
The Report of the
June 30, 2004 Actuarial Valuation
of the
Public School Retirement
System of Missouri

Gabriel, Roeder, Smith & Company



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October 25, 2004

Board of Trustees
Public School Retirement System of Missouri
3210 West Truman Boulevard
Jefferson City, MO. 65109

Dear Members of the Board:

We are pleased to present the report of the actuarial valuation of the Public School Retirement System of Missouri ("PSRS") as of June 30, 2004.

This valuation provides data on the funding status of PSRS. The results of the valuation show that the current contribution level will no longer fund the current benefits of PSRS within the framework of your funding policy.

This valuation is based on the provisions of PSRS in effect as of June 30, 2004, data on the PSRS membership and information on the asset value of the trust fund. All member data and asset information were provided by PSRS staff. While certain checks for reasonableness were performed, the data was used unaudited.

The actuarial assumptions and actuarial cost method used in this valuation are those used in the prior actuarial valuation of PSRS.

To the best of our knowledge, this actuarial statement is complete and accurate, and has been prepared in accordance with generally accepted actuarial principles and practice.

Respectfully submitted,

Gabriel, Roeder, Smith & Company

A handwritten signature in black ink, appearing to read 'Norman S. Losk', written over a faint dotted line.

Norman S. Losk, F.S.A
Senior Consultant

A handwritten signature in black ink, appearing to read 'Alex Rivera', written over a faint dotted line.

Alex Rivera, A.S.A
Senior Consultant

NSL: cml

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SUMMARY OF THE VALUATION



Purposes of the Actuarial Valuation

At your request we have performed the actuarial valuation of the Public School Retirement System of Missouri ("PSRS") as of June 30, 2004.

The purposes of an actuarial valuation are as follows:

- To determine the funding status of PSRS as of the valuation date,
- To determine the contribution rate which would provide for the normal cost of the system plus an amount which will amortize the unfunded actuarial accrued liability over 30 years, and if different, the contribution for the fiscal year ending June 30, 2006 under the statute. and
- To provide accounting and other data required by PSRS.

Report Highlights

The key results of the valuation are summarized in the following table and compared to comparable values from the prior valuation report:

	<u>June 30, 2003</u>	<u>June 30, 2004</u>
	<u>(\$ in Millions)</u>	
A. Summary of Results		
(1) Present Value of Future Benefits for:		
(a) Active Members	\$19,514.2	\$19,779.1
(b) Retired members	\$11,387.5	\$12,625.9
(c) Inactive Members and Other Liabilities	<u>\$337.4</u>	<u>\$388.4</u>
(d) Total	\$31,239.1	\$32,793.4
(2) Present Value of Future Normal Costs	\$6,519.7	\$6,568.2
(3) Actuarial Accrued Liability: (1) – (2)	\$24,719.4	\$26,225.2
(4) Actuarial Value of Assets	\$20,048.0	\$21,501.6
(5) Unfunded Actuarial Accrued Liability: (3) – (4)	\$4,671.4	\$4,723.6
(6) Total Contribution Rate, Member + Employer	21.00%	22.00%
(7) Normal Cost Rate	20.92%	20.93%
(8) Approximate Rate Available for Unfunded Actuarial Accrued Liability: (6) – (7)	0.08%	1.07%
(9) 30-Year Contribution Rate	27.75%	27.76%

	<u>June 30, 2003</u>	<u>June 30, 2004</u>
B. Highlights of Report		
(1) Actuarial Accrued Liability Funding Ratio:		
(a) Actuarial Value of Assets	\$20,048.0	\$21,501.6
(b) Actuarial Accrued Liability	24,719.4	26,225.2
(c) Funding Ratio: (a) / (b)	81.1%	82.0%
(2) Active Members:		
(a) Number:		
Male	17,379	17,007
Female	<u>56,968</u>	<u>56,790</u>
Total	74,347	73,797
(b) Total Compensation for Fiscal Year (for Active Members at end of year):		
Male	\$877.0	\$873.8
Female	<u>2,496.0</u>	<u>2,534.5</u>
Total	\$3,373.1	\$3,408.2
(c) Average Age:		
Male	42.7	42.6
Female	<u>42.4</u>	<u>42.5</u>
Total	42.4	42.5
(d) Average Service:		
Male	11.7	11.7
Female	<u>11.1</u>	<u>11.3</u>
Total	11.3	11.4
(e) Average Compensation for Fiscal Year (not in millions):		
Male	\$50,464	\$51,377
Female	<u>43,815</u>	<u>44,629</u>
Total	\$45,369	\$46,184
(f) Average Amount of Assets per Active Member (based on actuarial value, not in millions)	\$111,949	\$115,009
(3) Retired Members and Beneficiaries		
(a) Number Service Retired:		
Life Annuities	16,151	16,736
Options	<u>13,272</u>	<u>14,316</u>
Total	29,423	31,052
(b) Number Disability Retired	604	630
(c) Number Survivors, Beneficiaries	<u>2,222</u>	<u>2,548</u>
(d) Total Persons Receiving Benefits	32,249	34,230
(e) Average Monthly Pension Being Paid at Valuation Date for New Service Retired, Including Options (not in millions)	\$2,846	\$2,973
(f) Average Amount of Assets per Retired Member (based on actuarial value, not in millions)	\$353,112	\$368,855
(g) Average Amount of Assets per New Service Retired (based on actuarial value, not in millions)	\$500,768	\$524,659

Membership Characteristics

ACTIVE AND INACTIVE MEMBERSHIP

A total of 85,471 active and inactive members of PSRS are included in this 2004 actuarial valuation.

Active members	73,797
Inactive members	<u>11,674</u>
Total active and inactive members	85,471

Between the 2003 and 2004 actuarial valuations, the number of active employees decreased by 550 or 0.7%. The average annual salaries of employees increased by 1.8% to \$46,184.

Summary of Changes in Membership

	Male	Female	Total
Active and Inactive Members 7/1/2003	19,248	65,430	84,678
New Membership 7/1/2003 to 6/30/2004	<u>1,326</u>	<u>4,306</u>	<u>5,632</u>
Total Membership Before Decreases	20,574	69,736	90,310
Decreases:			
Service Retirements	711	1719	2,430
Disability Retirements	9	45	54
Withdrawals	517	1,552	2,069
Deaths	26	53	79
Other Terminations	27	150	177
Previous Memberships Voided	11	16	27
Reciprocity	<u>0</u>	<u>3</u>	<u>3</u>
Subtotal	1,301	3,538	4,839
Net membership 6/30/2004 (includes Inactive Members)	19,273	66,198	85,471

Benefit Recipients

On June 30, 2004, PSRS was paying benefits to a total of 34,230 retired members, beneficiaries and survivors. The total number of benefit recipients increased 6.1% from 32,249 on June 30, 2003. The benefit recipients were comprised of 31,052 service retirees, 630 disability retirees, 2,548 beneficiaries and survivors.

There are two classes of retired members – members retired because of service and members retired because of disability.

