

The Report of an
ANNUAL ACTUARIAL VALUATION
of the
PUBLIC EMPLOYEES RETIREMENT FUND
July 1, 1991

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

December 30, 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, 1991.

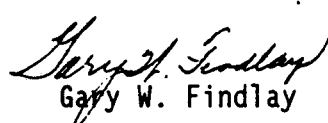
Valuation results, comments and conclusions are contained in Section A.

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 W. Findlay


J. Daniel Petersen

JDP:abn

SECTION A

VALUATION RESULTS, COMMENTS
AND CONCLUSIONS

Public Employees Retirement Fund

Summary of Results

(Dollars in Thousands)

	<u>July 1, 1990</u>	<u>July 1, 1991</u>
A. CONTRIBUTIONS		
1. Statutory Contributions - Chapter 353 % of Payroll	9.25%	9.17 %
2. Required Contributions - Chapter 356 % of Payroll	9.95	9.68
3. Sufficiency (Deficiency) (A1-A2)	(0.70)%	(0.51)%
B. ACCRUED LIABILITY FUNDING RATIO		
1. Current Assets	\$3,297,216	\$3,570,304
2. Actuarial Accrued Liability	4,583,521	4,957,624
3. Funding Ratio (1/2)	71.94%	72.02%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number	102,664	107,014
b. Projected Annual Earnings	\$2,074,092	\$2,286,255
c. Average Annual Earnings	20,203	21,364
d. Average Age	42.5	42.7
e. Average Service	8.3	8.4
2. Others		
a. Service Retirements	24,314	25,634
b. Disability Retirements	708	739
c. Survivors	4,414	4,553
d. Deferred Retirements	2,699	3,655
e. Terminated Other Non-vested	7,695	7,995
f. Total	39,830	42,576

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, 1991 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, 1991

(Dollars in Thousands)

Contributions for	% of Payroll		
	Basic	Coordinated	Total
A. <u>Required Contributions - Chapter 356</u>			
1. Normal Cost			
Retirement benefits	4.95%	4.06%	4.10%
Disability and survivor benefits	1.27	0.59	0.62
Termination benefits			
Deferred service pensions	2.82	1.52	1.58
Refunds of member contribs.	<u>1.19</u>	<u>0.34</u>	<u>0.38</u>
Total Normal Cost	10.23%	6.51%	6.68%
2. Unfunded Actuarial Accrued Liability	-	-	\$1,387,320
3. Supplemental Contribution Amortization by July 1, 2020	-	-	2.73%
4. Administrative Expense	-	-	<u>0.27</u>
5. Total Required Contribution	-	-	9.68%
B. <u>Statutory Contributions - Chapter 353</u>			
1. Employee Contributions	8.23%	4.23%	4.41%
2. Employer Contributions	<u>10.73</u>	<u>4.48</u>	<u>4.76</u>
3. Total	18.96	8.71	9.17
C. <u>Contribution Sufficiency (Deficiency)</u>			
(A5) - (B3)	-	-	(0.51)%

The excess of total actuarial accrued liabilities over applicable assets was amortized as a level percent-of-payroll over the 29 year period to July 1, 2020.

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

July 1, 1991

(Dollars in Thousands)

A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)

1. Active Members	
a. Retirement Annuities	\$ 2,180,430
b. Disability Benefits	150,461
c. Survivors Benefits	142,928
d. Deferred Retirements	364,794
e. Refunds Due to Death or Withdrawal	<u>(39,673)</u>
f. Total	2,798,940
2. Deferred Retirements	58,813
3. Annuitants	<u>2,099,871</u>
4. Total	<u>\$ 4,957,624</u>

B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)

1. AAL (A4)	\$ 4,957,624
2. Current Assets	<u>3,570,304</u>
3. UAAL (B1-B2)	<u>\$ 1,387,320</u>

C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE

1. Present Value of Future Payrolls through the Amortization Date of July 1, 2020	\$50,765,641
2. Supplemental Contribution Rate (B3/C1)	2.73%

Public Employees Retirement Fund

Experience Gain (Loss)

Year Ending June 30, 1991

(Dollars in Thousands)

