

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

ACTUARIAL VALUATION REPORT  
(Based on a June 30, 1984 Census)

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PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

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# COMPENSATION & CAPITAL INCORPORATED

900 NORTH SHORE DRIVE

LAKE BLUFF, ILLINOIS 60044

TELEPHONE 312 234-9050

January 11, 1985

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

Members of the Board:

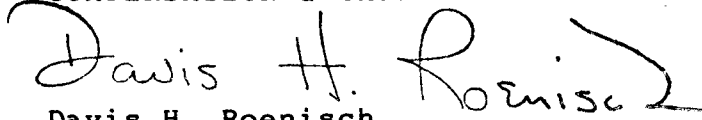
In accordance with your request, we have made an actuarial valuation of the Public Employees Retirement Association of the State of Minnesota for the year ended June 30, 1984, in order to determine the adequacy of the contributions being made to that system and to prepare the financial and actuarial 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 therein, 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, 1984.

Respectfully submitted,

COMPENSATION & CAPITAL INCORPORATED

  
Davis H. Roenisch  
Enrolled Actuary No. P74

DHR:kh

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

SUMMARY OF ACTUARIAL REQUIREMENTS  
(July 1, 1984)

	<u>General Fund</u>	<u>Police and Fire Fund</u>
<u>AMORTIZATION REQUIREMENTS</u>		
Present Value of Benefits (For Both Past and Future Service)	\$2,702,139,186	\$ 538,257,375
Obligation for Service Rendered to Date	2,228,361,179	306,817,265
Net Assets	1,599,673,540	279,757,310
Accrued Unfunded Obligation	628,687,639	27,059,955
Funding Ratio	71.8%	91.2%
Amortization Requirement (25 year; mid-year)	29,799,926	1,282,648
Covered Payroll	1,225,624,802	117,880,783
Amortization Rate Requirement	<u>2.431%</u>	<u>1.088%</u>

ENTRY AGE NORMAL RATE REQUIREMENTS

Normal Cost Requirement (mid-year)	\$ 69,177,359	\$ 18,455,563
Covered Payroll	1,225,624,802	117,880,783
Normal Cost Rate Requirement	<u>5.644%</u>	<u>15.656%</u>

ACTUARIAL BALANCE

Normal Cost Rate Requirement	5.644%	15.656%
Amortization Rate Requirement	2.431	1.088
Allowance for Expenses	<u>.247</u>	<u>.181</u>
Total Rate Requirement	8.322%	16.925%
Member Contribution Rate	<u>4.530*</u>	<u>8.000</u>
Employer Rate Requirement	3.792%	8.925%
Employer Contribution Rate Set by Law	<u>5.078*</u>	<u>12.000</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement	<u>1.286%</u>	<u>3.075%</u>

\* Weighted by Covered Payroll 13.25% Basic and 86.75% Coordinated.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Value of Benefits Earned to June 30, 1984

	<u>General Fund</u>	
	<u>Without Augmentation*</u>	<u>With Augmentation</u>
Benefits Payable to Retired Members and their Beneficiaries	\$ 722,266,875	\$ 722,266,875
Deferred Annuitants	12,659,108	12,659,108
Former Members without Vested Rights	8,889,482	8,889,482
Active Members:		
a. Eligible for Normal Retirement	60,020,121	60,020,121
b. Eligible for Early Retirement	147,838,736	147,838,736
c. Eligible for Deferred Benefits	449,132,376	656,920,656
d. Under 10 years service (Refund of Contributions only)	<u>106,458,070</u>	<u>106,458,070</u>
<u>Total</u>	<u>\$1,507,264,768</u>	<u>\$1,715,053,048</u>

	<u>Police and Fire Fund</u>	
Benefits Payable to Retired Members and their beneficiaries	\$ 72,548,765	\$ 72,548,765
Deferred Annuitants	2,082,269	2,082,269
Former Members without Vested Rights	719,767	719,767
Active Members:		
a. Eligible for Normal Retirement	31,921,084	31,921,084
b. Eligible for Early Retirement	-	-
c. Eligible for Deferred Benefits	110,031,392	147,418,512
d. Under 10 years service (Refund of Contribution only)	<u>21,227,568</u>	<u>21,227,568</u>
<u>Total</u>	<u>\$ 238,530,845</u>	<u>\$ 275,917,965</u>

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

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPublic Employees Retirement FundBalance SheetJune 30, 1984Assets

Cash	\$ 411,281
Accounts Receivable	202,981
Security Sales Receivable	-0-
Due From Other Funds	167,078
Accrued Investment Income	3,921
Investments	
Bonds	-0-
Equity Securities	-0-
Minnesota Outside Managed Pooled Funds	910,957,295
Short-term Cash Equivalents	34,621,667
Equity in Minnesota Post-Retirement Investment Fund	634,793,435
Deferred Yield Adjustment	-0-
Fixed Assets, Net of Accumulated Depreciation	547,953
Other	27,822
	<hr/>
Total Assets	<u>\$1,581,733,433</u>

Liabilities and Reserves Required

## Liabilities:

## Current -

Accounts Payable	\$ 18,836,660
Accrued Compensated Absences	300,214
Payable to Other Funds	15,632
Obligations Under Capital Lease	10,893
Security Purchases Payable	-0-
	<hr/>
	<u>\$ 19,163,399</u>

## Long-term -

Obligations Under Capital Lease	1,325
	<hr/>

Total Liabilities	<u>\$ 19,164,724</u>
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## Fund Balance:

Member Reserves	\$ 367,380,562
Minnesota Post-Retirement Investment Fund Reserve	634,793,435
Benefit Reserves	1,226,187,182
	<hr/>

Total Reserves	\$2,228,361,179
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## Unreserved Fund Balance -

Unfunded Actuarial Accrued Liability	(611,613,305)
Unrealized Loss on Marketable Equity Securities	(54,179,165)
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Total Fund Balance	<u>\$1,562,568,709</u>
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Total Liabilities and Fund Balance	<u>\$1,581,733,433</u>
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PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPublic Employees Retirement FundStatement of Revenues, Expenses, and Changes in Fund BalanceFor Fiscal Year Ended June 30, 1984

Operating Revenues:	
Member Contribution	\$ 58,347,759
Employer Contribution	78,966,549
Investment Income	73,358,140
Distributed Income of the Minnesota Post-Retirement Investment Fund	59,015,149
Other	<u>411,721</u>
 Total Operating Revenues	 \$ <u>270,099,318</u>
Operating Expenses:	
Benefits Paid	\$ 74,236,588
Refunds	23,756,065
Administrative Expenses	2,792,431
Investment Management Fees	1,345,065
Other	<u>12,171</u>
 Total Operating Expenses	 \$ <u>102,142,320</u>
Other Changes in Reserves:	
Cumulative Effect of Change in Accounting Method	(24,793,059)
Transfer to State General Fund	\$ (457,306)
 Total Other Changes	 \$ <u>(25,250,365)</u>
 Net Fund Balance Additions	 \$ 142,706,633
 Unrealized Loss on Marketable Equity Securities	 (54,179,165)
 Fund Balance, July 1, 1983	 <u>1,474,041,241</u>
 Fund Balance, June 30, 1984	 <u>\$1,562,568,709</u>



PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPublic Employees Retirement FundStatement of Changes in Financial PositionFor the Fiscal Year Ended June 30, 1984

## Resources Provided by:

## From Operations -

Net Operating Income \$ 142,706,633

## Item Not Requiring Resources Currently:

Depreciation Expense 147,004

## From Other -

Proceeds from Disposal of Fixed Assets 7,674

## Total Resources Provided

\$ 142,861,311

## Resources Used by:

Payments of Obligations Under Capital Lease \$ 10,893

Current Year Acquisition of Equipment 100,135

Unrealized Loss on Marketable Equity Securities 54,179,165

Net Increase in Working Capital 88,571,118

## Total Resources Used

\$ 142,861,311

## Elements of Net Increase (Decrease) in Working Capital

	<u>Year Ended June 30</u>		<u>Increase</u>
	<u>1984</u>	<u>1983</u>	<u>(Decrease)</u>
<b>Current Assets:</b>			
Cash	\$ 411,281	\$ 494,904	\$ (83,623)
Accounts Receivable	202,981	3,997,020	(3,794,039)
Security Sales Receivable	-0-	3,762,758	(3,762,758)
Due from Other Funds	167,078	156,701	10,377
Accrued Investment Income	3,921	9,348,613	(9,344,692)
Investments -			
Bonds	-0-	335,737,263	(335,737,263)
Equity Securities	-0-	375,369,407	(375,369,407)
Minnesota Outside Managed Pooled Funds	910,957,295	181,038,220	729,919,075
Short-term Cash Equivalents	34,621,667	30,336,529	4,285,138
Equity in Minnesota Post-Retirement			
Investment Fund	634,793,435	515,797,802	118,995,633
Deferred Yield Adjustment	-0-	24,791,056	(24,791,056)
Other	<u>27,822</u>	<u>23,008</u>	<u>4,814</u>
Total Current Assets	<u>\$1,581,185,480</u>	<u>\$1,480,853,281</u>	
<b>Current Liabilities:</b>			
Accounts Payable	\$ 18,836,660	\$ 3,356,625	(15,480,035)
Accrued Compensated Absences	300,214	314,925	14,711
Payable to Other Funds	15,632	18,004	2,372
Obligations Under Capital Leases	10,893	10,893	-0-
Security Purchases Payable	<u>-0-</u>	<u>3,701,871</u>	<u>3,701,871</u>
Total Current Liabilities	<u>\$ 19,163,399</u>	<u>\$ 7,402,318</u>	
Working Capital	<u>\$1,562,022,081</u>	<u>\$1,473,450,963</u>	<u>\$ 88,571,118</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONGeneral FundValuation Assets  
(June 30, 1984)

Net Assets on 6-30-84 Balance Sheet	\$1,562,568,709
Unrealized Loss on Marketable Equity Securities	<u>54,179,165</u>
Net Assets at Cost	\$1,616,747,874
1/3 of Unrealized Capital Gains or (Losses)	<u>(17,074,334)</u>
Valuation Assets	<u><u>\$1,599,673,540</u></u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONASSET ALLOCATION  
(July 1, 1984)

	<u>Basic Fund</u>	<u>Coordinated Fund</u>	<u>General Fund Total</u>
Asset Balance July 1, 1983	\$662,422,738	\$811,618,503	\$1,474,041,241
MPRF	436,486,487	79,311,315	515,797,802
General Fund	225,936,251	732,307,188	958,243,439
1. Employer Contributions	17,986,766	60,979,783	78,966,549
2. Employee Contributions	14,102,422	44,245,337	58,347,759
3. Transfer to State General Fund	(61,201)	(396,105)	(457,306)
4. Benefits Paid			
i. Retirement	(53,529,929)	(10,480,680)	(64,010,609)
ii. Survivors	(6,880,786)	(280,090)	(7,160,876)
iii. Disability	(2,563,136)	(501,967)	(3,065,103)
5. Refunds	(1,971,834)	(21,784,231)	(23,756,065)
6. Net (Items 1 to 5)	(32,917,698)	71,782,047	38,864,349
7. Income from MPRIF	49,815,662	9,199,487	59,015,149
8. Investment Income	16,979,364	55,033,711	72,013,075
9. Other Income	97,076	314,645	411,721
10. Administrative Expenses	(610,751)	(2,193,851)	(2,804,602)
11. Change in Accounting Method	(5,845,749)	(18,947,310)	(24,793,059)
12. Unrealized Loss on Market- able equity Securities	(12,774,455)	(41,404,710)	(54,179,165)
13. Net (Items 7 to 12)	47,661,147	2,001,972	49,663,119
14. Increase for Year (Sum of Items 6 and 13)	14,743,449	73,784,019	88,527,468
15. Asset Balance July 1, 1984	<u>\$677,166,187</u>	<u>\$885,402,522</u>	<u>\$1,562,568,709</u>
i. MPRIF	533,887,143	100,906,292	634,793,435
ii. General Fund	143,279,044	784,496,230	927,775,274
16. Valuation Assets	\$682,896,394	\$917,777,146	\$1,599,673,540

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONGENERAL FUNDACTUARIAL COST METHOD AND ASSUMPTIONSActuarial Cost Method

- Entry Age Normal.

