

Public Employees Retirement Association

ACTUARIAL VALUATION REPORT
(Based on a June 30, 1977 Census)



FILE COPY

Public Employees Retirement Association

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**COMPENSATION & CAPITAL
INCORPORATED**

125 SOUTH WACKER DRIVE

CHICAGO, ILLINOIS 60606

TELEPHONE 312 332-4420

November 15, 1977

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

RECEIVED

NOV 25 1977

Public Employees Retirement Assn.

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, 1977, 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, 1977.

Respectfully submitted,

COMPENSATION & CAPITAL INCORPORATED

Davis H. Roenisch
Davis H. Roenisch
Fellow, Society of Actuaries

DHR:tmk

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

SUMMARY OF ACTUARIAL REQUIREMENTS
(July 1, 1977)

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

Present Value of Benefit (For Both Past and Future Service) Obligation for Service Rendered to Date	\$1,365,343,764	\$203,201,975
Net Assets	930,363,154	102,297,741
Accrued Unfunded Obligation	613,887,437	81,962,092
	316,475,717	20,335,649
Funding Ratio	66%	80%
Amortization (20-Year) Requirement	\$ 25,394,961	\$ 1,631,793
Covered Payroll	707,400,545	52,889,851
Amortization (20-Year) Rate Requirement	<u>3.590%</u>	<u>3.085%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	\$ 434,980,610	\$100,904,234
Present Value of Future Payroll	4,938,163,000	622,966,800
Normal Cost Rate Requirement	8.809%	16.197%
Employee Contribution Rate	4.980 *	8.000
Employer Normal Cost Rate Requirement	<u>3.829%</u>	<u>8.197%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law	6.725% *	12.000%
Amortization (20-Year) Rate Requirement	3.590%	3.085%
Normal Cost Rate Requirement	3.829	8.197
Allowance for Expenses	<u>0.148</u>	<u>0.089</u>
Total Requirement	<u>7.567%</u>	<u>11.371%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement	<u>(0.842%)</u>	<u>0.629%</u>

* Weighted by Covered Payroll 24.49% Basic and 75.51% Coordinated

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Value of Benefits Earned to June 30, 1977

	<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	\$243,455,277	\$243,455,277
Deferred Benefits Payable to Vested and Inactive Members	10,452,347	10,452,347
Active Members:		
a. Eligible for Normal Retirement	31,374,751	31,374,751
b. Eligible for Early Retirement	87,375,929	87,375,929
c. Eligible for Deferred Benefits	271,255,117	544,409,020
d. Under 10 years service (Refund of Contributions only)	<u>58,826,600</u>	<u>58,826,600</u>
<u>Total</u>	<u>\$702,740,021</u>	<u>\$975,893,924</u>

	<u>Police and Fire Fund</u>	
Benefits Payable to Retired Members and their Beneficiaries	\$ 19,911,425	\$ 19,911,425
Deferred Benefits Payable to Vested and Inactive Members	2,100,528	2,100,528
Active Members:		
a. Eligible for Normal Retirement	15,304,369	15,304,369
b. Eligible for Early Retirement	-	-
c. Eligible for Deferred Benefits	38,565,810	59,896,657
d. Under 10 years service (Refund of Contributions only)	<u>9,201,976</u>	<u>9,201,976</u>
<u>Total</u>	<u>\$ 85,084,108</u>	<u>\$106,414,955</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 plus refund of contributions to inactive members with less than 10 years of service.

General Fund

Accounting Balance Sheet

- June 30, 1977 -

Assets

Cash:		
On hand	\$	100.00
On deposit		<u>295,220.75</u>
		\$ 295,320.75
Accounts Receivable:		
Employer contributions (see attached schedule)	\$	68,935.15
From Minnesota State Retirement System and Teachers Retirement Association		33,753.34
From Police and Fire Fund		53,419.50
Accrued interest on bonds and short-term notes		4,277,551.51
Accrued dividends		730,057.81
Interest on late employer contributions and delinquent payrolls		11,016.60
Other		<u>1,098.00</u>
		<u>5,175,831.91</u>
Total Current Assets		\$ 5,471,152.66
Investments:		
Bonds - at amortized cost -		
U. S. Government	\$	24,296,962.14
Municipal		1,624,000.00
Corporate		157,196,557.99
Canadian Government insured		33,203,585.57
Stock - common - at cost		<u>206,014,919.70</u>
		422,336,025.40
Minnesota Adjustable Fixed Benefit Fund - at admitted value		183,818,232.86
Deferred yield adjustment - see note		3,572,819.94
Miscellaneous:		
Office equipment - less accumulated depreciation	\$	26,782.29
Prepaid expense		11,070.13
Prepaid interest		<u>85,804.87</u>
		<u>123,657.29</u>
Total Assets		<u>\$615,321,838.15</u>

NOTE - 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.

Accounting Balance Sheet (Continued)

Current Liabilities and Reserves

Liabilities:

Accounts payable	\$ 45,936.84
Benefits payable - 1977 Laws, Chapter 388, Sec. 5	729,850.00
Accounts payable to Police and Fire Fund	35,355.75
Penalties refundable	145.26
Donation suspense	<u>623,163.25</u>

Total Liabilities \$ 1,434,451.10

Reserves:

Members accumulated contributions	184,769,383.67
Benefits reserve	245,299,820.52
Reserve for participation in Minnesota Adjustable Fixed Benefit Fund	<u>183,818,232.86</u>

Total Liabilities and Reserves \$615,321,888.15

General Fund

SOURCES AND USES OF FUNDS

- July 1, 1976 - June 30, 1977 -

<u>Sources</u>		<u>Uses</u>	
<u>Employee Contributions</u>	\$ 34,533,111.56	<u>Refunds</u>	
<u>Employer Contributions</u>	46,400,890.14	Employee	\$ 6,881,927.62
<u>Investment Income</u>	23,057,130.53	Employer	64,747.15
<u>Investment Sales and Redemptions</u>		<u>Interest Paid on Refunds</u>	334,929.13
Bonds and Notes	416,714,060.17	<u>Penalties Refunded</u>	71.97
Stocks sold	2,731,866.23	<u>Donations Refunded</u>	76,220.20
<u>Cancelled Warrants</u>	193,771.74	<u>Payments to Minnesota Adjustable Fixed Benefit Fund</u>	15,764,358.74
<u>Interest Other than Investment Interest</u>	269,539.32	<u>Benefits Paid</u>	
<u>Transfers from Other State Agencies</u>	28,405.56	Retirement	22,536,314.79
<u>Transfers from Police and Fire Fund</u>	44,511.24	Survivor	4,252,436.56
<u>Transfer from State General Fund</u>		Disability	1,419,628.52
For 1976 increase for retirees, Survivors and disabilitants	8,668,197.00	<u>Direct Expense</u>	1,076,111.85
<u>Miscellaneous Receipts</u>	4,166.55	<u>Investment Purchases</u>	
	\$532,645,650.04	Bonds	438,631,351.09
<u>Difference in Cash Accounts</u>		Stocks	41,333,136.46
July 1, 1976 and July 1, 1977	(274,415.96)		
Cash Balance, June 30, 1977	\$532,371,234.08		<u>\$532,371,234.08</u>
	295,220.75		
	<u>\$532,666,454.83</u>		

General Fund

Accounting Statement of Income and Expense

- July 1, 1976 to June 30, 1977 -

Income

Employer contributions 8%	\$14,013,531.50	
Employer contributions 2 $\frac{1}{2}$ %	4,379,256.15	
Employer contributions 4%	20,315,089.15	
Employer contributions 1 $\frac{1}{2}$ %	7,618,185.03	
Additional employer contributions	<u>73,212.20</u>	\$ 46,399,274.03
Member contributions		34,401,228.60
Unit matching contributions		491.76
Transferred from Police and Fire Fund:		
Members contributions	\$ 4,000.51	
Deferred members contributions	104.80	
Employer contributions	<u>2,951.58</u>	7,056.89
Realized income of the Minnesota Adjustable Fixed Benefit Fund	\$18,272,341.47	
Statutory valuation adjustment in the Minnesota Adjustable Fixed Benefit Fund	<u>8,447,142.89</u>	26,719,484.36
Investment income		24,044,597.49
Gain on sales of stock		404,608.50
Interest on back payments and omitted contributions		3,979.44
Interest on refunds repaid		193,829.94
Interest on delinquent employer contributions and late payrolls		60,554.42
State contribution for 1976 increase on retirees		6,063,183.27
State contribution for 1976 increase to survivors and disabilitants		2,605,013.73
Adjustments for prior year entries		(31,224.99)
Other income		<u>1,004.59</u>
 Total Income		 <u>\$140,873,082.03</u>

Expense

Retirement annuities (all paid from Minnesota Adjustable Fixed Benefit Fund)		\$22,459,270.85
Survivor Benefits Paid:		
Old Law	\$1,830,856.10	
With children	701,945.57	
Without children	<u>1,372,682.80</u>	3,905,484.47
Disability benefits paid		1,405,927.53

Accounting Income and Expense (Continued)Expense (Continued)

Disability Survivors Paid:		
With children	\$ 104,021.67	
Without children	<u>219,122.06</u>	323,143.73
One-time payment on December 1, 1977 to survivors and disabilitants per 1977 Laws, Chapter 388, Sec. 5		
Payment of death benefit		729,850.00
		250.00
Refunds of Deposits:		
Active members due to withdrawal	\$6,427,887.68	
Active members due to death	<u>260,566.02</u>	6,688,453.70
Deferred members due to withdrawal		
Deferred members due to death	\$ 30,326.12	
	<u>8,901.68</u>	39,227.80
Annuitant due to death		
Disabilitant due to death		66,249.57
		34,751.88
Interest paid on refunds		
		328,107.09
Refund of employer contributions		
		62,506.42
Refunds from donations (over 15 years inactive)		
		5,981.06
Transfers to Police and Fire Fund:		
Active members contributions	\$ 8,849.51	
Deferred members contributions	9,454.56	
Employer contributions	<u>17,051.68</u>	35,355.75
Loss on sales of bonds and notes		
	\$ 428,624.58	
Loss on sales of stock		
	<u>575,069.89</u>	1,003,694.47
Utilities charged to PERA by State Administration Department		
		20,195.00
Administrative Expenses:		
Salaries	\$ 639,713.00	
Rent -		
Office space	\$51,238.92	
Parking space	87.00	
Electronic data processing equipment	<u>61,601.27</u>	112,927.19
Maintenance service contracts -		
Main office	\$ 2,893.36	
Data processing department	<u>480.00</u>	3,373.36
Medical expense		
	25,558.10	
Actuarial services		
	15,000.00	
Telephone and telegraph		
	6,660.96	
Postage		
	67,344.89	
Travel		
	12,014.64	

Accounting Income and Expense (Continued)Expense (Continued)

Administrative Expenses: (Continued)

Stationery and office supplies -

Main office	\$18,939.75	
Data processing department	<u>1,319.06</u>	20,258.81

Publications and subscriptions		611.80
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Printing		20,899.58
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Mailing services		2,244.66
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Insurance - fire, theft, vandalism, and surety bond		385.31
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Employee insurance and hospital- ization		27,095.32
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Employer Social Security taxes		17,932.06
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Depreciation - equipment and furniture and fixtures		6,740.62
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Equipment purchased \$25.00 and under		62.92
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Tabulating and job processing services		108.62
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Public Employees Retirement Association employer contribu- tion - 1976-1977		49,025.61
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Xerox machine (copying expense)		3,673.62
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Auditing expenses		32,259.29
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Workmen's compensation and unemployment payments		5,508.64
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Minnesota State Retirement System - Assistant Attorney General		787.64
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Temporary help		5,461.89
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Miscellaneous expense		<u>15.00</u>
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Total Administrative Expense	\$1,075,663.53	
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Less percentage (.042810761%) charged to Police and Fire Fund		
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	<u>46,049.99</u>	<u>1,029,613.54</u>	\$ <u>38,138,062.86</u>
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Excess of Income over Expense for
the Year Ended June 30, 1977

