(0.109%)</u>	<u>(0.098%)</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law	<u>5.500%</u>	<u>5.500%</u>	<u>5.500%</u>	<u>5.500%</u>
Amortization Rate Requirement	(0.218%)	(0.135%)	(0.109%)	(0.098%)
Normal Cost Rate Requirement	2.567	2.567	2.567	2.567
Allowance for Expenses	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>
Total Requirement	<u>2.497%</u>	<u>2.580%</u>	<u>2.606%</u>	<u>2.617%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement	<u>3.003%</u>	<u>2.920%</u>	<u>2.894%</u>	<u>2.883%</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated MembersSTATEMENT OF REVENUE, EXPENDITURES,
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)
(Year Ending June 30, 1978)Revenue:

Employer Contributions	\$30,134,313.08	
Member Contributions	22,344,984.47	
MAFBF Contribution	166,678.74	
Investment Income	13,357,535.50	
Minnesota Adjustable Fixed Benefit Fund Income	<u>1,625,737.00</u>	
Total Revenue		\$67,629,248.79

Expenditure:

Benefits	\$ 3,606,795.02	
Refund of Contributions	7,325,238.52	
Administrative Expense	<u>884,258.07</u>	
Total Expenditures		<u>11,816,291.61</u>
Increase in Assets (1978)		<u><u>\$55,812,957.18</u></u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION
RECONCILIATION OF CHANGE IN ACTUARIAL RESERVES

Coordinated Members

ALLOCATION OF CHANGE IN ACTUARIAL RESERVES

	<u>Increase</u>	<u>Decrease</u>	
Increase in Assets			\$ 55,812,958
Increase to Disabled and Survivors	\$ 44,149		
Amortization Payment		\$ 57,739	
Excess Interest (1.09% x Average Invested Assets)		2,191,054	
Estimated Excess (Deficit) in Rate		15,619,302	
Contribution Require- ment Applied to Larger Payroll		1,732,593	
Mortality Gain		61,435	
Increases in Compensation	6,224,095		
Totals	<u>\$6,268,244</u>	<u>\$19,662,123</u>	
Expected Decrease (Increase) in Unfunded			\$ <u>13,393,879</u>
Net Change in Reserves			\$ 42,419,079
Experience Variation (Gain) Loss			<u>1,570,606</u>
Total			\$ <u>43,989,685</u>
1978 Actuarial Reserve			\$256,901,807
1977 Actuarial Reserve			<u>212,912,122</u>
Increase (Decrease)			\$ <u>43,989,685</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSCoordinated Members

As of July 1, 1977	67,941
New Entrants	15,340
Reinstated	3,789
Transfer	<u>1</u>
<u>Total</u>	<u>87,071</u>

Separations:

a. With Refund of Contributions	
(i) Death	135
(ii) Withdrawal	17,158
b. With Deferred Annuity	58
c. With Disability Annuity	62
d. With Normal Retirement Annuity	267
e. With Survivor Annuity	<u>18</u>
<u>Total</u>	<u>17,698</u>

Members as of July 1, 1978	<u>69,373</u>
Inactive Members*	<u>2,307</u>
Members included in Entry Age Normal Cost Calculation	<u>67,066</u>

* Members with no contributions for 12 months or more. The resulting obligation was included with vested and inactive members.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ANNUITANTSCoordinated MembersNormal Retirement Annuitants

As of July 1, 1977	1,820
Additions During Year	325
Deletions During Year	<u>- 36</u>
<u>Total as of July 1, 1978</u>	<u>2,109</u>
Annual Annuity - July 1, 1977	\$2,804,517
- July 1, 1978	<u>\$3,341,161</u>

Disability Annuitants

As of July 1, 1977	127
Additions During Year	62
Deletions During Year	<u>- 22</u>
<u>Total as of July 1, 1978</u>	<u>167</u>
Annual Annuity - July 1, 1977	\$ 151,573
- July 1, 1978	<u>\$ 233,160</u>

Survivor Annuitants

Spouse Only	
As of July 1, 1977	34
Additions During Year	11
Deletions During Year	<u>-</u>
<u>Total as of July 1, 1978</u>	<u>45</u>
Annual Annuity - July 1, 1977	\$ 38,561
- July 1, 1978	<u>\$ 51,420</u>

Deferred Vested Members

As of July 1, 1977	146
Additions During Year	58
Deletions During Year	<u>- 1</u>
<u>Total as of July 1, 1978</u>	<u>203</u>

Coordinated Members

SUPPORTING EXHIBITS

Exhibit 57	Retired Prior to July 1, 1973	81
Exhibit 58	Retired Under Law in Force July 1, 1973 and Subsequent	82
Exhibit 59	Survivor Annuities	83
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Exhibit 61	Considered Earnings - Male	85
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Exhibit 63	Summary of Plan	87 - 90

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated MembersRetired Prior to July 1, 1973