A. UAAL at Beginning of Year	\$1,286,305
B. Change due to Interest Requirements and Current Rate of Funding	
1. Normal Cost and Expenses	148,505
2. Contribution	(196,320)
3. Interest on A, B1, and B2	<u>107,304</u>
4. Total (B1 + B2 + B3)	<u>59,489</u>
C. Expected UAAL at End of year (A + B4)	1,345,794
D. Increase (Decrease) due to Actuarial Losses (Gains) Because of Experience Deviations from Expected	35,902
E. UAAL at End of Year Before Plan Amendments and Changes in Actuarial Assumptions (C + D)	1,381,696
F. Change in Actuarial Accrued Liability Due to Plan Amendments	5,624
G. Change in Actuarial Accrued Liability Due to Changes in Actuarial Assumptions	<u>0</u>
H. UAAL at End of Year (E + F + G)	<u>\$1,387,320</u>

Public Employees Retirement Fund

COMMENTS

CONTRIBUTION SUFFICIENCY

As shown on page A-3, the Fund has a contribution deficiency of 0.51% of payroll, since the Statutory Contribution Rate of 9.17% is less than the Required Contribution Rate of 9.68%.

CHANGES IN ACTUARIAL ASSUMPTIONS

There were no changes in actuarial assumptions from last year.

CHANGES IN PLAN PROVISIONS

The maximum family death benefit for Basic Members was increased from \$1,000 per month to 70% of average salary. In addition, the minimum benefit per family must be at least 50% of the Member's average salary.

ACTUARIAL GAINS AND LOSSES

As shown on page A-5, the Fund experience produced a net actuarial loss of \$35,902,000 during the year ending June 30, 1991. A loss of approximately \$38,000,000 resulting from investment experience was partially offset by small net gains from all other sources.

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 70% and minimum is 50% of average salary. Benefits paid until spouse's death but no payments while spouse is remarried prior to July 1, 1991.

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 70% of average salary. Benefits paid until child marries, dies, or attains age 18 (age 23 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, 1991

(Dollars in Thousands)

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$ 52,409	\$ 52,409
2. Investments		
a. Fixed Income	453,760	453,308
b. Equity	1,131,882	1,004,882
c. Real Estate	102,806	91,560
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	1,943,989	1,943,989
4. Other	<u>990</u>	<u>990</u>
B. TOTAL ASSETS	<u>\$3,685,836</u>	<u>\$3,547,138</u>
C. AMOUNTS CURRENTLY PAYABLE	\$ 23,067	\$ 23,067
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$ 649,046	\$ 649,046
2. Employer Reserves	1,069,734	931,036
3. MPRIF Reserves	1,943,989	1,943,989
4. Non-MPRIF Reserves	<u>0</u>	<u>0</u>
5. Total Assets Available for Benefits	<u>3,662,769</u>	<u>3,524,071</u>
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	<u>\$3,685,836</u>	<u>3,547,138</u>
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$3,524,071
2. Market Value (D5)	\$3,662,769	
3. Cost Value (D5)	<u>3,524,071</u>	
4. Market Over Cost (F2-F3)	\$ 138,698	
5. 1/3 of Market Over Cost (F4)/3		<u>46,233</u>
6. Actuarial Value of Assets (F1 + F5) (Same as "Current Assets")		<u>\$3,570,304</u>

Public Employees Retirement Fund
Changes in Assets Available for Benefits
Year Ending June 30, 1991

(Dollars in Thousands)

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF YEAR	\$3,391,335	\$3,250,157
B. OPERATING REVENUES		
1. Member Contributions	94,413	94,413
2. Employer Contributions	101,907	101,907
3. Investment Income	117,635	117,635
4. MPRIF Income	175,212	175,212
5. Net Realized Gain (Loss)	0	0
6. Other	1,039	1,039
7. Net Change in Unrealized Gain (Loss)	<u>(2,480)</u>	<u>0</u>
8. Total Revenue	487,726	490,206
C. OPERATING EXPENSES		
1. Service Retirements	178,971	178,971
2. Disability Benefits	4,324	4,324
3. Survivor Benefits	15,029	15,029
4. Refunds	11,678	11,678
5. Expenses	5,897	5,897
6. Other	<u>393</u>	<u>393</u>
7. Total Disbursements	216,292	216,292
D. OTHER CHANGES IN RESERVES	<u>0</u>	<u>0</u>
E. ASSETS AVAILABLE AT END OF YEAR	<u>\$3,662,769</u>	<u>\$3,524,071</u>

