

The Report of an
ANNUAL ACTUARIAL VALUATION
of the
PUBLIC EMPLOYEES RETIREMENT FUND
July 1, 1990

Submitted to
THE BOARD OF TRUSTEES
Public Employees Retirement Association of Minnesota
St. Paul, Minnesota

 **FILE COPY**

Janaury 9, 1991

The Board of Trustees
Public Employees Retirement Association
of Minnesota
Gallery Tower Office Building
Suite 200
514 St. Peter Street
St. Paul, Minnesota 55102

Dear Board Members:

Submitted in this report are the results of an Annual Actuarial Valuation of the assets, actuarial values and contribution requirements associated with benefits provided by the Public Employees Retirement Fund.

The date of the valuation was July 1, 1990.

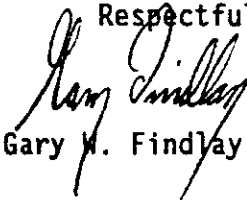
Valuation results, comments and conclusions are contained in Section A.

The valuation was based upon information, furnished by PERA, concerning Retirement Fund benefits, financial transactions, and individual members, terminated members, retirants and beneficiaries. Data was checked for internal consistency but was not otherwise audited by us. This information is summarized in Section B.

Actuarial cost methods, actuarial assumptions and definitions of technical terms are contained in Section C.

Information needed to comply with the Pension Benefit Obligation required by Statement No. 5 of the Governmental Accounting Standards Board is contained in Section D.

Respectfully submitted,


Gary M. Findlay


J. Daniel Petersen

JDP:jmg

SECTION A

VALUATION RESULTS, COMMENTS
AND CONCLUSIONS

Public Employees Retirement Fund

Summary of Results

(Dollars in Thousands)

	<u>July 1, 1989</u>	<u>July 1, 1990</u>
A. CONTRIBUTIONS		
1. Statutory Contributions - Chapter 353 % of Payroll	9.33%	9.25 %
2. Required Contributions - Chapter 356 % of Payroll	8.92	9.95
3. Sufficiency (Deficiency) (A1-A2)	0.41%	(0.70)%
B. ACCRUED LIABILITY FUNDING RATIO		
1. Current Assets	\$2,992,285	\$3,297,216
2. Actuarial Accrued Liability	4,199,873	4,583,521
3. Funding Ratio (1/2)	71.25%	71.94%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number	99,515	102,664
b. Projected Annual Earnings	\$1,932,674	\$2,074,092
c. Average Annual Earnings	19,421	20,203
d. Average Age	42.5	42.5
e. Average Service	8.2	8.3
2. Others		
a. Service Retirements	22,932	24,314
b. Disability Retirements	689	708
c. Survivors	4,251	4,414
d. Deferred Retirements	2,349	2,699
e. Terminated Other Non-vested	6,805	7,695
f. Total	37,026	39,830

Public Employees Retirement Fund

PURPOSE

The purpose of this valuation is to determine the financial status of the Fund, including the determination of the sufficiency of the Statutory Contributions to the Fund.

CONTRIBUTION RATES

The Retirement Fund is supported by member contributions, employer contributions and investment income from Retirement Fund assets.

Contributions required under Chapter 356 are determined by the annual actuarial valuation and are sufficient to:

- (1) cover the actuarial costs allocated to the current year by the actuarial cost methods described in Section C (the normal cost); and
- (2) finance over a period of future years the actuarial costs not covered by present assets and anticipated future normal costs (unfunded actuarial accrued liability); and
- (3) provide an allowance for expenses for the current year.

Contribution requirements for the fiscal year beginning July 1, 1990 are shown on page A-3.

Public Employees Retirement Fund
Contributions Required To Finance Benefits of the Retirement Fund
For the Year Beginning July 1, 1990

(Dollars in Thousands)

Contributions for	% of Payroll		
	Basic	Coordinated	Total
A. <u>Required Contributions - Chapter 356</u>			
1. Normal Cost			
Retirement benefits	5.07%	4.11%	4.16%
Disability and survivor benefits	1.29	0.60	0.64
Termination benefits			
Deferred service pensions	2.78	1.55	1.61
Refunds of member contribs.	<u>1.34</u>	<u>0.38</u>	<u>0.43</u>
Total Normal Cost	10.48%	6.64%	6.84%
2. Unfunded Actuarial Accrued Liability	-	-	\$1,286,305
3. Supplemental Contribution Amortization by July 1, 2020	-	-	2.79%
4. Administrative Expense	-	-	<u>0.32</u>
5. Total Required Contribution	-	-	9.95%
B. <u>Statutory Contributions - Chapter 353</u>			
1. Employee Contributions	8.23%	4.23%	4.44%
2. Employer Contributions	<u>10.73</u>	<u>4.48</u>	<u>4.81</u>
3. Total	18.96	8.71	9.25
C. <u>Contribution Sufficiency (Deficiency)</u>			
(A5) - (B3)	-	-	(0.70)%