The changes among the retired group of members during the 2003-2004 year were as follows:

	<u>Service Retirements</u>	<u>Disability Retirements</u>	<u>Beneficiaries</u>	<u>Total</u>
Retired Members, July 1, 2003	29,423	604	2,222	32,249
Added During Year	2,451	54	473	2,978
Died During Year	(820)	(26)	(105)	(951)
Resumed Retirement During Year	7	0	9	16
Resumed Employment During Year	(9)	(2)	(51)	(62)
Retired Members, June 30, 2004	<u>31,052</u>	<u>630</u>	<u>2,548</u>	<u>34,230</u>

As of June 30, 2004, the average monthly benefit payable to service retirees was \$2,582 compared to \$2,482 as of June 30, 2003. These average benefit amounts and the amounts shown in the tables that follow include all post-retirement benefit increases.

Actuarial Assumptions and Methods

The actuarial cost method and assumptions used in this valuation are the same as those disclosed in the actuarial valuation report as of June 30, 2002. This set of assumptions and methods is described in Appendix E.

Experience During FY 2004

Overall the system experienced a net actuarial gain of about \$247.0 million.

The total net actuarial gain for the year ending June 30, 2004 is shown below:

	<u>(\$ in millions)</u>
1. Actuarial (Gain) or Loss on Assets (at actuarial value)	(\$162.2)
2. Actuarial (Gain) or Loss on Liabilities	<u>(\$84.8)</u>
3. Total Actuarial (Gain) or Loss (1+2)	(\$247.0)

For the plan year ending June 30, 2004, the funds experienced an asset gain of \$162.2 million. The use of the five year smoothing method to determine the actuarial value of assets recognizes 20% of the total gain for the year.

In addition to the gain from investment activities, there was a gain of \$ 84.8 million on liabilities.

That is, actual experience in areas other than investment return deviated from the actuarial assumptions in ways that reduced the actuarial liability by \$ 84.8 million when compared to the value expected using our assumptions. Most of this gain was due to pay increases less than assumed by an average of about 2.1% (actual increases of about 4.3% against assumed increases of about 6.4%).

PSRS Benefits

A summary of the current benefit provisions appears in Appendix F. There were no changes to the benefit provisions of PSRS during the 2004 session of the Legislature.

Asset Information

The market value of the assets of the fund, which are available for benefits, has increased from \$20.0 billion at the end of FY 2003 to \$22.2 billion at the end of FY 2004. Due to the smoothing process used in the determination of the actuarial value of assets, the actuarial value of assets increased from \$20.0 billion to about \$21.5 billion.

Based on the actuarial value, the assets of the fund returned about 8.82% which compares to the market value return of 12.08%. The difference is due to an investment gain for the current year whose recognition has been deferred under the asset smoothing method.

The detailed determinations of asset values utilized in this valuation and asset growth in the last year are set forth in Appendix B.

Funding Status

The funding status of PSRS is measured by the Funding Ratio. The Funding Ratio is the ratio of the assets available for benefits to a benefit liability measure for the System. While there are several such measures that could be appropriately used, the measure that ties most closely to your funding plan is the Actuarial Accrued Liability (“AAL”).

The PSRS actuarial accrued liability funding ratio fell from 95.3% at June 30, 2002 to 81.1% at June 30, 2003, and increased to 82.0% as of June 30, 2004.

GASB Disclosure

PSRS produces its accounting statements under the terms of GASB Statement Number 25. In Table 20, you will find Required Supplemental Information mandated by that statement.

Funding Process

In the 2003 session of the Legislature the funding provisions of PSRS were amended. The following changes were adopted:

1. The limitation on the total contribution rate (22% of pay) was eliminated.
2. Contribution rates will now be established by actuarial valuation.
3. The annual increase in the total contribution rate may not exceed 1% of pay.

APPENDICES



APPENDIX A

MEMBERSHIP DATA



Table 1**Number, Average Age-Service-Salary, and Total Payroll
of Active Members Included in Actuarial Valuations****Male**

Item	Actuarial Valuation as of June 30					
	1999	2000	2001	2002	2003	2004
Number	17,197	17,267	17,283	17,353	17,379	17,007
Average Age	43.1	43.0	42.8	42.7	42.7	42.6
Average Years of Service	12.9	12.7	12.1	11.9	11.7	11.7
Average Annual Salary	\$43,233	\$44,521	\$45,928	\$48,866	\$50,464	\$51,377
Total Payroll (000's)	\$743,478	\$768,210	\$793,780	\$847,977	\$877,009	\$873,765

Female

Item	Actuarial Valuation as of June 30					
	1999	2000	2001	2002	2003	2004
Number	52,895	54,439	55,405	56,320	56,968	56,790
Average Age	42.3	42.3	42.2	42.2	42.4	42.5
Average Years of Service	11.3	11.2	11.1	11.0	11.1	11.3
Average Annual Salary	\$36,806	\$38,014	\$39,496	\$42,001	\$43,815	\$44,629
Total Payroll (000's)	\$1,946,875	\$2,067,848	\$2,188,271	\$2,365,484	\$2,496,049	\$2,534,465

Total

Item	Actuarial Valuation as of June 30					
	1999	2000	2001	2002	2003	2004
Number	70,092	71,706	72,688	73,673	74,347	73,797
Average Age	42.5	42.5	42.4	42.3	42.4	42.5
Average Years of Service	11.7	11.6	11.3	11.2	11.3	11.4
Average Annual Salary	\$38,383	\$39,581	\$41,025	\$43,618	\$45,369	\$46,184
Total Payroll (000's)	\$2,690,353	\$2,836,058	\$2,982,051	\$3,213,461	\$3,373,058	\$3,408,230

Table 2

**Employee Distribution by Age and Years of Service
June 30, 2004**

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30 &	
20-24	1,548	0	0	0	0	0	0	1,548
25-29	7,780	1,912	0	0	0	0	0	9,692
30-34	3,407	5,726	1,070	0	0	0	0	10,203
35-39	2,188	2,626	3,227	749	0	0	0	8,790
40-44	1,987	2,092	1,757	2,589	811	0	0	9,236
45-49	1,637	2,070	1,701	1,654	2,408	1,243	0	10,713
50-54	1,345	1,864	1,902	1,853	1,639	2,920	984	12,507
55-59	888	1,117	1,194	1,398	1,302	1,021	1,128	8,048
60-64	309	380	346	443	410	311	345	2,544
65 & Over	80	72	56	80	79	72	77	516
Total	21,169	17,859	11,253	8,766	6,649	5,567	2,534	73,797

Table 3

**Salary Distribution
Employees in Active Service
on June 30, 2004**

Annual Salary	Number	Percent
Under \$20,000	2,611	3.5%
\$20,000-24,499	1,138	1.5%
\$25,000-29,999	3,476	4.7%
\$30,000-34,999	9,289	12.6%
\$35,000-39,999	12,384	16.8%
\$40,000-44,999	11,740	15.9%
\$45,000-49,999	9,318	12.6%
\$50,000-54,999	6,801	9.2%
\$55,000-59,999	4,672	6.3%
\$60,000 & Over	<u>12,368</u>	<u>16.8%</u>
Total	73,797	100.0%

Based on compensation actually paid during the plan year.