<u>Age</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
65	1	\$ 44.30	-	\$ -
66	-	-	-	-
67	-	-	1	52.45
68	3	281.22	2	182.48
69	3	399.98	5	736.63
70	29	2,439.23	14	1,759.35
71	76	7,506.32	35	3,732.43
72	73	7,223.08	31	3,063.96
73	84	8,180.49	33	3,119.86
74	71	6,094.62	25	2,300.19
75	73	6,950.69	26	3,433.99
76	29	2,398.11	21	1,558.96
77	24	1,823.59	10	1,034.01
78	20	2,586.94	9	1,417.82
79	9	1,290.44	11	1,533.58
80	5	604.72	5	278.26
81	6	1,202.06	2	249.25
82	7	533.68	2	147.05
83	2	618.07	3	523.09
84	4	513.79	-	-
85	1	77.90	2	428.28
86	4	276.91	1	276.79
87	2	151.90	1	185.98
88	2	299.69	1	195.87
<u>Totals</u>	<u>528</u>	<u>\$51,497.73</u>	<u>240</u>	<u>\$26,210.28</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated MembersRetired Under Law in Force July 1, 1973 and Subsequent

<u>Age</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
58	-	\$ -	1	\$ 155.19
59	1	51.85	1	1.79
60	1	250.81	4	1,047.18
61	1	224.01	2	390.07
62	6	1,340.44	-	-
63	16	4,805.02	10	1,850.83
64	22	4,674.04	6	1,278.35
65	86	14,400.75	29	3,664.17
66	154	22,834.43	82	9,265.24
67	171	28,809.03	84	10,610.35
68	151	21,598.89	74	8,166.72
69	140	21,068.15	50	7,364.10
70	83	12,844.34	36	5,488.24
71	33	4,747.86	16	1,331.00
72	15	2,876.12	9	674.80
73	18	2,996.43	6	702.94
74	7	805.99	2	119.61
75	6	753.65	2	98.53
76	3	411.46	-	-
77	-	-	2	437.79
78	2	288.76	1	81.24
79	2	296.67	1	170.73
80	1	483.18	-	-
81	2	1,127.46	-	-
82	1	114.13	-	-
86	1	20.33	-	-
<u>Totals</u>	<u>923</u>	<u>\$147,823.80</u>	<u>418</u>	<u>\$52,898.87</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated MembersPayable From Adjustable Fixed Benefit FundSURVIVOR ANNUITIESFEMALES

<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
34	1	\$ 33.14
52	1	59.13
54	1	62.13
57	1	78.16
58	1	152.51
60	3	412.76
61	2	150.79
62	2	130.46
63	6	476.77
64	3	355.97
66	3	201.42
67	4	384.96
68	3	417.89
69	3	186.76
70	1	58.23
71	1	92.62
72	1	60.50
73	1	40.21
74	1	266.32
75	1	89.10
78	2	231.67
82	1	58.10
85	1	146.96
86	1	138.42
<u>Totals</u>	<u>45</u>	<u>\$4,284.98</u>

Annuities Payable for a Certain Period Not Dependent on Age

<u>Number</u>	<u>Monthly Annuity</u>
<u>8</u>	<u>\$796.99</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated MembersDISABILITY RETIREMENTS

<u>Age</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
40	1	\$ 108.59	-	\$ -
45	1	141.37	-	-
46	3	272.81	-	-
48	2	430.87	-	-
49	1	381.25	-	-
50	1	292.26	-	-
51	1	95.05	1	11.33
52	2	347.01	3	264.40
53	3	465.29	1	43.27
54	2	198.69	2	73.55
55	2	215.09	-	-
56	3	397.32	2	55.02
57	3	123.82	1	30.55
58	9	1,464.54	1	68.53
59	13	1,540.92	4	308.47
60	7	798.44	5	719.77
61	17	2,213.90	1	65.10
62	11	1,572.67	4	398.16
63	16	2,174.80	7	286.96
64	20	2,765.13	6	428.65
65	8	527.03	3	149.41
<u>TOTALS</u>	<u>126</u>	<u>\$16,526.85</u>	<u>41</u>	<u>\$2,903.17</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated MembersCONSIDERED EARNINGS

Active Male Employees
(Age and Service as of July 1, 1978)

<u>YEARS OF SERVICE</u>								
<u>AGE</u>	<u>Under 1</u>		<u>1</u>		<u>2 - 4</u>		<u>5 - 9</u>	
	<u>NO.</u>	<u>EARNINGS</u>	<u>NO.</u>	<u>EARNINGS</u>	<u>NO.</u>	<u>EARNINGS</u>	<u>NO.</u>	<u>EARNINGS</u>
Under 25	1,062	\$ 7,312,469	587	\$ 5,053,753	610	\$ 5,976,808	38	\$ 361,338
25 to 30	1,058	9,311,301	838	8,455,539	1,644	19,278,978	842	10,668,476
30 to 35	572	5,595,124	484	5,752,082	1,299	17,497,739	1,424	20,828,842
35 to 40	308	2,812,656	250	2,777,232	664	9,012,701	988	14,415,804
40 to 45	225	1,985,309	204	2,166,134	568	6,892,289	787	10,742,642
45 to 50	188	1,709,222	167	1,762,906	486	5,590,751	818	10,829,737
50 to 55	190	1,684,846	175	1,662,670	517	5,711,363	883	10,966,831
55 to 60	138	1,140,699	140	1,277,463	441	4,599,480	860	10,440,615
60 to 65	100	679,573	81	669,340	343	3,150,744	667	7,447,847
65 & Up	35	186,817	36	141,850	120	587,385	235	1,618,380
<u>TOTAL</u>	<u>3,876</u>	<u>\$32,418,016</u>	<u>2,962</u>	<u>\$29,718,969</u>	<u>6,692</u>	<u>\$78,298,238</u>	<u>7,542</u>	<u>\$ 98,320,512</u>