Actuarial Assumptions

1. a. Retirement
  - Age 64. In addition, 50% utilization of retirement when age plus service totals 90, or age 55 and age plus service totals 85 prior to 1987.
- b. Mortality
  - Unisex Pension 1984 Table, set forward 1 year for males, set back 4 years for females.
- c. Disability
  - Graduated rates.
- d. Separation
  - Graduated rates.
2. Loading for Expense
  - .247%
3. Asset Valuation
  - Cost plus 1/3 unrealized gains or losses.
4. Investment Return
  - 8% compounded annually pre-retirement; 5% compounded annually post-retirement.
5. Earnings Progression
  - 6.5% per year.

A detailed statement of the mortality rates, disability rates, separation rates, and earnings progression is provided 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	1.267	45	3.769
21	1.219	46	4.180
22	1.167	47	4.635
23	1.149	48	5.103
24	1.129	49	5.616
25	1.107	50	6.196
26	1.083	51	6.853
27	1.058	52	7.543
28	1.083	53	8.278
29	1.111	54	9.033
30	1.141	55	9.875
31	1.173	56	10.814
32	1.208	57	11.863
33	1.297	58	12.952
34	1.398	59	14.162
35	1.513	60	15.509
36	1.643	61	17.010
37	1.792	62	18.685
38	1.948	63	20.517
39	2.125	64	22.562
40	2.327	65	24.847
41	2.556		
42	2.818		
43	3.095		
44	3.410		

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

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	1.437	45	2.327
21	1.414	46	2.556
22	1.385	47	2.818
23	1.351	48	3.095
24	1.311	49	3.410
25	1.267	50	3.769
26	1.219	51	4.180
27	1.167	52	4.635
28	1.149	53	5.103
29	1.129	54	5.616
30	1.107	55	6.196
31	1.083	56	6.853
32	1.058	57	7.543
33	1.083	58	8.278
34	1.111	59	9.033
35	1.141	60	9.875
36	1.173	61	10.814
37	1.208	62	11.863
38	1.297	63	12.952
39	1.398	64	14.162
40	1.513	65	15.509
41	1.643		
42	1.792		
43	1.948		
44	2.125		

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

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	0.90	45	2.15
21	0.92	46	2.32
22	0.94	47	2.51
23	0.96	48	2.74
24	0.98	49	3.01
25	1.00	50	3.30
26	1.02	51	3.63
27	1.04	52	4.03
28	1.06	53	4.52
29	1.08	54	5.11
30	1.10	55	5.80
31	1.12	56	6.60
32	1.14	57	7.60
33	1.16	58	8.80
34	1.18	59	10.20
35	1.20	60	11.80
36	1.23	61	13.60
37	1.27	62	15.70
38	1.33	63	18.10
39	1.41	64	20.80
40	1.50		
41	1.60		
42	1.71		
43	1.84		
44	1.99		

Public Employees Retirement AssociationGeneral FundMale Employees
SEPARATION 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	0.0588	45	0.2838
21	0.0626	46	0.3022
22	0.0667	47	0.3219
23	0.0710	48	0.3428
24	0.0756	49	0.3651
25	0.0805	50	0.3888
26	0.0858	51	0.4141
27	0.0914	52	0.4410
28	0.0973	53	0.4697
29	0.1036	54	0.5002
30	0.1103	55	0.5327
31	0.1175	56	0.5674
32	0.1252	57	0.6042
33	0.1333	58	0.6435
34	0.1420	59	0.6853
35	0.1512	60	0.7299
36	0.1610	61	0.7773
37	0.1715	62	0.8278
38	0.1826	63	0.8817
39	0.1945	64	0.9390
40	0.2071	65	1.0000
41	0.2206		
42	0.2349		
43	0.2502		
44	0.2665		

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL BALANCE SHEET  
(July 1, 1984)General FundCURRENT AND EXPECTED FUTURE ASSETS

Total Current Assets	\$1,599,673,540
Expected Future Assets	
Present Value of Expected Future Supplemental Contributions	\$329,723,531
Present Value of Future Normal Costs	473,778,007
Total Expected Future Assets	803,501,538
Total Current and Expected Future Assets	2,403,175,078

CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS

Current Benefit Obligations	
For Annuitants	
Retirement Annuities	\$ 634,793,435
Disability Annuities	20,645,280
Surviving Spouses' Annuities	65,844,251
Surviving Children's Annuities	983,909
For Former Members without Vested Rights	8,889,482
For Deferred Annuitants'	12,659,108
For Active Employees	
Retirement Benefits	1,308,737,418
Disability Benefits	62,426,983
Refund Liability Due to Death or Withdrawal	46,106,764
Survivors' Benefits	67,274,549
Total Current Benefit Obligations	\$2,228,361,179
Expected Future Benefit Obligations	473,778,007
Total Current and Expected Future Benefit Obligations	\$2,702,139,186
Current Unfunded Liability	\$ 628,687,639
Current and Future Unfunded Liability	\$ 298,964,108

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS  
(July 1, 1984)General FundAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$2,702,139,186
Obligation for Service Rendered to Date	\$2,228,361,179	
Net Assets	1,599,673,540	
Accrued Unfunded Obligation	628,687,639	
Funding Ratio		71.8%
Amortization Requirement (25 year; mid-year)	29,799,926	
Covered Payroll	1,225,624,802	
Amortization Rate Requirement		<u>2.431%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Normal Cost Requirement (mid-year)	\$ 69,177,359	
Covered Payroll	1,225,624,802	
Normal Cost Rate Requirement		<u>5.644%</u>

ACTUARIAL BALANCE

Normal Cost Rate Requirement	5.644%	
Amortization Rate Requirement	2.431	
Allowance for Expenses	<u>.247</u>	
Total Rate Requirement		8.322%
Member Contribution Rate*		<u>4.530</u>
Employer Rate Requirement		3.792%
Employer Contribution Rate Set by Law*		<u>5.078</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>1.286%</u>

\* Weighted by Covered Payroll 13.25% Basic and 86.75% Coordinated.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONGeneral Fund

STATEMENT OF REVENUE, EXPENDITURES,  
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)  
 (Year Ending June 30, 1984)

Revenue:

Employer Contributions	\$ 78,966,549	
Member Contributions	58,347,759	
Investment Income	73,358,140	
Minnesota Post-Retirement Investment Fund Income	59,015,149	
Other Income	<u>411,721</u>	
Total Revenue		\$270,099,318

Expenditure:

Benefits	\$(74,236,588)	
Refund of Contributions	(23,756,065)	
Administrative Expense	(2,792,431)	
Operating Transfers	(457,306)	
Investment Management Fees	(1,345,065)	
Other	<u>(12,171)</u>	
Total Expenditures		(102,599,626)
Change in Accounting Method		<u>(41,867,393)</u>

Increase in Valuation Assets (1984) \$125,632,299

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONGeneral FundALLOCATION OF CHANGE IN ACTUARIAL RESERVES

<u>Item</u>	<u>Assets</u>	<u>Reserves</u>	<u>Change in Unfunded Increase (Decrease)</u>
Contribution Income	\$137,314,308	\$110,308,683 <sup>1</sup>	\$(27,005,625)
Investment Income	132,373,289 <sup>2</sup>	105,067,807	(27,305,482)
Other Income	<u>411,721</u>	<u>-</u>	<u>(411,721)</u>
Total Income	270,099,318	215,376,490	(54,722,828)
Benefit Payments and Expenses	(102,142,320)	(102,142,320)	-
Transfer to State General Fund	(457,306)	-	457,306
Change in Accounting Method	(41,867,393)	-	41,867,393
Increase in Reserves Based on Salary	-	99,527,515	99,527,515
Mortality Loss	-	8,271,418	8,271,418
Amendments	-	43,304,442	43,304,442
Change in Assumptions and Method	-	84,728,482	84,728,482
Other Experience Variation	<u>-</u>	<u>3,735,292<sup>3</sup></u>	<u>3,735,292</u>
Net Change	<u>\$125,632,299</u>	<u>\$352,801,319</u>	<u>\$227,169,020</u>

1 Normal Cost Plus Interest on the Unfunded

2 Includes MPRF Income

3 Includes Actual Less Estimated Income Gain

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONGeneral FundESTIMATED SOURCES OF GAIN FROM INCOME

Actual Income Less Reserves		\$54,722,828
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Estimated Sources of Gain:

Amortization Payment	\$10,463,268	
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Excess Interest	24,238,578	
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Contribution Rates Applied to Larger Payroll	8,072,478	
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Excess in Contribution Rate	<u>7,428,575</u>	<u>50,202,899</u>
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Actual Less Estimated Gain		<u>\$ 4,519,929</u>
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PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSGeneral Fund

As of July 1, 1983	83,378
New Entrants	8,347
Reinstated	2,753
Reinstated from Errors	<u>12</u>
TOTAL	<u>94,490</u>

Separations:

a. Refund of Contributions	
(i) Death	108
(ii) Withdrawal	6,070
b. With Deferred Annuity	177
c. With Disability Annuity	98
d. With Normal Retirement Annuity	1,169
e. With Survivor Annuity	24
f. With Option Annuity	15
g. Terminated	2,705
h. Terminated to Active	353
i. Died - No Refund or Benefit	21
j. Duplicate Member Number Errors	48
k. Added in Error	<u>-</u>
TOTAL SEPARATIONS	<u>10,788</u>
Current Active Total	<u>83,702</u>



PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ANNUITANTSGeneral Fund

<u>Annuitants:</u>	<u>Normal</u>	<u>Option</u>	<u>Survivor</u>	<u>Disabled</u>	<u>Children</u>	<u>Total</u>
Balance - July 1, 1983	14,583	505	3,093	698		18,879
Additions for year	1,760	123	123	119		2,125
Deletions for year	-578	-14	-148	-143		-883
Subtotal - July 1, 1984	15,765	614	3,068	674	222	20,121
Inactives	0	0	17	36		53
Actives	15,765	614	3,051	638	49	20,068
Annual Annuity	64,420,978	2,074,085	6,666,338	2,903,330	196,811	76,064,731

Note - Children are for informational purposes only. They are included as survivors. Active children are active children only.

