

**The Report of an
ANNUAL ACTUARIAL VALUATION
of the
PUBLIC EMPLOYEES RETIREMENT FUND
July 1, 1993**

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

 **FILE COPY**

GABRIEL, ROEDER, SMITH & COMPANY

LCP & R MAR - 9 1994

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PERA

March 8, 1994

Mr. Lawrence Martin, Executive Director
Legislative Commission on
Pensions and Retirement
Room 55 State Office Building
St. Paul, MN 55155

Dear Larry:

I have enclosed PERA's Annual Actuarial Valuation reports of the assets, actuarial values and contribution requirements associated with benefits provided by the Public Employees Retirement Fund and Public Employees Police and Fire Fund, dated July 1, 1993.

Sincerely,

Laurie Fiori Hacking

Laurie Fiori Hacking
Executive Director

LFH/sak

enclosures

LCP & R MAR - 9 1994

February 24, 1994

The Board of Trustees
Public Employees Retirement Association
of Minnesota
514 St. Peter Street - Suite 200
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, 1993.

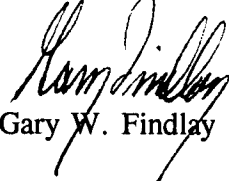
Valuation results, comments and conclusions are contained in Section A.

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.

A description of the actuarial cost method and actuarial assumptions used as well as definitions of technical terms may be found in Section C.

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

Respectfully submitted,


Gary W. Findlay


J. Daniel Petersen

JDP:rmd

1824

SECTION A

**VALUATION RESULTS, COMMENTS
AND CONCLUSIONS**

Summary of Results

(Dollars in Thousands)

	July 1, 1992	July 1, 1993
A. CONTRIBUTIONS		
1. Statutory Contributions - Chapter 353 % of Payroll	9.10%	9.04 %
2. Required Contributions - Chapter 356 % of Payroll	9.89	9.51
3. Sufficiency (Deficiency) (A1-A2)	(0.79)%	(0.47)%
B. ACCRUED LIABILITY FUNDING RATIO		
1. Current Assets	\$3,978,110	\$4,374,459
2. Actuarial Accrued Liability	5,424,007	5,769,806
3. Funding Ratio (1/2)	73.34%	75.82%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number	110,100	114,932
b. Projected Annual Earnings	\$2,455,456	\$2,578,509
c. Average Annual Earnings	22,302	22,435
d. Average Age	42.9	43.1
e. Average Service	8.7	8.6
2. Others		
a. Service Retirants	27,057	28,279
b. Disability Retirants	781	794
c. Survivors	4,721	4,895
d. Deferred Retirants	4,502	5,402
e. Terminated Non-vested	8,711	9,307
f. Total	45,772	48,677

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 intended to:

- (1) cover the actuarial costs allocated to the current year by the actuarial cost method 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, 1993 are shown on page A-3.

Contributions Required To Finance Benefits of the Retirement Fund
For the Year Beginning July 1, 1993
(Dollars in Thousands)

Contributions for	% of Payroll		
	Basic	Coordinated	Total
A. Required Contributions - Chapter 356			
1. Normal Cost			
Retirement benefits	4.91 %	4.03 %	4.06 %
Disability and survivor benefits	1.84	0.71	0.75
Termination benefits			
Deferred service pensions	2.81	1.64	1.68
Refunds of member contribs.	<u>0.53</u>	<u>0.30</u>	<u>0.31</u>
Total Normal Cost	10.09 %	6.68 %	6.80 %
2. Unfunded Actuarial Accrued Liability (UAAL)	-	-	\$1,382,312
3. Supplemental Contribution to Amortize UAAL by July 1, 2020	-	-	2.55 %
4. Administrative Expense	-	-	<u>0.16</u>
5. Total Required Contribution	-	-	9.51 %
B. Statutory Contributions - Chapter 353			
1. Employee Contributions	8.23 %	4.23 %	4.36 %
2. Employer Contributions	<u>10.73</u>	<u>4.48</u>	<u>4.68</u>
3. Total	18.96	8.71	9.04
C. Contribution Sufficiency (Deficiency)			
(B3) - (A5)	-		(0.47) %

The excess of total actuarial accrued liabilities over applicable assets was amortized as a level percent-of-payroll over the 27 year period to July 1, 2020.