<u>YEARS OF SERVICE</u>								
<u>AGE</u>	<u>10-14</u>		<u>15-19</u>		<u>20-24</u>		<u>25-29</u>	
	<u>NO.</u>	<u>EARNINGS</u>	<u>NO.</u>	<u>EARNINGS</u>	<u>NO.</u>	<u>EARNINGS</u>	<u>NO.</u>	<u>EARNINGS</u>
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 30	13	177,463	-	-	-	-	-	-
30 to 35	212	3,405,856	5	48,109	-	-	-	-
35 to 40	285	4,718,062	42	770,406	1	15,721	-	-
40 to 45	267	4,536,193	126	2,393,875	21	399,078	-	-
45 to 50	270	4,188,877	121	2,326,993	58	1,173,032	14	281,225
50 to 55	334	4,849,424	124	2,134,746	80	1,556,336	62	1,301,300
55 to 60	368	4,987,618	177	2,676,695	102	1,612,574	57	969,066
60 to 65	336	4,188,017	149	2,045,408	88	1,313,748	50	726,244
65 & Up	76	757,015	42	465,555	23	321,733	7	107,423
<u>TOTAL</u>	<u>2,161</u>	<u>\$31,808,525</u>	<u>786</u>	<u>\$12,861,787</u>	<u>373</u>	<u>\$ 6,392,222</u>	<u>190</u>	<u>\$ 3,385,258</u>

<u>YEARS OF SERVICE</u>								
<u>AGE</u>	<u>30-34</u>		<u>35-39</u>		<u>40 & UP</u>		<u>ALL</u>	
	<u>NO.</u>	<u>EARNINGS</u>	<u>NO.</u>	<u>EARNINGS</u>	<u>NO.</u>	<u>EARNINGS</u>	<u>NO.</u>	<u>EARNINGS</u>
Under 25	-	\$ -	-	\$ -	-	\$ -	2,297	\$ 18,704,368
25 to 30	-	-	-	-	-	-	4,395	47,891,757
30 to 35	-	-	-	-	-	-	3,996	53,127,752
35 to 40	-	-	-	-	-	-	2,538	34,522,582
40 to 45	-	-	-	-	-	-	2,198	29,115,520
45 to 50	-	-	-	-	-	-	2,122	27,862,743
50 to 55	14	287,849	-	-	-	-	2,379	30,155,365
55 to 60	11	242,943	5	68,474	-	-	2,299	28,015,627
60 to 65	18	357,945	7	96,101	2	38,440	1,841	20,713,407
65 & Up	1	12,092	-	-	1	9,524	576	4,207,774
<u>TOTAL</u>	<u>44</u>	<u>\$ 900,829</u>	<u>12</u>	<u>\$ 164,575</u>	<u>3</u>	<u>\$ 47,964</u>	<u>24,641</u>	<u>\$294,316,895</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated MembersCONSIDERED EARNINGSActive Female Employees
(Age and Service as of July 1, 1978)

		YEARS OF SERVICE							
		Under 1		1		2 - 4		5 - 9	
AGE	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	
Under 25	2,483	\$14,898,497	1,470	\$ 9,869,584	1,593	\$11,895,965	177	\$ 1,401,108	
25 to 30	1,550	10,580,934	1,235	9,631,178	2,300	20,341,508	1,235	11,742,496	
30 to 35	1,069	6,482,901	918	5,862,451	1,636	12,840,627	1,168	12,339,853	
35 to 40	1,010	5,494,013	845	4,721,310	1,961	12,573,305	1,390	11,087,341	
40 to 45	676	3,512,601	710	3,726,003	1,832	10,692,893	1,892	13,003,007	
45 to 50	448	2,398,235	480	2,567,955	1,410	8,546,927	2,044	13,872,970	
50 to 55	309	1,690,143	373	1,960,044	1,156	6,930,644	1,904	12,825,376	
55 to 60	189	995,191	258	1,283,424	779	4,642,689	1,465	9,642,098	
60 to 65	78	363,879	114	519,890	416	2,259,563	967	6,135,531	
65 & Up	38	115,555	30	78,605	130	452,341	274	1,207,881	
<u>TOTAL</u>	<u>7,850</u>	<u>\$46,531,949</u>	<u>6,433</u>	<u>\$40,220,444</u>	<u>13,213</u>	<u>\$91,176,462</u>	<u>12,516</u>	<u>\$ 93,257,661</u>	