Deferred Vested Members:

Balance - July 1, 1983	1,866
Additions	316
Deletions	-339
Balance - July 1, 1984	1,843

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPublic Employees Police & Fire FundBalance SheetJune 30, 1984Assets

Cash	\$ 138,526
Accounts Receivable	781,044
Security Sales Receivable	-0-
Due From Other Funds	15,632
Accrued Investment Income	2,085
Investments	
Bonds	-0-
Equity Securities	-0-
Minnesota Outside Managed Pooled Funds	190,497,010
Short-term Cash Equivalents	22,243,487
Equity in Minnesota Post-Retirement Investment Fund	59,663,039
Deferred Yield Adjustment	-0-
Fixed Assets, Net of Accumulated Depreciation	-0-
Other	-0-
<b>Total Assets</b>	<b><u>\$273,340,823</u></b>

Liabilities and Reserves Required

## Liabilities:

## Current -

Accounts Payable	\$ 1,003,211
Accrued Compensated Absences	-0-
Payable to Other Funds	167,078
Obligations Under Capital Lease	-0-
Security Purchases Payable	-0-
	<u>\$ 1,170,289</u>

## Long-term -

Obligations Under Capital Lease	-0-
<b>Total Liabilities</b>	<b><u>\$ 1,170,289</u></b>

## Fund Balance:

Member Reserves	\$ 58,689,769
Minnesota Post-Retirement Investment Fund Reserve	59,663,039
Benefit Reserves	188,464,457
<b>Total Reserves</b>	<b>\$306,817,265</b>

## Unreserved Fund Balance -

Unfunded Actuarial Accrued Liability	(23,586,014)
Unrealized Loss on Marketable Equity Securities	(11,060,717)

<b>Total Fund Balance</b>	<b><u>\$272,170,534</u></b>
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<b>Total Liabilities and Fund Balance</b>	<b><u>\$273,340,823</u></b>
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PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPublic Employees Police & Fire FundStatement of Revenues, Expenses, and Changes in Fund BalanceFor Fiscal Year Ended June 30, 1984

Operating Revenues:	
Member Contribution	\$ 9,670,700
Employer Contribution	14,473,213
Investment Income	15,564,566
Distributed Income of the Minnesota Post-Retirement Investment Fund	5,981,127
Other	<u>353,853</u>
 Total Operating Revenues	 \$ <u>46,043,459</u>
Operating Expenses:	
Benefits Paid	\$ 6,352,248
Refunds	2,043,206
Administrative Expenses	163,617
Investment Management Fees	275,760
Other	<u>-0-</u>
 Total Operating Expenses	 \$ <u>8,834,831</u>
Other Changes in Reserves:	
Cumulative Effect of Change in Accounting Method	\$ (3,433,944)
Transfer to State General Fund	(83,253)
 Total Other Changes	 \$ <u>(3,517,197)</u>
Net Fund Balance Additions	\$ 33,691,431
Unrealized Loss on Marketable Equity Securities	(11,060,717)
 Fund Balance, July 1, 1983	 <u>249,539,820</u>
 Fund Balance, June 30, 1984	 <u>\$ 272,170,534</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPublic Employees Police & Fire FundStatement of Changes in Financial PositionFor the Fiscal Year Ended June 30, 1984

## Resources Provided by:

## From Operations -

Net Operating Income \$ 33,691,431

## Item Not Requiring Resources Currently:

Depreciation Expense -0-

Total Resources Provided

\$ 33,691,431

## Resources Used by:

Payments of Obligations Under Capital Lease \$ -0-

Current Year Acquisition of Equipment -0-

Unrealized Loss on Marketable Equity Securities 11,060,717

Net Increase in Working Capital 22,630,714

Total Resources Used

\$ 33,691,431

## Elements of Net Increase (Decrease) in Working Capital

Year Ended June 301984 1983Increase  
(Decrease)

## Current Assets:

Cash \$ 138,526 \$ 54,796 \$ 83,730

Accounts Receivable 781,044 857,826 (76,782)

Security Sales Receivable -0- 364,186 (364,186)

Due from Other Funds 15,632 18,004 (2,372)

Accrued Investment Income 2,085 1,985,479 (1,983,394)

## Investments -

Bonds -0- 68,145,645 (68,145,645)

Equity Securities -0- 78,629,427 (78,629,427)

Minnesota Outside Managed Pooled Funds 190,497,010 36,677,303 153,819,707

Short-term Cash Equivalents 22,243,487 9,799,141 12,444,346

## Equity in Minnesota Post-Retirement

Investment Fund 59,663,039 51,344,496 8,318,543

Deferred Yield Adjustment -0- 3,427,579 (3,427,579)

Other -0- -0- -0-

Total Current Assets

\$ 273,340,823 \$ 251,303,882

## Current Liabilities:

Accounts Payable \$ 1,003,211 \$ 832,934 (170,277)

Accrued Compensated Absences -0- -0- -0-

Payable to Other Funds 167,078 156,701 (10,377)

Obligations Under Capital Leases -0- -0- -0-

Security Purchases Payable -0- 774,427 774,427

Total Current Liabilities

\$ 1,170,289 \$ 1,764,062

Working Capital

\$ 272,170,534 \$ 249,539,820 \$ 22,630,714

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Police and Fire Fund

Valuation Assets  
(June 30, 1984)

Net Assets on 6-30-84 Balance Sheet	\$272,170,534
Unrealized Loss on Marketable Equity Securities	<u>11,060,717</u>
Net Assets at Cost	\$283,231,251
1/3 of Unrealized Capital Gains or (Losses)	<u>(3,473,941)</u>
Valuation Assets	<u>\$279,757,310</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPOLICE AND FIRE FUNDACTUARIAL COST METHOD AND ASSUMPTIONSActuarial Cost Method

- Entry Age Normal.

Actuarial Assumptions

1. a. Retirement
  - Age 60. In addition, 50% utilization of retirement when age 55 and age plus service totals 85 prior to 1987.
- b. Mortality
  - Unisex Pension 1984 Table, set forward 1 year for males, set back 4 years for females.
- c. Disability
  - Graduated rates.
- d. Separation
  - Graduated rates.
2. Loading for Expense
  - .181%
3. Asset Valuation
  - Cost plus 1/3 unrealized gains or losses.
4. Investment Return
  - 8% compounded annually pre-retirement; 5% compounded annually post-retirement.
5. Earnings Progression
  - 6.5% per year.

A detailed statement of the mortality rates, disability rates, separation rates, and earnings progression is provided in the following Tables 1 through 4.

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

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	1.267	45	3.769
21	1.219	46	4.180
22	1.167	47	4.635
23	1.149	48	5.103
24	1.129	49	5.616
25	1.107	50	6.196
26	1.083	51	6.853
27	1.058	52	7.543
28	1.083	53	8.278
29	1.111	54	9.033
30	1.141	55	9.875
31	1.173	56	10.814
32	1.208	57	11.863
33	1.297	58	12.952
34	1.398	59	14.162
35	1.513	60	15.509
36	1.643		
37	1.792		
38	1.948		
39	2.125		
40	2.327		
41	2.556		
42	2.818		
43	3.095		
44	3.410		

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

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	1.437	45	2.327
21	1.414	46	2.556
22	1.385	47	2.818
23	1.351	48	3.095
24	1.311	49	3.410
25	1.267	50	3.769
26	1.219	51	4.180
27	1.167	52	4.635
28	1.149	53	5.103
29	1.129	54	5.616
30	1.107	55	6.196
31	1.083	56	6.853
32	1.058	57	7.543
33	1.083	58	8.278
34	1.111	59	9.033
35	1.141	60	9.875
36	1.173		
37	1.208		
38	1.297		
39	1.398		
40	1.513		
41	1.643		
42	1.792		
43	1.948		
44	2.125		



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

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	1.10	45	3.64
21	1.14	46	4.05
22	1.18	47	4.55
23	1.22	48	5.15
24	1.26	49	6.00
25	1.30	50	6.90
26	1.35	51	7.97
27	1.40	52	9.10
28	1.45	53	10.40
29	1.50	54	11.90
30	1.55	55	13.50
31	1.61	56	15.20
32	1.67	57	17.10
33	1.73	58	19.20
34	1.80	59	21.55
35	1.90		
36	2.02		
37	2.15		
38	2.29		
39	2.44		
40	2.60		
41	2.76		
42	2.94		
43	3.14		
44	3.36		

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

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

Public Employees Retirement AssociationPolice and Fire FundAll EmployeesEARNINGS PROGRESSION

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	0.0805	45	0.3888
21	0.0858	46	0.4141
22	0.0914	47	0.4410
23	0.0973	48	0.4697
24	0.1036	49	0.5002
25	0.1103	50	0.5327
26	0.1175	51	0.5674
27	0.1252	52	0.6042
28	0.1333	53	0.6435
29	0.1420	54	0.6853
30	0.1512	55	0.7299
31	0.1610	56	0.7773
32	0.1715	57	0.8278
33	0.1826	58	0.8817
34	0.1945	59	0.9390
35	0.2071	60	1.0000
36	0.2206		
37	0.2349		
38	0.2502		
39	0.2665		
40	0.2838		
41	0.3022		
42	0.3219		
43	0.3428		
44	0.3651		

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL BALANCE SHEET  
(July 1, 1984)Police and Fire FundCURRENT AND EXPECTED FUTURE ASSETS

Total Current Assets	\$ 279,757,310
Expected Future Assets	
Present Value of Expected Future Supplemental Contributions	\$ 68,727,150
Present Value of Future Normal Costs	231,440,110
Total Expected Future Assets	300,167,260
Total Current and Expected Future Assets	579,924,570

CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS

Current Benefit Obligations	
For Annuitants	
Retirement Annuities	\$ 59,663,039
Disability Annuities	3,448,845
Surviving Spouses' Annuities	8,796,195
Surviving Children's Annuities	640,686
For Former Members without Vested Rights	719,767
For Deferred Annuitants'	2,082,269
For Active Employees	
Retirement Benefits	181,046,854
Disability Benefits	24,128,384
Refund Liability Due to Death or Withdrawal	1,665,351
Survivors' Benefits	24,625,875
Total Current Benefit Obligations	\$ 306,817,265
Expected Future Benefit Obligations	231,440,110
Total Current and Expected Future Benefit Obligations	\$ 538,257,375
Current Unfunded Liability	\$ 27,059,955
Current and Future Unfunded Liability	\$ (41,667,195)

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS  
(July 1, 1984)Police and Fire FundAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$538,257,375
Obligation for Service Rendered to Date	\$ 306,817,265	
Net Assets	279,757,310	
Accrued Unfunded Obligation	27,059,955	
Funding Ratio		91.2%
Amortization Requirement (25 year; mid-year)	1,282,648	
Covered Payroll	117,880,783	
Amortization Rate Requirement		1.088%

ENTRY AGE NORMAL RATE REQUIREMENT

Normal Cost Requirement (mid-year)	\$ 18,455,563	
Covered Payroll	117,880,783	
Normal Cost Rate Requirement		<u>15.656%</u>

ACTUARIAL BALANCE

Normal Cost Rate Requirement	15.656%	
Amortization Rate Requirement	1.088	
Allowance for Expenses	<u>.181</u>	
Total Rate Requirement		16.925%
Member Contribution Rate		<u>8.000</u>
Employer Rate Requirement		8.925%
Employer Contribution Rate Set by Law		<u>12.000</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>3.075%</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPolice and Fire Fund

STATEMENT OF REVENUE, EXPENDITURES,  
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)  
 (Year Ending June 30, 1984)

Revenue:

Employer Contributions	\$14,473,213	
Member Contributions	9,670,700	
Investment Income	15,564,566	
Minnesota Post-Retirement Investment Fund Income	5,981,127	
Other Income	<u>353,853</u>	
Total Revenue		\$46,043,459

Expenditures:

Benefits	\$(6,352,248)	
Refund of Contributions	(2,043,206)	
Operating Transfers	(83,253)	
Administrative Expense	(163,617)	
Investment Management Fees	<u>(275,760)</u>	
Total Expenditures		(8,918,084)
Change in Accounting Method		<u>(6,907,885)</u>

Increase in Valuation Assets (1984)		<u>\$30,217,490</u>
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PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPolice and Fire FundALLOCATION OF CHANGE IN ACTUARIAL RESERVES

<u>Item</u>	<u>Assets</u>	<u>Reserves</u>	<u>Change in Unfunded Increase (Decrease)</u>
Contribution Income	\$24,143,913	\$17,123,132 <sup>1</sup>	\$ (7,020,781)
Investment Income	21,545,693 <sup>2</sup>	15,764,835	(5,780,858)
Other Income	<u>353,853</u>	<u>-</u>	<u>(353,853)</u>
Total Income	46,043,459	32,887,967	(13,155,492)
Benefit Payments and Expenses	(8,834,831)	(8,834,831)	-
Transfers to State General Fund	(83,253)	-	83,253
Change in Accounting Method	(6,907,885)	-	6,907,885
Increase in Reserves Based on Salary Change		15,898,089	15,898,089
Mortality Gain	-	(286,286)	(286,286)
Amendments	-	10,800,051	10,800,051
Change in Assumptions and Method	-	5,798,639	5,798,639
Other Experience Variation	<u>-</u>	<u>273,407<sup>3</sup></u>	<u>273,407</u>
Net Change	<u>\$30,217,490</u>	<u>\$56,537,036</u>	<u>\$ 26,319,546</u>

1 Normal Cost Plus Interest on the Unfunded

2 Includes MPRF Income

3 Includes Actual Less Estimated Income Gain

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONPolice and Fire FundESTIMATED SOURCES OF GAIN FROM INCOME