Table 4

**Salary Increase Rates by Service Group
Employees in Both 2003 & 2004 Actuarial Valuations**

Service in 2003	Number	Percent Increase In Average Salary	
		Expected	Actual
1-4	18,822	8.2%	5.6%
5-9	16,340	6.7%	4.9%
10-14	10,389	5.0%	3.9%
15-19	8,383	5.0%	3.3%
20 & Over	<u>12,967</u>	<u>5.0%</u>	<u>2.7%</u>
Total	66,901	6.4%	4.3%

Table 5**History of System's Growth
Active and Inactive Membership**

<u>June 30</u>	<u>Females</u>	<u>Males</u>	<u>Inactives</u>	<u>Total</u>
1947	15,787	4,412	0	20,199
1948	14,754	4,854	4,039	23,647
1949	15,120	5,502	6,601	27,223
1950	15,104	6,195	7,483	28,782
1955	16,397	6,365	3,923	26,685
1960	18,644	8,690	2,925	30,259
1965	22,191	12,018	2,990	37,199
1970	29,374	16,206	4,246	49,826
1975	33,465	20,148	3,354	56,967
1980	35,758	19,949	3,613	59,320
1985	36,056	18,407	3,005	57,468
1986	36,693	18,221	3,035	57,949
1987	37,639	18,159	3,141	58,939
1988	37,911	16,117	3,537	57,565
1989	39,021	16,177	3,543	58,741
1990	39,802	16,086	3,773	59,661
1991	40,882	16,026	4,067	60,975
1992	41,853	15,858	4,335	62,046
1993	42,825	15,668	4,705	63,198
1994	44,714	15,881	5,009	65,604
1995	46,681	16,173	5,328	68,182
1996	48,184	16,440	5,894	70,518
1997	49,800	16,656	6,373	72,829
1998	51,706	17,003	6,799	75,508
1999	52,895	17,197	7,278	77,370
2000	54,439	17,267	7,739	79,445
2001	55,405	17,283	8,930	81,618
2002	56,320	17,353	9,376	83,049
2003	56,968	17,379	10,331	84,678
2004	56,790	17,007	11,674	85,471

Table 6

**Pensions in Force on June 30, 2004
by Type and Monthly Amount**

Monthly Amount	Service	Disability	Beneficiary	Survivor	Total
Less than \$500	978	6	103	238	1,325
\$500 - 999	1,928	68	372	388	2,756
\$1,000 - 1,499	2,761	201	398	0	3,360
\$1,500 - 1,999	4,855	184	302	0	5,341
\$2,000 - 2,499	5,110	101	263	0	5,474
\$2,500 - 2,999	4,831	52	186	0	5,069
\$3,000 - 3,499	4,069	11	146	0	4,226
\$3,500 & Over	<u>6,520</u>	<u>7</u>	<u>152</u>	<u>0</u>	<u>6,679</u>
Total	31,052	630	1,922	626	34,230

Table 7

**Pensions in Force on June 30, 2004
by Type and Age**

Age	Service	Disability	Beneficiary	Survivor	Total
Under 55	1,500	178	109	352	2,139
55-59	5,448	134	135	23	5,740
60-64	6,421	80	162	39	6,702
65-69	5,196	66	253	60	5,575
70-74	4,196	57	298	44	4,595
75-79	3,182	51	359	43	3,635
80-84	2,219	25	298	29	2,571
85-89	1,550	24	170	24	1,768
90 & Over	<u>1,340</u>	<u>15</u>	<u>138</u>	<u>12</u>	<u>1,505</u>
Total	31,052	630	1,922	626	34,230

Table 8

**Cost of Living Increases to Retired Members
June 30, 2004**

Retirement In	First Increase Effective Date	First Percentage Increase	Total Increases Through January 2004	January 2005 Increase	Total Increases Through January 2005	Number of Retired Members at 6/30/2004
1980 & Earlier	Various	Various	80.00%	0.00%	80.00%	2,619
1981	Jan. 1985	4.00%	78.34%	0.93%	80.00%	503
1982	Jan. 1986	3.70%	72.45%	3.30%	78.14%	580
1983	Jan. 1987	1.70%	67.00%	3.30%	72.52%	474
1984	Jan. 1988	3.70%	64.56%	3.30%	70.00%	539
1985	Jan. 1989	4.00%	58.97%	3.30%	64.22%	624
1986	Jan. 1990	4.00%	53.15%	3.30%	58.20%	733
1987	Jan. 1991	4.00%	47.26%	3.30%	52.12%	730
1988	Jan. 1992	4.70%	41.59%	3.30%	46.26%	883
1989	Jan. 1993	3.10%	35.24%	3.30%	39.70%	779
1990	Jan. 1994	3.00%	31.18%	3.30%	35.51%	919
1991	Jan. 1995	2.50%	27.36%	3.30%	31.56%	987
1992	Jan. 1996	3.00%	24.25%	3.30%	28.35%	1,140
1993	Jan. 1997	2.80%	20.57%	3.30%	24.55%	949
1994	Jan. 1998	2.30%	17.34%	3.30%	21.22%	1,078
1995	Jan. 1999	1.70%	14.70%	3.30%	18.48%	1,271
1996	Jan. 2000	2.00%	12.78%	3.30%	16.50%	1,717
1997	Jan. 2001	3.70%	10.57%	3.30%	14.22%	1,683
1998	Jan. 2002	3.30%	6.63%	3.30%	10.15%	1,897
1999-2001	Jan. 2003	1.10%	3.22%	3.30%	6.63%	6,941
2002	Jan. 2004	2.10%	2.10%	3.30%	5.47%	2,046
2003	Jan. 2005			3.30%	3.30%	2,394
2004						196
Total						31,682

Table 9

**Analysis of Retired Membership by Type of Benefit
(Dollar Amounts in Millions)
June 30, 2004**

Type of Benefit	Number	Annual Benefit	Total Liability
Service Retirees			
Options 1 & 10 (Life Only)	16,736	478.2	5,354.4
Options 2 & 21 (100% J&S with Pop-Up)	7,712	261.2	3,774.7
Option 3 & 31 (75% J&S with Pop-Up)	1,339	50.4	745.7
Option 4 & 41(50% J&S with Pop-Up)	2,964	101.9	1,345.8
Option 5 (10 Years Certain & Life)	522	17.9	247.5
Option 6 (5 Years Certain & Life)	123	3.9	53.8
Option 20 (100% J & S)	1,114	33.1	354.7
Option 30 (75% J & S)	26	1.1	15.1
Option 40 (50% J & S)	<u>516</u>	<u>14.3</u>	<u>113.7</u>
Total	31,052	\$962.1	\$12,005.5
Disability Retirees	630	\$12.7	\$117.8
Beneficiaries of Retiree Deaths	1,922	\$42.6	\$409.1
Survivors of Active Deaths	626	\$6.2	\$30.8

Note: Excludes retirees returned to teaching and additional deposit annuities.