		YEARS OF SERVICE							
		10-14		15-19		20-24		25-29	
AGE	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -	
25 to 30	42	400,520	-	-	-	-	-	-	
30 to 35	195	2,323,656	2	18,244	-	-	-	-	
35 to 40	197	2,199,147	21	257,359	3	31,785	-	-	
40 to 45	195	1,898,811	16	222,214	14	163,703	-	-	
45 to 50	287	2,911,573	21	245,011	11	151,100	7	104,012	
50 to 55	368	3,522,625	33	397,503	19	259,584	15	225,347	
55 to 60	325	2,993,932	54	626,985	31	430,019	10	173,900	
60 to 65	272	2,314,570	77	757,962	22	220,386	21	248,242	
65 & Up	89	507,174	18	179,817	9	66,431	5	64,764	
<u>TOTAL</u>	<u>1,970</u>	<u>\$19,072,008</u>	<u>242</u>	<u>\$ 2,705,095</u>	<u>109</u>	<u>\$ 1,323,008</u>	<u>58</u>	<u>\$ 816,265</u>	

		YEARS OF SERVICE							
		30-34		35-39		40 & UP		ALL	
AGE	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	
Under 25	-	\$ -	-	\$ -	-	\$ -	5,723	\$ 38,065,154	
25 to 30	-	-	-	-	-	-	6,362	52,696,636	
30 to 35	-	-	-	-	-	-	4,988	39,867,732	
35 to 40	-	-	-	-	-	-	5,427	36,364,260	
40 to 45	-	-	-	-	-	-	5,335	33,219,232	
45 to 50	1	15,730	-	-	-	-	4,709	30,813,513	
50 to 55	5	40,867	1	13,910	-	-	4,183	27,866,043	
55 to 60	8	129,594	3	32,956	-	-	3,122	20,950,428	
60 to 65	3	39,277	8	83,926	2	40,646	1,980	12,983,872	
65 & Up	1	2,740	-	-	2	10,655	596	2,685,963	
<u>TOTAL</u>	<u>18</u>	<u>\$ 228,208</u>	<u>12</u>	<u>\$ 130,432</u>	<u>4</u>	<u>\$ 51,301</u>	<u>42,425</u>	<u>\$295,512,833</u>	

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCOORDINATED MEMBERSSUMMARY OF PLAN1. Name

Public Employees Retirement Association.

2. Type of Plan

Self-insured, managed by a 15 member Board of Trustees.

3. Employer Included

Any county, city, borough, town, school district within the state, or a department or unit of the state or any other public body employing any person who is a public employee as defined by the law.

4. Employees Included

All full time and certain part time employees who either elected coverage under Section 218(d) of the Social Security Act, or were automatically so covered by reason of being new employees, and who are not contributing to any other local retirement plan.

5. Allowable Service

All periods of public service during which salary deductions were made or for which payments in lieu of salary deductions were deposited, including authorized leaves of absence, sick leaves, military leaves and layoffs.

6. Considered Salary

Salary means the periodical total compensation of any public employee before deductions for deferred compensation or supplemental retirement plans, and also means wages and includes net income from fees.

7. Employee Contributions

After July 1, 1973, 4% of considered salary.

8. Employer Contributions

Amount equal to the Employee Contributions plus 1-1/2% of considered salary.

9. Normal Retirement Annuity

After attainment of age 65 and completion of at least 10 years of allowable service.

"Average Salary" means an amount equivalent to the highest salary upon which contributions were paid for any five successive years of allowable service.

Annuity equal to:

- (a) 1% of "Average Salary" for each of the first 10 years of allowable service plus
- (b) 1-1/2% of "Average Salary" for each year of service over 10 years.

10. Late Retirement Annuity

Annual Annuity determined as for Normal Retirement, considering allowable service and salary to actual retirement.

11. Early Retirement Annuity

After attainment of age 58 and completion of 20 years of allowable service.

Annual Annuity determined as for Normal Retirement considering allowable service and salary to actual retirement and reduced by 1/2 of 1% for each month between actual retirement and attainment of age 65 if service is less than 30 years, and between actual retirement and age 62 if service is 30 or more years.

12. Special Early Retirement Annuity

After attainment of age 62 and completion of 30 years of allowable service.

Annual Annuity determined as for Normal Retirement considering allowable service and salary to actual retirement without reduction for such early retirement.

13. Proportionate Annuity

At age 65 or earlier under a mandatory retirement statute or uniformly applied compulsory retirement policy and completion of at least three years but less than 10 years of allowable service.

Annual Annuity determined as for Normal Retirement, considering allowable service and salary to actual retirement.

14. Disability Benefit

In the event of total and permanent disability, after completion of 10 years of allowable service or attainment of age 50 and completion of 5 years of allowable service.

Annual Benefit payable to age 65 determined as for Normal Retirement, considering allowable service and salary to date of disablement. Total Benefit is limited to 100% of "Average Salary."

If disability continues to age 65, the disability benefit shall terminate and the person shall be deemed to be on retirement status and may elect to receive the greater of an annuity determined as for Normal Retirement or the disability benefit he was receiving prior to age 65, or he may select an optional annuity.

Any disabilitant attaining age 65 after July 1, 1973 shall have his annuity computed in accordance with the Normal Retirement Annuity formula above.

15. Death Benefit

In event of death of an active member, his accumulated contributions shall be paid to his designated beneficiary with interest thereon at 3-1/2% per annum compounded annually.