Note: Projected Annual Payroll for the Fiscal Year Beginning on July 1, 1993 is \$2,578,509.

**Determination of Unfunded Actuarial Accrued Liability (UAAL)
and Supplemental Contribution Rate**

July 1, 1993

(Dollars in Thousands)

A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)	
1. Active Members	
a. Retirement Annuities	\$ 2,533,603
b. Disability Benefits	148,311
c. Survivors Benefits	119,308
d. Deferred Retirements	395,910
e. Refunds Due to Death or Withdrawal	<u>20,773</u>
f. Total	3,217,905
2. Deferred Retirements	72,490
3. Annuitants	<u>2,466,376</u>
4. Total	<u>\$ 5,756,771</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)	
1. AAL (A4)	\$ 5,756,771
2. Current Assets	<u>4,374,459</u>
3. UAAL (B1-B2)	<u>\$ 1,382,312</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE	
1. Present Value of Future Payrolls through the Amortization Date of July 1, 2020	\$54,220,192
2. Supplemental Contribution Rate (B3/C1)	2.55%

Experience Gains and Losses
Year Ending June 30, 1993
(Dollars in Thousands)

A.	UAAL at Beginning of Year	\$1,445,897
B.	Change due to Interest Requirements and Current Rate of Funding	
1.	Normal Cost and Expenses	176,056
2.	Contribution	(219,542)
3.	Interest on A, B1, and B2	<u>121,053</u>
4.	Total (B1 + B2 + B3)	77,567
C.	Expected UAAL at End of year (A + B4)	1,523,464
D.	Increase (Decrease) due to Actuarial Losses (Gains) Because of Deviations from Assumed Experience	
1.	Salary Increases	(98,762)
2.	Investment Return	(70,650)
3.	MPRIF Mortality	7,350
4.	Mortality of Other Benefit Recipients	(1,196)
5.	Other Items	<u>15,909</u>
6.	Total	(147,349)
E.	UAAL at End of Year Before Plan Amendments and Changes in Actuarial Assumptions (C + D)	1,376,115
F.	Change in Actuarial Accrued Liability Due to Plan Amendments	6,197
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>\$1,382,312</u>

COMMENTS

CONTRIBUTION DEFICIENCY

As shown on page A-3, the Fund has a contribution deficiency of 0.47% of payroll, since the Statutory Contribution Rate of 9.04% is less than the Required Contribution Rate of 9.51%. However, there would be no deficiency if the statutory amortization period were extended from 2020 to 2029.

CHANGES IN ACTUARIAL ASSUMPTIONS

There were no changes in actuarial assumptions from last year.

CHANGES IN PLAN PROVISIONS

Death benefit coverage was extended to active members under age 50 covered by the Coordinated Plan.

ACTUARIAL GAINS AND LOSSES

As shown on page A-5, the Fund experience produced a net actuarial gain of \$147,349,000 during the year ending June 30, 1993. Large gains resulting from investment and salary experience were partially offset by small net losses from all other sources.

SECTION B

**SUMMARY OF BENEFIT PROVISIONS AND
VALUATION DATA SUBMITTED BY PERA**

Summary of Plan Provisions - BASIC

(July 1, 1993)

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

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

EARLY RETIREMENT BENEFIT

Eligibility - 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.

Amount - The greater of (a) 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 (b) 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.

Summary of Plan Provisions - BASIC (Continued)

(July 1, 1993)

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). (The MPRIF formula for this increase will change effective January 1, 1994). 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.

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 \$25 per month payable to the later of the normal retirement age or the 5-year anniversary of commencement of disability. 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. If death occurs prior to age 65 or within 5 years of disability, the surviving spouse can receive a refund or a survivor benefit. Dependent children are entitled to dependent child benefits subject to the 70% family maximum. 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.