Actual Income less Reserves \$13,155,492

Estimated Sources of Change:

Amortization Payment	\$ 14,486	
Excess Interest (5.0% x Average Invested Assets)	5,041,393	
Excess Contribution Rate	4,613,079	
Contribution Rate Applied to Larger Payroll	2,545,478	
Other Income	<u>353,853</u>	<u>12,568,289</u>
Actual Less Estimated Gain		<u>\$ 587,203</u>



PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSPolice and Fire Fund

As of July 1, 1984	4,598
New Entrants	333
Reinstated	107
Reinstated from Errors	-
TOTAL	<u>5,038</u>

Separations:

a. Refund of Contributions	
(i) Death	-
(ii) Withdrawal	101
b. With Deferred Annuity	12
c. With Disability Annuity	10
d. With Normal Retirement Annuity	39
e. With Survivor Annuity	4
f. With Option Annuity	-
g. Terminated	78
h. Terminated to Active	46
i. Died - No Refund or Benefit	-
j. Duplicate Member Number Errors	4
k. Added in Error	-
TOTAL SEPARATIONS	<u>294</u>
Current Active Total	<u>4,744</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ANNUITANTSPolice & Fire Fund

<u>Annuitants:</u>	<u>Normal</u>	<u>Option</u>	<u>Survivor</u>	<u>Disabled</u>	<u>Children</u>	<u>Total</u>
Balance - July 1, 1983	674	37	187	52		950
Additons for year	67	12	12	11		102
Deletions for year	-25	-1	-4	-9		-39
Subtotal - July 1, 1984	716	48	195	54	67	1,013
Inactives	1	0	1	10		12
Actives	715	48	194	44	13	1,001
Annual Annuity	5,233,378	202,459	788,155	368,781	64,222	6,592,773

Note - Children are for informational purposes only. They are included as survivors. Active children are active children only.

Deferred Vested Members:

Balance - July 1, 1983	179
Additions	21
Deletions	-25
Balance - July 1, 1984	175

## Police and Fire Fund

## VALUATION PAYROLL

## Active Male Members

(Age and Credited Service as of July 1, 1984)

AGE	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	99	\$ 664,629	78	\$ 1,440,090	90	\$ 1,930,440	1	\$ 22,147
25 to 29	82	612,318	118	2,439,950	340	7,887,838	290	7,274,191
30 to 34	39	367,458	48	1,013,267	202	4,809,887	538	14,243,986
35 to 39	25	205,434	25	506,905	103	2,405,688	288	7,647,764
40 to 44	7	29,285	5	102,339	39	705,810	83	2,143,313
45 to 49	4	10,682	3	59,901	25	394,311	52	1,134,305
50 to 54	3	1,316	5	91,875	11	218,284	29	632,461
55 to 59	5	44,887	2	50,628	9	185,927	17	408,651
60 to 64	1	9,245	1	45,464	3	37,627	5	93,156
65 & Up	7	38,162	2	23,743	-	-	1	15,878
Total	272	\$ 1,983,416	287	\$ 5,774,162	822	\$18,575,812	1,304	\$ 33,615,852

AGE	YEARS OF SERVICE							
	10 to 14		15 to 19		20 to 24		25 to 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	1	20,520	-	-	-	-	-	-
30 to 34	211	5,758,956	1	24,118	-	-	-	-
35 to 39	367	10,663,175	79	2,363,883	-	-	-	-
40 to 44	168	4,690,112	219	6,640,608	21	638,200	-	-
45 to 49	90	2,513,511	145	4,319,052	68	2,047,705	8	229,837
50 to 54	45	1,164,166	68	1,946,406	79	2,443,628	43	1,345,188
55 to 59	26	665,677	35	1,006,449	31	850,886	38	1,179,177
60 to 64	13	336,813	20	504,264	15	383,736	11	297,620
65 & Up	6	137,656	1	93,328	2	39,259	2	50,105
Total	927	\$25,950,586	571	\$16,898,108	216	\$ 6,403,414	102	\$ 3,101,927

AGE	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Up		All	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	268	\$ 4,057,306
25 to 29	-	-	-	-	-	-	831	18,234,817
30 to 34	-	-	-	-	-	-	1,039	26,217,672
35 to 39	-	-	-	-	-	-	887	23,792,849
40 to 44	-	-	-	-	-	-	542	14,949,667
45 to 49	-	-	-	-	-	-	395	10,709,304
50 to 54	6	240,411	-	-	-	-	289	8,083,735
55 to 59	10	328,298	1	26,355	-	-	174	4,746,935
60 to 64	6	175,408	2	83,710	-	-	77	1,967,043
65 & Up	-	-	-	-	-	-	24	398,131
Total	22	\$ 744,117	3	\$ 110,065	-	\$ -	4,526	\$113,157,459

## Police and Fire Fund

## VALUATION PAYROLL

Active Female Members  
(Age and Credited Service as of July 1, 1984)

AGE	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	12	\$ 77,319	9	\$180,830	12	\$ 239,444	1	\$ 20,986
25 to 29	7	46,725	9	80,755	36	857,958	15	388,729
30 to 34	4	27,492	6	132,637	11	269,691	19	538,716
35 to 39	2	8,173	-	-	1	31,523	8	199,333
40 to 44	2	11,291	2	25,134	3	60,156	5	120,637
45 to 49	-	-	-	-	-	-	3	76,391
50 to 54	-	-	-	-	-	-	2	35,526
55 to 59	-	-	-	-	-	-	2	37,551
60 to 64	-	-	-	-	-	-	-	-
65 & Up	-	3,613	-	-	-	-	-	-
Total	28	\$174,613	26	\$519,356	63	\$1,458,772	55	\$1,417,869

AGE	YEARS OF SERVICE							
	10 to 14		15 to 19		20 to 24		25 to 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	-	-	-	-	-	-	-	-
30 to 34	6	180,026	-	-	-	-	-	-
35 to 39	8	203,772	1	25,061	-	-	-	-
40 to 44	2	44,951	2	57,939	-	-	-	-
45 to 49	5	102,225	-	-	-	-	-	-
50 to 54	8	214,078	3	86,753	1	18,341	1	24,357
55 to 59	2	36,871	2	59,331	-	-	-	-
60 to 64	2	56,502	2	27,578	1	14,929	-	-
65 & Up	-	-	-	-	-	-	-	-
Total	33	\$838,425	10	\$256,662	2	\$ 33,270	1	\$ 24,357

AGE	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Up		All	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	34	\$ 518,579
25 to 29	-	-	-	-	-	-	67	1,474,167
30 to 34	-	-	-	-	-	-	46	1,148,562
35 to 39	-	-	-	-	-	-	20	467,862
40 to 44	-	-	-	-	-	-	16	320,108
45 to 49	-	-	-	-	-	-	8	178,616
50 to 54	-	-	-	-	-	-	15	379,055
55 to 59	-	-	-	-	-	-	6	133,753
60 to 64	-	-	-	-	-	-	5	99,009
65 & Up	-	-	-	-	-	-	1	3,613
Total	-	\$ -	-	\$ -	-	\$ -	218	\$4,723,324

PUBLIC EMPLOYEES POLICE AND FIRE FUNDSUMMARY OF PLAN1. Name

Public Employees Police and Fire Fund.

2. Type of Plan

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

3. Employer Included

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

4. 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 25 years of allowable service, plus
- (b) 2% of "Average Salary" for each year of service over 25 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 of 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 25 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 50% of average salary during the last six months of allowable service, plus for each dependent child, 10% of such average salary.

Upon the death of an active member after age 55 and completion of 10 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 100% joint and survivor annuity the member could have qualified for on the date of his death.

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 5% 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 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, at the rate of 5% until January 1, 1981, and thereafter at the rate of 3%.

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 5% 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 Benefits

A participant may elect to receive an equivalent actuarially reduced annuity in the form of either a 50% or 100% joint and survivor annuity, or joint and survivor with option cancelled if member is pre-deceased by beneficiary.

17. Maximum Annuity

Effective March 23, 1982 the normal monthly retirement annuity or disability benefit may not exceed 100% of final monthly salary.

18. Expenses

Paid by Association from retirement fund.



PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL BALANCE SHEET  
(July 1, 1984)Basic MembersCURRENT AND EXPECTED FUTURE ASSETS

Total Current Assets	\$ 682,896,394
Expected Future Assets	
Present Value of Expected Future Supplemental Contributions	\$116,729,310
Present Value of Future Normal Costs	58,239,213
Total Expected Future Assets	174,968,523
Total Current and Expected Future Assets	857,864,917

CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS

Current Benefit Obligations	
For Annuitants	
Retirement Annuities	\$ 533,887,143
Disability Annuities	17,015,899
Surviving Spouses' Annuities	65,844,251
Surviving Children's Annuities	983,909
For Former Members without Vested Rights	3,266,947
For Deferred Annuitants'	10,221,701
For Active Employees	
Retirement Benefits	666,751,221
Disability Benefits	28,839,885
Refund Liability Due to Death or Withdrawal	1,543,136
Survivors' Benefits	31,515,078
Total Current Benefit Obligations	\$1,359,869,170
Expected Future Benefit Obligations	58,239,213
Total Current and Expected Future Benefit Obligations	\$1,418,108,383
Current Unfunded Liability	\$ 676,972,776
Current and Future Unfunded Liability	\$ 560,243,466

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS

(July 1, 1984)

Basic MembersAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$1,418,108,383
Obligation for Service Rendered to Date	\$1,359,869,170	
Net Assets	682,896,394	
Accrued Unfunded Obligation	676,972,776	
Funding Ratio		50.2%
Amortization Requirement (25 year; mid-year)	32,088,652	
Covered Payroll	162,340,640	
Amortization Rate Requirement		<u>19.766%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Normal Cost Requirement (mid-year)	\$ 11,181,439	
Covered Payroll	162,340,640	
Normal Cost Rate Requirement		<u>6.888%</u>

ACTUARIAL BALANCE

Normal Cost Rate Requirement	6.888%	
Amortization Rate Requirement	19.766	
Allowance for Expenses	<u>.247</u>	
Total Rate Requirement		26.901%
Member Contribution Rate		<u>8.000</u>
Employer Rate Requirement		18.901%
Employer Contribution Rate Set by Law		<u>10.500</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>(8.401%)</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic Members

STATEMENT OF REVENUE, EXPENDITURES,  
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)  
 (Year Ending June 30, 1984)

Revenue:

Employer Contribution	\$ 17,986,766	
Member Contributions	14,102,422	
Investment Income	17,296,506	
Minnesota Post-Retirement Investment Fund Income	49,815,662	
Other Income	<u>97,076</u>	
Total Revenue		\$ 99,298,432

Expenditure:

Benefits	\$(62,973,851)	
Refund of Contributions	(1,971,834)	
Administrative Expenses	(608,101)	
Operating Transfers	(61,201)	
Investment Management Fees	(317,142)	
Other Expenses	<u>(2,650)</u>	
Total Expenditures		(65,934,779)
Change in Accounting Method		<u>(12,889,997)</u>

Increase in Valuation Assets (1984) \$ 20,473,656

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersALLOCATION OF CHANGE IN ACTUARIAL RESERVES

<u>Item</u>	<u>Assets</u>	<u>Reserves</u>	<u>Change in Unfunded Increase (Decrease)</u>
Contribution Income	\$32,089,188	\$ 49,432,537 <sup>1</sup>	\$ 17,343,349
Investment Income	67,112,168 <sup>2</sup>	59,618,133	(7,494,035)
Other Income	<u>97,076</u>	<u>-</u>	<u>(97,076)</u>
Total Income	99,298,432	109,050,670	9,752,238
Benefit Payments and Expenses	(65,873,578)	(65,873,578)	-
Transfers to State General Fund	(61,201)	-	61,201
Change in Accounting Method	(12,889,997)	-	12,889,997
Increase in Reserves Based on Salary Change	-	52,307,692	52,307,692
Mortality Loss	-	6,975,862	6,975,862
Amendments	-	20,730,310	20,730,310
Change in Assumptions and Method	-	37,767,358	37,767,358
Other Experience Variation	<u>-</u>	<u>1,674,357<sup>3</sup></u>	<u>1,674,357</u>
Net Change	<u>\$20,473,656</u>	<u>\$162,632,671</u>	<u>\$142,159,015</u>