In the event of death of a retired annuitant, the excess (if any) of his accumulated contributions not paid out in the way of annuities shall be paid to his designated beneficiary, without interest.

Upon the death of an active member after age 58 and completion of 20 or more years of allowable service or if the member has made application for an annuity or disability benefit and dies prior to commencement of his benefit, the surviving spouse (in lieu of any other survivor benefit) may elect to receive an annuity equal to the 50% joint and survivor annuity the member could have qualified for on the date of his death.

16. Separation Benefit

In event of termination after 10 years of allowable service, a deferred vested annuity payable at age 65, or earlier if otherwise eligible, provided former member does not withdraw his contributions. (Said 10 years of allowable service need not represent PERA coverage only but may be in conjunction with service covered by other Minnesota funds such as those for state employees and teachers and others which have this same provision; deferred annuity is paid by each fund according to the number of years of allowable service in each fund.)

Annual Annuity determined as for Normal Retirement under the provisions of the Plan at date of termination considering allowable service and salary to date of such termination, augmented by interest at 5%, compounded annually from first of the month following separation from service or from July 1, 1971, whichever is later, to the date annuity begins to accrue.

All former members shall be eligible to receive a refund of their accumulated contributions without interest for the first three years of membership and thereafter with interest at 3-1/2% compounded annually. (Such elections is in lieu of any other benefits under the Plan.)

17. Lump Sum Payments for Retired Annuitants, Disabilitants and Surviving Spouse receiving payments on November 30, 1977

Any of the above whose annuity or benefit was computed under laws in effect prior to July 1, 1973, shall receive an addition lump sum payment of \$225 payable December 1, 1977.

Persons receiving benefits from the Minnesota Adjustable Fixed Benefit Fund or the Retirement Fund shall receive the lump sum payment from the same fund.

18. Optional Annuities

A participant may elect to receive an equivalent actuarially reduced annuity in the form of either a 50% or 100% joint and survivor annuity.

19. Expenses

Paid by Association from retirement fund.

20. Actuarial Method

For purpose of reports to the Legislative Commission of Pensions and Retirement, costs for the Plan shall be determined on an "entry-age level normal cost" basis and 5% interest.

COMPENSATION & CAPITAL INCORPORATED

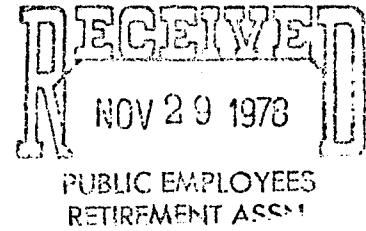
125 SOUTH WACKER DRIVE
DAVIS H. ROENISCH, FSA

CHICAGO, ILLINOIS 60606

TELEPHONE 312 332-4420
ACTUARIAL SERVICES

November 29, 1978

Mr. Orville I. Jorgenson
Chairman of the Board
Public Employees Retirement
Association
203 Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101



Dear Mr. Jorgenson:

1978 Actuarial Report

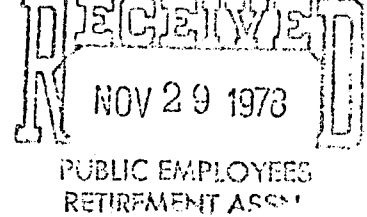
We are pleased to enclose the 1978 Actuarial Valuation Report. This report has been prepared in accordance with Minnesota law, including an interest rate assumption of 5 percent and a salary scale projection of 3½ percent compounded annually.

We are pleased to report that the Association remains in excellent actuarial condition. For example, the funding ratio increased from 66 percent to 69 percent for the General Fund and 80 percent to 82 percent for the Police and Fire Group. These ratios have shown a steady trend of increasing over the years (except as interrupted for a change to more conservative actuarial assumptions) and this is one of the best measures of the appropriateness of the financial arrangements established by the law to provide the benefits.

The General Fund continues to show a small deficit but again, the trend is improving. For example, the deficit established under the procedures called for by Minnesota law has fallen from 0.842% to 0.292% from last year to this year. This is well within the range of reasonable actuarial variation and, most importantly, the basic trend is towards coming into actuarial balance. The Police and Fire Fund already has a modest positive margin which increased from 0.629% to 1.127% between the two years.

These favorable trends are all verified by the calculations presented in the Supplemental Report. In that report we measure the asset accumulation against the present value of benefits earned to date if the Plan were to terminate and, as expected, these funding ratios are substantially higher than those comparing the assets to the projected benefits. The trend of improvement in the funding ratio has

Mr. Orville I. Jorgenson
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been steady and provides additional confirmation of the soundness of the program.

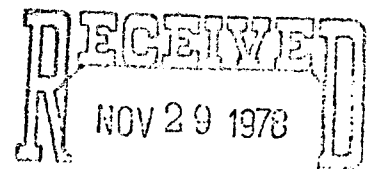
Towards the end of the Supplemental Report, we test the adequacy of the contribution provisions under the assumption that the extra benefits and contributions being received and made by the basic employees are self-balancing. This permits us to test the remaining benefits which represent the ongoing portion of the program for both basic and coordinated employees against the coordinated contribution rates. If this test is applied and, if the Federal law as proposed under PERISA (the Public Employees Retirement Income Security Act) applied, the Association would be able to conform to those funding requirements with a slight positive margin.