Table 10**History of System's Growth
Service Retired**

June 30	Females	Males	Total Retired	Total Monthly Pensions	Average Monthly Pension	Average New Pension Granted
1947	225	87	312	\$10,400	\$33.33	
1948	297	129	426	14,028	32.93	
1949	364	148	512	16,392	32.02	
1950	404	147	551	18,469	33.52	
1955	919	296	1,215	62,552	51.48	
1960	1,642	447	2,089	175,481	84.00	
1965	2,536	621	3,157	387,400	122.71	
1970	4,410	979	5,389	1,031,403	191.39	
1975	7,591	1,539	9,130	2,780,854	304.58	\$417 Mo.
1980	10,056	2,243	12,299	4,950,552	402.52	565
1985	11,307	3,227	14,534	8,153,600	561.00	900
1986	11,488	3,476	14,964	9,026,630	603.22	994
1987	11,684	3,810	15,494	10,099,084	651.81	1,123
1988	11,857	4,054	15,911	11,202,662	704.08	1,191
1989	12,117	4,345	16,462	12,412,178	753.99	1,142
1990	12,288	4,591	16,879	13,926,237	825.06	1,338
1991	12,500	4,883	17,383	15,535,235	893.70	1,442
1992	12,695	5,208	17,903	17,748,286	991.36	1,555
1993	13,071	5,547	18,618	19,647,453	1,055.29	1,549
1994	13,166	5,797	18,963	21,564,088	1,137.17	1,673
1995	13,343	6,081	19,424	23,563,044	1,213.09	1,898
1996	13,658	6,417	20,275	27,698,314	1,379.74	2,007
1997	14,716	6,424	21,140	31,431,017	1,486.80	2,005
1998	14,805	7,364	22,169	37,876,023	1,708.51	2,300
1999	15,551	7,835	23,386	45,132,257	1,929.88	2,488
2000	16,360	8,399	24,759	51,928,849	2,097.37	2,684
2001	17,584	9,055	26,639	61,434,862	2,306.20	2,775
2002	18,598	9,530	28,128	67,894,473	2,413.77	2,835
2003	19,440	9,983	29,423	73,017,878	2,481.66	2,846
2004	20,592	10,460	31,052	80,173,849	2,581.92	2,973

Notes: Excludes retirees returned to teaching. Counts and amounts reported as being paid at valuation date, including options.

Table 11**History of System's Growth
Disability Retired**

June 30	Females	Males	Total Retired	Total Monthly Pensions	Average Monthly Pension	Average New Pension Granted
1947	7	4	11	\$262	\$23.82	
1948	10	3	13	303	23.31	
1949	18	4	22	567	25.77	
1950	27	5	32	817	25.53	
1955	65	23	88	4,762	54.11	
1960	117	29	146	13,453	92.14	
1965	172	41	213	26,928	126.42	
1970	211	55	266	47,228	177.55	
1975	308	96	404	123,569	305.86	\$420 Mo.
1980	367	125	492	191,695	389.62	524
1985	406	143	549	291,619	531.18	834
1986	412	139	551	309,378	561.48	916
1987	413	143	556	323,649	582.10	884
1988	400	142	542	339,710	626.77	1,096
1989	394	149	543	362,423	667.45	1,088
1990	396	156	552	394,564	714.79	1,061
1991	402	153	555	420,031	756.81	1,257
1992	391	154	545	449,376	824.54	1,144
1993	400	160	560	484,265	864.76	1,178
1994	392	164	556	511,353	919.70	1,281
1995	395	163	558	533,106	955.39	1,377
1996	407	160	567	605,823	1,068.47	1,424
1997	413	153	566	626,626	1,107.11	1,366
1998	413	148	561	695,710	1,240.12	1,483
1999	424	145	569	776,500	1,364.67	1,740
2000	439	141	580	837,745	1,444.39	1,550
2001	456	140	596	929,492	1,559.55	1,728
2002	461	136	597	965,816	1,617.78	1,846
2003	466	138	604	987,727	1,635.31	1,672
2004	489	141	630	1,062,279	1,686.16	1,849

Notes: Excludes retirees returned to teaching. Counts and amounts reported as being paid at valuation date, including options.

APPENDIX B

ASSET INFORMATION



Table 12**Market Value of Assets
Balance Sheet**

	<u>June 30, 2003</u>	<u>June 30, 2004</u>
Assets:		
Cash	\$ 55,520,755	\$ 56,239,259
Contribution Receivable	109,067,460	115,256,048
Accrued Interest and Dividends	73,777,171	81,821,679
Investments	20,888,654,730	22,284,434,281
Trades Pending	1,065,714,969	1,244,646,934
Other Assets	309,185	603,987
Capital Assets	9,369,445	9,235,232
Due from NTRS	94,105	150,034
Total	<u>\$22,202,507,820</u>	<u>\$23,792,387,454</u>
Liabilities:		
Accounts Payable	7,048,880	9,002,831
Employer-Pay Liability	187,522	203,543
Interest Payable	1,474,387	1,947,252
Trades Pending	2,145,805,458	1,630,853,923
Other Liabilities	10,036	0
Total	<u>\$2,154,526,283</u>	<u>\$1,642,007,549</u>
Net Assets	\$20,047,981,537	\$22,150,379,905

Table 13**Statement of Revenue and Expenses
Market Value Reconciliation For Fiscal Year Ended June 30, 2004**

Operating Revenues	Amount
<i>Contributions:</i>	
Employers	\$ 359,762,556
Members	<u>405,614,103</u>
Total Contributions	765,376,659
<i>Net Investment Income:</i>	
Interest	279,925,365
Dividends	158,216,208
Net Income from Security Lending Activities	<u>10,581,715</u>
Total Investment Income	448,723,288
Net Capital Appreciation (Depreciation)	1,985,675,475
Less: Investment Expenses	<u>(31,832,929)</u>
Total Investment Return	2,402,565,834
<i>Other Income</i>	<u>488,178</u>
Total Operating Revenues	<u><u>3,168,430,671</u></u>
Operating Expenses	
Benefit Payments	1,024,739,904
Refunds to Members	36,018,258
Administrative Expenses	5,265,259
Other Expense	<u>8,882</u>
Total Operating Expenses	<u><u>1,066,032,303</u></u>
Excess of Revenues over Expenses	2,102,398,368
Fund Balance, June 30, 2003	<u>20,047,981,537</u>
Fund Balance, June 30, 2004	<u><u>22,150,379,905</u></u>