\$102,735,019.17

General Fund

Reconciliation of Asset Balances

- June 30, 1977 -

Asset Balance, July 1, 1976		\$511,152,417.88
Add:		
Employer contributions	\$46,399,765.79	
Employee contributions	34,401,228.60	
Employer and employee contributions transferred from Police and Fire Fund	7,056.89	
Realized income of the Minnesota Adjustable Fixed Benefit Fund	18,272,341.47	
Statutory Valuation Adjustment in the Minnesota Adjustable Fixed Benefit Fund	8,447,142.89	
Investment earnings	24,044,597.49	
Gains on sales of stock	404,608.50	
State contribution for increase to retirees, survivors and disabilitants as per Laws 1976	8,668,197.00	
Interest on omitted contributions, delinquent employer contributions and refunds repaid	258,363.80	
Other income	<u>1,004.59</u>	
Total Additions		<u>140,904,307.02</u>
		\$652,056,724.90
Deduct:		
Benefits paid -		
Retirement	\$22,459,270.85	
Survivor	4,923,378.20	
Disability	1,441,027.53	
Death benefit payment	<u>250.00</u>	\$28,823,926.58
Refunds		6,897,170.43
Interest paid on refunds		328,107.09
Transfers to Police and Fire Fund		35,355.75
Adjustments for prior year entries		31,224.99
Losses on sales of bonds and stocks		1,003,694.47
Administrative expenses		<u>1,049,808.54</u>
Total Deductions		<u>38,169,287.85</u>
Current Liabilities and Accounts Payable		\$613,887,437.05
		<u>1,434,451.10</u>
Asset Balance, June 30, 1977		<u>\$615,321,838.15</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONASSET ALLOCATION
(July 1, 1977)

	<u>Basic Fund</u>	<u>Coordinated Fund</u>	<u>General Fund Total</u>
Asset Balance, July 1, 1976	\$351,772,661.12	\$159,379,756.76	\$511,152,417.88
1. Employer Contributions	18,524,628.20	28,133,501.39	46,658,129.59
2. Employee Contributions	14,043,176.66	20,358,051.94	34,401,228.60
3. Transfers to Police and Fire Fund	28,298.86	-	28,298.86
4. Benefits Paid			
i. Survivor	4,884,162.51	39,215.69	4,923,378.20
ii. Disability and Death	1,287,605.35	153,672.18	1,441,277.53
5. State Contribution	7,795,300.00	872,897.00	8,668,197.00
6. Refunds	110,396.46	7,114,881.06	7,225,277.52
7. Net (Sum of 1,2 and 5 minus 3,4 and 6)	34,052,641.68	42,056,681.40	76,109,323.08
8. Benefits Paid from MAFBF	19,749,557.58	2,709,713.27	22,459,270.85
9. Income from MAFBF	15,815,429.65	2,456,911.82	18,272,341.47
10. Investment Income	13,939,038.51	9,476,252.61	23,415,291.12
11. Administrative Expenses	257,071.85	792,736.69	1,049,808.54
12. Adjustments to MAFBF	7,311,334.14	1,135,808.75	8,447,142.89
13. Net (Sum of 9, 10 and 12 minus 8 and 11)	17,059,172.87	9,566,523.22	26,625,696.09
14. Increase for Year (6 plus 13)	<u>51,111,814.55</u>	<u>51,623,204.62</u>	<u>102,735,019.17</u>
Asset Balance July 1, 1977	<u>\$402,884,475.67</u>	<u>\$211,002,961.38</u>	<u>\$613,887.437.05</u>
Estimated Allocation MAFBF	<u>\$158,845,717.14</u>	<u>\$ 24,972,515.74</u>	<u>\$183,818,232.86</u>

Public Employees Retirement Association

General Fund

ACTUARIAL 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 Association

General Fund

Female Employees

MORTALITY 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 Association

General Fund

All 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 ASSOCIATION

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1977)

General Fund

RESERVES

Entry Age Normal Reserves

Retirement	\$ 872,124,371
Vesting	115,180,457
Disability	56,800,853
Survivors	31,294,571
Refund	<u>36,035,888</u>
	\$1,111,436,140

Less Value of Benefits

Earned in the Future 434,980,610 \$676,455,530

Vested and Inactive Members 10,452,347

Retired Members

Retirements Payable from
Minnesota Adjustable
Fixed Benefit Fund

\$ 183,818,233

Disability 11,035,691

Survivors 39,125,717

Reserve for Future

Old Law Survivors 9,568,862

Less Net Mortality Gain

Receivable from
Minnesota Adjustable
Fixed Benefit Fund

-93,226 \$243,455,277 \$930,363,154

Unfunded Obligation

316,475,717

Funded Obligation

\$613,887,437

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS

(July 1, 1977)

General FundAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$1,365,343,764	
Obligation for Service Rendered to Date	\$	930,363,154	
Net Assets		613,887,437	
Accrued Unfunded Obligation		316,475,717	
Funding Ratio			66%
Amortization (20-Year) Requirement Covered Payroll	\$	25,394,961 707,400,545	
Amortization (20-Year) Rate Requirement			<u>3.590%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	\$	434,980,610	
Present Value of Future Payroll		4,938,163,000	
Normal Cost Rate Requirement		8.809%	
Employee Contribution Rate*		<u>4.980</u>	
Employer Normal Cost Rate Requirement			<u>3.829%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law*			6.725%
Amortization (20-Year) Rate Requirement		3.590%	
Normal Cost Rate Requirement		3.829	
Allowance for Expenses		<u>0.148</u>	
Total Requirement			7.567%
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement			<u>(0.842%)</u>

* Weighted by Covered Payroll 24.49% Basic and 75.51% Coordinated

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS

(July 1, 1977)

General FundAMORTIZATION RATE REQUIREMENT

	Period			
	10-Year	20-Year	30-Year	40-Year
Accrued Unfunded Obligation	\$316,475,717	\$316,475,717	\$316,475,717	\$316,475,717
Amortization Requirement	40,983,605	25,394,961	20,586,745	18,443,572
Covered Payroll	707,400,545	707,400,545	707,400,545	707,400,545
Amortization Rate Requirement	<u>5.794%</u>	<u>3.590%</u>	<u>2.910%</u>	<u>2.607%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law*	<u>6.725%</u>	<u>6.725%</u>	<u>6.725%</u>	<u>6.725%</u>
Amortization Rate Requirement	5.794%	3.590%	2.910%	2.607%
Normal Cost Rate Requirement	3.829	3.829	3.829	3.829
Allowance for Expenses	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>
Total Requirement	<u>9.771%</u>	<u>7.567%</u>	<u>6.887%</u>	<u>6.584%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement	<u>(3.046%)</u>	<u>(0.842%)</u>	<u>(0.162%)</u>	<u>0.141%</u>

* Weighted by Covered Payroll

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONGeneral Fund

STATEMENT OF REVENUE, EXPENDITURES,
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)
 (Year Ending June 30, 1977)

Revenue:

Employer Contributions	\$46,658,129.59	
Member Contributions	34,401,228.60	
State Contribution	8,668,197.00	
Investment Income	23,415,291.12	
Minnesota Adjustable Fixed Benefit Fund Income	<u>26,719,484.36</u>	
Total Revenue		\$139,862,330.67

Expenditure:

Benefits	\$28,823,926.58	
Refund of Contributions	7,225,277.52	
Administrative Expense	1,049,808.54	
Transfer to Police and Fire Fund	<u>28,298.86</u>	
Total Expenditures		<u>37,127,311.50</u>
Increase in Assets (1977)		<u><u>\$102,735,019.17</u></u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION
RECONCILIATION OF CHANGE IN ACTUARIAL RESERVES

General Fund

ALLOCATION OF CHANGE IN ACTUARIAL RESERVES

	<u>Increase</u>	<u>Decrease</u>	
Increase in Assets			\$102,735,019
Amortization Payment		\$ 8,537,171	
Excess Interest (0.75% x Average Invested Assets)		2,944,738	
Estimated Excess (Deficit) in Rate	\$ 3,241,892		
Contribution Require- ment Applied to Larger Payroll		2,516,646	
Mortality Gain		93,226	
Increases in Compensation	12,286,836		
Transfers from Vested to Inactive		4,322,684	
Aging of the Group	<u>20,734,517</u>		
Totals	<u>\$36,263,245</u>	<u>\$18,414,465</u>	
Expected Decrease (Increase) in Unfunded			<u>(17,848,780)</u>
Net Change in Reserves			\$120,583,799
Experience Variation (Gain) Loss			<u>(6,314,506)</u>
Total			<u>\$114,269,293</u>
1977 Actuarial Reserve			\$930,363,154
1976 Actuarial Reserve			<u>816,093,861</u>
Increase (Decrease)			<u>\$114,269,293</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSGeneral Fund

As of July 1, 1976	83,798
New Entrants	15,667
Reinstated	3,439
Transfer	-
<u>Total</u>	<u>102,904</u>

Separations:

a. With Refund of Contributions	
(i) Death	180
(ii) Withdrawal	14,415
b. With Deferred Annuity	138
c. With Disability Annuity	175
d. With Normal Retirement Annuity	885
e. With Survivor Annuity	151
f. With Disability Survivor Annuity	14
<u>Total</u>	<u>15,958</u>

Members as of July 1, 1977	<u>86,946</u>
Inactive Members*	<u>4,920</u>
Members included in Entry Age Normal Cost Calculation	<u>82,026</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 ANNUITANTSGeneral FundNormal Retirement Annuitants

As of July 1, 1976	8,447
Additions During Year	1,067
Deletions During Year	- 391
<u>Total as of July 1, 1977</u>	<u>9,123</u>
Annual Annuity - July 1, 1976	\$19,306,311
- July 1, 1977	\$22,928,000

Disability Annuitants

As of July 1, 1976	458
Additions During Year	162
Deletions During Year	- 121
<u>Total as of July 1, 1977</u>	<u>499</u>
Annual Annuity - July 1, 1976	\$ 1,050,254
- July 1, 1977	1,426,983

Survivor Annuitants

(a) Spouse Only as of July 1, 1976	2,560
Optional Survivors as of July 1, 1976	95
Additional Spouse Only During Year*	428
Additional Optional Survivors During Year	18
Deletions During Year	- 153
<u>Total as of July 1, 1977</u>	<u>2,948</u>
Annual Annuity - July 1, 1976	\$ 2,926,255
- July 1, 1977	\$ 3,713,576

(b) Survivor with Children

As of July 1, 1976	601
Additions During Year	29
Deletions During Year*	- 412
<u>Total as of July 1, 1977</u>	<u>218</u>
Annual Annuity - July 1, 1976	\$ 701,166
- July 1, 1977	\$ 412,269

(c) Children

As of July 1, 1976	474
Additions During Year	71
Deletions During Year	- 90
<u>Total as of July 1, 1977</u>	<u>455</u>
Annual Annuity - July 1, 1976	\$ 386,710
- July 1, 1977	\$ 414,624

Deferred Vested Members

As of July 1, 1976	994
Additions During Year	138
Deletions During Year	- 38
<u>Total as of July 1, 1977</u>	<u>1,094</u>

* Includes Survivors with children at initial commencement date who have no dependent children at June 30, 1977.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