These results lead us to the conclusion that, however measured, the Public Employees Retirement Association is in reasonable actuarial balance and the contributions called for by the law will be sufficient to provide the retirement benefits as they come to and accumulate enough assets to fully fund the program. The only qualification to this conclusion is the unknown impact of the augmentation provisions which, if not modified, could very substantially increase the obligation and destroy the actuarial soundness of the Plan (see page 3 of the Report). We believe the Board should continue to press for elimination or reduction of this provision.

While the report follows the format used in prior years, we have made some modest changes in some of the exhibits. The principal such change is to clarify the financial balance sheet. For example, in Exhibit 7, showing the reserves for the General Fund (page 19), we use the value of the admitted assets as reported by the Minnesota Adjustable Fixed Benefit Fund, as the obligation for the retired members. This is necessary because the admitted assets represent the carrying value of this fund in the Association's asset account. Use of this figure for the retired members brings the liability and asset into balance. On the other hand, in prior years the auditors have raised a question about this number not being equal to the retired life reserves for the benefits being paid by the Minnesota Adjustable Fixed Benefit Fund.

To clarify this point, we have footnoted this balance and shown the actuarial obligation for benefits currently being paid out of MAFB funds. The difference is not, however, an obligation of the Public Employees Retirement Association.

Mr. Orville I. Jorgenson
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PUBLIC EMPLOYEES
RETIREMENT ASSN

It will be paid out of the investment gains to the MAFB fund. According to our best estimates the market value of the MAFB fund is approximately equal to the retired life reserves and larger than the admitted value. Consequently, any apparent deficit should not be of any concern.

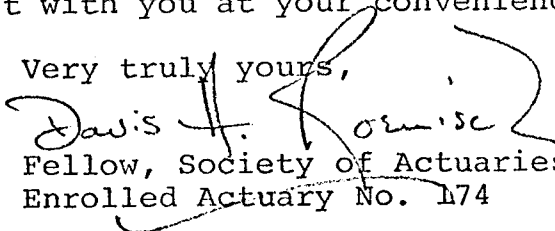
It would probably be better to restate the Association's asset holding to be the recognized (or market) value of the MAFB fund. This would give a much truer comparison between this asset, and the reserves required for the benefits and clarify the extent to which the value of the MAFB assets exceeds the reserves for the Trustees. This would be important information for the Board since it would give them insight into the possibility that the pension benefits could be again adjusted upward because of investment results in excess of the 5 percent interest assumption.

We show the figures for the coordinated and basic members separately at the end of the report. As has been the case in prior years, the Basic Fund standing alone is in substantial deficit and the Coordinated Fund has a substantial margin. We do not believe that this division has any particular meaning, particularly since much of the income that would have accrued to the Basic Members for past service has in fact been credited to the Coordinated Group. So long as the total fund is in balance, we believe that these distinctions between groups are not meaningful and, at worst, are misleading.

The report has been prepared on the basis of a member census as of June 30, 1978. The Executive Director has provided us with detailed employee information on all active, inactive and retired members in an accurate and timely fashion. The Board of Trustees should be aware of the magnitude of gathering this information from the large number of local employer units in the State. The Director and his staff should be commended for the systems they have established to maintain the data base for the purpose of operating the system.

Should you have any question concerning this report, we would be pleased to discuss it with you at your convenience.

Very truly yours,


Fellow, Society of Actuaries
Enrolled Actuary No. 174

DHR/fn
Enclosures

PERA VALUATION AS OF JUNE 30, 1978

(General Fund)

The purpose of this memorandum is to discuss the Valuation Report of the Public Employees' Retirement Association, dated November 20, 1978, which was submitted to the Commission in accordance with Minnesota Statutes, Chapter 356. The valuation was made using the entry age normal cost method and assuming 5% interest. The 1978 and 1977 valuation reports were completed by David H. Roenisch of Compensation and Capital, Consulting Actuaries.

This memorandum contains the following:

1. Statistical and Valuation Data
2. Discussion of Valuation Results
3. Conclusion

Although separate discussions of the Basic Group and the Coordinated Group are no longer required, the Report did contain both separate and consolidated information, and all three will be reviewed here.

A. BASIC GROUP

1. Statistical and Valuation Data

Results of the valuation reports as of June 30, 1977 and June 30, 1978 are shown for comparative purposes. Figures are rounded where necessary for simplicity of presentation.