Table 14

**Growth of Cash Flow
(In Thousands)**

Year Ending June 30	Contributions for the Year	Payments During the Year			External Cash Flow for the Year	Covered Payroll	Payments as Percent of Covered Payroll
		Benefit Payments and Refund of Contributions	Expenses	Total			
1985	\$225,110	(\$126,132)	(1,619)	(\$127,751)	\$97,359	\$1,217,900	10.5 %
1986	244,906	(139,297)	(1,780)	(141,077)	103,829	1,319,801	10.7
1987	264,224	(150,138)	(2,120)	(152,258)	111,966	1,429,429	10.7
1988	293,698	(266,431)	(2,377)	(268,808)	24,890	1,446,485	18.6
1989	309,266	(180,012)	(3,357)	(183,369)	125,897	1,556,775	11.8
1990	328,173	(215,429)	(3,850)	(219,279)	108,894	1,652,719	13.3
1991	345,827	(229,330)	(4,800)	(234,130)	111,697	1,750,191	13.4
1992	359,208	(245,365)	(5,583)	(250,948)	108,260	1,809,458	13.9
1993	370,317	(270,529)	(6,556)	(277,085)	93,232	1,867,948	14.8
1994	397,622	(290,636)	(7,623)	(298,259)	99,363	1,996,908	14.9
1995	433,990	(320,343)	(9,760)	(330,103)	103,887	2,137,134	15.4
1996	488,484	(372,954)	(12,468)	(385,422)	103,062	2,283,994	16.9
1997	516,694	(426,029)	(3,867)	(429,896)	86,798	2,427,429	17.7
1998	562,350	(471,259)	(2,827)	(474,086)	88,264	2,577,594	18.4
1999	589,882	(565,662)	(3,141)	(568,803)	21,079	2,690,007	21.1
2000	624,524	(675,079)	(3,712)	(678,791)	(54,267)	2,836,065	23.9
2001	658,801	(784,938)	(4,009)	(788,947)	(130,146)	2,982,051	26.5
2002	696,685	(892,214)	(4,486)	(896,700)	(200,015)	3,213,461	27.9
2003	734,413	(958,924)	(4,676)	(963,600)	(229,187)	3,373,058	28.6
2004	765,377	(1,060,758)	(5,274)	(1,066,032)	(300,655)	3,408,230	31.3

Table 15

Development of the Actuarial Value of Assets

1. Valuation Assets June 30, 2003		\$20,047,981,537
2. Activity for FY 2004		
a. Contributions	\$765,376,659	
b. Benefits and Expenses	<u>(1,066,032,303)</u>	
c. Net Cash Flow	(300,655,644)	
3. Expected Returns	1,592,043,656	
4. Assets Before Allocation of G/L (1+2+3)		21,339,369,549
5. Actual Returns for 2004	2,403,054,012	
6. Excess Returns for 2004 (5-3)	811,010,356	
7. Recognized Excess Returns		
2004	162,202,071	
2003	0	
2002	0	
2001	0	
2000	0	
Total		<u>162,202,071</u>
8. Actuarial Value of Assets June 30, 2004		\$21,501,571,620

Table 16**History of System's Reserve Funds**

June 30	Accumulated Employee Contributions	General Reserves Contributed by Employers	Total Funds
1947	\$742,243	\$708,600	\$1,450,843
1948	1,935,821	1,852,813	3,788,634
1949	3,126,017	3,088,379	6,214,396
1950	4,369,302	4,408,943	8,778,245
1955	13,385,088	15,759,437	29,144,525
1960	36,020,644	41,003,061	77,023,705
1965	77,557,922	92,561,889	170,119,811
1970	153,235,184	205,806,370	359,041,554
1975	298,115,841	438,387,902	736,503,743
1980	595,125,851	817,002,549	1,412,128,400
1985	1,074,474,872	1,779,172,019	2,853,646,891
1986	1,199,080,656	2,073,456,154	3,272,536,810
1987	1,333,786,497	2,415,732,721	3,749,519,218
1988	1,427,755,173	2,745,290,213	4,173,045,386
1989	1,605,331,167	3,164,741,308	4,770,072,475
1990	1,780,289,109	3,625,499,691	5,405,788,800
1991	1,983,630,527	4,095,234,736	6,078,865,263
1992	2,191,277,064	4,663,290,911	6,854,567,975
1993	2,384,406,117	5,378,325,303	7,762,731,420
1994	2,616,067,465	6,561,002,730	9,177,070,195
1995	2,856,389,033	7,336,694,489	10,193,083,522
1996	3,098,447,617	8,412,177,685	11,510,625,302
1997	3,312,090,156	9,787,128,615	13,099,218,771
1998	3,541,459,187	11,437,899,111	14,979,358,298
1999	3,765,853,678	13,444,016,205	17,209,869,883
2000	3,976,059,124	15,461,163,652	19,437,222,776
2001	4,129,190,609	17,017,103,699	21,146,294,308
2002	4,354,506,588	17,881,598,628	22,236,105,216
2003	4,687,227,277	15,360,754,260	20,047,981,537
2004	4,954,079,813	16,547,491,808	21,501,571,620

Book Value prior to 1994, five-year average of adjusted market values after 1993.

APPENDIX C

ACTUARIAL DETERMINATIONS



Table 17**Ten Year Historical Summary
(All Dollar Figures in Thousands)**

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Active Members	62,854	64,624	66,456	68,709	70,092	71,706	72,688	73,673	74,347	73,797
Retired Members	20,642	21,706	22,730	23,955	25,339	27,238	29,234	30,865	32,249	34,230
Actuarial Assets	\$10,193,084	\$11,510,625	\$13,099,219	\$14,979,358	\$17,209,870	\$19,437,223	\$21,146,294	\$22,236,105	\$20,047,982	\$21,501,572
UAAL	\$788,738	\$721,121	(\$650,041)	(\$508,309)	(\$836,726)	(\$1,158,110)	\$135,909	\$1,097,832	\$4,671,468	\$4,723,688
Benefit Payments And Refunds	(\$320,343)	(\$372,954)	(\$425,848)	(\$474,087)	(\$568,803)	(\$675,079)	(\$784,938)	(\$892,214)	(\$958,924)	(\$1,060,758)
Accumulated Members' Contributions	\$2,856,389	\$3,098,448	\$3,312,090	\$3,541,459	\$3,765,854	\$3,976,059	\$4,129,191	\$4,354,507	\$4,687,227	\$4,954,080
APV of Retirees' Benefits	\$3,705,807	\$4,265,851	\$4,553,628	\$5,523,768	\$6,603,148	\$7,801,845	\$9,504,921	\$10,589,546	\$11,387,543	\$12,625,925

Table 18

**Determination of Normal Cost
June 30, 2004
For the 2004 - 2005 Plan Year**

	<u>Dollar</u>	<u>Rate</u>
Active Members		
Retirement Benefits	\$638,029,597	19.07%
Termination Benefits	48,339,123	1.45%
Death Benefits	6,972,746	0.21%
Disability Benefits	6,705,314	0.20%
Total Normal Cost	\$700,046,780	20.93%
Estimated Employee Contributions	367,961,996	
Employer Normal Cost (Total Normal Cost less Employee Contributions)	\$332,084,784	

Table 19

**Determination of the Unfunded Actuarial Accrued Liability
June 30, 2004**

Actives Members:

Service Retirement	\$13,136,332,363
Death Benefits	69,637,252
Disability Benefits	60,853,880
Termination Benefits	(55,899,132)
Inactives	<u>388,409,759</u>
Total for Active and Inactives Members	13,599,334,122

Pay Status Members:

Service Retirees	12,016,765,392
Disability Retirees	117,785,483
Survivors	439,866,255
Tax-sheltered Annuitants	1,193,950
Death Benefit	<u>50,314,058</u>
Total for Pay Status Members	12,625,925,138