EXHIBIT 14

Police and Fire Fund

Accounting Balance Sheet

- June 30, 1977 -

Assets

Cash on deposit		\$ 34,038.12
Accounts Receivable:		
Employer contributions	\$ 1,593.09	
From General Fund	35,355.75	
Interest on late employer contributions and delinquent payrolls	888.23	
Accrued interest on investments	693,275.46	
Accrued dividends	<u>112,974.64</u>	<u>844,087.17</u>
Total Current Assets		\$ 878,125.29
Investment:		
Bonds - at amortized cost -		
U. S. Government	\$ 3,088,192.33	
Corporate	25,086,455.90	
Canadian Government insured	5,550,000.00	
Stock - common - at cost	<u>32,058,929.33</u>	65,783,577.56
Minnesota Adjustable Fixed Benefit Fund - at admitted value		14,967,846.82
Deferred yield adjustment		430,499.87
Prepaid interest		<u>7,196.36</u>
Total Assets		<u>\$82,067,245.90</u>
<u>Current Liabilities and Reserves</u>		
Liabilities:		
Accounts payable to Regular Fund		\$ 53,419.50
Benefits payable - 1977 Laws, Chapter 388, Section 5		28,250.00
Accounts payable - other		1.49
Donations suspense		<u>23,482.89</u>
Total Liabilities		\$ 105,153.88
Reserves:		
Members accumulated contributions	\$20,178,643.56	
Benefits reserve	46,815,601.64	
Reserve for participation in Minnesota Adjustable Fixed Benefit Fund	<u>14,967,846.82</u>	<u>81,962,092.02</u>
Total Liabilities and Reserves		<u>\$82,067,245.90</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Police and Fire FundSources and Uses of Funds

- July 1, 1976 - June 30, 1977 -

<u>Sources</u>		<u>Uses</u>	
<u>Employee Contributions</u>	\$ 4,187,284.49	<u>Refunds</u>	
<u>Employer Contributions</u>	6,272,473.26	Employee Contributions	\$ 475,718.67
<u>Police and Fire State Aid</u>	674,417.71	Employer contributions	28,480.18
<u>Investment Income</u>	3,692,069.36	<u>Payments to Minnesota Adjust-</u>	
<u>Investment Sales and</u>		<u>able Fixed Benefit Fund</u>	2,414,937.33
<u>Redemptions</u>		<u>Annuities Paid</u>	
Bonds	92,971,513.86	Retirement	1,438,450.46
Stocks	343,418.24	Survivor	290,958.03
<u>Cancelled Warrants</u>	12,100.48	Disability	82,048.34
<u>Interest on Omitted Deductions,</u>		<u>Investment Purchases</u>	
<u>Back Payments and Refunds Repaid</u>	12,720.35	Bonds	96,940,576.64
<u>Transfer from State General Fund</u>		Stocks	6,789,161.80
For 1976 increase for		<u>Interest Paid on Refunds</u>	18,492.78
retirees, survivors and		<u>Transfers to Regular Fund</u>	44,511.24
disabilitants	359,302.00	<u>Administrative Expense</u>	895.00
	\$108,525,299.75		
Difference in cash accounts			
July 1, 1976 and July 1, 1977	(1,069.28)		
	\$108,524,230.47		
Cash balance, June 30, 1977	34,038.12		
	<u>\$108,558,268.59</u>		<u>\$108,524,230.47</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

EXHIBIT 16

Police and Fire Fund

Accounting Statement of Income and Expense

- July 1, 1976 to June 30, 1977 -

Income

Employer contributions - 1976-1977		\$ 6,264,212.41
Employer contributions - other		5,639.14
Member contributions		4,186,037.71
Special income from Police State Aid		674,417.71
Transfers from Regular Fund:		
Members contributions (active)	\$ 14,991.80	
Members contributions (deferred)	3,312.27	
Employer contributions	<u>17,051.68</u>	35,355.75
Realized income of the Minnesota		
Adjustable Fixed Benefit Fund	\$ 1,375,433.08	
Statutory valuation adjustment of		
the Minnesota Adjustable Fixed		
Benefit Fund	<u>614,451.63</u>	1,989,884.71
Investment income		3,813,580.44
Gain on sales of stock		61,727.43
Interest on refunds repaid		8,869.29
Interest on delinquent contributions		
and omitted contributions		3,511.41
Adjustment for prior year entries		2,383.22
State contribution for 1976 increase		
to retirees		253,076.16
State contribution for 1976 increase to		
survivors and disabilitants		<u>106,225.84</u>
Total Income		<u>\$17,404,921.22</u>

Expense

Retirement annuities (paid from the			
Minnesota Adjustable Fixed Benefit			
Fund)		\$ 1,435,338.55	
Survivor Benefits Paid:			
Old Law survivors	\$ 47,510.43		
With children	125,876.54		
Without children	<u>108,485.08</u>	281,872.05	
Disability benefits paid		79,082.39	
Disability survivor with children		7,724.33	
Disability survivor without children		1,047.00	
One-time payment on December 1, 1977			
to survivors and disabilitants per			
1977 Laws, Chapter 388, Section 5		28,250.00	
Refund of Deposits:			
Active members due to withdrawal	\$445,144.10		
Active members due to death	<u>1.53</u>	445,145.63	
Deferred members due to withdrawal	\$ 16,167.03		
Deferred members due to death	<u>6,436.62</u>	22,603.65	

Police and Fire Fund
Accounting Income and Expense (Continued)Expense (Continued)

Refund of Deposits: (Continued)			
Annuitants to beneficiaries			2,580.64
Interest paid on refunds			18,005.66
Refund of employer contributions			13,240.40
Transfers to Regular Fund:			
Members contributions	\$ 4,105.31		
Employer contribution	<u>2,951.58</u>	7,056.89	
Loss on sales of stock			43,461.04
Loss on sales of bonds			38,475.41
General administrative expense			<u>46,944.99</u>
			<u>\$ 2,470,828.63</u>
Excess of Income over Expense for the Year Ended June 30, 1977			<u>\$14,934,092.59</u>

Police and Fire Fund

Reconciliation of Asset Balances

- June 30, 1977 -

Asset Balance, July 1, 1976		\$67,027,999.43
Add:		
Employer contributions	\$ 6,269,851.55	
Employee contributions	4,186,037.71	
Special income - Police State Aid	674,417.71	
Employee and employer contributions transferred from Regular Fund	35,355.75	
Realized income of the Minnesota Adjustable Fixed Benefit Fund	1,375,433.08	
Statutory valuation adjustment of the Minnesota Adjustable Fixed Benefit Fund	614,451.63	
Investment earnings	3,813,580.44	
Gains on sales of stock	61,727.43	
State contributions for increase to retirees, survivors and disabilitants as per Laws 1976	359,302.00	
Interest on omitted contributions, delinquent contributions and refunds repaid	12,380.70	
Adjustments for prior year entries	<u>2,383.22</u>	
Total Additions		<u>17,404,921.22</u>
		\$84,432,920.65
Deducts:		
Benefits paid -		
Retirement	\$1,435,338.55	
Survivor	318,143.38	
Disability	<u>79,832.39</u>	\$ 1,833,314.32
Refunds		483,570.32
Interest paid on refunds		18,005.66
Transfers to Regular Fund		7,056.89
Losses on sales of bonds and stocks		81,936.45
General administrative expense		<u>46,944.99</u>
Total Deductions		<u>2,470,828.63</u>
		\$81,962,092.02
Current Liabilities and Accounts Payable		<u>105,153.88</u>
Asset Balance, June 30, 1977		<u>\$82,067,245.90</u>

Public Employees Retirement Association

Police and Fire

ACTUARIAL 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 Association

Police and Fire Fund

All Employees

MORTALITY 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 Association

Police and Fire Fund

All Employees

DISABILITY 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 Association

Police and Fire Fund

All Employees

SEPARATION 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, 1977)Police and Fire FundRESERVES

Entry Age Normal Reserves

Retirement	\$124,472,689		
Vesting	11,754,423		
Disability	33,296,890		
Survivors	7,446,127		
Refund	<u>4,219,893</u>		
	\$181,190,022		
Less Value of Benefits to be Earned in the Future	100,904,234	\$80,285,788	
Vested and Inactive Members		2,100,528	
Retired Members Retirements Payable from Minnesota Adjustable Fixed Benefit Fund	\$ 14,967,847		
Disability	870,559		
Survivors	3,289,547		
Reserve for Future Old Law Survivors	424,688		
Plus Net Mortality Loss Payable to Minnesota Adjustable Fixed Benefit Fund	<u>358,784</u>	<u>19,911,425</u>	\$102,297,741
Unfunded Obligation			<u>20,335,649</u>
Funded Obligation			\$ 81,962,092

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1977)Police and Fire FundAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$203,201,975	
Obligation for Service Rendered to Date	\$102,297,741		
Net Assets	81,962,092		
Accrued Unfunded Obligation	20,335,649		
Funding Ratio			80%
Amortization (20-Year) Requirement	1,631,793		
Covered Payroll	52,889,851		
Amortization (20-Year) Rate Requirement			3.085%

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	\$100,904,234		
Present Value of Future Payroll	622,966,800		
Normal Cost Rate Requirement	16.197%		
Employee Contribution Rate	<u>8.000</u>		
Employer Normal Cost Rate Requirement			<u>8.197%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law			12.000%
Amortization (20-Year) Rate Requirement	3.085%		
Normal Cost Rate Requirement	8.197		
Allowance for Expenses	<u>0.089</u>		
Total Requirement			11.371%
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement			<u>0.629%</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1977)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	\$20,335,649	\$20,335,649	\$20,335,649	\$20,335,649
Amortization Requirement	2,633,467	1,631,793	1,322,834	1,185,121
Covered Payroll	52,889,851	52,889,851	52,889,851	52,889,851
Amortization Rate Requirement	<u>4.979%</u>	<u>3.085%</u>	<u>2.501%</u>	<u>2.241%</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	4.979%	3.085%	2.501%	2.241%
Normal Cost Rate Requirement	8.197	8.197	8.197	8.197
Allowance for Expenses	<u>0.089</u>	<u>0.089</u>	<u>0.089</u>	<u>0.089</u>
Total Requirement	<u>13.265%</u>	<u>11.371%</u>	<u>10.787%</u>	<u>10.527%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement	<u>(1.265%)</u>	<u>0.629%</u>	<u>1.213%</u>	<u>1.473%</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPolice and Fire Fund

STATEMENT OF REVENUE, EXPENDITURES,
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)
 (Year Ending June 30, 1977)

Revenue:

Employer Contributions	\$6,269,951.55	
Member Contributions	4,186,037.71	
Special Income	674,417.71	
Investment Income	3,808,135.34	
Transfer from Regular Fund	28,298.86	
Minnesota Adjustable Fixed Benefit Fund Income	1,989,884.71	
State Contribution	<u>359,302.00</u>	
Total Revenue		\$17,315,927.88

Expenditure:

Benefits	\$1,833,314.32	
Refund of Contributions	501,575.98	
Administrative Expense	<u>46,944.99</u>	
Total Expenditures		<u>\$ 2,381,835.29</u>

Increase in Assets (1977)		<u><u>\$14,934,092.59</u></u>
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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			\$ 14,934,093
Amortization Payment		\$ 563,505	
Excess Interest (0.75% x Average Invested Assets)		454,513	
Estimated Excess in Rate		294,678	
Contribution Require- ment Applied to Larger Payroll		1,086,253	
Mortality Loss	\$ 358,784		
Other Income		674,418	
Increases in Compensation	5,959,928		
Transfers from Vested to Inactive		513,023	
Totals	<u>\$6,318,712</u>	<u>\$ 3,586,390</u>	
Expected Decrease (Increase) in Unfunded			<u>(2,732,322)</u>
Net Change in Reserves			\$ 17,666,415
Experience Variation (Gain) Loss			<u>(2,524,642)</u>
Total			<u>\$ 15,141,773</u>
1977 Actuarial Reserve			\$102,297,741
1976 Actuarial Reserve			<u>87,155,968</u>
Increase (Decrease)			<u>\$ 15,141,773</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSPolice and Fire Fund

As of July 1, 1976	3,800
New Entrants	423
Reinstated	<u>70</u>
<u>Total</u>	<u>4,293</u>