The excess of total actuarial accrued liabilities over applicable assets was amortized as a level percent-of-payroll over the 30 year period to July 1, 2020.

Public Employees Retirement Fund
Determination of Unfunded Actuarial Accrued Liability (UAAL)
and Supplemental Contribution Rate

July 1, 1990

(Dollars in Thousands)

A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)

1. Active Members	
a. Retirement Annuities	\$ 2,005,691
b. Disability Benefits	136,763
c. Survivors Benefits	136,146
d. Deferred Retirements	382,821
e. Refunds Due to Death or Withdrawal	<u>(48,154)</u>
f. Total	2,613,267
2. Deferred Retirements	49,541
3. Annuitants	<u>1,920,713</u>
4. Total	<u>\$ 4,583,521</u>

B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)

1. AAL (A4)	\$ 4,583,521
2. Current Assets	<u>3,297,216</u>
3. UAAL (B1-B2)	<u>\$ 1,286,305</u>

C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE

1. Present Value of Future Payrolls through the Amortization Date of July 1, 2020	\$46,089,170
2. Supplemental Contribution Rate (B3/C1)	2.79%

Public Employees Retirement Fund

Experience Gain (Loss)

Year Ending June 30, 1990

(Dollars in Thousands)

A. UAAL at Beginning of Year	\$1,207,588
B. Change due to Interest Requirements and Current Rate of Funding	
1. Normal Cost and Expenses	120,193
2. Contribution	(180,896)
3. Interest on A, B1, and B2	<u>100,065</u>
4. Total (B1 + B2 + B3)	<u>39,362</u>
C. Expected UAAL at End of year (A + B4)	1,246,950
D. Increase (Decrease) due to Actuarial Losses (Gains) Because of Experience Deviations from Expected	11,407
E. UAAL at End of Year Before Plan Amendments and Changes in Actuarial Assumptions (C + D)	1,258,357
F. Change in Actuarial Accrued Liability Due to Plan Amendments	0
G. Change in Actuarial Accrued Liability Due to Changes in Actuarial Assumptions	<u>27,948</u>
H. UAAL at End of Year (E + F + G)	<u>\$1,286,305</u>

Public Employees Retirement Fund

COMMENTS

CONTRIBUTION SUFFICIENCY

As shown on page A-3, the Fund has a contribution deficiency of 0.70% of payroll, since the Statutory Contribution Rate of 9.25% is less than the Required Contribution Rate of 9.95%.

CHANGES IN ACTUARIAL ASSUMPTIONS

Effective with this valuation, Fund termination rates have been updated to reflect recent plan experience. Sample termination rates are as follows:

Age	Annual Rate of Withdrawal			
	Male		Female	
	Prior	Current	Prior	Current
20	.2750	.2542	.3832	.2913
30	.1610	.1018	.2805	.1394
40	.0818	.0532	.1340	.0826
50	.0385	.0321	.0663	.0550

The change in withdrawal rates caused an increase in the Required Contribution Rate as follows:

	<u>% of Payroll</u>
Normal Cost	0.84%
Supplemental Contribution	<u>0.06</u>
Total Increase in Required Contribution	0.90%

ACTUARIAL GAINS AND LOSSES

As shown on page A-5, the Fund experience produced a net actuarial loss of \$11,407,000 during the year ending June 30, 1990. A loss of approximately \$75,000,000 resulting from fewer than expected terminations (as measured using the prior withdrawal rates) was partially offset by gains from asset and salary experience.

SECTION B

SUMMARY OF BENEFIT PROVISIONS

AND

VALUATION DATA SUBMITTED BY PERA

Public Employees Retirement Fund Basic

Summary of Plan Provisions

(July 1, 1991)

Eligibility - A public employee who is not covered under the Social Security Act. General exceptions are employees covered by other public funds and certain part-time employees. City managers and persons holding elective office may choose to become members.