Summary of Plan Provisions - BASIC (Continued)

(July 1, 1993)

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.

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 benefits commence and other survivor annuity is waived by spouse.

Amount - Survivor's payment of the 100% joint and survivor benefit the member could have elected if terminated or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service) the benefit is reduced same as for early retirement but with half the reduction factor used from age 55 to actual commencement age. If there is no surviving spouse, an actuarial equivalent dependent child benefit is paid to age 20 or 5 years if greater.

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

Summary of Plan Provisions - BASIC (Continued)
(July 1, 1993)

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.

Summary of Plan Provisions - COORDINATED (Continued)

(July 1, 1993)

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 unused annual leave and sick leave payments, severance payments, Workers' Compensation benefits, and employer-paid flexible spending accounts, cafeteria plans, health care expense accounts and daycare expenses.

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.

Summary of Plan Provisions - COORDINATED (Continued)

(July 1, 1993)

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.

Amount - First hired before July 1, 1989:

The greater of (a) 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, (b) 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). (The MPRIF formula for this increase will change effective January 1, 1994). 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.

Summary of Plan Provisions - COORDINATED (Continued)

(July 1, 1993)

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. 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.

Amount - Survivor's payment of the 100% joint and survivor benefit the member could have elected if terminated or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced the same as for early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If there is no surviving spouse, an actuarial equivalent dependent child benefit is paid to age 20 or for 5 years if longer.

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

Summary of Plan Provisions - COORDINATED (Continued)
(July 1, 1993)

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.

Accounting Balance Sheet
July 1, 1993
(Dollars in Thousands)

	Market Value	Cost Value
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$ 66,593	\$ 66,593
2. Investments		
a. Fixed Income	649,438	625,541
b. Equity	1,422,260	1,228,699
c. Real Estate	85,399	91,968
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	2,299,318	2,299,318
4. Other	<u>893</u>	<u>893</u>
B. TOTAL ASSETS	<u>\$4,523,901</u>	<u>\$4,313,012</u>
C. AMOUNTS CURRENTLY PAYABLE	\$ 8,849	\$ 8,849
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$ 780,125	\$ 780,125
2. Employer Reserves	1,435,609	1,224,720
3. MPRIF Reserves	2,299,318	2,299,318
4. Non-MPRIF Reserves	<u>0</u>	<u>0</u>
5. Total Assets Available for Benefits	<u>4,515,052</u>	<u>4,304,163</u>
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	<u>\$4,523,901</u>	<u>\$4,313,012</u>
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$4,304,163
2. Market Value (D5)	\$4,515,052	
3. Cost Value (D5)	<u>4,304,163</u>	
4. Market Over Cost (F2-F3)	\$ 210,889	
5. 1/3 of Market Over Cost (F4)/3		<u>70,296</u>
6. Actuarial Value of Assets (F1 + F5) (Same as "Current Assets")		<u>\$4,374,459</u>

Changes in Assets Available for Benefits
Year Ending June 30, 1993
(Dollars in Thousands)

	Market Value	Cost Value
A. ASSETS AVAILABLE AT BEGINNING OF YEAR	\$4,068,081	\$3,933,124
B. OPERATING REVENUES		
1. Member Contributions	106,359	106,359
2. Employer Contributions	113,183	113,183
3. Investment Income	205,675	205,675
4. MPRIF Income	198,872	198,872
5. Net Realized Gain (Loss)	0	0
6. Other	2,431	2,431
7. Net Change in Unrealized Gain (Loss)	<u>75,932</u>	<u>0</u>
8. Total Revenue	702,452	626,520
C. OPERATING EXPENSES		
1. Service Retirements	217,703	217,703
2. Disability Benefits	5,357	5,357
3. Survivor Benefits	13,360	13,360
4. Refunds	11,779	11,779
5. Expenses	3,971	3,971
6. Investment Fees	2,712	2,712
7. Other	<u>599</u>	<u>599</u>
8. Total Disbursements	255,481	255,481
D. OTHER CHANGES IN RESERVES	<u>0</u>	<u>0</u>
E. ASSETS AVAILABLE AT END OF YEAR	<u>\$4,515,052</u>	<u>\$4,304,163</u>