Separations:

a. With Refund of Contributions	
(i) Death	10
(ii) Withdrawal	251
b. With Deferred Annuity	6
c. With Disability Annuity	11
d. With Normal Retirement Annuity	47
e. With Survivor Annuity	<u>10</u>
<u>Total</u>	<u>335</u>
Members as of July 1, 1977	<u>3,958</u>
Inactive Members*	<u>226</u>
Members included in Entry Age Normal Cost Calculation	<u>3,732</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, 1976	362
Additions During Year	53
Deletions During Year	- 20
<u>Total as of July 1, 1977</u>	<u>395</u>
Annual Annuity - July 1, 1976	\$1,217,948
- July 1, 1977	\$1,519,474

Disability Annuitants

As of July 1, 1976	15
Additions During Year	11
Deletions During Year	- 6
<u>Total as of July 1, 1977</u>	<u>20</u>
Annual Annuity - July 1, 1976	\$ 56,644
- July 1, 1977	\$ 87,775

Survivor Annuitants

(a) Spouse Only as of July 1, 1976	77
Optional Survivors as of July 1, 1976	4
Additional Spouse Only During Year*	33
Additional Optional Survivors During Year	6
Deletions During Year	- 4
<u>Total as of July 1, 1977</u>	<u>116</u>
Annual Annuity - July 1, 1976	\$ 116,383
- July 1, 1977	\$ 186,023

(b) Survivor with Children	
As of July 1, 1976	62
Additions During Year	5
Deletions During Year*	- 33
<u>Total as of July 1, 1977</u>	<u>34</u>
Annual Annuity - July 1, 1976	\$ 98,551
- July 1, 1977	\$ 70,866

(c) Children	
As of July 1, 1976	95
Additions During Year	11
Deletions During Year	- 14
<u>Total as of July 1, 1977</u>	<u>92</u>
Annual Annuity - July 1, 1976	\$ 65,848
- July 1, 1977	\$ 69,474

Deferred Vested Members

As of July 1, 1976	183
Additions During Year	29
Deletions During Year	18
<u>Total as of July 1, 1977</u>	<u>194</u>

* Includes Survivors with children at initial commencement date who have no dependent children at June 30, 1977.

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>
59	1	\$ 252.25	-	\$ -
60	4	586.12	-	-
61	3	1,157.60	-	-
62	6	1,486.26	-	-
63	3	1,272.24	1	134.85
64	7	1,501.46	-	-
65	7	1,450.19	-	-
66	3	619.33	-	-
67	8	2,311.62	-	-
68	10	2,692.99	-	-
69	9	2,562.69	1	368.34
70	16	3,833.28	-	-
71	17	4,891.65	1	219.79
72	12	3,773.71	1	96.09
73	10	1,832.30	1	178.95
74	11	2,459.42	-	-
75	15	3,573.16	-	-
76	12	3,608.01	1	235.40
77	11	2,335.27	0	-
78	9	2,360.04	1	70.97
79	5	1,459.71	1	250.07
80	6	1,389.01	-	-
81	7	1,496.22	-	-
82	4	662.15	-	-
83	4	687.77	-	-
84	1	99.86	-	-
88	1	231.12	-	-
Total	<u>202</u>	<u>\$50,585.43</u>	<u>8</u>	<u>\$1,554.46</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	4	\$ 2,723.58	-	\$ -
56	6	2,491.17	-	-
57	10	6,102.98	-	-
58	9	3,636.46	-	-
59	7	3,730.16	1	331.18
60	12	5,497.60	-	-
61	18	5,879.70	-	-
62	14	4,909.56	-	-
63	18	7,463.57	-	-
64	14	6,177.75	1	257.56
65	10	4,890.87	-	-
66	17	5,745.23	-	-
67	13	4,393.18	1	178.57
68	9	1,713.66	1	567.03
69	10	4,286.77	1	118.79
70	3	1,183.37	-	-
72	3	1,339.53	-	-
73	1	471.87	-	-
75	1	109.97	-	-
80	1	282.84	-	-
<u>Totals</u>	<u>180</u>	<u>\$73,029.82</u>	<u>5</u>	<u>\$1,453.13</u>

Survivor Annuities

<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	\$ 306.21
58	-	-	1	249.82
60	-	-	3	475.69
61	-	-	1	235.71
62	-	-	1	432.47
64	-	-	1	246.19
68	-	-	1	70.96
72	1	154.19	1	35.41
<u>Totals</u>	<u>1</u>	<u>\$ 154.19</u>	<u>10</u>	<u>\$2,052.46</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Police and Fire Fund

Survivor Annuities

FEMALES

<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>	<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
26	1	\$ 347.68	63	4	\$ 349.19
30	1	204.50	63	5	343.56
32	1	193.50	65	2	221.06
34	1	270.00	66	4	430.20
38	2	211.17	67	3	270.48
39	1	84.25	68	7	718.05
42	3	549.25	69	7	973.14
44	4	265.92	70	2	178.25
45	3	706.78	71	3	341.57
46	1	42.32	72	3	394.42
47	2	354.25	73	5	572.81
48	2	495.86	74	2	103.73
49	3	668.91	75	3	377.09
50	4	545.02	76	1	68.19
51	2	373.53	77	3	322.12
52	5	1,018.68	78	7	728.40
53	2	168.50	80	2	263.59
54	3	331.86	81	5	535.08
56	1	304.58	82	2	204.06
57	4	865.45	86	1	101.54
58	3	619.31	87	1	87.63
59	8	1,079.62	89	1	104.18
60	3	419.85			
61	5	1,056.84			
62	1	27.03			
TOTALS				<u>138</u>	<u>\$18,893.00</u>

MALES

<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
47	<u>1</u>	<u>\$307.80</u>

CHILDREN

<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
<u>92</u>	<u>\$5,789.50</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPolice and Fire FundDisability

<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
33	1	\$ 237.48
38	1	563.57
39	1	655.46
40	1	186.76
42	1	383.72
44	2	812.83
45	2	384.69
47	1	203.09
48	1	179.32
49	1	153.80
50	2	549.06
51	1	402.11
52	3	1,496.19
53	2	1,106.50
TOTALS	<u>20</u>	<u>\$7,314.58</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Police and Fire Fund

CONSIDERED EARNINGS

Active Male Employees
(Age and Service as of July 1, 1977)

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	125	\$1,154,409	80	\$ 817,306	97	\$ 1,129,815	2	\$ 26,020
25 to 30	119	1,193,901	98	1,143,790	414	5,602,073	144	2,152,441
30 to 35	67	660,244	71	826,922	225	3,278,641	317	5,056,749
35 to 40	20	193,404	24	307,963	87	1,131,059	232	3,720,809
40 to 45	5	35,732	18	163,147	48	574,028	128	1,876,072
45 to 50	7	45,557	9	90,969	37	388,737	71	1,071,377
50 to 55	4	21,953	7	78,137	20	261,792	39	511,421
55 to 60	1	4,085	3	21,795	9	79,634	29	405,605
60 to 65	-	-	-	-	4	41,938	20	256,262
65 & Up	-	-	-	-	8	97,767	2	12,416
TOTAL	348	\$3,309,285	310	\$3,450,029	949	\$12,585,484	984	\$15,089,172

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	5	84,330	-	-	-	-	-	-
30 to 35	64	1,116,530	-	-	-	-	-	-
35 to 40	162	2,843,140	13	221,278	-	-	-	-
40 to 45	105	1,739,476	62	1,065,715	14	257,126	-	-
45 to 50	67	1,054,265	57	1,025,572	55	987,050	5	108,453
50 to 55	56	870,329	57	985,305	59	1,018,882	14	233,358
55 to 60	45	678,173	20	307,768	26	404,799	18	310,820
60 to 65	27	337,890	16	254,184	23	341,773	11	178,872
65 & Up	8	106,762	8	131,205	-	-	3	42,397
TOTAL	539	\$8,830,895	233	\$3,991,027	177	\$ 3,009,630	51	\$ 873,900

AGE	YEARS OF SERVICE							
	30 to 35		35 to 40		40 & Up		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	304	\$ 3,127,550
25 to 30	-	-	-	-	-	-	780	10,176,535
30 to 35	-	-	-	-	-	-	744	10,939,086
35 to 40	-	-	-	-	-	-	538	8,417,653
40 to 45	-	-	-	-	-	-	380	5,711,296
45 to 50	-	-	-	-	-	-	308	4,771,980
50 to 55	6	109,901	-	-	-	-	262	4,091,078
55 to 60	4	83,164	-	-	-	-	155	2,295,843
60 to 65	1	13,726	-	-	2	31,222	104	1,455,867
65 & Up	1	23,873	2	48,906	-	-	32	463,326
TOTAL	12	\$ 230,664	2	\$ 48,906	2	\$ 31,222	3,607	\$51,450,214

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 ASSOCIATION

Police and Fire Fund

CONSIDERED EARNINGS

Active Female Employees
(Age and Service as of July 1, 1977)

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	11	\$107,975	1	\$ 6,253	2	\$ 29,042	-	\$ -
25 to 30	5	46,285	8	86,441	12	139,328	5	59,413
30 to 35	1	12,672	1	13,406	4	37,358	5	74,383
35 to 40	1	7,928	2	23,084	5	60,421	7	81,166
40 to 45	1	9,576	-	-	3	29,481	5	55,216
45 to 50	1	5,724	-	-	3	35,716	7	98,350
50 to 55	1	6,920	-	-	3	37,444	4	47,964
55 to 60	-	-	-	-	1	7,623	5	55,082
60 to 65	-	-	-	-	-	-	2	21,678
65 & Up	-	-	-	-	-	-	-	-
TOTAL	21	\$197,080	12	\$129,184	33	\$376,413	40	\$ 493,252

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	-	-	-	-	-	-	-	-
30 to 35	1	10,880	-	-	-	-	-	-
35 to 40	-	-	-	-	-	-	-	-
40 to 45	1	15,312	-	-	-	-	-	-
45 to 50	2	32,796	1	11,011	1	14,240	-	-
50 to 55	2	26,568	2	21,351	-	-	-	-
55 to 60	4	46,447	1	8,531	-	-	-	-
60 to 65	2	32,791	-	-	-	-	-	-
65 & Up	1	14,670	-	-	-	-	1	9,111
TOTAL	13	\$179,464	4	\$ 40,893	1	\$ 14,240	1	\$ 9,111

AGE	YEARS OF SERVICE							
	30 to 35		35 to 40		40 & Up		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	14	\$ 143,270
25 to 30	-	-	-	-	-	-	30	331,467
30 to 35	-	-	-	-	-	-	12	148,699
35 to 40	-	-	-	-	-	-	15	172,599
40 to 45	-	-	-	-	-	-	10	109,585
45 to 50	-	-	-	-	-	-	15	197,837
50 to 55	-	-	-	-	-	-	12	140,247
55 to 60	-	-	-	-	-	-	11	117,683
60 to 65	-	-	-	-	-	-	4	54,469
65 & Up	-	-	-	-	-	-	2	23,781
TOTAL	-	\$ -	-	\$ -	-	\$ -	125	\$1,439,637

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 POLICE AND FIRE FUND

SUMMARY OF PLAN

1. 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 ASSOCIATION

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1977)