Contributions - Member: 8.23% of salary.
Employer: 10.73% of salary.

Allowable Service - Service during which member contributions were deducted. May also include certain leaves of absence and military service.

Salary - Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees, and sick leave payments funded by the employer. Excludes lump sum payments at separation and Workers' Compensation benefits.

Average Salary - Average of the 5 highest successive years of salary. Average salary is based on all allowable service if less than 5 years.

NORMAL RETIREMENT BENEFIT

Eligibility - First hired before July 1, 1989:

Age 65 and 3 years of allowable service. Proportionate retirement annuity is available at age 65 and 1 year of allowable service.

First hired after June 30, 1989:

The greater of age 65 or the age eligible for full Social Security retirement benefits and 3 years of allowable service. Proportionate retirement annuity is available at normal retirement age and 1 year of allowable service.

Amount - 2.5% of average salary for each year of allowable service.

EARLY RETIREMENT BENEFIT

Eligibility - First hired before July 1, 1989:

Age 55 and 3 years of allowable service. Any age with 30 years of allowable service. Rule of 90: Age plus allowable service totals 90.

First hired after June 30, 1989:

Age 55 with 3 years of allowable service.

Public Employees Retirement Fund Basic

Summary of Plan Provisions (Continued)

(July 1, 1991)

Amount - First hired before July 1, 1989:

The greater of 2% of average salary for each of the first 10 years of allowable service and 2.5% of average salary for each subsequent year with reduction of 0.25% for each month the member is under age 65 at time of retirement or age 62 if 30 years of allowable service. No reduction if age plus years of allowable service totals 90; or 2.5% of average salary for each year of allowable service assuming augmentation to age 65 at 3% per year and actuarial reduction for each month the member is under age 65.

First hired after June 30, 1989:

2.5% of average salary for each year of allowable service assuming augmentation to the age eligible for full Social Security retirement benefit at 3% per year and actuarial reduction for each month the member is under the Social Security retirement age.

Form of Payment - Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are:

50% or 100% joint and survivor with bounceback feature without additional reduction (option is canceled if member is pre-deceased by beneficiary).

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

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

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

Public Employees Retirement Fund Basic
Summary of Plan Provisions (Continued)

(July 1, 1991)

DISABILITY BENEFIT

Eligibility - Total and permanent disability before normal retirement age with 3 years of allowable service.

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

Payments stop if disability ceases or death occurs. Payments revert to a retirement annuity at normal retirement age. Benefits may be reduced on resumption of partial employment.

Form of Payment - Same as for retirement.

Benefit Increases - Adjusted by PERA to provide same increase as MPRIF.

RETIREMENT AFTER DISABILITY

Eligibility - Normal retirement age.

Amount - Any optional annuity continues. Otherwise the larger of the disability benefit paid before the normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.

Benefit Increases - Same as for retirement.

SURVIVING SPOUSE BENEFIT

Eligibility - Active member with 18 months of allowable service or member receiving a disability benefit.

Amount - 50% of salary averaged over last 6 months. Maximum family benefit is \$1,000 per month. Benefits paid until spouse's death but no payments while spouse is remarried.

Surviving spouse optional annuity may be elected in lieu of this benefit.

Public Employees Retirement Fund Basic
Summary of Plan Provisions (Continued)

(July 1, 1991)

SURVIVING DEPENDENT - CHILD BENEFIT

Eligibility - Active member with 18 months of allowable service or member receiving a disability benefit.

Amount - 10% of salary averaged over last 6 months for each child. Family benefit minimum (including spouse's benefit) of 50% of salary and maximum of \$1,000 per month. Benefits paid until child marries, dies, or attains age 18 (age 22 if full-time student).

SURVIVING SPOUSE OPTIONAL ANNUITY

Eligibility - Member or former member who dies before retirement or disability benefits commence, if age 50 with 3 years of allowable service or any age with 30 years of allowable service. If the member dies before age 55, benefits commence when member would have qualified for early retirement.

Amount - Survivor's payment of the 100% joint and survivor benefit the member could have elected if terminated.

Benefit Increases - Adjusted by PERA to provide same increase as MPRIF.

REFUND OF CONTRIBUTIONS

Eligibility - Member dies before receiving any retirement benefits and survivor benefits are not payable.

Amount - The excess of the member's contributions with 6% interest over any disability or survivor benefits paid.