Total Actuarial Accrued Liability 26,225,259,260

Actuarial Value of Assets 21,501,571,620

Total Unfunded Actuarial Accrued Liability 4,723,687,640

Table 20

**Schedule of Funding Progress
(In Thousands)**

Actuarial Valuation Date	Value of Assets (a)	Actuarial Accrued			Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
		Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b-a)				
6/30/1996	11,510,625	12,231,746	721,121	94.1%	2,283,994	31.6%	
6/30/1997	13,099,219	12,449,178	(650,041)	105.2%	2,427,429	-26.8%	
6/30/1998	14,979,358	14,471,049	(508,309)	103.5%	2,577,594	-19.7%	
6/30/1999	17,209,870	16,373,144	(836,726)	105.1%	2,690,007	-31.1%	
6/30/2000	19,437,223	18,279,113	(1,158,110)	106.3%	2,836,062	-40.8%	
6/30/2001	21,146,294	21,282,203	135,909	99.4%	2,982,051	4.6%	
6/30/2002	22,236,105	23,333,937	1,097,832	95.3%	3,213,461	34.2%	
6/30/2003	20,047,982	24,719,450	4,671,468	81.1%	3,373,058	138.5%	
6/30/2004	21,501,572	26,225,259	4,723,687	82.0%	3,408,230	138.6%	

Schedule of Employer Contributions

Actuarial Valuation Date	Annual Required Contribution	Percentage Contributed
6/30/1996	238,630,542	100.0%
6/30/1997	251,957,622	100.0%
6/30/1998	273,125,719	100.0%
6/30/1999	287,698,736	100.0%
6/30/2000	304,944,352	100.0%
6/30/2001	324,525,673	100.0%
6/30/2002	340,000,556	100.0%
6/30/2003	355,979,027	94.5%
6/30/2004	359,762,556	75.7%

Notes in Trend Data

Information:

Valuation Date
 Actuarial Cost Method
 Amortization Method
 Remaining Amortization Period
 Asset Valuation Method

Data

6/30/2004
 Entry Age Normal
 Level Percent, Open
 30
 5-Year Smoothed Market
 Marked to Market as of June 30, 2003

Actuarial

Investment rate of return 8.0%
 Projected salary increases 5.0% - 10.0%
 Cost-of-living adjustments 3.5%

Table 21

**Calculation of Unfunded Actuarial Accrued Liability
June 30, 2004**

	<u>Amount</u>
(1) Present Value of Future Benefits for:	
Active Members	\$19,779,111,174
Service Retirees	12,016,765,392
Disability Retirees	117,785,483
Tax-sheltered Annuitants	1,193,950
Survivors	439,866,255
Death Benefits	50,314,058
Inactive Members	388,409,759
Total	<u>32,793,446,071</u>
(2) Present Value of Future Normal Costs	6,568,186,811
(3) Actuarial Accrued Liability ((1)-(2))	26,225,259,260
(4) Actuarial Value of Assets	21,501,571,620
(5) Unfunded Actuarial Accrued Liability ((3)-(4))	\$4,723,687,640

**Required Contribution Rate & Amortization of Unfunded Liability
June 30, 2004**

	<u>Percentage of Payroll</u>
(1) Total Contribution Rate, Member + Employer	22.00%
(2) Normal Cost Rate	20.93%
(3) Approximate Rate Available for Unfunded Actuarial Accrued Liability ((1)-(2))	1.07%
(4) Benchmark Contribution Rate - Normal Cost Plus a Rate to fund UAAL over 30 Years	27.76%

Table 22

**Analysis of Actuarial Gains and Losses
(\$ in 000's)**

	<u>Amount</u>
1. Unfunded Actuarial Liability as of June 30, 2003	4,671,468
2. Normal Cost for 2004 Plan Year	693,678
3. Contribution Received during Year	(765,377)
4. Interest to Year End @ 8.00% on 1., 2., and 3.	370,905
5. Expected Unfunded Actuarial Liability as of June 30, 2004	4,970,675
6. Actuarial (Gain)/Loss During the Year	
a. From Investment	(162,202)
b. From Actuarial Liabilities	(84,785)
c. Total	<u>(246,987)</u>
7. Actuarial Unfunded Actuarial Liability as of June 30, 2004	4,723,688

APPENDIX D

ADDITIONAL DATA



Table 23**Schedule of Active Member Valuation Data**

Actuarial Valuation Date	Number of Members	Covered Annual Payroll (000)	Average Annual Salary	% Increase in Average Salary	Average Attained Age	Average Years of Service
6/30/1991	56,908	\$1,750,191	\$30,755	4.0%	42	12.1
6/30/1992	57,711	1,809,458	31,354	1.9%	42.2	12.2
6/30/1993	58,493	1,867,948	31,935	1.9%	42.3	12.3
6/30/1994	60,595	1,996,908	32,955	3.2%	42.5	12.3
6/30/1995	62,854	2,137,134	34,002	3.2%	42.5	12.3
6/30/1996	64,624	2,283,994	35,343	3.9%	42.6	12.3
6/30/1997	66,456	2,427,429	36,527	3.3%	42.5	12.1
6/30/1998	68,709	2,577,594	37,514	2.7%	42.5	11.9
6/30/1999	70,092	2,690,353	38,383	2.3%	42.5	11.7
6/30/2000	71,706	2,836,062	39,581	3.1%	42.5	11.6
6/30/2001	72,688	2,982,051	41,025	3.7%	42.4	11.3
6/30/2002	73,673	3,213,461	43,618	6.3%	42.3	11.2
6/30/2003	74,347	3,373,058	45,369	4.0%	42.4	11.3
6/30/2004	73,797	3,408,230	46,184	1.8%	42.5	11.4

Table 24

**Solvency Test
(\$ in 000's)**

Actuarial Valuation Date	Actuarial Accrued Liability			Net Assets Available for Benefits	Percentage of Actuarial Liabilities Covered by Net Assets for:		
	Member Contributions (1)	Current Retirees & Beneficiaries (2)	Active & Inactive Members. Employer Financed Portion (3)		(1)	(2)	(3)
6/30/1992	2,191,277	2,635,808	3,544,964	6,878,981	100.0%	100.0%	57.9%
6/30/1993	2,384,406	2,980,210	3,591,872	7,787,379	100.0%	100.0%	67.5%
6/30/1994	2,616,067	3,206,061	4,147,631	9,177,070	100.0%	100.0%	80.9%
6/30/1995	2,856,389	3,705,807	4,419,626	10,193,084	100.0%	100.0%	82.2%
6/30/1996	3,098,448	4,265,851	4,867,447	11,510,625	100.0%	100.0%	85.2%
6/30/1997	3,312,090	4,553,628	4,583,460	13,099,219	100.0%	100.0%	114.2%
6/30/1998	3,541,459	5,523,768	5,405,822	14,979,358	100.0%	100.0%	109.4%
6/30/1999	3,765,854	6,602,915	5,305,210	17,209,870	100.0%	100.0%	129.0%
6/30/2000	3,976,059	7,801,845	6,501,209	19,437,223	100.0%	100.0%	117.8%
6/30/2001	4,129,191	9,504,921	7,648,091	21,146,294	100.0%	100.0%	98.2%
6/30/2002	4,354,507	10,589,546	8,389,885	22,236,105	100.0%	100.0%	86.9%
6/30/2003	4,687,227	11,387,543	8,644,680	20,047,982	100.0%	100.0%	46.0%
6/30/2004	4,954,080	12,625,925	8,645,254	21,501,572	100.0%	100.0%	45.4%