Basic Members

RESERVES

Entry Age Normal Reserves

Retirement	\$556,790,784		
Vesting	47,435,623		
Disability	35,908,318		
Survivors	25,573,770		
Refund	<u>1,778,394</u>		
	\$667,486,889		
Less Value of Benefits to be Earned in the Future	175,159,959	\$492,326,930	
Vested and Inactive Members			7,790,487
Retired Members			
Retirements Payable from Minnesota Adjustable Fixed Benefit Fund	\$158,845,717		
Disability	9,873,880		
Survivors	39,125,717		
Reserve for Future Old Law Survivors	9,568,862		
Less Net Mortality Gain Receivable from Minnesota Adjustable Fixed Benefit Fund	<u>-80,561</u>	<u>\$217,333,615</u>	\$717,451,032
Unfunded Obligation			<u>314,566,556</u>
Funded Obligation			<u><u>\$402,884,476</u></u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1977)Basic MembersAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$892,610,991	
Obligation for Service			
Rendered to Date	\$717,451,032		
Net Assets	402,884,476		
Accrued Unfunded Obligation	314,566,556		
Funding Ratio			56%
Amortization (20-Year) Requirement	\$ 25,241,764		
Covered Payroll	173,224,698		
Amortization (20-Year) Rate Requirement			<u>14.572%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	\$ 175,159,959		
Present Value of Future Payroll	1,271,542,000		
Normal Cost Rate Requirement	13.775%		
Employee Contribution Rate	<u>8.000%</u>		
Employer Normal Cost Rate Requirement			<u>5.775%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law			10.500%
Amortization (20-Year) Rate Requirement	14.572%		
Normal Cost Rate Requirement	5.775		
Allowance for Expenses	<u>0.148</u>		
Total Requirement			20.495%
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement			<u>(9.995%)</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1977)Basic MembersAMORTIZATION RATE REQUIREMENT

	PERIOD			
	10-Year	20-Year	30-Year	40-Year
Accrued Unfunded Obligation	\$314,566,556	\$314,566,556	\$314,566,556	\$314,566,556
Amortization Requirement	40,736,369	25,241,764	20,462,554	18,332,310
Covered Payroll	173,224,698	173,224,698	173,224,698	173,224,698
Amortization Rate Requirement	<u>23.516%</u>	<u>14.572%</u>	<u>11.813%</u>	<u>10.583%</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	23.516%	14.572%	11.813%	10.583%
Normal Cost Rate Requirement	5.775	5.775	5.775	5.775
Allowance for Expenses	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>
Total Requirement	<u>29.439%</u>	<u>20.495%</u>	<u>17.736%</u>	<u>16.506%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement	<u>(18.939%)</u>	<u>(9.995%)</u>	<u>(7.236%)</u>	<u>(6.006%)</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic Members

STATEMENT OF REVENUE, EXPENDITURES,
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)
(Year Ending June 30, 1977)

Revenue:

Employer Contributions	\$18,524,628.20	
Member Contributions	14,043,176.66	
State Contribution	7,795,300.00	
Investment Income	13,939,038.51	
Minnesota Adjustable Fixed Benefit Fund Income	<u>23,126,763.79</u>	
Total Revenue		\$77,428,907.16

Expenditure:

Benefits	\$25,921,325.44	
Refund of Contributions	110,396.46	
Administrative Expense	257,071.85	
Transfer to Police and Fire Fund	<u>28,298.86</u>	
Total Expenditures		<u>\$26,317,092.61</u>
Increase in Assets (1977)		<u><u><u><u><u><u><u>\$51,111,814.55</u></u></u></u></u></u></u>

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			\$ 51,111,815
Amortization Payment		\$ 8,003,221	
Excess Interest (0.75% x Average Invested Assets)		1,742,149	
Estimated Excess (Deficit) in Rate	\$13,704,683		
Rate Applied to Lower Payroll	1,541,953		
Mortality Gain		80,561	
Increases in Compensation	7,041,660		
Transfers from Vested to Inactive		4,322,684	
Aging of the Group	<u>20,734,517</u>		
Totals	<u>\$43,022,813</u>	<u>\$14,148,615</u>	
Expected Decrease (Increase) in Unfunded			<u>(28,874,198)</u>
Net Change in Reserves			\$ 79,986,013
Experience Variation (Gain) Loss			<u>(176,781)</u>
Total			<u>\$ 79,809,232</u>
1977 Actuarial Reserve			\$717,451,032
1976 Actuarial Reserve			<u>637,641,800</u>
Increase (Decrease)			<u>\$ 79,809,232</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSBasic Members

As of July 1, 1976	20,092
New Entrants	4
Reinstated	128
Transfers	<u>-24</u>
<u>Total</u>	<u>20,200</u>

Separations:

a. With Refund of Contributions	
(i) Death	80
(ii) Withdrawal	143
b. With Deferred Annuity	99
c. With Disability Annuity	117
d. With Normal Retirement Annuity	613
e. With Survivor Annuity	129
f. With Disability Survivor Annuity	<u>14</u>
<u>Total</u>	<u>1,195</u>

Members as of July 1, 1977	<u>19,005</u>
Inactive Members*	<u>3,770</u>
Members included in Entry Age Normal Cost Calculation	<u>15,235</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 38

RECONCILIATION OF ANNUITANTS

Basic Members

Normal Retirement Annuitants

As of July 1, 1976	6,942
Additions During Year	712
Deletions During Year	<u>- 351</u>
<u>Total as of July 1, 1977</u>	<u>7,303</u>
Annual Annuity - July 1, 1976	\$17,024,242
- July 1, 1977	\$20,123,483

Disability Annuitants

As of July 1, 1976	366
Additions During Year	101
Deletions During Year	<u>- 95</u>
<u>Total as of July 1, 1977</u>	<u>372</u>
Annual Annuity - July 1, 1976	\$ 937,699
- July 1, 1977	\$ 1,275,410

Survivor Annuitants

(a) Spouse Only as of July 1, 1976	2,535
Optional Survivors as of July 1, 1976	95
Additional Spouse Only During Year*	419
Additional Optional Survivors During Year	18
Deletions During Year	<u>- 153</u>
<u>Total as of July 1, 1977</u>	<u>2,914</u>
Annual Annuity - July 1, 1976	\$ 2,900,269
- July 1, 1977	\$ 3,675,015

(b) Survivor with Children

As of July 1, 1976	601
Additions During Year	29
Deletions During Year*	<u>- 412</u>
<u>Total as of July 1, 1977</u>	<u>218</u>
Annual Annuity - July 1, 1976	\$ 701,166
- July 1, 1977	\$ 412,269

(c) Children

As of July 1, 1976	474
Additions During Year	71
Deletions During Year	<u>- 90</u>
<u>Total as of July 1, 1977</u>	<u>455</u>
Annual Annuity - July 1, 1976	\$ 386,710
- July 1, 1977	\$ 414,624

Deferred Vested Members

As of July 1, 1976	885
Additions During Year	99
Deletions During Year	<u>- 36</u>
<u>Total as of July 1, 1977</u>	<u>948</u>

* Includes Survivors with children at initial commencement date who have no dependent children at June 30, 1977.

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>
62	1	\$ 176.72	-	\$ -
63	2	283.87	4	354.85
64	3	462.19	4	589.76
65	7	884.18	8	807.58
66	14	2,582.57	15	2,322.44
67	19	3,631.21	29	4,469.08
68	37	7,337.20	27	4,227.41
69	76	17,377.46	59	9,342.76
70	178	37,850.35	136	20,476.24
71	153	33,058.74	148	22,062.58
72	160	33,841.06	119	18,268.23
73	132	28,475.90	130	20,199.32
74	147	31,222.87	128	19,135.34
75	168	35,426.23	136	22,346.70
76	183	40,137.74	109	17,958.92
77	161	33,686.43	104	17,192.86
78	151	31,420.19	115	18,578.09
79	135	27,753.77	91	16,848.56
80	140	26,844.12	87	16,323.73
81	142	30,860.39	82	13,855.14
82	124	26,862.11	73	11,724.44
83	122	26,215.87	61	10,190.55
84	84	16,428.37	47	6,680.95
85	77	16,297.25	50	7,294.11
86	72	14,355.38	37	7,025.94
87	42	8,913.89	34	5,140.76
88	47	9,904.73	34	6,318.25
89	36	6,980.85	21	3,297.97
90	29	5,473.39	15	2,021.19
91	21	3,550.36	9	2,207.57
92	17	2,865.31	11	1,186.94
93	12	2,475.16	6	1,121.33
94	12	1,820.17	3	273.41
95	7	1,222.89	3	600.24
96	1	166.49	2	188.37
97	3	344.67	2	261.28
99	1	168.00	-	-
100	1	131.01	-	-
103	1	179.31	1	176.75
105	1	157.70	-	-
<u>Totals</u>	<u>2,719</u>	<u>\$567,826.18</u>	<u>1,940</u>	<u>\$311,069.64</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	\$ 875.08	1	\$ 137.35
59	3	1,211.64	5	1,131.29
60	8	2,070.54	5	2,124.98
61	16	7,715.76	19	5,617.53
62	23	12,677.09	33	9,903.42
63	69	32,244.58	43	14,824.42
64	65	32,655.60	62	20,147.33
65	138	56,921.37	110	27,788.92
66	249	87,620.76	208	54,155.25
67	271	95,527.87	226	47,042.68
68	225	70,188.47	207	40,045.43
69	156	52,779.32	131	24,159.82
70	58	18,811.61	47	9,653.12
71	31	10,001.50	28	5,201.29
72	29	7,458.94	13	1,137.55
73	16	3,873.33	14	2,763.77
74	20	9,048.51	12	1,171.97
75	10	1,930.25	7	1,319.16
76	10	4,800.44	3	185.30
77	6	4,195.95	3	240.14
78	10	1,622.17	9	1,272.10
79	7	1,775.98	2	206.85
80	1	489.85	2	160.33
81	-	-	4	598.09
82	2	1,150.96	-	-
83	1	24.18	-	-
85	1	757.65	-	-
86	1	777.53	-	-
87	1	33.02	-	-
91	1	96.27	-	-
<u>Total</u>	<u>1,432</u>	<u>\$519,336.22</u>	<u>1,194</u>	<u>\$270,988.09</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>
56	-	\$ -	1	\$ 423.02
57	-	-	1	368.70
58	-	-	1	373.11
65	-	-	1	369.45
67	-	-	1	403.18
70	3	1,236.78	2	921.38
74	1	467.63	-	-
75	1	447.17	-	-
76	-	-	1	468.75
77	-	-	1	463.88
79	1	468.38	-	-
81	-	-	1	467.25
86	-	-	1	471.00
98	-	-	1	387.08
<u>Totals</u>	<u>6</u>	<u>\$2,619.96</u>	<u>12</u>	<u>\$5,116.80</u>

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

Age	MALE		FEMALE	
	Number	Monthly Annuity	Number	Monthly Annuity
41	1	\$ 39.36	-	\$ -
43	-	-	1	147.11
50	1	32.40	1	229.57
57	-	-	2	320.76
58	1	146.91	1	180.04
59	-	-	5	1,040.96
60	-	-	3	230.15
61	-	-	3	689.06
62	-	-	3	795.01
63	-	-	2	1,618.43
64	-	-	2	352.73
65	-	-	4	607.00
66	-	-	5	1,511.17
67	-	-	6	1,457.24
68	-	-	4	512.82
69	-	-	4	848.01
70	-	-	5	780.33
71	-	-	1	54.57
72	1	138.55	2	407.80
73	1	277.70	4	1,323.88
74	-	-	7	1,515.06
75	1	377.72	2	203.40
76	-	-	3	277.95
77	-	-	1	355.78
78	-	-	1	106.62
80	-	-	3	373.19
81	-	-	5	1,107.24
82	-	-	2	234.36
86	-	-	1	153.75
88	-	-	1	53.14
<u>Totals</u>	<u>6</u>	<u>\$1,012.64</u>	<u>84</u>	<u>\$17,487.13</u>

Annuities Payable for a Certain Period Not Dependent on Age

<u>Number</u>	<u>Monthly Annuity</u>
<u>9</u>	<u>\$164.30</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBASIC MEMBERSDISABILITY RETIREMENTS