REFUND OF CONTRIBUTIONS

Eligibility - Termination of public service.

Amount - Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989, and 6% interest if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund if 3 or more years of allowable service.

DEFERRED BENEFIT

Eligibility - 3 years of allowable service.

Amount - Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/71, 5% from 7/1/71 to 1/1/81, and 3% thereafter until January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

Public Employees Retirement Fund Coordinated

Summary of Plan Provisions

(July 1, 1991)

Eligibility - A public employee who is covered under the Social Security Act. General exceptions are employees covered by other public funds and certain part-time employees. City managers and persons holding elective office may choose to become members.

Contributions - Member: 4.23% of salary.
Employer: 4.48% of salary.

Allowable Service - Service during which member contributions were deducted. May also include certain leaves of absence and military service.

Salary - Includes amounts deducted for deferred compensation or supplemental retirement plans, net income from fees, and sick leave payments funded by the employer. Excludes lump sum payments at separation and Workers' Compensation benefits.

Average Salary - Average of the 5 highest successive years of salary. Average salary is based on all allowable service if less than 5 years.

NORMAL RETIREMENT BENEFIT

Eligibility - First hired before July 1, 1989:

Age 65 and 3 years of allowable service. Proportionate retirement annuity is available at age 65 and 1 year of allowable service.

First hired after June 30, 1989:

The greater of age 65 or the age eligible for full Social Security retirement benefits and 3 years of allowable service. Proportionate retirement annuity is available at normal retirement age and 1 year of allowable service.

Amount - 1.5% of average salary for each year of allowable service.

EARLY RETIREMENT BENEFIT

Eligibility - First hired before July 1, 1989:

Age 55 and 3 years of allowable service. Any age with 30 years of allowable service. Rule of 90: Age plus allowable service totals 90.

First hired after June 30, 1989:

Age 55 with 3 years of allowable service.

Public Employees Retirement Fund Coordinated

Summary of Plan Provisions (Continued)

(July 1, 1991)

Amount - First hired before July 1, 1989:

The greater of 1% of average salary for each of the first 10 years of allowable service and 1.5% of average salary for each subsequent year with reduction of 0.25% for each month the member is under age 65 at time of retirement or age 62 if 30 years of allowable service. No reduction if age plus years of allowable service totals 90; or, 1.5% of average salary for each year of allowable service assuming augmentation to age 65 at 3% per year and actuarial reduction for each month the member is under age 65.

First hired after June 30, 1989:

1.5% of average salary for each year of allowable service assuming augmentation to the age eligible for full Social Security retirement benefits at 3% per year and actuarial reduction for each month the member is under the Social Security retirement age.

Form of Payment - Life annuity with return on death of any balance of contributions over aggregate monthly payments. Actuarially equivalent options are:

50% or 100% joint and survivor with bounceback feature without additional reduction (option is canceled if member is pre-deceased by beneficiary).

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

Members retired under laws in effect before July 1, 1973 receive an additional lump sum payment each year. In 1989, this lump sum payment is \$25 times each full year of allowable service. In each following year, the lump sum payment will increase by the same percentage increase that is applied to regular annuities paid from MPRIF.

DISABILITY BENEFIT

Eligibility - Total and permanent disability before normal retirement age with 3 years of allowable service.

Public Employees Retirement Fund Coordinated

Summary of Plan Provisions (Continued)

(July 1, 1991)

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

Payments stop if disability ceases or death occurs. Payments revert to a retirement annuity at normal retirement age. Benefits may be reduced on resumption of partial employment.

Form of Payment - Same as for retirement.

Benefit Increases - Adjusted by PERA to provide same increase as MPRIF.

RETIREMENT AFTER DISABILITY

Eligibility - Normal retirement age.

Amount - Any optional annuity continues. Otherwise the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.

Benefit Increases - Same as for retirement.

SURVIVING SPOUSE OPTIONAL ANNUITY

Eligibility - Member or former member who dies before retirement or disability benefits commence, if age 50 with 3 years of allowable service or any age with 30 years of allowable service. If the member dies before age 55, benefits commence when member would have qualified for early retirement.

Amount - Survivor's payment of the 100% joint and survivor benefit the member could have elected if terminated.

Benefit Increases - Adjusted by PERA to provide same increase as MPRIF.