Minnesota Public Employees' Retirement Association
BASIC & COORDINATED Active Members as of June 30, 1991
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	174							174	\$ 611,604
20-24	2,943	49						2,992	28,408,516
25-29	7,001	1,648	83					8,732	137,400,428
30-34	8,039	3,730	2,225	80				14,074	264,072,483
35-39	8,702	4,076	3,668	1,541	47			18,034	359,600,653
40-44	7,538	4,319	3,603	2,454	742	22		18,678	395,977,748
45-49	5,929	3,315	3,022	1,915	1,231	291	12	15,715	313,936,516
50-54	2,803	2,127	2,539	1,900	1,236	571	234	11,410	234,925,802
55-59	1,846	1,480	1,829	1,715	1,429	600	390	9,289	190,019,551
60	260	231	316	304	272	117	49	1,549	30,476,090
61	272	219	290	270	248	124	49	1,472	29,044,154
62	203	170	204	240	208	97	38	1,160	22,541,607
63	164	132	196	179	162	69	30	932	17,229,946
64	130	120	140	139	152	44	29	754	13,967,626
65	105	86	114	97	77	31	29	539	8,928,803
66	98	75	70	61	57	18	12	391	5,542,263
67	75	48	47	46	30	9	10	265	3,717,034
68	59	35	42	33	27	6	7	209	2,535,864
69	42	32	33	27	21	8	4	167	2,177,852
70 & Over	136	93	97	83	45	11	13	478	4,847,396
Totals	46,519	21,985	18,518	11,084	5,984	2,018	906	107,014	\$2,065,961,936

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

Age: 42.7 years.

Service: 8.4 years.

Annual Pay: \$19,306.

Minnesota Public Employees' Retirement Association
 BASIC & COORDINATED - Total Benefits Payable June 30, 1991
 Tabulated by Attained Ages of Benefit Recipients

<u>ALL RETIRANTS AND BENEFICIARIES</u>		
<u>Attained Ages</u>	<u>Number</u>	<u>Benefits</u>
Under 20	11	\$ 79,086
20-24	12	87,619
25-29	9	43,381
30-34	13	33,330
35-39	28	113,924
40-44	59	237,627
45-49	91	561,574
50-54	225	1,493,242
55-59	1,479	11,118,344
60-64	4,786	36,964,746
65-69	7,821	55,438,058
70-74	6,730	43,271,264
75-79	4,995	29,449,431
80-84	2,707	12,792,035
85-89	1,291	4,804,317
90-94	496	1,871,383
95 & Over	<u>173</u>	<u>627,082</u>
Totals	30,926	\$198,986,443

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 annual-
 ized, 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 adopted as of July 1,
 1990. Rates are shown in rate table.

Disability: Rates as shown in rate table.

Administrative and Prior year expenses expressed as percentage of prior year
Investment Expenses: payroll. (0.27% 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

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, 1991. 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, 1991, the unfunded pension benefit obligation was \$928,371,000 determined as follows:

Pension Benefit Obligation:

Retirees and beneficiaries currently receiving benefits	\$2,099,871,000
Terminated employees not yet receiving benefits	58,813,000
Current employees --	
Accumulated employee contributions including allocated investment income	622,507,000
Employer financed - Vested	1,652,190,000
Employer financed - Non-vested	<u>19,061,000</u>
Total Pension Benefit Obligation	\$4,452,442,000
Net assets available for benefits, at cost	<u>3,524,071,000</u>
Unfunded Pension Benefit Obligation	\$ 928,371,000
Funded Ratio	79.15%

The change in plan provisions as of July 1, 1991 increased the Pension Benefit Obligation by \$4,611,000.