	As of <u>June 30, 1977</u>	As of <u>June 30, 1978</u>
(1) <u>Membership</u>		
Active Members	15,235	14,262
Retired Members	7,303	7,734
Disabled Members	372	405
Survivors of Deceased Members	3,597	3,623
Deferred Annuitants	948	1,029
(2) <u>Payroll and Annuities Payable</u>	(Millions of Dollars)	
Covered Payroll	\$173.2	\$173.7
Annuities Payable (annual)	24.9	29.6

	As of <u>June 30, 1977</u>	As of <u>June 30, 1978</u>
(3) <u>Valuation Balance Sheet</u>	(Millions of Dollars)	
Accrued Liability	\$733.4	\$766.3
Assets	<u>418.9</u>	<u>435.7</u>
Unfunded Accrued Liability (Deficit)	\$314.5	\$330.6
Funding Ratio (Assets/ Accrued Liability)	57.1%	56.9%
(4) <u>Normal Cost and Funding Costs</u>		
Normal Cost	13.775%	13.528
Expenses	<u>0.148</u>	<u>0.148</u>
Normal Cost Plus Expenses	13.923%	13.676%
Normal Cost Plus Expenses	13.923%	13.676%
Interest on Deficit	<u>9.074</u>	<u>9.520</u>
Minimum Contribution	22.997%	23.196%
Normal Cost Plus Expenses	13.923%	13.676%
Amortization by 1997	<u>14.572</u>	<u>15.755</u>
Required Contribution	28.495%	29.431%
(5) <u>Statutory Contributions</u>		
Employee	8.0%	8.0%
Employer Regular	8.0	8.0
Employer Additional	<u>2.5</u>	<u>2.5</u>
Total Contributions	18.5%	18.5%

2. Discussion of Valuation Results

The normal cost has changed very little during the year. It should be noted that the statutory regular contributions which total 16% exceed the normal cost plus expenses of 13.676%. On the other hand, the excess in this area plus the employer additional contribution of 2.5% falls short of the required amortization contribution of 15.755%. However, actuarial balance is not required for the Basic Group separately, and this point will be addressed in reviewing the consolidated section of the Report.

The unfunded accrued liability increased by \$16,074,806. The PERA actuary shows the following items to trace the change in the deficit:

Increases:

Salary Scale Loss	\$6,867,961
Deficiency in Contribution	4,591,099
Shift in Allocation of Costs from Normal Cost to Deficit	7,900,577
Benefit Increases	<u>1,861,985</u>

Total Increases

\$21,221,622

Decreases:

Excess Interest	\$2,720,062
Mortality Gain-Retired Lives	382,232
Other Actuarial Gains	<u>2,044,522</u>

Total Decreases \$5,146,816

Net Increase \$16,074,806

B. COORDINATED GROUP

1. Statistical and Valuation Data

	As of <u>June 30, 1977</u>	As of <u>June 30, 1978</u>
(1) <u>Membership</u>		
Active Members	66,791	67,066
Retired Members	1,820	2,107
Disabled Members	127	167
Survivors of Deceased Members	34	45
Deferred Annuitants	146	203
(2) <u>Payroll and Annuities Payable</u> (Millions of Dollars)		
Covered Payroll	\$534.2	\$589.8
Annuities Payable (annual)	3.0	3.6
(3) <u>Valuation Balance Sheet</u> (Millions of Dollars)		
Accrued Liability	\$215.4	\$258.8
Assets	<u>213.5</u>	<u>268.7</u>
Unfunded Accrued Liability (Deficit)	\$ 1.9	(\$ 9.9)
Funding Ratio (Assets/Accrued Liability)	99.1%	103.8%
(4) <u>Normal Cost and Funding Costs</u>		
Normal Cost	7.086%	6.567%
Expenses	<u>0.148</u>	<u>0.148</u>
Normal Cost Plus Expenses	7.234%	6.715%
Normal Cost Plus Expenses	7.234%	6.715%
Interest on Deficit	<u>0.018</u>	<u>(0.084)</u>
Minimum Contribution	7.252%	6.631%
Normal Cost Plus Expenses	7.234%	
Amortization by 1997	<u>0.029</u>	
Required Contribution	7.263%	

(5) Statutory Contributions

	<u>1977</u>	<u>1978</u>
Employee	4.0%	4.0%
Employer Regular	4.0%	4.0%
Employer Additional	<u>1.5%</u>	<u>1.5%</u>
Total Contributions	9.5%	9.5%

The lower normal cost came about as a result of a decline in the average entry age of the coordinated participants.

Although this part of the PERA fund is in an overfunded position (ratio 103.8%) when viewed separately, it must be kept in mind that the legislature intends that all PERA employer additional contributions go toward the amortization of the total deficit. Therefore, a review of the combined report will be more meaningful.

The unfunded accrued liability for the Coordinated Group decreased by \$11,823,273 during the year. The PERA actuary shows the following breakdown:

Decreases:

Amortization Contribution	✓ \$17,409,634	
Excess Interest	✓ 2,191,054	
Mortality Gain-Retired Lives	✓ <u>61,435</u>	
Total Decreases		\$19,662,123

Increases:

Salary Scale Loss	✓ \$ 6,224,095	
Benefit Increases	44,149	
Other Actuarial Losses	<u>1,570,606</u>	
Total Increases		<u>\$ 7,838,850</u>
Net Decrease		\$11,823,273

C. CONSOLIDATED REPORT

Since the Basic Report shows a deficiency in financing and the Coordinated Report shows a surplus, the question arises as to whether the system as a whole is in balance. This question can be answered best by comparing the total requirement with the support either in percentages of payroll or in dollars. If the former basis is used, then the Statutory support is obtained by weighting the percentage contributions by the ratio of each group's payroll to the total.