1 Normal Cost Plus Interest on Unfunded

2 Includes MPRF Income

3 Includes Actual Less Estimated Income Gain

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBasic MembersESTIMATED SOURCES OF GAIN FROM INCOME

Actual Income Less Reserves \$ (9,752,238)

Estimated Sources of Change:

Amortization Payment \$ 10,463,268

Excess Interest  
(1.0% x Average  
Invested Assets) 6,971,793

Contribution Rate Applied  
to Smaller Payroll (950,302)

Deficit in Contribution  
Rate (28,079,262) (11,594,503)

Actual Less Estimated Gain \$ 1,842,265

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSBasic Members

As of July 1, 1984	8,721
New Entrants	-
Reinstated	19
Reinstated from Errors	<u>6</u>
TOTAL	<u>8,746</u>

Separations:

a. Refund of Contributions	
(i) Death	5
(ii) Withdrawal	31
b. With Deferred Annuity	39
c. With Disability Annuity	39
d. With Normal Retirement Annuity	575
e. With Survivor Annuity	24
f. With Option Annuity	9
g. Terminated	179
h. Terminated to Active	6
i. Died - No Refund or Benefit	6
j. Duplicate Member Number Errors	3
k. Added in Error	<u>-</u>
TOTAL SEPARATIONS	<u>916</u>
Current Active Total	<u>7,830</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ANNUITANTSBasic Members

<u>Annuityants:</u>	<u>Normal</u>	<u>Option</u>	<u>Survivor</u>	<u>Disabled</u>	<u>Children</u>	<u>Total</u>
Balance - July 1, 1984	10,115	328	3,093	410		13,946
Additions for year	888	72	123	43		1,126
Deletions for year	-446	-11	-148	-84		-689
Subtotal - July 1, 1984	10,557	389	3,068	369	222	14,383
Inactives	0	0	17	21		38
Actives	10,557	389	3,051	348	49	14,345
Annual Annuity	53,642,352	1,695,302	6,666,338	2,398,159	196,811	64,402,151

Note - Children are for informational purposes only. They are included as survivors. Active children are active children only.

Deferred Vested Members:

Balance - July 1, 1983	766
Additions	96
Deletions	-144
Balance - July 1, 1984	718

## PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

## VALUATION PAYROLL

## Basic Members

## Active Male Members

(Age and Credited Service as of July 1, 1984)

Age	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	-	-	-	-	-	-
35 to 39	-	-	-	-	-	-	-	-
40 to 44	-	-	-	-	-	-	1	35,130
45 to 49	-	-	-	-	-	-	1	22,374
50 to 54	-	-	1	25,602	-	-	2	10,344
55 to 59	-	-	-	-	2	12,612	-	-
60 to 64	-	-	-	-	-	-	2	23,282
65 & Up	-	-	-	-	-	-	-	-
TOTAL	-	\$ -	\$ 1	\$ 25,602	2	\$ 12,612	6	\$ 91,130

Age	YEARS OF SERVICE							
	10 to 14		15 to 19		20 to 24		25 to 29	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	-	-	-	-	-	-	-	-
30 to 34	1	12,925	2	64,956	-	-	-	-
35 to 39	4	89,108	125	3,226,161	1	31,941	-	-
40 to 44	2	89,289	303	7,628,789	135	3,425,064	5	152,979
45 to 49	5	126,619	325	7,704,880	332	8,716,797	174	4,499,937
50 to 54	5	109,497	300	6,708,431	358	8,889,275	317	8,465,848
55 to 59	6	84,449	283	5,895,186	359	8,323,473	346	8,660,049
60 to 64	2	36,271	212	4,145,977	296	6,668,907	205	4,833,914
65 & Up	3	44,754	56	902,227	51	850,601	26	398,968
TOTAL	28	\$ 592,912	1,606	\$36,276,607	1,532	\$36,906,058	1,073	\$ 27,011,695

Age	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Up		All	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	-	-	-	-	3	77,881
35 to 39	-	-	-	-	-	-	130	3,347,210
40 to 44	-	-	-	-	-	-	446	11,331,251
45 to 49	15	437,949	-	-	-	-	852	21,508,556
50 to 54	109	3,009,733	3	90,534	-	-	1,095	27,309,264
55 to 59	241	6,519,658	33	944,141	-	-	1,270	30,439,568
60 to 64	89	2,366,912	40	1,124,037	1	33,031	847	19,232,331
65 & Up	18	423,483	4	100,297	2	30,519	160	2,750,849
TOTAL	472	\$12,757,735	80	\$ 2,259,009	3	\$ 63,550	4,803	\$115,996,910



PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

VALUATION PAYROLL

Basic Members

Active Female Members

(Age and Credited Service as of July 1, 1984)

Age	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	-	-	-	-	-	-
35 to 39	-	-	-	-	-	-	-	-
40 to 44	-	-	-	-	-	-	-	-
45 to 49	1	802	1	2,894	1	10,102	-	-
50 to 54	-	-	-	-	-	-	-	-
55 to 59	-	-	-	-	-	-	-	-
60 to 64	-	-	-	-	1	4,684	-	-
65 & Up	-	-	-	-	-	-	-	-
TOTAL	<u>1</u>	<u>\$ 802</u>	<u>1</u>	<u>\$ 2,894</u>	<u>2</u>	<u>\$ 14,786</u>	<u>-</u>	<u>\$ -</u>

Age	YEARS OF SERVICE							
	10 to 14		15 to 19		20 to 24		25 to 29	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	-	-	-	-	-	-	-	-
30 to 34	2	17,974	9	153,978	-	-	-	-
35 to 39	6	101,848	106	2,232,234	16	308,229	-	-
40 to 44	4	62,632	123	2,481,023	53	1,100,549	14	259,261
45 to 49	5	48,691	197	2,996,955	64	1,239,948	40	857,593
50 to 54	9	101,635	352	4,654,738	155	2,656,870	40	845,795
55 to 59	7	64,735	507	6,338,169	254	3,688,475	90	1,711,037
60 to 64	4	40,064	370	4,524,806	211	3,186,892	80	1,428,795
65 & Up	2	16,482	75	694,909	40	563,009	21	321,689
TOTAL	<u>39</u>	<u>\$ 454,061</u>	<u>1,739</u>	<u>\$24,076,812</u>	<u>793</u>	<u>\$12,743,972</u>	<u>285</u>	<u>\$ 5,424,170</u>

Age	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Up		All	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	-	-	-	-	11	171,952
35 to 39	-	-	-	-	-	-	128	2,642,311
40 to 44	-	-	-	-	-	-	194	3,903,465
45 to 49	7	151,323	-	-	-	-	316	5,308,308
50 to 54	29	574,505	2	39,329	-	-	587	8,872,872
55 to 59	45	1,018,830	26	629,772	-	-	929	13,451,018
60 to 64	24	466,284	8	156,178	5	129,543	703	9,937,246
65 & Up	11	226,510	5	115,924	5	118,035	159	2,056,558
TOTAL	<u>116</u>	<u>\$2,437,452</u>	<u>41</u>	<u>\$ 941,203</u>	<u>10</u>	<u>\$ 247,578</u>	<u>3,027</u>	<u>\$46,343,730</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONBASIC MEMBERSSUMMARY OF PLAN1. Name

Public Employees Retirement Association.

2. Type of Plan

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

3. Employer Included

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

An 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 10 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 55 and completion of 10 years of allowable service, or after completion of 30 year of allowable service.

Annual Annuity determined as for Normal Retirement considering allowable service and salary to actual retirement and reduced by 1/4% for each month that the member is under age 65 at the time of retirement if service is less than 30 years, or under age 62 if service is 30 or more years.

#### 12. Special Early Retirement Annuity

After attained age plus allowable service totals 90 years. After attainment of age 55 and attained age plus allowable service totals 85 years, upon application prior to December 31, 1986.

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 one year 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 five 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 50% 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 \$1,000 per month. Minimum family benefit equal to 50% 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 55 and completion of 10 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 100% 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 5% per annum compounded annually.

#### 16. Separation Benefit

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

deferred annuity is paid by each fund according to the number of years of allowable service in each fund).

Annual Annuity determined as for Normal Retirement under the provisions of the Plan at date of termination considering allowable service and salary to date of such termination, augmented by interest 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, at the rate of 5% until January 1, 1981, and thereafter at the rate of 3%.

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 5% 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 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.

18. Optional Benefits

A participant may elect to receive an equivalent actuarially reduced annuity in the form of either a 50% or 100% joint and survivor annuity, or joint and survivor with option cancelled if member is pre-deceased by beneficiary.

19. Maximum Annuity

Effective March 23, 1982 the normal monthly retirement annuity or disability benefit may not exceed 100% of final monthly salary.

20. Expenses

Paid by Association from retirement fund.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL BALANCE SHEET  
(July 1, 1984)Coordinated MembersCURRENT AND EXPECTED FUTURE ASSETS

Total Current Assets		\$ 916,777,146
Expected Future Assets		
Present Value of Expected Future Supplemental Contributions	\$212,994,221	
Present Value of Future Normal Costs	415,538,794	
Total Expected Future Assets		628,533,015
Total Current and Expected Future Assets		1,545,310,161

CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS

Current Benefit Obligations		
For Annuitants		
Retirement Annuities	\$ 100,906,292	
Disability Annuities	3,629,381	
Surviving Spouses' Annuities	-	
Surviving Children's Annuities	-	
For Former Members without Vested Rights	5,622,535	
For Deferred Annuitants'	2,437,407	
For Active Employees		
Retirement Benefits	641,986,197	
Disability Benefits	33,587,098	
Refund Liability Due to Death or Withdrawal	44,563,628	
Survivors' Benefits	35,759,471	
Total Current Benefit Obligations		\$ 868,492,009
Expected Future Benefit Obligations		415,538,794
Total Current and Expected Future Benefit Obligations		\$1,284,030,803
Current Unfunded Liability		\$ (48,285,137)
Current and Future Unfunded Liability		\$ (261,279,358)

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONACTUARIAL REQUIREMENTS  
(July 1, 1984)Coordinated MembersAMORTIZATION RATE REQUIREMENT

Present Value of Benefits (For Both Past and Future Service)		\$1,284,030,803
Obligation for Service Rendered to Date	\$ 868,492,009	
Net Assets	916,777,146	
Accrued Unfunded Obligation	(48,285,137)	
Funding Ratio		105.6%
Amortization Requirement (25 year; mid-year)	(2,288,726)	
Covered Payroll	1,063,284,162	
Amortization Rate Requirement		<u>(.215%)</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Normal Cost Requirement (mid-year)	\$ 57,995,920	
Covered Payroll	1,063,284,162	
Normal Cost Rate Requirement		<u>5.454%</u>

ACTUARIAL BALANCE

Normal Cost Rate Requirement	5.454%	
Amortization Rate Requirement	(.215)	
Allowance for Expenses	<u>.247</u>	
Total Rate Requirement		5.486%
Member Contribution Rate		<u>4.000</u>
Employer Rate Requirement		1.486%
Employer Contribution Rate Set by Law		<u>4.250</u>
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>2.764%</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated Members

STATEMENT OF REVENUE, EXPENDITURES,  
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)  
 (Year Ending June 30, 1984)

Revenue:

Employer Contributions	\$ 60,979,783	
Member Contributions	44,245,337	
Investment Income	56,061,634	
Minnesota Post-Retirement Investment Fund Income	9,199,487	
Other Income	<u>314,645</u>	
Total Revenue		\$170,800,886

Expenditure:

Benefits	\$(11,262,737)	
Refund of Contributions	(21,784,231)	
Administrative Expense	(2,184,330)	
Operating Transfers	(396,105)	
Investment Management Fees	(1,027,923)	
Other Expenses	<u>(9,521)</u>	
Total Expenditures		(36,664,847)
Change in Accounting Method		<u>(28,977,396)</u>
Increase in Valuation Assets (1984)		<u>\$105,158,643</u>



PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCoordinated MembersALLOCATION OF CHANGE IN ACTUARIAL RESERVES

<u>Item</u>	<u>Assets</u>	<u>Reserves</u>	<u>Change in Unfunded Increase (Decrease)</u>
Contribution Income	\$105,225,120	\$60,876,146 <sup>1</sup>	\$(44,348,974)
Investment Income	65,261,121 <sup>2</sup>	45,449,674	(19,811,447)
Other Income	<u>314,645</u>	<u>-</u>	<u>(314,645)</u>
Total Income	170,800,886	106,325,820	(64,475,066)
Benefit Payments and Expenses	(36,268,742)	(36,268,742)	-
Transfers to State General Fund	(396,105)	-	396,105
Change in Accounting Method	(28,977,396)	-	28,977,396
Increase in Reserves Based on Salary	-	47,219,823	47,219,823
Mortality Loss	-	1,295,556	1,295,556
Amendments	-	22,574,132	22,574,132
Change in Assumptions and Method	-	46,961,124	46,961,124
Other Experience Variation	<u>-</u>	<u>2,060,935<sup>3</sup></u>	<u>2,060,935</u>
Net Change	<u>\$105,158,643</u>	<u>\$190,168,648</u>	<u>\$ 85,010,005</u>

1 Normal Cost Plus Interest on the Unfunded

2 Includes MPRF Income

3 Includes Actual Less Estimated Income Gain

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

Coordinated Members

ESTIMATED SOURCES OF GAIN FROM INCOME

Actual Income Less Reserves \$64,475,066

Estimated Sources of Gain:

Excess Interest  
(2.0% x Average  
Invested Assets) \$17,266,785

Contribution Rate Applied  
to Larger Payroll 9,022,780

Excess Contribution Rate 35,507,837 61,797,402

Actual Less Estimated Gain \$ 2,677,664

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ACTIVE MEMBERSCoordinated Members

As of July 1, 1984	74,657
New Entrants	8,347
Reinstated	2,734
Reinstated from Error	<u>6</u>
TOTAL	<u>85,744</u>

Separations:

a. Refund of Contributions	
(i) Death	103
(ii) Withdrawal	6,039
b. With Deferred Annuity	138
c. With Disability Annuity	59
d. With Normal Retirement Annuity	594
e. With Survivor Annuity	-
f. With Option Annuity	6
g. Terminated	2,526
h. Terminated to Active	347
i. Died - No Refund or Benefit	15
j. Duplicate Member Number Errors	45
k. Added in Error	<u>-</u>
TOTAL SEPARATIONS	<u>9,872</u>
Current Active Total	<u>75,872</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONRECONCILIATION OF ANNUITANTSCoordinated Members

<u>Annuitants:</u>	<u>Normal</u>	<u>Option</u>	<u>Disabled</u>	<u>Total</u>
Balance - July 1, 1983	4,468	177	288	4,933
Additions for year	872	51	76	999
Deletions for year	-132	-3	-59	-194
Subtotal - July 1, 1984	5,208	225	305	5,738
Inactives	0	0	15	15
Actives	5,208	225	290	5,723
Annual Annuity	10,778,626	378,783	505,171	11,662,580

Deferred Vested Members:

Balance - July 1, 1983	1,100
Additions	220
Deletions	-195
Balance - July 1, 1984	1,125

Coordinated MembersVALUATION PAYROLLActive Male Members

(Age and Credited Service as of July 1, 1984)

AGE	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	536	\$ 2,394,455	328	\$ 3,525,510	521	\$ 7,538,496	63	\$ 1,104,456
25 to 29	601	3,666,180	468	6,608,081	1,369	23,891,708	1,027	20,655,399
30 to 34	481	3,270,850	426	6,805,981	1,384	26,241,525	2,005	44,795,072
35 to 39	316	2,275,472	287	4,446,549	947	18,709,451	1,480	36,277,422
40 to 44	197	1,335,885	155	2,660,333	577	11,001,111	747	17,036,449
45 to 49	133	887,875	128	1,788,382	396	7,034,863	657	13,399,484
50 to 54	114	761,441	110	1,622,895	379	6,123,327	556	10,823,831
55 to 59	89	453,375	91	1,163,252	333	5,232,610	608	11,328,510
60 to 64	39	181,732	68	740,855	207	2,588,287	429	7,449,014
65 & Up	95	283,696	36	294,248	146	1,089,518	173	1,647,869
Total	<u>2,601</u>	<u>\$ 15,510,961</u>	<u>2,097</u>	<u>\$29,656,086</u>	<u>6,259</u>	<u>\$109,450,896</u>	<u>7,745</u>	<u>\$164,517,506</u>

AGE	YEARS OF SERVICE							
	10 to 14		15 to 19		20 to 24		25 to 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	51	956,974	-	-	-	-	-	-
30 to 34	714	16,401,613	19	432,639	-	-	-	-
35 to 39	1,204	30,954,126	243	6,592,385	-	-	-	-
40 to 44	803	20,479,466	346	9,360,240	31	876,374	-	-
45 to 49	584	13,284,698	322	8,474,412	78	2,513,907	29	910,243
50 to 54	604	13,044,320	304	7,405,408	112	3,642,474	66	2,233,536
55 to 59	688	14,185,016	343	7,609,492	106	2,943,866	81	2,542,044
60 to 64	508	9,851,492	276	5,838,735	102	2,570,364	49	1,300,377
65 & Up	120	1,545,940	44	773,943	12	227,955	6	174,111
Total	<u>5,276</u>	<u>\$120,703,645</u>	<u>1,897</u>	<u>\$46,487,254</u>	<u>441</u>	<u>\$ 12,774,940</u>	<u>231</u>	<u>\$ 7,160,311</u>

AGE	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Up		All	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	1,448	\$ 14,562,917
25 to 29	-	-	-	-	1	17,260	3,517	55,795,602
30 to 34	-	-	-	-	1	29,865	5,030	97,977,545
35 to 39	-	-	-	-	-	-	4,477	99,255,405
40 to 44	-	-	-	-	-	-	2,856	62,749,858
45 to 49	1	21,015	-	-	1	10,592	2,329	48,325,471
50 to 54	10	307,330	-	-	-	-	2,255	45,964,562
55 to 59	56	1,936,208	9	280,305	-	-	2,404	47,674,678
60 to 64	36	1,072,125	12	413,546	-	-	1,726	32,006,527
65 & Up	4	152,406	-	-	1	16,034	637	6,205,720
Total	<u>107</u>	<u>\$ 3,489,084</u>	<u>21</u>	<u>\$ 693,851</u>	<u>4</u>	<u>\$ 73,751</u>	<u>26,679</u>	<u>\$510,518,285</u>

Coordinated MembersVALUATION PAYROLLActive Female Members

(Age and Credited Service as of July 1, 1984)

AGE	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	1,222	\$ 5,384,823	859	\$ 7,998,912	1,556	\$ 17,112,146	211	\$ 2,615,995
25 to 29	984	5,160,452	846	9,547,884	2,592	34,534,029	1,982	27,935,680
30 to 34	951	4,831,153	700	7,412,625	2,286	29,383,854	2,340	37,806,850
35 to 39	887	3,804,067	624	5,511,493	2,260	24,186,386	2,078	29,920,534
40 to 44	573	2,467,216	506	4,032,205	1,970	19,051,838	2,249	27,390,181
45 to 49	343	1,503,414	291	2,504,041	1,456	13,834,652	1,972	21,845,677
50 to 54	233	887,587	188	1,457,337	1,000	9,122,921	1,485	16,286,951
55 to 59	154	536,756	148	1,003,092	692	5,896,491	1,205	12,677,703
60 to 64	44	153,182	64	380,491	322	2,384,243	698	6,652,411
65 & Up	127	264,223	41	254,257	154	850,284	234	1,724,573
Total	<u>5,518</u>	<u>\$ 24,992,873</u>	<u>4,267</u>	<u>\$40,102,337</u>	<u>14,288</u>	<u>\$156,356,844</u>	<u>14,454</u>	<u>\$184,856,555</u>

AGE	YEARS OF SERVICE							
	10 to 14		15 to 19		20 to 24		25 to 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	117	1,722,727	-	-	-	-	-	-
30 to 34	846	14,194,558	36	594,568	-	-	-	-
35 to 39	873	16,560,022	177	3,935,135	1	11,104	-	-
40 to 44	1,068	15,367,978	223	4,405,559	18	392,434	-	-
45 to 49	1,460	17,889,179	285	4,112,445	13	315,694	11	239,935
50 to 54	1,542	17,739,665	445	6,413,278	20	489,352	14	302,046
55 to 59	1,337	15,107,106	520	7,310,801	53	800,951	15	332,263
60 to 64	801	8,823,759	323	4,317,661	33	578,830	17	335,123
65 & Up	272	2,038,927	86	817,571	10	183,467	8	108,458
Total	<u>8,316</u>	<u>\$109,443,921</u>	<u>2,095</u>	<u>\$31,907,018</u>	<u>148</u>	<u>\$ 2,771,832</u>	<u>65</u>	<u>\$ 1,317,825</u>

AGE	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Up		All	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	1	\$ 17,916	-	\$ -	-	\$ -	3,849	\$ 33,129,792
25 to 29	-	-	-	-	1	10,691	6,522	78,911,463
30 to 34	-	-	-	-	-	-	7,159	94,223,608
35 to 39	-	-	-	-	1	21,609	6,901	83,950,350
40 to 44	-	-	-	-	-	-	6,607	73,107,411
45 to 49	-	-	-	-	-	-	5,831	62,245,037
50 to 54	4	84,146	1	25,318	-	-	4,932	52,808,601
55 to 59	10	257,629	2	42,663	1	24,429	4,137	43,989,884
60 to 64	8	191,540	5	154,720	2	30,280	2,317	24,002,240
65 & Up	2	38,560	1	22,263	3	94,908	938	6,397,491
Total	<u>25</u>	<u>\$ 589,791</u>	<u>9</u>	<u>\$ 244,964</u>	<u>8</u>	<u>\$ 181,917</u>	<u>49,193</u>	<u>\$552,765,877</u>

PUBLIC EMPLOYEES RETIREMENT ASSOCIATIONCOORDINATED MEMBERSSUMMARY OF PLAN1. Name

Public Employees Retirement Association.

2. Type of Plan

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

3. Employer Included

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

An amount equal to the Employee Contributions plus 1/4 of 1% 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 55 and completion of 10 years of allowable service, or after completion of 30 years of allowable service.

Annual Annuity determined as for Normal Retirement considering allowable service and salary to actual retirement and reduced by 1/4% for each month that the member is under age 65 at the time of retirement if service is less than 30 years, or under age 62 if service is 30 or more years.

#### 12. Special Early Retirement Benefit

After attained age plus allowable service totals 90 years. After attainment of age 55 and attained age plus allowable service totals 85 years, upon application prior to December 31, 1986.

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 one year 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 five 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.

#### 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 5% 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 55 and completion of 10 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 100% 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 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, at the rate of 5% until January 1, 1981, and thereafter at the rate of 3%.

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 5% 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 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.

18. Optional Benefits

A participant may elect to receive an equivalent actuarially reduced annuity in the form of either a 50% or 100% joint and survivor annuity, or joint and survivor with option cancelled if member is pre-deceased by beneficiary.

19. Maximum Annuity

Effective March 23, 1982 the normal monthly retirement annuity or disability benefit may not exceed 100% of final monthly salary.

20. Expenses

Paid by Association from retirement fund.