Age	MALE		FEMALE	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
40	1	\$ 273.51	-	\$ -
41	1	373.80	-	-
42	1	190.24	1	194.59
43	-	-	1	99.66
44	1	187.63	-	-
45	1	166.63	-	-
46	3	1,380.56	-	-
47	2	427.91	1	222.51
48	3	1,471.76	1	85.33
49	2	1,359.64	-	-
50	5	1,332.84	2	319.28
51	-	-	-	-
52	3	807.98	4	720.83
53	8	1,666.80	1	185.32
54	11	4,517.27	5	717.17
55	9	2,195.27	8	1,132.23
56	6	1,570.56	5	794.81
57	10	3,597.34	6	901.79
58	16	6,663.68	3	805.02
59	18	6,406.51	6	1,840.57
60	17	6,539.21	10	1,714.59
61	19	7,417.01	11	2,771.02
62	26	10,149.56	15	2,811.71
63	33	10,630.39	18	2,048.07
64	34	12,463.76	19	3,563.08
65	<u>11</u>	<u>1,998.41</u>	<u>14</u>	<u>2,325.24</u>
<u>TOTALS</u>	<u>241</u>	<u>\$83,028.37</u>	<u>131</u>	<u>\$23,255.82</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersSurvivor Annuities

Age	MALE		Age	FEMALE	
	Number	Monthly Annuity		Number	Monthly Annuity
32	1	\$ 300.00	67	89	\$ 9,413.36
33	1	270.00	68	87	9,112.48
34	1	225.00	69	83	8,305.39
35	3	621.41	70	98	9,729.18
36	1	282.11	71	88	8,618.37
37	1	270.00	72	106	9,893.12
39	2	288.64	73	101	9,804.37
40	3	566.22	74	109	10,556.72
41	5	1,094.04	75	123	12,600.04
42	4	1,131.00	76	118	12,051.75
43	4	794.96	77	103	10,086.16
44	5	1,257.12	78	98	9,541.63
45	7	1,314.98	79	109	10,673.38
46	7	1,085.34	80	105	9,949.44
47	9	1,751.37	81	91	9,436.15
48	16	2,695.82	82	92	8,477.66
49	20	3,420.56	83	79	7,700.72
50	16	2,122.46	84	84	7,751.05
51	25	3,603.77	85	63	5,406.61
52	20	3,455.24	86	62	5,309.39
53	30	4,772.52	87	39	3,229.70
54	24	2,874.92	88	46	3,606.37
55	45	6,425.36	89	36	3,258.99
56	38	6,194.18	90	21	1,655.08
57	42	5,916.49	91	22	1,556.66
58	53	6,989.04	92	18	1,280.81
59	41	6,051.13	93	9	527.90
60	60	7,038.14	94	4	342.63
61	60	7,342.71	95	4	427.50
62	64	6,651.90	96	1	79.17
63	58	5,549.73	97	3	230.02
64	86	9,073.40	98	3	355.31
65	83	8,253.53	99	2	124.98
66	80	8,374.55	103	1	107.93
			<u>TOTALS</u>	<u>3,012</u>	<u>\$319,258.44</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersSurvivor AnnuitiesMale

<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
59	2	\$ 162.50
63	1	221.14
64	3	549.85
68	1	165.92
70	1	87.63
72	2	117.38
73	2	158.11
74	2	257.18
75	1	133.44
76	2	227.82
78	2	87.04
79	3	183.43
81	3	249.41
82	3	130.38
87	1	34.57
90	<u>1</u>	<u>82.96</u>
<u>TOTALS</u>	<u>30</u>	<u>\$2,848.76</u>

Children

<u>Number</u>	<u>Monthly Annuity</u>
<u>456</u>	<u>\$34,552.03</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Basic Members

CONSIDERED EARNINGS

Active Male Employees

(Age and Service as of July 1, 1977)

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	-	\$ -	-	\$ -	1	\$ 23,857	-	\$ -
25 to 30	-	-	-	-	1	14,793	9	105,126
30 to 35	-	-	-	-	2	15,554	49	646,472
35 to 40	-	-	-	-	2	26,837	62	740,491
40 to 45	-	-	-	-	1	9,625	63	721,156
45 to 50	-	-	-	-	8	72,686	58	583,076
50 to 55	-	-	-	-	5	60,951	76	732,747
55 to 60	-	-	-	-	5	72,601	67	667,156
60 to 65	-	-	-	-	11	128,588	39	374,627
65 & Up	-	-	-	-	9	65,489	19	112,605
TOTAL	-	\$ -	-	\$ -	45	\$ 490,981	442	\$ 4,683,456

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	8	104,124	-	-	-	-	-	-
30 to 35	215	3,060,522	9	149,604	-	-	-	-
35 to 40	455	6,505,321	151	2,233,680	9	133,578	-	-
40 to 45	467	6,661,087	354	5,381,964	153	2,383,897	11	191,089
45 to 50	442	5,793,024	404	5,966,028	327	5,073,659	84	1,351,908
50 to 55	454	5,679,181	459	6,353,058	415	6,299,075	307	4,915,736
55 to 60	473	5,722,575	482	6,293,984	370	5,353,084	314	4,728,150
60 to 65	354	3,892,269	382	4,451,609	326	4,040,603	313	4,478,451
65 & Up	79	644,079	88	953,131	49	570,871	45	585,729
TOTAL	2,947	\$38,062,182	2,327	\$31,783,058	1,649	\$23,836,767	1,074	\$ 16,251,063

AGE	YEARS OF SERVICE							
	30 to 35		35 to 40		40 & Up		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	1	\$ 23,857
25 to 30	-	-	-	-	-	-	18	224,043
30 to 35	-	-	-	-	-	-	275	3,872,152
35 to 40	-	-	-	-	-	-	679	9,639,907
40 to 45	-	-	-	-	-	-	1,049	15,348,818
45 to 50	4	54,524	-	-	-	-	1,327	18,894,905
50 to 55	32	541,002	6	69,877	-	-	1,754	24,651,627
55 to 60	95	1,601,732	11	168,673	2	25,476	1,819	24,615,431
60 to 65	86	1,278,897	30	539,496	4	59,380	1,545	19,243,920
65 & Up	25	340,759	6	103,278	3	44,017	323	3,419,958
TOTAL	242	\$ 3,816,914	53	\$ 881,324	9	\$ 128,873	8,790	\$119,934,618

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 ASSOCIATION

Basic Members

CONSIDERED EARNINGS

Active Female Employees
(Age and Service as of July 1, 1977)

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	\$ 6,212	-	\$ -
25 to 30	-	-	-	-	-	-	24	198,752
30 to 35	-	-	-	-	3	7,239	30	288,382
35 to 40	-	-	-	-	1	13,861	43	312,033
40 to 45	-	-	-	-	5	20,251	127	793,600
45 to 50	-	-	-	-	2	10,624	204	1,151,458
50 to 55	-	-	-	-	8	114,448	255	1,429,341
55 to 60	-	-	-	-	7	62,264	209	1,193,526
60 to 65	-	-	-	-	7	109,793	123	660,433
65 & Up	-	-	-	-	2	3,991	33	120,876
TOTAL	-	\$ -	-	\$ -	37	\$ 348,683	1,048	\$ 6,148,401

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	20	202,188	-	-	-	-	-	-
30 to 35	144	1,641,182	13	150,756	-	-	-	-
35 to 40	162	1,741,594	65	721,374	10	103,841	-	-
40 to 45	255	2,304,266	59	649,679	36	437,449	5	69,458
45 to 50	503	3,911,495	140	1,349,386	48	559,033	30	351,889
50 to 55	701	5,458,800	263	2,380,318	67	756,013	54	716,595
55 to 60	712	5,290,930	390	3,393,530	157	1,591,571	69	820,158
60 to 65	487	3,393,392	380	3,079,053	149	1,487,427	76	879,307
65 & Up	102	571,017	83	579,451	30	245,794	15	183,638
TOTAL	3,086	\$24,514,864	1,393	\$12,303,547	497	\$5,181,128	249	\$ 3,021,045

AGE	YEARS OF SERVICE							
	30 to 35		35 to 40		40 & Up		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	2	\$ 6,212
25 to 30	-	-	-	-	-	-	44	400,940
30 to 35	-	-	-	-	-	-	190	2,087,559
35 to 40	-	-	-	-	-	-	281	2,892,703
40 to 45	-	-	-	-	-	-	487	4,274,703
45 to 50	3	35,561	-	-	-	-	930	7,369,444
50 to 55	25	317,313	-	-	-	-	1,373	11,172,828
55 to 60	25	331,501	12	161,798	-	-	1,581	12,845,278
60 to 65	34	435,722	18	217,310	8	131,776	1,282	10,394,213
65 & Up	4	50,972	2	26,520	4	63,939	275	1,846,198
TOTAL	91	\$ 1,171,069	32	\$ 405,628	12	\$ 195,715	6,445	\$53,290,080

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 ASSOCIATION

BASIC MEMBERS

SUMMARY OF PLAN

1. 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 contribuitons. (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, 1977)Coordinated MembersRESERVES

Entry Age Normal Reserves

Retirement	\$315,333,587		
Vesting	67,744,834		
Disability	20,892,535		
Survivors	5,720,801		
Refund	<u>34,257,494</u>		
	\$443,949,251		
Less Value of Benefits to be Earned in the Future	259,820,651	\$184,128,600	
Vested and Inactive Members			2,661,860
Retired Members			
Retirements Payable from Minnesota Adjustable Fixed Benefit Fund	\$ 24,972,516		
Disability	1,161,811		
Less Net Mortality Gain Receivable from Minnesota Adjustable Fixed Benefit Fund	<u>-12,665</u>	<u>26,121,662</u>	\$212,912,122
Unfunded Obligation			<u>1,909,161</u>
Funded Obligation			<u><u>\$211,002,961</u></u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1977)Coordinated MembersAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$472,732,773
Obligation for Service Rendered to Date	\$ 212,912,122	
Net Assets	211,002,961	
Accrued Unfunded Obligation	1,909,161	
Funding Ratio		99%
Amortization (20-Year) Requirement	153,197	
Covered Payroll	534,175,847	
Amortization (20-Year) Rate Requirement		<u>0.029%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	\$ 259,820,651	
Present Value of Future Payroll	3,666,621,000	
Normal Cost Rate Requirement	7.086%	
Employee Contribution Rate	<u>4.000</u>	
Employer Normal Cost Rate Requirement		<u>3.086%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		5.500%
Amortization (20-Year) Rate Requirement	0.029%	
Normal Cost Rate Requirement	3.086	
Allowance for Expenses	<u>0.148</u>	
Total Requirement		3.263%
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>2.237%</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS
(July 1, 1977)Coordinated MembersAMORTIZATION RATE REQUIREMENT

	PERIOD			
	<u>10-Year</u>	<u>20-Year</u>	<u>30-Year</u>	<u>40-Year</u>
Accrued Unfunded Obligation	\$ 1,909,161	\$ 1,909,161	\$ 1,909,161	\$ 1,909,161
Amortization Requirement	247,236	153,197	124,191	111,262
Covered Payroll	534,175,847	534,175,847	534,175,847	534,175,847
Amortization Rate Requirement	<u>0.046%</u>	<u>0.029%</u>	<u>0.023%</u>	<u>0.021%</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	0.046%	0.029%	0.023%	0.021%
Normal Cost Rate Requirement	3.086	3.086	3.086	3.086
Allowance for Expenses	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>	<u>0.148</u>
Total Requirement	<u>3.280%</u>	<u>3.263%</u>	<u>3.257%</u>	<u>3.255%</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement	<u>2.220%</u>	<u>2.237%</u>	<u>2.243%</u>	<u>2.245%</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated Members

STATEMENT OF REVENUE, EXPENDITURES,
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)
 (Year Ending June 30, 1977)

Revenue:

Employer Contributions	\$28,133,501.39	
Member Contributions	20,358,051.94	
State Contribution	872,897.00	
Investment Income	9,476,752.61	
Minnesota Adjustable Fixed Benefit Fund Income	<u>3,592,720.57</u>	
Total Revenue		\$62,433,423.51