BASIC & COORDINATED Active Members as of June 30, 1993
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	171							171	\$ 654,813
20-24	3,069	43						3,112	28,012,863
25-29	6,853	1,507	27					8,387	132,226,307
30-34	7,868	4,198	1,694	80				13,840	281,938,897
35-39	9,086	4,869	3,255	1,677	75			18,962	405,846,930
40-44	8,063	5,361	3,264	2,787	1,044	29		20,548	471,534,221
45-49	6,861	4,713	3,057	2,335	1,535	438	16	18,955	424,816,782
50-54	2,990	2,888	2,478	2,028	1,445	765	204	12,798	298,343,962
55-59	1,786	1,827	1,749	1,788	1,422	744	457	9,773	218,531,075
60	285	267	284	281	292	144	71	1,624	35,163,999
61	236	277	247	251	274	143	62	1,490	32,283,539
62	206	211	212	225	231	102	45	1,232	24,560,419
63	184	181	179	167	148	84	43	986	19,459,528
64	122	165	107	145	134	63	24	760	14,483,144
65	128	118	104	93	100	44	25	612	10,718,779
66	84	79	53	36	55	36	8	351	5,687,884
67	92	59	38	44	37	15	12	297	4,344,800
68	76	55	41	28	39	17	7	263	3,345,155
69	67	44	23	22	25	6	12	199	2,597,443
70 & Over	201	105	95	69	61	25	16	572	6,556,268
Totals	48,428	26,967	16,907	12,056	6,917	2,655	1,002	114,932	\$2,421,106,808

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

Age: 43.1 years.

Service: 8.6 years.

Annual Pay: \$21,066.

BASIC & COORDINATED - Total Benefits Payable as of June 30, 1993
Tabulated by Attained Ages of Benefit Recipients

<i>Attained ages</i>	<i>No</i>	<i>Annual Benefits</i>
Under 20	12	\$ 73,509
20-24	11	81,123
25-29	9	22,283
30-34	14	53,126
35-39	38	125,720
40-44	74	369,440
45-49	104	630,673
50-54	239	1,622,292
55-59	1,720	13,457,504
60-64	4,866	37,691,476
65-69	8,572	64,146,561
70-74	7,364	52,374,723
75-79	5,494	35,625,751
80-84	3,206	18,232,471
85-89	1,460	6,164,625
90-94	595	2,427,915
95 & Over	190	683,214
Totals	33,968	\$233,782,406

SECTION C

**ACTUARIAL FUNDING METHODS, ACTUARIAL
ASSUMPTIONS AND DEFINITIONS OF TECHNICAL TERMS**

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 27 future years.

Active member payroll was assumed to increase 6.5% a year for the purpose of determining the level percent contributions. The current salary increase assumption for individual members is also 6.5% a year; continued growth in the size of the group will be required to produce active member payroll increases equal to the flat 6.5% salary scale.

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).

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.
Retirement Age:	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 Investment Expenses:	Prior year expenses expressed as percentage of prior year payroll. (0.16% 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.

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**

<i>Age</i>	<i>Death</i>		<i>Withdrawal</i>		<i>Disability</i>		<i>Retirement</i>	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
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**

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, 1993. 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, 1993, the unfunded pension benefit obligation was \$ determined as follows:

Pension Benefit Obligation:

Retirees and beneficiaries currently receiving benefits	\$2,466,376,000
Terminated employees not yet receiving benefits	72,490,000
Current employees --	
Accumulated employee contributions including allocated investment income	744,025,000
Employer financed - Vested	1,864,253,000
Employer financed - Non-vested	<u>19,298,000</u>
Total Pension Benefit Obligation	\$5,166,442,000
Net assets available for benefits, at cost	<u>4,304,163,000</u>
Unfunded Pension Benefit Obligation	\$ 862,279,000
Funded Ratio	83.31%

There were no changes in plan provisions or actuarial assumptions during the year.