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

50 MEMBER SAMPLE  
(As of July 1, 1984)

AUG 23 1985 LCP&R

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

GENERAL FUND - BASIC MEMBERS

50 MEMBER SAMPLE

<u>ID</u>	<u>Birth Date</u>	<u>Membership Date</u>	<u>Sex</u>	<u>Salary</u>	<u>Normal Cost</u>	<u>Accrued Liability</u>
1	1/15/64	12/ 1/83	F	10,000.00	669.85	0.00
2	2/16/63	11/ 2/82	M	10,625.00	780.76	0.00
3	3/17/62	10/19/81	F	11,250.00	753.59	90.75
4	4/18/61	9/ 5/80	M	11,875.00	872.77	764.11
5	5/19/60	8/11/79	F	12,500.00	837.33	1,220.46
6	6/20/59	7/25/78	M	13,125.00	964.94	1,937.96
7	7/21/58	6/30/77	F	13,750.00	921.07	948.47
8	8/22/57	5/ 5/82	M	14,375.00	1,181.87	934.62
9	9/23/56	4/16/78	F	15,000.00	1,010.34	1,325.65
10	10/24/55	3/18/84	M	15,625.00	1,396.14	235.96
11	11/25/54	2/ 2/74	F	16,250.00	1,086.18	2,805.05
12	12/ 1/53	1/ 5/78	M	16,875.00	1,352.07	6,050.49
13	1/26/52	12/ 7/70	F	17,500.00	1,169.76	7,087.94
14	2/27/51	11/ 2/78	M	18,125.00	1,641.59	6,565.77
15	5/28/50	10/ 3/70	F	18,750.00	1,253.34	12,322.18
16	4/29/49	9/ 4/71	M	19,375.00	1,480.25	19,962.83
17	5/30/48	8/ 5/78	F	20,000.00	1,556.21	9,256.45
18	6/ 1/47	7/23/73	M	20,625.00	1,752.95	22,583.67
19	7/ 2/46	6/ 7/81	F	21,250.00	2,115.19	5,460.79
20	8/23/45	5/ 8/80	M	21,875.00	2,576.52	8,624.56
21	9/ 4/49	4/ 9/71	F	22,500.00	1,511.94	15,606.08
22	10/ 5/48	3/10/72	M	23,125.00	1,800.78	26,887.79
23	11/ 6/47	2/11/73	F	23,750.00	1,637.33	24,024.24
24	12/ 7/46	1/12/74	M	24,375.00	2,127.19	29,385.64
25	1/ 8/45	12/ 1/76	F	25,000.00	2,132.12	17,597.14
26	2/ 9/44	11/ 2/77	M	25,625.00	2,888.62	17,329.32
27	3/10/43	10/13/82	F	26,250.00	3,260.90	2,104.63
28	4/11/42	9/ 4/80	M	26,875.00	3,404.45	11,919.95
29	5/12/41	8/23/81	F	27,500.00	3,366.69	8,396.99
30	6/25/40	7/ 6/70	M	28,125.00	2,128.75	63,328.16
31	12/14/39	10/17/79	F	28,650.00	3,567.55	18,318.23
32	12/15/38	12/27/73	M	29,375.00	3,038.10	52,315.15
33	9/16/37	4/29/67	F	30,000.00	1,125.52	97,454.68
34	10/17/36	3/10/61	M	30,625.00	1,171.24	129,304.82
35	11/18/34	2/11/67	F	31,250.00	1,576.85	111,115.38
36	12/19/34	1/12/74	M	31,875.00	3,986.32	58,719.73
37	1/20/33	12/20/78	F	32,500.00	4,893.33	24,651.42
38	2/21/32	11/ 2/73	M	33,125.00	4,693.35	56,329.71
39	3/22/31	10/15/51	F	33,750.00	311.75	216,058.84
40	4/12/30	2/ 5/54	M	34,375.00	1,342.52	194,676.66

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

GENERAL FUND - BASIC MEMBERS

50 MEMBER SAMPLE

<u>ID</u>	<u>Birth Date</u>	<u>Membership Date</u>	<u>Sex</u>	<u>Salary</u>	<u>Normal Cost</u>	<u>Accrued Liability</u>
41	5/24/29	3/11/54	F	35,000.00	264.66	228,066.41
42	6/25/28	7/ 5/73	M	35,625.00	4,697.16	71,941.49
43	7/26/27	10/ 6/72	F	36,250.00	4,471.64	90,389.32
44	8/27/26	5/21/64	M	36,875.00	3,886.66	140,389.42
45	9/28/25	4/15/64	F	37,500.00	3,564.93	166,830.39
46	10/29/23	3/20/54	M	38,125.00	2,483.92	224,402.47
47	11/30/21	2/ 8/73	F	38,750.00	5,595.67	91,790.43
48	12/ 1/22	1/ 2/74	M	39,375.00	5,485.10	75,506.52
49	1/ 2/21	12/11/61	F	40,000.00	4,223.59	191,311.08
50	2/ 3/19	11/10/50	M	40,000.00	1,776.32	229,646.86
TOTAL				1,264,900.00	111,787.69	2,793,976.50

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

GENERAL FUND - COORDINATED MEMBERS

50 MEMBER SAMPLE

<u>ID</u>	<u>Birth Date</u>	<u>Membership Date</u>	<u>Sex</u>	<u>Salary</u>	<u>Normal Cost</u>	<u>Accrued Liability</u>
1	1/15/64	12/ 1/83	F	10,000.00	299.76	104.29
2	2/16/63	11/ 2/82	M	10,625.00	376.89	66.08
3	3/17/62	10/19/81	F	11,250.00	337.25	284.67
4	4/18/61	9/ 5/80	M	11,875.00	421.63	944.68
5	5/19/60	8/11/79	F	12,500.00	374.74	1,395.68
6	6/20/59	7/25/78	M	13,125.00	466.39	2,093.29
7	7/21/58	6/30/77	F	13,750.00	412.24	1,195.90
8	8/22/57	5/ 5/82	M	14,375.00	643.15	1,021.71
9	9/23/56	4/16/78	F	15,000.00	462.09	1,586.74
10	10/24/55	3/18/84	M	15,625.00	805.74	354.56
11	11/25/54	2/ 2/74	F	16,250.00	485.97	3,093.16
12	12/ 1/53	1/ 5/78	M	16,875.00	715.79	5,335.70
13	1/26/52	12/ 7/70	F	17,500.00	523.39	7,222.44
14	2/27/51	11/ 2/78	M	18,125.00	942.29	5,475.77
15	5/28/50	10/ 3/70	F	18,750.00	560.61	12,064.48
16	4/29/49	9/ 4/71	M	19,375.00	743.71	16,489.70
17	5/30/48	8/ 5/78	F	20,000.00	887.80	8,608.27
18	6/ 1/47	7/23/73	M	20,625.00	965.20	17,727.91
19	7/ 2/46	6/ 7/81	F	21,250.00	1,269.02	4,500.93
20	8/23/45	5/ 8/80	M	21,875.00	1,466.29	6,058.82
21	9/ 4/49	4/ 9/71	F	22,500.00	691.30	14,932.61
22	10/ 5/48	3/10/72	M	23,125.00	929.72	22,251.65
23	11/ 6/47	2/11/73	F	23,750.00	794.23	22,141.77
24	12/ 7/46	1/12/74	M	24,375.00	1,199.50	23,122.47
25	1/ 8/45	12/ 1/76	F	25,000.00	1,257.66	14,706.74
26	2/ 9/44	11/ 2/77	M	25,625.00	1,668.99	12,583.07
27	3/10/43	10/13/82	F	26,250.00	1,909.84	1,598.37
28	4/11/42	9/ 4/80	M	26,875.00	1,899.24	8,271.19
29	5/12/41	8/23/81	F	27,500.00	1,961.51	5,825.96
30	6/25/40	7/ 6/70	M	28,125.00	1,283.01	42,586.86
31	12/14/39	10/17/79	F	28,650.00	2,069.60	12,517.39
32	12/15/38	12/27/73	M	29,375.00	1,730.78	34,307.51
33	9/16/37	4/29/67	F	30,000.00	723.86	67,131.47
34	10/17/36	3/10/61	M	30,625.00	641.02	86,459.70
35	11/18/34	2/11/67	F	31,250.00	1,015.03	72,843.13
36	12/19/34	1/12/74	M	31,875.00	2,129.15	37,226.16
37	1/20/33	12/20/78	F	32,500.00	2,597.67	14,642.60
38	2/21/32	11/ 2/73	M	33,125.00	2,399.74	35,173.48
39	3/22/31	10/15/51	F	33,750.00	46.21	145,250.33
40	4/12/30	2/ 5/54	M	34,375.00	725.08	126,018.56

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

GENERAL FUND - COORDINATED MEMBERS

50 MEMBER SAMPLE

<u>ID</u>	<u>Birth Date</u>	<u>Membership Date</u>	<u>Sex</u>	<u>Salary</u>	<u>Normal Cost</u>	<u>Accrued Liability</u>
41	5/24/29	3/11/54	F	35,000.00	209.30	142,432.11
42	6/25/28	7/ 5/73	M	35,625.00	2,669.20	40,354.53
43	7/26/27	10/ 6/72	F	36,250.00	2,574.44	50,703.97
44	8/27/26	5/21/64	M	36,875.00	2,422.20	81,893.89
45	9/28/25	4/15/64	F	37,500.00	2,282.08	94,458.86
46	10/29/23	3/20/54	M	38,125.00	1,728.29	132,625.39
47	11/30/21	2/ 8/73	F	38,750.00	2,961.05	48,276.95
48	12/ 1/22	1/ 2/74	M	39,375.00	2,933.49	39,664.09
49	1/ 2/21	12/11/61	F	40,000.00	2,601.98	107,621.69
50	2/ 3/19	11/10/50	M	40,000.00	1,022.26	132,159.84
TOTAL				1,264,900.00	62,237.39	1,765,407.38

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

GENERAL FUND

ACTUARIAL COST METHOD AND ASSUMPTIONS

Actuarial Cost Method

- Entry Age Normal.

Actuarial Assumptions

1. a. Retirement - Age 64.
- b. Mortality - Unisex Pension 1984 Table,  
set forward 1 year for males,  
set back 4 years for females.
- c. Disability - Graduated rates. See table  
below for sample values.
- d. Separation - Graduated rates. See table  
below for sample values.
2. Investment Return - 8% compounded annually pre-  
retirement; 5% compounded  
annually post-retirement.
3. Earnings Progression - 6.5% per year.