The results as a percentage of payroll follow:

	<u>1977</u>	<u>1978</u>
Required Support		
Normal Cost	8.809%	8.215%
Expenses	0.148	0.148
Amortization	<u>3.590</u>	<u>3.476</u>
Total	12.547%	11.839%
Statutory Support		
Employee	4.980%	4.910%
Employer Regular	4.988	4.910
Employer Additional	<u>1.745</u>	<u>1.727</u>
Total	11.705%	11.547%
Deficiency	0.842%	0.292%

The results in dollars follow:

Required Support		
Normal Cost Plus Expense	\$62,760,283	\$63,355,965
Amortization	<u>25,397,214</u>	<u>26,538,580</u>
Total	\$88,157,497	\$89,894,545
Statutory Support		
Employee	\$35,224,970	\$37,485,496
Employer Regular	<u>35,224,970</u>	<u>37,485,496</u>
Sub Total	\$70,449,940	\$74,970,992
Employer Additional	<u>12,343,240</u>	<u>13,188,792</u>
Total	\$82,793,180	\$88,159,784
Deficiency	\$ 5,364,317	\$ 1,734,761

Thus, the picture has improved materially in a year, and the total statutory support appears adequate to pay the normal cost and retire the deficit by 1998.

5. CONCLUSION

The Report filed by PERA conforms with the statutes. Under the present laws and standards, the financing for the Coordinated Group appears to be more than adequate but that for the Basic Group is not sufficient to retire the Basic deficit by 1997. When PERA-General Employees is viewed as one system, the financing falls short of normal cost plus amortization by 1997, but during the past year, this deficiency has decreased from \$5,364,317 to \$1,734,761.

Franklin C. Smith
Associate, Society of Actuaries
Commission Actuary

PERA VALUATION AS OF JUNE 30, 1978

(Police and Fire Fund)

The purpose of this memorandum is to discuss the valuation report of the PERA Police and Fire Fund, dated November 20, 1978, which was submitted to the Commission in accordance with Minnesota Statutes, Chapter 356. The valuation was made using the entry age normal cost method and assuming 5% interest. The 1978 and 1977 valuation reports were completed by Davis H. Roenisch of Compensation and Capital, Consulting Actuaries.

This memorandum contains the following:

1. Statistical and Valuation Data
2. Discussion of Valuation Results
3. Conclusion

1. Statistical and Valuation Data

Results of the valuation report are shown below. Figures are rounded where necessary for simplicity of presentation.

	As of <u>June 30, 1977</u>	As of <u>June 30, 1978</u>
(1) <u>Membership</u>		
Active Members	3,732	3,971
Retired Members	395	440
Disabled Members	20	28
Survivors of Deceased Members	242	258
Deferred Annuitants	194	200
(2) <u>Payroll and Annuities Payable</u>		
Covered Payroll	\$52,889,851	\$59,933,726
Annuities Payable (annual)	1,933,612	2,421,612
(3) <u>Valuation Balance Sheet</u>	(Millions of Dollars)	
Accrued Liability	\$103.5	\$119.9
Assets	83.2	98.8
Unfunded Accrued Liability (Deficit)	\$ 20.3	\$ 21.1
Funding Ratio (Assets/Accrued Liability)	80.4%	82.4%

	As of <u>June 30, 1977</u>	As of <u>June 30, 1978</u>
(4) <u>Normal Costs and Funding Costs</u>		
Normal Cost	16.197%	15.867%
Expenses	<u>.089</u>	<u>0.089</u>
Normal Cost Plus Expenses	16.286%	15.956%
Normal Cost Plus Expenses	16.286%	15.956%
Interest on Deficit	<u>1.922</u>	<u>1.762</u>
Minimum Contribution	18.208%	17.718%
Normal Cost Plus Expenses	16.286%	15.956%
Amortization by 1997	<u>3.085</u>	<u>2.917</u>
Required Contribution	19.371%	18.873%
(5) <u>Statutory Contributions</u>		
Employee	8.0%	8.0%
Employer Regular	12.0	12.0
Employer Additional	<u>0.0</u>	<u>0.0</u>
Total	20.0%	20.0%

2. Discussion of Valuation Results

The normal cost changed very little, and no comment is needed. The larger payroll has reduced contributions toward the deficit as a percentage of payroll.

The deficit increased from \$20,335,649 to \$21,125,817 which is an addition of \$790,168. An analysis follows:

Increases:

Salary Scale Loss	\$5,216,818	
Mortality Loss-Retired Lives	174,122	
Benefit Increases	<u>158,084</u>	
Total Increases		\$5,549,024

Decreases:

Amortization Contribution	\$3,042,240	
Excess Interest	782,164	
New Units	592,053	
Other Actuarial Gains	<u>342,399</u>	
Total Decreases		<u>\$4,758,856</u>
Net Increase		\$ 790,168

3. Conclusion

The Report filed by PERA relative to the Police and Fire Fund conforms with the requirements of the various statutes.

The margin between the statutory contribution and the required support increased slightly during the year.

Attention is also directed to the fact that the total financing of this plan is shared by Employees and Employers.

Franklin C. Smith
Associate, Society of Actuaries
Commission Actuary