Public Employees Retirement Fund Coordinated

Summary of Plan Provisions (Continued)

(July 1, 1991)

REFUND OF CONTRIBUTIONS

Eligibility - Member dies before receiving any retirement benefits and survivor benefits are not payable.

Amount - The excess of the member's contributions with 6% interest over any disability or survivor benefits paid.

REFUND OF CONTRIBUTIONS

Eligibility - Termination of public service.

Amount - Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989, or 6% interest if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund if 3 or more years of allowable service.

DEFERRED BENEFIT

Eligibility - 3 years of allowable service.

Amount - Benefit computed under law in effect at termination and increased by the following annual percentage: 0% before 7/1/71, 5% from 7/1/71 to 1/1/81, and 3% thereafter until January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

Public Employees Retirement Fund

Accounting Balance Sheet

July 1, 1990

(Dollars in Thousands)

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$ 42,625	\$ 42,625
2. Investments		
a. Fixed Income	435,599	442,030
b. Equity	1,041,002	917,040
c. Real Estate	117,822	94,176
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	1,763,685	1,763,685
4. Other	<u>832</u>	<u>832</u>
B. TOTAL ASSETS	<u>\$3,401,565</u>	<u>\$3,260,388</u>
C. AMOUNTS CURRENTLY PAYABLE	\$ 10,231	\$ 10,231
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$ 588,793	\$ 588,793
2. Employer Reserves	1,038,856	897,679
3. MPRIF Reserves	1,763,685	1,763,685
4. Non-MPRIF Reserves	<u>0</u>	<u>0</u>
5. Total Assets Available for Benefits	<u>3,391,334</u>	<u>3,250,157</u>
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	<u>\$3,401,565</u>	<u>\$3,260,388</u>
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$3,250,157
2. Market Value (D5)	\$3,391,334	
3. Cost Value (D5)	<u>3,250,157</u>	
4. Market Over Cost (F2-F3)	\$ 141,177	
5. 1/3 of Market Over Cost (F4)/3		<u>47,059</u>
6. Actuarial Value of Assets (F1 + F5) (Same as "Current Assets")		<u>\$3,297,216</u>

Public Employees Retirement Fund
Changes in Assets Available for Benefits
Year Ending June 30, 1990

(Dollars in Thousands)

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF YEAR	\$3,106,902	\$2,934,977
B. OPERATING REVENUES		
1. Member Contributions	87,031	87,031
2. Employer Contributions	93,865	93,865
3. Investment Income	190,862	190,862
4. MPRIF Income	144,529	144,529
5. Net Realized Gain (Loss)	0	0
6. Other	872	872
7. Net Change in Unrealized Gain (Loss)	<u>(30,748)</u>	<u>0</u>
8. Total Revenue	486,411	517,159
C. OPERATING EXPENSES		
1. Service Retirements	165,740	165,740
2. Disability Benefits	4,057	4,057
3. Survivor Benefits	12,566	12,566
4. Refunds	12,711	12,711
5. Expenses	6,296	6,296
6. Other	<u>609</u>	<u>609</u>
7. Total Disbursements	201,979	201,979
D. OTHER CHANGES IN RESERVES	<u>0</u>	<u>0</u>
E. ASSETS AVAILABLE AT END OF YEAR	<u>\$3,391,334</u>	<u>\$3,250,157</u>

Minnesota Public Employees' Retirement Association
BASIC & COORDINATED Active Members as of June 30, 1990
By Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	153							153	\$ 525,874
20-24	2,874	63						2,937	28,270,748
25-29	6,981	1,875	123					8,979	136,675,096
30-34	7,722	3,591	2,250	95				13,658	244,679,026
35-39	8,247	3,916	3,656	1,429	46			17,294	336,244,441
40-44	7,245	3,929	3,321	2,234	648	23		17,400	353,556,690
45-49	5,737	3,042	2,751	1,703	1,075	253	10	14,571	271,337,768
50-54	2,681	2,017	2,391	1,874	1,153	518	243	10,877	212,568,219
55-59	1,817	1,481	1,778	1,743	1,304	542	354	9,019	175,213,773
60	295	247	306	295	244	117	54	1,558	29,625,606
61	240	189	249	314	229	112	41	1,374	26,130,597
62	194	193	258	248	223	76	38	1,230	22,645,485
63	164	152	163	176	166	56	27	904	16,431,929
64	123	117	144	166	114	37	32	733	12,607,361
65	104	110	97	119	91	30	16	567	9,128,586
66	76	65	68	66	37	19	11	342	4,706,260
67	65	42	56	45	32	11	9	260	3,318,072
68	44	39	48	31	27	6	4	199	2,603,740
69	44	35	37	33	12	6	8	175	2,131,438
70 & Over	114	90	90	78	40	12	10	434	4,345,269
Totals	44,920	21,193	17,786	10,649	5,441	1,818	857	102,664	\$1,892,745,978

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 42.6 years.