Table 25

**Schedule of Retirees and Beneficiaries Added to
and Removed From Retirement rolls**

Actuarial Valuation Date	Service Retirees			Disability Retirees			Beneficiaries		
	Added to Rolls	Removed from Rolls	Rolls End of Year	Added to Rolls	Removed from Rolls	Rolls End of Year	Added to Rolls	Removed from Rolls	Rolls End of
6/30/1989	1,064	513	16,462	31	30	543	N/A	N/A	N/A
6/30/1990	949	532	16,879	37	28	552	N/A	N/A	N/A
6/30/1991	1,067	563	17,383	28	25	555	N/A	N/A	N/A
6/30/1992	1,119	599	17,903	33	43	545	N/A	N/A	N/A
6/30/1993	1,269	554	18,618	45	30	560	110	63	1,259
6/30/1994	1,021	676	18,963	35	39	556	130	63	1,326
6/30/1995	1,141	680	19,424	34	32	558	152	66	1,412
6/30/1996	1,344	693	20,075	44	35	567	150	72	1,490
6/30/1997	1,797	732	21,140	30	31	566	170	74	1,586
6/30/1998	1,757	728	22,169	27	32	561	187	82	1,691
6/30/1999	1,965	748	23,386	41	33	569	182	82	1,791
6/30/2000	2,136	763	24,759	43	32	580	187	79	1,899
6/30/2001	2,639	759	26,639	45	29	596	189	89	1,999
6/30/2002	2,262	773	28,128	42	41	597	248	107	2,140
6/30/2003	2,078	783	29,423	37	30	604	197	115	2,222
6/30/2004	2,458	829	31,052	54	28	630	482	156	2,548

Table 26

Schedule of Retirees by Type
 (\$ in 000's)

Actuarial Valuation Date	Service Retirees		Disability		Beneficiaries	
	Number	Benefits	Number	Benefits	Number	Benefits
6/30/1991	17,383	184,744	555	4,995	1,196	7,078
6/30/1992	17,903	210,379	545	5,392	1,262	8,149
6/30/1993	18,618	234,933	560	5,826	1,303	9,299
6/30/1994	18,963	254,957	556	6,102	1,372	10,373
6/30/1995	19,424	281,897	558	6,427	1,412	11,821
6/30/1996	20,075	329,115	567	7,180	1,490	13,403
6/30/1997	21,140	377,172	566	7,520	1,586	15,874
6/30/1998	22,169	454,512	561	8,349	1,691	20,048
6/30/1999	23,386	542,071	569	9,338	1,793	29,625
6/30/2000	24,759	623,827	580	10,088	1,899	30,843
6/30/2001	26,639	737,218	596	11,154	1,999	36,769
6/30/2002	28,128	737,218	597	11,590	2,140	40,743
6/30/2003	29,423	876,196	604	11,853	2,222	43,449
6/30/2004	31,052	962,086	630	12,747	2,548	48,846

Average New Retiree Statistics

Actuarial Valuation Date	Regular Retirement Benefit	% Increase From Previous Year	Age	Creditable Service
6/30/1991	1,763.43	8	59.5	28.4
6/30/1992	1,716.78	(3)	59.3	27.8
6/30/1993	1,854.29	8	59.0	26.8
6/30/1994	2,096.35	13	58.8	27.8
6/30/1995	2,013.36	(4)	58.7	26.8
6/30/1996	2,182.88	8	56.3	27.8
6/30/1997	2,005.00	(8)	56.4	N/A
6/30/1998	2,300.19	15	57.1	N/A
6/30/1999	2,488.36	8	57.0	N/A
6/30/2000	2,683.72	8	57.0	25.6
6/30/2001	2,775.17	3	56.7	26.5
6/30/2002	2,834.93	2	56.6	26.5
6/30/2003	2,845.98	0	56.8	26.0
6/30/2004	2,973.46	4	56.8	26.2

APPENDIX E
ACTUARIAL METHOD AND ASSUMPTIONS

Statement of Funding Policy

In order to establish long-term, consistent methods in the funding of the System, the Board of Trustees has adopted this statement of its funding policy. The funding of the System shall be carried out in such a way that the burden of paying retirement costs shall be shared equitably by present and succeeding generations of members and taxpayers. To this end, the following principles shall apply:

1. The Board of Trustees shall adopt actuarial assumptions, each of which individually represents a reasonable long-term estimate of anticipated experience under the System, derived from experience studies conducted every fifth year.
2. The actuarial funding method used shall be the Entry Age Normal Method with normal costs calculated as a percentage of payroll.
3. It shall be the general objective to maintain an amortization period of 30 years or less in the funding of the Unfunded Actuarial Accrued Liability. Whenever a change is made in the System's benefit and contribution rate structures, the amortization period for the System after this change should not exceed 30 years initially.
4. If an escalation in future payroll is assumed in determining the amortization payments toward the Unfunded Actuarial Accrued Liability, then the annual rate of such escalation shall not exceed the expected rate of expansion in total System payroll based upon the actuarial assumptions.
5. Assets used in the actuarial valuation shall be valued using adjusted market values averaged over a period of five years.
6. Annual actuarial valuations shall be made of the System's assets and liabilities. The contribution rate shall be established based on the results of these valuations.

Actuarial Assumptions

(Adopted for use with the June 30, 2001 Valuation)

Investment Return

It is assumed that investments of the System will return, on average, a yield of 8% per annum compound.

Salary and Payroll Increases

Salaries are assumed to increase each year at the rate of 5%. Longevity adjustments are made for those with less than 10 years of service, as follows:

Service	Longevity Adjustment	Total Increase
0	5.00%	10.00%
1	5.00	10.00
2	3.25	8.25
3	2.50	7.50
4	2.50	7.50
5	2.25	7.25
6	2.00	7.00
7	1.75	6.75
8	1.50	6.50
9	1.00	6.00
10 & Over	0.00	5.00

Total covered payroll of the entire membership is assumed to increase 5.0% per year in the future.

Retirement Rates

Retirement is assumed in accordance with the following rates per 1,000 eligible members:

For All Member With at Least Five Years of Service	
Age	Retirement Rates
Below Age 60	0
60	250
61	250
62	250
63	250
64	300
65	400
66	300
67	300
68	300
69	300
70 and Over	1,000

For Members Who Are Below Age 60 With 30 Years of Service or Satisfy the Rule of 80

Service	Males and Females
30	500
31 and Over	250

For Members Below Age 60 with Less Than 30 Years but with at Least 25 Years of Service, Who are at Least Age 55

	Males and Females
1 st Year Eligible	400
Thereafter	200

For Members who have at least 25 years of service and are below age 55 during the 1999-2003 Period:

Service	Males and Females
25	80
26	40
27	45
28	50
29	75

For Members who do not fall into the above categories but are at least age 55 with 5 years of Service

	Males and Females
All Years Eligible	30

Withdrawal Rates

Termination of membership prior to eligibility for retirement from all causes other than death, disability or retirement is assumed in accordance with the following illustrative rates per 1,000 members:

Years of Service	Rate
0	125.0
1	95.0
2	75.0
3	60.0
4	52.5
5	45.0
10	22.5
15	13.0
20	6.0

It is assumed that 70% of those leaving after earning 5 years of service leave their contributions in the fund and receive a vested benefit.