Age	Annual Rate per 100 Employees				
	Mortality		Disability	Separation	
	Male	Female	All Employees	Male	Female
20	.13	.14	.09	27.5	38.3
30	.11	.11	.11	16.1	28.1
40	.23	.15	.15	8.2	13.4
50	.62	.38	.33	3.9	6.6
60	1.55	.99	1.18	-	-
65	2.48	1.55	-	-	-



PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

POLICE AND FIRE FUND

50 MEMBER SAMPLE

<u>ID</u>	<u>Birth Date</u>	<u>Membership Date</u>	<u>Sex</u>	<u>Salary</u>	<u>Normal Cost</u>	<u>Accrued Liability</u>
1	1/15/64	12/ 1/83	F	10,000.00	1,335.22	0.00
2	2/16/63	11/ 2/82	M	10,625.00	1,306.71	1,314.43
3	3/17/62	10/19/81	F	11,250.00	1,458.75	3,128.06
4	4/18/61	9/ 5/80	M	11,875.00	1,425.75	4,717.55
5	5/19/60	8/11/79	F	12,500.00	1,593.26	7,498.27
6	6/20/59	7/25/78	M	13,125.00	1,548.36	9,396.77
7	7/21/58	6/30/77	F	13,750.00	1,727.93	13,333.21
8	8/22/57	5/ 5/82	M	14,375.00	2,041.24	4,387.59
9	9/23/56	4/16/78	F	15,000.00	1,986.00	15,412.47
10	10/24/55	3/18/84	M	15,625.00	2,441.83	2,522.55
11	11/25/54	2/ 2/74	F	16,250.00	2,012.15	30,861.73
12	12/ 1/53	1/ 5/78	M	16,875.00	2,216.45	20,519.52
13	1/26/52	12/ 7/70	F	17,500.00	2,175.66	41,437.66
14	2/27/51	11/ 2/78	M	18,125.00	2,785.06	17,021.32
15	5/28/50	10/ 3/70	F	18,750.00	2,283.87	52,397.23
16	4/29/49	9/ 4/71	M	19,375.00	2,354.10	48,211.19
17	5/30/48	8/ 5/78	F	20,000.00	3,391.86	25,693.55
18	6/ 1/47	7/23/73	M	20,625.00	2,889.79	46,381.92
19	7/ 2/46	6/ 7/81	F	21,250.00	4,288.50	14,137.68
20	8/23/45	5/ 8/80	M	21,875.00	4,286.41	18,590.80
21	9/ 4/49	4/ 9/71	F	22,500.00	2,944.73	61,311.73
22	10/ 5/48	3/10/72	M	23,125.00	2,903.74	58,878.38
23	11/ 6/47	2/11/73	F	23,750.00	3,380.97	62,056.09
24	12/ 7/46	1/12/74	M	24,375.00	3,544.00	55,625.02
25	1/ 8/45	12/ 1/76	F	25,000.00	4,549.28	39,427.27
26	2/ 9/44	11/ 2/77	M	25,625.00	4,839.50	32,908.33
27	3/10/43	10/13/82	F	26,250.00	5,992.49	6,055.56
28	4/11/42	9/ 4/80	M	26,875.00	5,558.50	22,914.56
29	5/12/41	8/23/81	F	27,500.00	6,085.61	19,040.96
30	6/25/40	7/ 6/70	M	28,125.00	4,567.98	83,444.05
31	12/14/39	10/17/79	F	28,650.00	6,431.68	34,580.48
32	12/15/38	12/27/73	M	29,375.00	5,676.11	70,365.75
33	9/16/37	4/29/67	F	30,000.00	5,112.85	118,130.13
34	10/17/36	3/10/61	M	30,625.00	3,976.05	151,553.80
35	11/18/34	2/11/67	F	31,250.00	5,620.84	130,554.15
36	12/19/34	1/12/74	M	31,875.00	6,776.08	76,910.09
37	1/20/33	12/20/78	F	32,500.00	8,105.38	42,052.47
38	2/21/32	11/ 2/73	M	33,125.00	7,601.45	74,354.89
39	3/22/31	10/15/51	F	33,750.00	4,272.23	247,713.09
40	4/12/30	2/ 5/54	M	34,375.00	4,499.22	218,719.47

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

POLICE AND FIRE FUND

50 MEMBER SAMPLE

<u>ID</u>	<u>Birth Date</u>	<u>Membership Date</u>	<u>Sex</u>	<u>Salary</u>	<u>Normal Cost</u>	<u>Accrued Liability</u>
41	5/24/29	3/11/54	F	35,000.00	4,746.38	247,800.53
42	6/25/28	7/ 5/73	M	35,625.00	7,525.75	90,799.49
43	7/26/27	10/ 6/72	F	36,250.00	8,338.72	109,851.02
44	8/27/26	5/21/64	M	36,875.00	6,854.86	171,235.05
45	9/28/25	4/15/64	F	37,500.00	7,940.82	197,745.23
46	10/29/23	3/20/54	M	38,125.00	5,102.45	242,745.23
47	11/30/21	2/ 8/73	F	38,750.00	8,378.24	105,267.91
48	12/ 1/22	1/ 2/74	M	39,375.00	7,819.07	89,879.34
49	1/ 2/21	12/11/61	F	40,000.00	7,722.92	210,630.14
50	2/ 3/19	11/10/50	M	40,000.00	2,894.34	229,036.53
TOTAL				1,264,900.00	215,311.17	3,678,550.50

PUBLIC EMPLOYEES RETIREMENT ASSOCIATION

POLICE AND FIRE FUND

ACTUARIAL COST METHOD AND ASSUMPTIONS

Actuarial Cost Method

- Entry Age Normal.

Actuarial Assumptions

1. a. Retirement - Age 60.
- b. Mortality - Unisex Pension 1984 Table,  
set forward 1 year for males,  
set back 4 years for females.
- c. Disability - Graduated rates. See table  
below for sample values.
- d. Separation - Graduated rates. See table  
below for sample values.
2. Investment Return - 8% compounded annually pre-  
retirement; 5% compounded  
annually post-retirement.
3. Earnings Progression - 6.5% per year.

Age	Annual Rate per 100 Employees			
	Mortality		Disability	Separation
	Male	Female	All Employees	All Employees
20	.13	.14	.11	7.00
30	.11	.11	.16	6.58
40	.23	.15	.26	2.45
50	.62	.38	.69	.50
60	1.55	.99	-	-

MEMORANDUM TO: Legislative Commission on Pensions and Retirement

FROM: James R. Bordewick, F.S.A.

RE: June 30, 1984 Actuarial Valuation of the Public Employees Retirement Association - General Fund

DATE: August 6, 1985

Chapter 356, Subdivision 2 requires that an actuarial valuation of the fund be conducted each year. An actuarial valuation is a calculation to determine the normal cost and accrued liability of the fund and includes a determination of the payment necessary to amortize the unfunded accrued liability over a stated period and a determination of the payment necessary to keep the unfunded accrued liability from increasing.

The actuarial valuation is conducted according to a stated actuarial cost method, Entry Age Normal Cost, and stated actuarial assumptions. The interest assumption of 8% pre-retirement and 5% post-retirement and the salary scale assumption of  $6\frac{1}{2}\%$  are prescribed in Chapter 356, Subdivision 4(4). The additional contribution required to amortize the unfunded accrued liability by June 30, 2009 is determined as a level percentage of compensation in accordance with Chapter 356, Subdivision 4(7).

The actuarial valuation was conducted by Davis H. Roenisch of Compensation and Capital, Incorporated. Some of the results presented in this memorandum were adjusted from the actuarial report to conform to the Temporary Rules and statutes.

The actuarial valuation shows some results separately for the Basic Group and the Coordinated Group. The Basic Group is a closed group and represents about 10% of the active membership. The key actuarial results are combined in this memorandum for the Basic Group and the Coordinated Group.

The following changes were incorporated in this year's actuarial valuation:

- 1) In accordance with Chapter 356, Subdivision 4(6), the assets utilized to determine the unfunded accrued liability are based on cost plus one-third of any unrealized gains or losses. Prior to this time, the assets utilized were on combination cost and amortized basis. The result of this change increased the unfunded accrued liability by \$41,867,393. This increase reflects the release of the Deferred Yield Adjustment Account of \$24,793,059.
- 2) The pre-retirement interest assumption was changed to 8% and the salary increase assumption was changed to  $6\frac{1}{2}\%$ . In addition, there were changes to the mortality, retirement age, disability and expense assumption. The result of these changes increased the unfunded accrued liability by \$84,728,482.

- 3) The actuarial valuation reflects changes to the plan provisions which include the Temporary Rule of 85, less stringent early retirement requirements, and improvements in survivor and death benefits. These changes increased the unfunded accrued liability by \$43,304,442.

The combined effect of all the changes discussed above was to increase the unfunded accrued liability by \$169,900,317.

<u>SUMMARY OF KEY ACTUARIAL RESULTS</u>	<u>6-30-83</u>	<u>6-30-84</u>
Total Membership	104,058	105,613
Active Membership	83,351	83,702
Payroll (\$1,000's)	\$1,135,785	\$1,225,625
Accrued Liability (\$1,000's)	1,875,560	2,228,361
Assets (\$1,000's)	1,474,041	1,599,673
Unfunded Accrued Liability (\$1,000's)	401,519	628,688
Funding Ratio - Total	78.6%	71.8%
Prospective	68.5%	58.3%
Actuarial Losses (\$1,000's)	37,109	84,229
Actuarially Determined Contribution Requirement:		
Amortization by June 30, 2009	10.051%	8.322%
Total Support Rate	10.827%	9.608%

#### COMMENT SUMMARY

1. There was a total increase in membership of 1,555 members from June 30, 1983. Active membership increased by 351 from June 30, 1983.
2. Total payroll increased by 7.9% from June 30, 1983. Average salary for active members increased from \$13,626 to \$14,643 over the past valuation year. This was an 7.5% increase.
3. The unfunded accrued liability increased by \$227,169,020 from a year ago. The elements contributing to this increase are shown below:

Actuarial Losses	\$ 84,228,743
Liability Increase for Assumption and Methods	84,728,482
Plan and Statutory Changes	43,304,442
Contribution Sufficiency	(27,005,625)
Transfer to State Fund	457,306
Asset Valuation Method	41,867,393
Other	(411,721)
	<u>\$227,169,020</u>

COMMENT SUMMARY

4. Both the total funding ratio and the prospective funding ratio decreased from a year ago. The total funding ratio is the ratio of total assets to total accrued liabilities. The prospective funding ratio is the ratio of total assets less accrued liabilities for members in a payment status to accrued liabilities for members not in a payment status.

Total assets on the actuarial basis cover 93% of the value of all benefits accrued, (including augmentation) to June 30, 1984.

The value of augmentation included in benefits accrued to June 30, 1984 is \$207,788,280. Without augmentation, the actuarial value of assets fully covers the value of benefits accrued to June 30, 1984.

The Temporary Rules State that a calculation of accrued benefits based on service to June 30, 1984, with salaries assumed to increase at 6½% a year until retirement should be determined. This was not shown separately in the actuarial report.

5. The actuarial loss of \$84,228,743 was primarily a result of salary increases greater than the 3½% assumption. This loss amounted to \$99,527,515. In addition, there were other actuarial losses of \$3,735,292.

There was also a loss of \$8,271,418 from mortality.

The sum of these losses, \$111,534,225, was offset by gains of \$27,305,482 from favorable investment experience.

6. The contribution, as a percentage of payroll, which will provide for the normal cost, expenses, and amortize the unfunded accrued liability by June 30, 2009 is 26.901% for the Basic Group and 5.486% for the Coordinated Group.

The current support rates are 8% of salary by the employer and member for the Basic Group and 4% of salary by the employer and member in the Coordinated Group plus an additional support rate of 2.50% of payroll for the Basic Group and .25% of payroll for the Coordinated Group.

A comparison of the actuarial determined contribution rates and the statutory rates is shown below:

	<u>Basic</u>	<u>Coordinated</u>	<u>Total</u>
Actuarially Determined	26.901%	5.486%	8.322%
Statutory	<u>18.500%</u>	<u>8.250%</u>	<u>9.608%</u>
	(8.401%)	2,764%	1.286%

Based on current payroll, the combined statutory contribution rates exceed the actuarially determined rates by 1.286% of payroll.

COMMENT SUMMARY

7. This is the first year that a new actuarial balance sheet is required in the actuarial report. This is specified in Chapter 356.215, Sub. 4. (6) as amended. One of the objectives of this balance sheet is to show if future statutory contributions are sufficient to provide for the funding of future expected benefits payable.

This balance sheet was adjusted from the actuarial report to conform with the Temporary Rules. In making these adjustments, it was assumed that the current benefit obligations for active members shown in the report included a 6½% salary increase assumption which should have been a footnote item.

Expected Future Assets - Supplemental Contributions	\$ 961,104,930
Total Current and Future Assets	3,034,556,477
Total Current Benefit Obligations	1,715,053,048
Current Unfunded Liability	115,379,508
Current and Future Unfunded Liability	(332,417,291)


The current unfunded accrued liability of \$115,379,508 is the amount by which the current assets fall short of the value of benefits accrued to June 30, 1984.

The current and future unfunded liability is the amount by which the total statutory contribution rates less the normal cost rate and expenses are in excess, over time, of providing for amortization by June 30, 2009 if all actuarial assumptions are realized.

CONCLUSIONS

The actuarial valuation complies with the requirements of Minnesota Statutes, Chapter 356 and the Temporary Rules.

The current support rates provide for adequate funding of the plan based on the assumptions utilized.

  
James R. Bordewick, F.S.A.  
Commission Actuary