Service: 8.3 years.

Annual Pay: \$18,436.

Minnesota Public Employees' Retirement Association
 BASIC & COORDINATED - Total Benefits Payable June 30, 1990
 Tabulated by Attained Ages of Benefit Recipients

ALL RETIRANTS AND BENEFICIARIES		
Attained Ages	Number	Annual Benefits
Under 20	13	\$ 97,430
20-24	8	34,689
25-29	7	39,859
30-34	13	39,565
35-39	24	109,092
40-44	40	161,541
45-49	86	473,517
50-54	229	1,630,573
55-59	1,381	10,286,622
60-64	4,694	36,689,483
65-69	7,434	49,695,923
70-74	6,545	40,245,043
75-79	4,610	25,283,855
80-84	2,456	10,384,718
85-89	1,247	4,462,348
90-94	493	1,730,996
95 & Over	156	552,000
Totals	29,436	\$181,917,254

SECTION C

ACTUARIAL FUNDING METHODS, ACTUARIAL ASSUMPTIONS

AND

DEFINITIONS OF TECHNICAL TERMS

Public Employees Retirement Fund
Actuarial Methods Used for the Valuation

Retirement and Casualty Benefits. Normal cost and the allocation of actuarial values between service rendered before and after the valuation date were determined using an individual entry-age normal cost projected benefit method having the following characteristics:

- (i) the annual normal cost for each individual active member, payable from date of entry to date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement;
- (ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

The unfunded actuarial accrued liability was amortized by level (principal & interest combined) percent-of-payroll contributions over a period of 30 future years.

Active member payroll was assumed to increase 6.5% a year for the purpose of determining the level percent contributions.

Public Employees Retirement Fund

Actuarial Assumptions

The actuary calculates contribution requirements and actuarial values of a retirement system by applying actuarial assumptions to the benefit provisions and people information of the system, using the actuarial methods described on page C-1.

The principal areas of risk which require assumptions about future experiences are:

- (i) long-term rates of investment return to be generated by the assets of the system
- (ii) patterns of pay increases to members
- (iii) rates of mortality among members, retirants and beneficiaries
- (iv) rates of withdrawal of active members
- (v) rates of disability among active members
- (vi) the age patterns of actual retirements.

In making a valuation, the actuary calculates the monetary effect of each assumption for as long as a present covered person survives - - - a period of time which can be as long as a century.

Actual experience of the system will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions, or the skill of the actuary and the precision of the many calculations made. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time to time one or more of the actuarial assumptions are modified to reflect experience trends (but not random or temporary year to year fluctuations).

Public Employees Retirement Fund
Summary of Actuarial Assumptions and Methods

Interest: Pre-Retirement: 8.5% per annum.
 Post-Retirement: 5% per annum.

Salary Increases: Reported salary for prior fiscal year, with new-hires annualized, increased 6.5% to current fiscal year and 6.5% annually for each future year.

Mortality: Pre-Retirement:
 Male - 1971 Group Annuity Mortality Table male rates projected to 1984 by Scale D.
 Female - 1971 Group Annuity Mortality Table female rates projected to 1984 by Scale D.

 Post-Retirement:
 Male - Same as above.
 Female - Same as above.

 Post-Disability:
 Male - 1965 RRB rates.
 Female - 1965 RRB rates.

Retirement Age: Age 64, or if over age 64, one year from the valuation date. In addition, 50% of employees are assumed to retire under the Rule of 90 when first eligible.

Separation: Graded rates based on plan experience as of June 30, 1989. Rates are shown in rate table.

Disability: Rates as shown in rate table.

Administrative and Investment Expenses: Prior year expenses expressed as percentage of prior year payroll. (0.32% of payroll.)

Return of Contributions: All employees withdrawing after becoming eligible for a deferred benefit were assumed to take the larger of their contributions accumulated with interest or the value of their deferred benefit.

Family Composition: 85% of male members and 65% of female members are assumed to be married. Female is four years younger than male. Assume members have no children.