Disability Rates

Retirement for disability prior to age 60 is assumed in accordance with the following illustrative rates per 1,000 eligible members:

<u>Age</u>	<u>Rates</u>
35	-
40	0.263
45	0.394
50	0.788
55	1.446

Mortality Rates

Mortality Rates for nondisabled retirees are based on the 1994 Group Annuity Mortality Table with male ages set back three years and female ages set back one year. Mortality for active members are based on the following percentages of retiree mortality:

Male	70%
Female	62%

Illustrative rates per 1,000 members at various ages are as follows:

Service Retired Members, Beneficiaries and Survivors

<u>Age</u>	<u>Male</u>	<u>Female</u>
20	0.430	0.280
30	0.727	0.331
40	0.891	0.652
50	1.899	1.310
60	5.581	3.863
70	18.034	12.709
80	45.171	35.362
90	115.671	104.594
100	268.815	256.712
110	441.935	464.469

Disability Retirees, Male and Female

<u>Age</u>	<u>Rate</u>
40	24.075
50	26.175
60	31.500
70	44.625
80	76.650
90	173.276
100	507.128

Interest on Member Accounts

6% per year

Service Purchases

Incremental service credits attributable to the purchase of service are not valued until all payments for the purchase of service have been made.

Rehire Liability

Inactive member liability is carried until a series of five one-year breaks in service.

Cost of Living Adjustments

The cost of living adjustment assumed in the valuation is 3.5% per year, and applies to service retirements and beneficiary annuities. The COLA does not apply to the benefits for in-service death payable to spouses (where the spouse is over age 60), and does not apply to the spouse with children pre-retirement death benefit, the dependent children pre-retirement death benefit, nor the dependent parent death benefit. The total lifetime COLA cannot exceed 80% of the original benefit.

Asset Valuation Method

The Actuarial Value of Assets is based on a five-year average of adjusted market value returns. The actuarial value for a year is computed by taking the actuarial value at June 30 of the prior year, subtracting all expenses (including benefit payments), and adding contributions and expected investment return at 8% of actuarial value of assets. The difference between the actual returns at market value for the year and expected returns is determined. Twenty percent (20%) of that difference is added to the actuarial value along with corresponding amounts from each of the prior four years.

Provisions for Expenses

There is no specific provision for expenses. The implicit assumption is that administrative expenses are paid from investment income in excess of 8% per annum.

APPENDIX F
SUMMARY OF BENEFIT PROVISIONS OF
PSRS

Member Contributions

Half the total PSRS contribution rate. The current PSRS contribution rate is 22% of pay.

Normal (Unreduced) Retirement

ELIGIBILITY

Attainment of age 60 with at least five years of Creditable Service, or
Completion of 30 years of Creditable Service at any age, or
Age plus Creditable Service is at least 80.

BENEFIT

2.5% of Final Average Salary for each year of Membership Service. Members retiring before July 1, 2008 with at least 31 years of service will receive a benefit based on 2.55%. A year of Prior Service is the equivalent of 0.6 year of Membership Service.

FINAL AVERAGE SALARY

Average monthly salary over the Member's three highest consecutive years of service.

MEMBERSHIP SERVICE

Service while a participating member of PSRS. Service is measured each year in relation to full contract salary for that year.

PRIOR SERVICE

Service in a covered position prior to July 1, 1946.

CREDITABLE SERVICE

Membership service plus any service rendered prior to PSRS inception.

NORMAL FORM OF BENEFIT

Single Life Annuity

Additional options available include joint and survivor (50%, 75%, or 100%) and term certain (60 or 120 months) and life thereafter.

Early (Age Reduced) Retirement

ELIGIBILITY

Attainment of age 55 and under age 60 with at least five years of creditable service, or at any age with at least 25 years of creditable service.

BENEFIT

Normal retirement benefit accrued to the date of early retirement, actuarially reduced from age 60.

Special Normal Retirement – Under Modified Formula

ELIGIBILITY

Retirement on or before July 1, 2008 at an age under 55 and with at least 25 years of creditable service but not eligible for the Rule of 80.

BENEFIT

Based on a percentage of final average salary per year of creditable service. Percentages are as follows:

<u>Years of Service</u>	<u>Benefit Percentage</u>
25-25.9	2.20%
26-26.9	2.25
27-27.9	2.30
28-28.9	2.35
29-29.9	2.40

POST-RETIREMENT DEATH BENEFIT

Regardless of the form of benefit selected, a lump sum benefit of \$5,000 is paid at the death of the retiree.

COLA Adjustments

In any year in which the Board determines that the CPI has increased, the Board may provide for annual increases in the current benefit of up to 5%. For any member retiring on or after July 1, 2001 such adjustments commence in the second January after commencement of benefits. The total of such increases may not exceed 80% of the original benefit for any member.

Disability Benefits

DEFINITION OF DISABILITY

Incapacitation for performance of gainful employment after completion of five years of creditable service and before age 60.

BENEFIT

Lifetime benefit equal to 90% of accrued normal retirement benefit. This benefit level is subject to a minimum of 50% salary in the last full year of membership but not greater than the member's accrued normal retirement benefit assuming continuous employment to age 60 at current pay. COLA adjustments similar to those provided retirees are provided on this benefit.

FORM OF BENEFIT

If eligible, surviving designated spouse or dependent child or parent may elect a monthly survivor benefit.

Vesting

ELIGIBILITY

Accrual of five years of creditable service.

BENEFIT

Accrued normal retirement benefit payable at earliest retirement age based on service at date of termination. Benefit is based on formula in effect at commencement of benefit.

Death / Survivor Benefits

REFUND

Refund of accumulated member contributions with interest

DEPENDENT BASED SURVIVOR BENEFITS

In lieu of the refund, survivors of a member with at least 2 years of service at death may elect the following survivor benefit package:

1. Spouse who was married to the deceased member for at least three years and with no dependent children – up to \$600 / month payable after spouse age 60 (immediately if spouse is disabled) and prior to remarriage.
2. Spouse with dependent children
 - a. Up to \$600 per month payable to spouse with at least one dependent child under age 18.
 - b. Up to an additional \$300 per month payable for each child under age 18. Benefits continue to the spouse after the child reaches age 18, up to age 22, if the child is a full time student.
 - c. Family maximum - \$1,500 per month.
3. If no surviving spouse, each eligible child receives up to \$500 per month payable as in 2.b. above, subject to a family maximum of \$1,500.
4. If no surviving spouse or children, a benefit of up to \$500 is payable to a dependent parent over age 65, subject to a maximum of \$1,000.

No COLA adjustments apply to this benefit.

RETIREMENT BASED SURVIVOR BENEFITS

In lieu of the benefits described above, if the member has at least 5 years of membership service at date of death, the designated spouse may receive a survivor benefit based on 100% J & S equivalent of the benefit accrued to date of death. The benefit may commence:

1. immediately if member is eligible to retire at date of death, or
2. at a future retirement date of the deceased member.

The benefit may be reduced for early commencement if the deceased member would not have been eligible for unreduced retirement at that date based on service to date of death.

COLA adjustments similar to those provided retirees are provided on these benefits.