Expenditure:

Benefits	\$2,902,601.14	
Refund of Contributions	7,114,881.06	
Administrative Expense	792,736.69	
Total Expenditures		<u>10,810,218.89</u>
Increase in Assets (1977)		<u><u><u>\$51,623,204.62</u></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			\$ 51,623,204
Amortization Payment		\$ 533,950	
Excess Interest (0.75% x Average Invested Assets)		1,202,589	
Estimated Excess (Deficit) in Rate		10,462,791	
Contribution Require- ment Applied to Larger Payroll		4,058,599	
Mortality Gain		12,665	
Increases in Compensation	\$5,245,176		
Totals	<u>\$5,245,176</u>	<u>\$16,270,594</u>	
Expected Decrease (Increase) in Unfunded			<u>11,025,418</u>
Net Change in Reserves			\$ 40,597,786
Experience Variation (Gain) Loss			<u>(6,137,725)</u>
Total			<u>\$ 34,460,061</u>
1977 Actuarial Reserve			\$212,912,122
1976 Actuarial Reserve			<u>178,452,061</u>
Increase (Decrease)			<u>\$ 34,460,061</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSCoordinated Members

As of July 1, 1976	63,706
New Entrants	15,663
Reinstated	3,311
Transfers	<u>24</u>
<u>Total</u>	<u>82,704</u>

Separations:

a. With Refund of Contributions	
(i) Death	100
(ii) Withdrawal	14,272
b. With Deferred Annuity	39
c. With Disability Annuity	58
d. With Normal Retirement Annuity	272
e. With Survivor Annuity	<u>22</u>
<u>Total</u>	<u>14,763</u>

Members as of July 1, 1977	<u>67,941</u>
Inactive Members*	<u>1,150</u>
Members included in Entry Age Normal Cost Calculation	<u>66,791</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, 1976	1,505
Additions During Year	355
Deletions During Year	- 40
<u>Total as of July 1, 1977</u>	<u>1,820</u>
Annual Annuity - July 1, 1976	\$2,282,069
- July 1, 1977	\$2,804,517

Disability Annuitants

As of July 1, 1976	92
Additions During Year	61
Deletions During Year	- 26
<u>Total as of July 1, 1977</u>	<u>127</u>
Annual Annuity - July 1, 1976	\$ 112,555
- July 1, 1977	\$ 151,573

Survivor Annuitants

Spouse Only	
As of July 1, 1976	25
Additions During Year	9
Deletions During Year	-
<u>Total as of July 1, 1977</u>	<u>34</u>
Annual Annuity - July 1, 1976	\$ 25,986
- July 1, 1977	\$ 38,561

Deferred Vested Members

As of July 1, 1976	109
Additions During Year	39
Deletions During Year	- 2
<u>Total as of July 1, 1977</u>	<u>146</u>

Coordinated Members

SUPPORTING EXHIBITS

Exhibit 56	Retired Prior to July 1, 1973	79
Exhibit 57	Retired Under Law in Force July 1, 1973 and Subsequent	80
Exhibit 58	Disability Retirements	81
Exhibit 59	Considered Earnings - Male	82
Exhibit 60	Considered Earnings - Female	83
Exhibit 61	Summary of Plan	84 - 87

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated MembersRetired Prior to July 1, 1973

Age	MALE		FEMALE	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
64	1	\$ 42.60	-	\$ -
66	-	-	1	50.43
67	3	270.41	2	175.46
68	3	384.60	5	706.38
69	26	2,110.23	15	1,732.26
70	82	7,645.98	36	3,634.96
71	76	7,180.46	31	2,946.11
72	87	8,033.28	33	2,992.51
73	74	6,242.39	26	2,252.92
74	78	7,580.36	26	3,321.81
75	34	3,194.15	22	1,532.10
76	25	1,832.05	10	994.24
77	21	2,523.91	10	1,422.32
78	9	1,240.82	12	1,733.51
79	5	581.47	5	267.56
80	7	1,213.23	2	239.66
81	8	627.68	2	141.40
82	2	594.30	3	502.97
83	4	494.03	-	-
84	1	74.90	2	411.80
85	4	266.26	1	266.14
86	3	387.11	1	178.83
87	2	288.16	1	188.34
<u>Totals</u>	<u>555</u>	<u>\$52,808.38</u>	<u>246</u>	<u>\$25,691.71</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>
59	1	\$ 241.16	2	\$ 396.42
60	1	215.39	1	158.52
61	2	447.44	-	-
62	6	2,061.14	2	415.50
63	15	3,200.48	3	770.43
64	15	3,874.33	6	1,427.20
65	50	9,460.96	23	4,205.70
66	168	28,199.08	71	8,999.33
67	149	20,943.85	70	7,606.45
68	139	20,410.93	47	6,698.34
69	86	12,609.73	34	5,203.15
70	31	4,422.73	17	1,321.83
71	16	2,808.18	9	648.28
72	16	2,734.14	5	660.95
73	7	775.00	2	115.01
74	5	651.51	3	153.36
75	3	398.05	-	-
76	-	-	2	427.18
77	2	277.66	1	78.69
78	2	285.26	1	164.16
79	1	464.60	1	64.16
80	2	1,084.09	-	-
81	1	109.74	-	-
85	1	19.55	-	-
<u>Totals</u>	<u>719</u>	<u>\$115,695.00</u>	<u>300</u>	<u>\$39,514.66</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated MembersSurvivor Annuities

<u>AGE</u>	<u>NUMBER</u>	<u>MONTHLY ANNUITY</u>
33	1	\$ 31.87
51	1	56.86
53	1	59.74
59	3	409.24
60	1	70.43
61	2	128.69
62	5	343.78
63	2	296.05
65	1	23.35
66	3	336.13
67	2	296.98
68	2	79.48
69	1	55.99
70	1	89.06
71	1	58.17
72	1	38.66
73	1	256.08
74	1	85.67
77	2	222.76
84	1	141.31
85	1	133.10
<u>Totals</u>	<u>34</u>	<u>\$3,213.40</u>

Annuities Payable for a Certain Period Not Dependent on Age

<u>Number</u>	<u>Monthly Annuity</u>
<u>5</u>	<u>\$646.16</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>
39	1	\$ 108.59	-	\$ -
44	1	141.37	-	-
45	2	182.31	-	-
47	2	424.29	-	-
49	1	281.02	-	-
50	1	91.39	-	-
51	1	145.14	1	224.75
52	-	-	1	43.27
53	2	198.69	2	70.72
54	-	-	-	-
55	2	98.62	1	6.55
56	2	86.25	1	6.35
57	3	337.52	1	65.89
58	7	674.85	4	205.01
59	4	234.55	3	386.93
60	12	1,093.73	-	-
61	6	1,014.53	1	10.04
62	12	1,430.41	4	162.10
63	17	2,212.94	2	131.42
64	14	1,360.58	4	197.73
65	<u>11</u>	<u>985.62</u>	<u>1</u>	<u>17.96</u>
<u>TOTALS</u>	<u>101</u>	<u>\$11,102.40</u>	<u>26</u>	<u>\$1,528.72</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Coordinated Members

CONSIDERED EARNINGS

Active Male Employees

(Age and Service as of July 1, 1977)

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	1,413	\$ 9,324,306	682	\$ 5,328,250	601	\$ 5,624,865	34	\$ 315,940
25 to 30	1,220	9,832,022	870	8,466,432	1,718	19,026,718	736	9,261,437
30 to 35	628	5,671,851	478	5,480,641	1,223	15,580,188	1,295	18,147,997
35 to 40	319	2,675,340	241	2,719,836	688	8,639,451	877	12,458,984
40 to 45	270	2,337,400	216	2,219,813	569	6,495,327	764	10,491,063
45 to 50	224	1,791,288	195	1,830,970	548	5,767,885	841	10,746,488
50 to 55	219	1,748,057	163	1,489,136	577	6,161,455	868	10,388,559
55 to 60	150	1,107,211	165	1,380,279	479	4,591,501	859	9,971,296
60 to 65	103	684,234	91	685,688	341	2,931,324	628	6,680,889
65 & Up	38	148,297	49	176,678	160	749,448	215	1,341,488
TOTAL	4,584	\$35,320,006	3,150	\$29,777,723	6,904	\$75,568,162	7,117	\$ 89,804,141

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	9	103,654	-	-	-	-	-	-
30 to 35	96	1,385,055	2	31,444	-	-	-	-
35 to 40	196	3,223,986	27	436,236	-	-	-	-
40 to 45	165	2,777,058	123	2,324,832	14	199,717	1	18,386
45 to 50	172	2,705,966	105	2,053,015	56	1,080,526	14	242,175
50 to 55	225	3,230,506	107	1,735,339	91	1,719,935	47	923,683
55 to 60	272	3,536,459	175	2,515,705	95	1,501,144	56	885,285
60 to 65	275	3,277,435	148	1,904,705	73	994,032	39	562,275
65 & Up	62	585,340	33	380,429	20	251,827	3	37,448
TOTAL	1,472	\$20,825,459	720	\$11,381,705	349	\$ 5,747,181	160	\$ 2,669,252

AGE	YEARS OF SERVICE							
	30 to 35		35 to 40		40 & Up		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	2,730	\$ 20,593,361
25 to 30	-	-	-	-	-	-	4,553	46,690,263
30 to 35	-	-	-	-	-	-	3,722	46,297,176
35 to 40	-	-	-	-	-	-	2,348	30,153,833
40 to 45	-	-	-	-	-	-	2,122	26,863,596
45 to 50	1	1,634	-	-	-	-	2,156	26,219,947
50 to 55	13	221,855	-	-	-	-	2,310	27,618,525
55 to 60	14	305,010	2	21,074	-	-	2,267	25,814,964
60 to 65	14	231,035	3	57,958	3	47,134	1,718	18,056,709
65 & Up	2	26,650	-	-	1	9,079	583	3,706,684
TOTAL	44	\$ 786,184	5	\$ 79,032	4	\$ 56,213	24,509	\$272,015,058

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 ASSOCIATIONCoordinated MembersCONSIDERED EARNINGSActive Female Employees

(Age and Service as of July 1, 1977)

YEARS OF SERVICE

AGE	Under 1		1 to 2		2 to 5		5 to 10	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	2,980	\$15,542,963	1,633	\$10,247,106	1,670	\$11,544,354	160	\$ 1,219,907
25 to 30	1,717	10,392,809	1,242	8,801,164	2,262	18,981,793	1,124	10,343,385
30 to 35	1,308	6,447,438	923	5,319,158	1,519	10,745,792	1,053	10,363,873
35 to 40	1,120	5,174,023	917	4,477,988	1,934	10,833,392	1,200	8,569,682
40 to 45	857	3,654,135	680	3,193,998	1,809	9,375,300	1,705	10,834,665
45 to 50	566	2,581,011	508	2,485,879	1,553	8,426,256	1,849	11,780,347
50 to 55	388	1,659,653	395	1,948,670	1,240	6,579,227	1,714	11,086,016
55 to 60	263	1,065,734	278	1,421,101	792	4,155,635	1,307	7,990,162
60 to 65	93	328,139	113	451,021	419	1,982,540	885	5,114,197
65 & Up	32	92,715	43	113,700	142	500,383	278	1,135,069
<u>TOTAL</u>	<u>9,324</u>	<u>\$46,938,620</u>	<u>6,732</u>	<u>\$38,459,785</u>	<u>13,340</u>	<u>\$83,013,672</u>	<u>11,275</u>	<u>\$ 78,437,303</u>