Public Employees Retirement Fund

Summary of Actuarial Assumptions and Methods (Cont.)

Social Security:	NA
Benefit Increases After Retirement:	Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumption.
Special Consideration:	Married members assumed to elect subsidized joint and survivor form of annuity as follows: Males - 30% elect 50% J & S option; 45% elect 100% J & S option; Females - 15% elect 50% J & S option; 15% elect 100% J & S option;
Actuarial Cost Method:	Entry-age normal actuarial cost method with normal costs expressed as a level percentage of earnings. Under this method actuarial gains (losses) reduce (increase) the unfunded actuarial accrued liability.
Asset Valuation Method:	Cost Value plus one-third unrealized gains or losses.
Payment on the Unfunded Actuarial Accrued Liability:	A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 6.5% per annum.

Separations Expressed as The
Number of Occurrences Per 10,000

<u>Age</u>	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
20	5	2	2,542	2,913	9	9	0	0
25	6	3	1,536	1,942	10	10	0	0
30	7	4	1,018	1,394	11	11	0	0
35	10	5	719	1,053	12	12	0	0
40	15	8	532	826	15	15	0	0
45	27	12	408	667	22	22	0	0
50	49	18	321	550	33	33	0	0
55	78	27	195	478	58	58	0	0
60	121	46	0	0	118	118	0	0
65	195	81	0	0	0	0	0	0
70	334	140	0	0	0	0	0	0

GLOSSARY

Actuarial Accrued Liability. The difference between the actuarial present value of system benefits and the actuarial value of future normal costs. Also referred to as "accrued liability" or "actuarial liability".

Actuarial Assumptions. Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Accrued Service. Service credited under the system which was rendered before the date of the actuarial valuation.

Actuarial Equivalent. A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement system benefits between future normal cost and actuarial accrued liability. Sometimes referred to as the "actuarial funding method".

Actuarial Gain (Loss). The difference between actual experience and actuarial assumption anticipated experience during the period between two actuarial valuation dates.

Actuarial Present Value. The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payment.

Amortization. Paying off an interest-discounted amount with periodic payments of interest and principal -- as opposed to paying off with lump sum payment.

Normal Cost. The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method.

Pension Benefit Obligation. A standardized disclosure measure of the present value of pension benefits, adjusted for the effects of projected salary increases, estimated to be payable in the future as a result of employee service to date.

Unfunded Actuarial Accrued Liability. The difference between actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded actuarial liability" or "unfunded accrued liability".

SECTION D

**THE PENSION BENEFIT OBLIGATION
REQUIRED BY STATEMENT NO. 5 OF
THE GOVERNMENTAL ACCOUNTING STANDARDS BOARD**

Public Employees Retirement Fund

PENSION BENEFIT OBLIGATION

(Dollars in Thousands)

The amount shown below as the "pension benefit obligation" is a standardized disclosure measure of the present value of pension benefits, adjusted for the effects of projected salary increases, estimated to be payable in the future as a result of employee service to date. The measure is the actuarial present value of credited projected benefits and is intended to (i) help users assess the plan's funding status on a going-concern basis, (ii) assess progress being made in accumulating sufficient assets to pay benefits when due, and (iii) allow for comparisons among public employee retirement plans. The measure is independent of the actuarial funding method used to determine contributions to the plan.

The pension benefit obligation was determined as part of an actuarial valuation of the plan as of July 1, 1990. Significant actuarial assumptions used in determining the pension benefit obligation include (a) a rate of return of 8.5% per year pre-retirement and 5% per year post-retirement, compounded annually, (b) projected salary increases of 6.5% per year compounded annually, and (c) the assumption that benefits will not increase after retirement.

At July 1, 1990, the unfunded pension benefit obligation was \$866,477, determined as follows:

Pension Benefit Obligation:

Retirees and beneficiaries currently receiving benefits	\$1,920,713
Terminated employees not yet receiving benefits	49,541
Current employees --	
Accumulated employee contributions including allocated investment income	837,519*
Employer financed - Vested	1,104,470
Employer financed - Non-vested	<u>204,391</u>
Total Pension Benefit Obligation	\$4,116,634
Net assets available for benefits, at cost	<u>3,250,157</u>
Unfunded Pension Benefit Obligation	\$ 866,477

* Estimated.

The change in actuarial assumptions as of July 1, 1990 increased the Pension Benefit Obligation by \$56,494.