YEARS OF SERVICE

AGE	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	15	106,735	-	-	-	-	-	-
30 to 35	98	1,038,982	5	21,713	-	-	-	-
35 to 40	115	1,217,716	18	194,028	2	17,812	-	-
40 to 45	105	939,748	13	187,103	8	64,098	1	2,536
45 to 50	160	1,501,349	26	272,183	10	148,054	7	80,037
50 to 55	222	2,122,337	29	290,416	24	321,294	11	174,447
55 to 60	209	1,881,822	57	572,179	27	359,939	8	118,256
60 to 65	194	1,516,489	66	619,463	38	325,486	17	198,186
65 & Up	59	334,256	16	138,149	11	87,066	4	43,965
<u>TOTAL</u>	<u>1,177</u>	<u>\$10,658,544</u>	<u>230</u>	<u>\$ 2,295,234</u>	<u>120</u>	<u>\$ 1,323,749</u>	<u>48</u>	<u>\$ 617,427</u>

YEARS OF SERVICE

AGE	30 to 35		35 to 40		40 & Up		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	6,443	\$ 38,443,330
25 to 30	-	-	-	-	-	-	6,360	48,625,886
30 to 35	-	-	-	-	-	-	4,906	33,936,066
35 to 40	-	-	-	-	-	-	5,306	30,484,641
40 to 45	-	-	-	-	-	-	5,178	28,251,583
45 to 50	-	-	-	-	-	-	4,679	27,275,116
50 to 55	7	90,574	1	8,572	-	-	4,031	24,281,206
55 to 60	8	105,835	3	26,070	1	2,147	2,953	17,698,880
60 to 65	4	60,329	4	48,065	4	41,519	1,837	10,685,434
65 & Up	2	14,692	1	12,547	1	6,105	589	2,478,647
<u>TOTAL</u>	<u>21</u>	<u>\$ 271,430</u>	<u>9</u>	<u>\$ 95,254</u>	<u>6</u>	<u>\$ 49,771</u>	<u>42,282</u>	<u>\$262,160,789</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 ASSOCIATION

COORDINATED MEMBERS

SUMMARY OF PLAN

1. 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.

PERA VALUATION AS OF JUNE 30, 1977

(General Fund)

The purpose of this memorandum is to discuss the Valuation Report of the Public Employees' Retirement Association, dated November 15, 1977, which was submitted to the Commission in accordance with Chapter 356 of Minnesota Laws 1974. The valuation was made using the entry age normal cost method and assuming 5% interest. The 1977 and 1976 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, 1976 and June 30, 1977 are shown for comparative purposes. Figures are rounded where necessary for simplicity of presentation.

	<u>As of</u> <u>June 30, 1976</u>	<u>As of</u> <u>June 30, 1977</u>
(1) <u>Membership</u>		
Active Members	20,092	15,235*
Retired Members	6,942	7,303
Disabled Members	366	372
Survivors of Deceased Members	3,705	3,597
Deferred Annuitants	885	948
(2) <u>Payroll and Annuities Payable</u> (Millions of Dollars)		
Covered Payroll	\$189.9	\$173.2
Annuities Payable (annual)	22.0	24.9

*The sharp decrease results from the removal of members with no contribution for 12 or more months.

	As of <u>June 30, 1976</u>	As of <u>June 30, 1977</u>
(3) <u>Valuation Balance Sheet</u>	(Millions of Dollars)	
Accrued Liability	\$637.6	\$733.4
Assets	<u>351.8</u>	<u>418.9</u>
Unfunded Accrued Liability (Deficit)	\$285.8	\$314.5
Funding Ratio (Assets/ Accrued Liability)	55.2%	57.1%
(4) <u>Normal Cost and Funding Costs</u>		
Normal Cost	13.827%	13.775%
Expenses	0.148	0.148
Normal Cost Plus Expenses	<u>13.975%</u>	<u>13.923%</u>
Normal Cost Plus Expenses	13.975%	13.923%
Interest on Deficit	7.527	9.074
Minimum Contribution	<u>21.502%</u>	<u>22.997%</u>
Normal Cost Plus Expenses	13.975%	13.923%
Amortization by 1997	11.742	14.572
Required Contribution	<u>25.717%</u>	<u>28.495%</u>
(5) <u>Statutory Contributions</u>		
Employee	8.0%	8.0%
Employer Regular	8.0	8.0
Employer Additional	2.5	2.5
Total Contributions	<u>18.5%</u>	<u>18.5%</u>

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 13.923%. 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 14.572%. 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 \$28,697,417. The PERA Actuary shows the following items to trace the change in the deficit.

Increases:

Salary Scale Loss	\$ 7,041,660	
Deficiency in Contribution	7,243,415	
→ Shift in Allocation of Costs from Normal Cost to Deficit	<u>20,734,517</u>	
Total Increases		\$35,019,592

Decreases:

Excess Interest	\$ 1,742,149	
Mortality Gain-Retired Lives	80,561	
Transfer to Inactive	4,322,684	
Other Actuarial Gains	<u>176,781</u>	
Total Decreases		<u>6,322,175</u>
Net Increase		\$28,697,417

B. COORDINATED GROUP

1. Statistical and Valuation Data

	<u>As of</u> <u>June 30, 1976</u>	<u>As of</u> <u>June 30, 1977</u>
(1) <u>Membership</u>		
Active Members	63,706	66,791
Retired Members	1,505	1,820
Disabled Members	92	127
Survivors of Deceased Members	25	34
Deferred Annuitants	109	146
(2) <u>Payroll and Annuities Payable</u>	(Millions of Dollars)	
Covered Payroll	\$467.7	\$534.2
Annuities Payable (annual)	2.4	3.0
(3) <u>Valuation Balance Sheet</u>	(Millions of Dollars)	
Accrued Liability	\$178.5	\$215.4
Assets	<u>159.4</u>	<u>213.5</u>
Unfunded Accrued Liability (Deficit)	\$ 19.1	\$ 1.9
Funding Ratio (Assets/Accrued Liability)	89.3%	99.1%

	<u>As of</u> <u>June 30, 1976</u>	<u>As of</u> <u>June 30, 1977</u>
(4) <u>Normal Cost and Funding Costs</u>		
Normal Cost	7.169%	7.086%
Expenses	0.148	0.148
Normal Cost Plus Expenses	<u>7.317%</u>	<u>7.234%</u>
Normal Cost Plus Expenses	7.317%	7.234%
Interest on Deficit	0.204	0.018
Minimum Contribution	<u>7.521%</u>	<u>7.252%</u>
Normal Cost Plus Expenses	7.317%	7.234%
Amortization by 1997	0.335	0.029
Required Contribution	<u>7.652%</u>	<u>7.263%</u>
(5) <u>Statutory Contributions</u>		
Employee	4.0%	4.0%
Employer Regular	4.0	4.0
Employer Additional	1.5	1.5
Total Contributions	<u>9.5%</u>	<u>9.5%</u>

2. Discussion of Valuation Results

The normal cost and other cost figures changed very little during the year with the total showing a slight increase in the margin between the statutory support and the required contribution. However, as will be shown in the consolidated section of the Report, this margin is not sufficient to cover the deficiency for the Basic Group.

The unfunded accrued liability for the Coordinated Group decreased by \$17,163,143 during the year. The PERA Actuary shows the following breakdown:

Decreases:

Amortization Contribution	\$15,055,340
Excess Interest	1,202,589
Mortality Gain - Retired Lives	12,665
Transfers to Inactive; Termination and Other Gains	<u>6,137,725</u>

Total Decreases	<u>\$22,408,319</u>
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Increases:

Salary Scale Loss	\$ <u>5,245,176</u>
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Total Increases	<u>5,245,176</u>
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Net Decrease	\$17,163,143
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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 weighing the percentage contributions by the ratio of each group's payroll to the total.

The results as a percentage of payroll follow:

	<u>1976</u>	<u>1977</u>
Required Support		
Normal Cost	9.143%	8.809%
Expenses	0.148	0.148
Amortization	3.617	3.590
Total	<u>12.908%</u>	<u>12.547%</u>
Statutory Support		
Employee	5.155%	4.980%
Employer Regular	5.155	4.988
Employer Additional	1.789	1.745
Total	<u>12.099%</u>	<u>11.705%</u>
Deficiency	0.809%	0.842%

The results in dollars follow:

	<u>1976</u>	<u>1977</u>
Required Support		
Normal Cost Plus		
Expense	\$60,760,460	\$62,760,283
Amortization	23,784,243	25,397,214
Total	<u>\$84,544,703</u>	<u>\$88,157,497</u>
Statutory Support		
Employee	\$33,900,169	\$35,224,970
Employer Regular	33,900,169	35,224,970
Sub Total	<u>\$67,800,338</u>	<u>\$70,449,940</u>
Employer Additional	11,763,091	12,343,240
Total	<u>\$79,563,429</u>	<u>\$82,793,180</u>
Deficiency	\$ 4,981,274	\$ 5,364,317

In both years, the total statutory support appears adequate to pay normal cost and retire the deficit by about 2005 or 2006.

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, and during the past year, this deficiency has increased from \$4,981,274 to \$5,364,317.

Franklin C. Smith
Associate, Society of Actuaries
STENNES & ASSOCIATES, INC.
Commission Actuaries

PERA VALUATION AS OF JUNE 30, 1977

(Police and Fire Fund)

The purpose of this memorandum is to discuss the valuation report of the PERA Police and Fire Fund, dated November 15, 1977, which was submitted to the Commission in accordance with Chapter 356 of Minnesota Laws 1974. The valuation was made using the entry age normal cost method and assuming 5% interest. The 1977 and 1976 valuation reports were completed by Davis H. Roenisch of Compensation and Capital, Consulting Actuaries.

This memorandum contains the following:

1. Statistical and Valuation Date
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.

	<u>As of</u> <u>June 30, 1976</u>	<u>As of</u> <u>June 30, 1977</u>
(1) <u>Membership</u>		
Active Members	3,800	3,732*
Retired Members	362	395
Disabled Members	15	20
Survivors of Deceased Members	238	242
Deferred Annuitants	183	194
(2) <u>Payroll and Annuities Payable</u>		
Covered Payroll	\$46,848,679	\$52,889,851
Annuities Payable (annual)	1,555,374	1,933,612
(3) <u>Valuation Balance Sheet</u>	(Millions of Dollars)	
Accrued Liability	\$87.1	\$103.5
Assets	<u>67.0</u>	<u>83.2</u>
Unfunded Accrued Liability (Deficit)	\$20.1	\$ 20.3
Funding Ratio (Assets/Accrued Liability)	76.9%	80.4%

*The decrease results from the removal of members with no contribution for 12 or more months.

	<u>As of</u> <u>June 30, 1976</u>	<u>As of</u> <u>June 30, 1977</u>
(4) <u>Normal Costs and Funding Costs</u>		
Normal Cost	16.364%	16.197%
Expenses	.092	.089
Normal Cost Plus Expenses	<u>16.456%</u>	<u>16.286%</u>
Normal Cost Plus Expenses	16.456%	16.286%
Interest on Deficit	2.148	1.922
Minimum Contribution	<u>18.604%</u>	<u>18.208%</u>
Normal Cost Plus Expenses	16.456%	16.286%
Amortization by 1997	3.351	3.085
Required Contribution	<u>19.807%</u>	<u>19.371%</u>
(5) <u>Statutory Contributions</u>		
Employee	8.0%	8.0%
Employer Regular	12.0	12.0
Employer Additional	0.0	0.0
Total	<u>20.0%</u>	<u>20.0%</u>

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 \$20,127,969 to \$20,335,649 which is an addition of \$207,680. An analysis follows:

Increases:

Salary Scale Loss	\$5,959,928
Mortality Loss-Retired Lives	<u>358,784</u>

Total Increases \$6,318,712

Decreases:

Amortization Contribution	\$2,618,854
Excess Interest	454,513
Transfers to Inactive	513,023
Other Actuarial Gains	<u>2,524,642</u>

Total Decreases 6,111,032

Net Increase \$ 207,680

3. Conclusion

The Report filed by PERA relative to the Policy 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
STENNES & ASSOCIATES, INC.
Commission Actuaries