
**The Report of the
June 30, 2002 Actuarial Valuation
of the
Public School Retirement
System of Missouri**

Gabriel, Roeder, Smith & Company



Actuaries & Consultants



GABRIEL, ROEDER, SMITH & COMPANY
Consultants & Actuaries

3017 Douglas Boulevard • Suite 300 • Roseville, CA 95661 • 916-774-7580

October 18, 2002

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, 2002.

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, 2002, 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,

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

J. Christian Conradi, A.S.A.
Senior Consultant

Table of Contents

Page

Summary of the Valuation

1	Purposes of the Actuarial Valuation
1	Report Highlights
3	Membership Characteristics
4	Actuarial Assumptions
4	Experience During 2002
5	PSRS Benefits
5	Asset Information
6	Funding Status
6	GASB Disclosure

Appendix A Membership Data

7	Table 1 – Number, Average Age-Service-Salary, and Total Payroll of Active Members
8	Table 2 – Employee Distribution by Age and Years of Service
9	Table 3 – Salary Distribution – Active Service
10	Table 4– Salary Increase Rates by Service Group
11	Table 5 – History of System’s Growth, Active and Inactive Membership
12	Table 6 – Pensions in Force on June 30, 2002 by Type and Monthly Amount
13	Table 7 - Pensions in Force on June 30, 2002 by Type and Age
14	Table 8 – Cost of Living Increases to Retired Members
15	Table 9 – Analysis of Retired Membership by Type of Benefit
16	Table 10 – History of System’s Growth, Service Retired
17	Table 11 – History of System’s Growth, Disability Retired

Appendix B Asset Information

18	Table 12 – Market Value of Assets, Balance Sheet
19	Table 13 – Statement of Revenue and Expenses, Market Value Reconciliation
20	Table 14 – Growth of Cash Flow
21	Table 15 – Development of the Actuarial Value of Assets
22	Table 16 – History of System’s Reserve Funds

Appendix C Actuarial Determinations

23	Table 17 – Ten Year Historical Summary
24	Table 18 – Determination of Normal Cost
25	Table 19 – Determination of the Unfunded Actuarial Accrued Liability
26	Table 20 – GASB 25 Exhibits
27	Table 21 – Calculation of Unfunded Actuarial Accrued Liability
28	Table 22 – Analysis of Actuarial Gain/Loss

Appendix D Additional Membership Data

29	Table 23 – Schedule of Active Member Valuation Data
30	Table 24 – Solvency Test
31	Table 25 – Schedule of Retirees and Beneficiaries Added to & Removed From Rolls
32	Table 26 – Schedule of Retirees by Type

Appendix E Actuarial Method and Assumptions

Appendix F Summary of Benefit Provisions of PSRS

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, 2002.

The purposes of an actuarial valuation are as follows:

- To determine the funding status of PSRS as of the valuation date,
- To establish that the current contribution level of PSRS will fund the current benefit provisions within the framework of your funding policy, 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:

	June 30, 2001	June 30, 2002
	(\$ in Millions)	
A. SUMMARY OF RESULTS		
(1) Present Value of Future Benefits for:		
(a) Active Members	\$17,376.5	\$18,658.8
(b) Retired members	9,504.9	10,589.5
(c) Inactive Members and Other Liabilities	250.0	296.4
(d) Total	27,131.4	29,544.7
(2) Present Value of Future Normal Costs	5,849.2	6,210.8
(3) Actuarial Accrued Liability: (1) – (2)	21,282.2	23,333.9
(4) Actuarial Value of Assets	21,146.3	22,236.1
(5) Unfunded Actuarial Accrued Liability: (3) – (4)	135.9	1,097.8
(6) Total Contribution Rate, Member + Employer	21.00%	21.00%
(7) Normal Cost Rate	20.46%	20.57%
(8) Approximate Rate Available for Unfunded Actuarial Accrued Liability: (6) – (7)	.54%	.43%
(9) Number of Years Required to Amortize (5) if Compensation Increases 5.0% per year	7.2	Never
(10) 30-Year Contribution Rate (or Statutory Rate if Larger)	21.00%	22.22%

	June 30, 2001	June 30, 2002
B. HIGHLIGHTS OF REPORT		
(1) Actuarial Accrued Liability Funding Ratio:		
(a) Actuarial Value of Assets	\$21,146.3	\$22,236.1
(b) Actuarial Accrued Liability	21,282.2	23,333.9
(c) Funding Ratio: (a) / (b)	99.4%	95.3%
(2) Active Members:		
(a) Number:		
Male	17,283	17,353
Female	<u>55,405</u>	<u>56,320</u>
Total	72,688	73,673
(b) Total Compensation for Fiscal Year (for Active Members at end of year):		
Male	\$ 793.8	\$ 848.0
Female	<u>2,188.3</u>	<u>2,365.5</u>
Total	2,982.1	3,213.5
(c) Average Age:		
Male	42.8	42.7
Female	<u>42.2</u>	<u>42.2</u>
Total	42.4	42.3
(d) Average Service:		
Male	12.1	11.9
Female	<u>11.1</u>	<u>11.0</u>
Total	11.3	11.2
(e) Average Compensation for Fiscal Year:		
Male	\$45,928	\$48,866
Female	<u>39,496</u>	<u>42,001</u>
Total	41,025	43,618
(f) Average Amount of Assets per Active Member (based on actuarial value, not in millions)	\$158,586	\$154,061
(3) Retired Members and Beneficiaries		
(a) Number Service Retired:		
Life Annuities	15,233	15,791
Options	<u>11,406</u>	<u>12,337</u>
Total	26,639	28,128
(b) Number Disability Retired	596	597
(c) Number Survivors, Beneficiaries	<u>1,999</u>	<u>2,140</u>
(d) Total Persons Receiving Benefits	29,234	30,865
(e) Average Monthly Pension Being Paid at Valuation Date for New Service Retired, Including Options (not in millions)	\$ 2,775	\$ 2,835
(f) Average Amount of Assets per Retired Member	\$325,132	\$343,092
(g) Average Amount of Assets per New Service Retired	\$479,805	\$489,984

Membership Characteristics

ACTIVE AND INACTIVE MEMBERSHIP

A total of 83,049 active and inactive members of PSRS are included in this 2002 actuarial valuation.

Active members	73,673
Inactive members	<u>9,376</u>
Total active and inactive members	83,049

Between the 2001 and 2002 actuarial valuations, the number of active employees increased by 985 or 1.4%. The average annual salaries of employees increased by 6.3% to \$43,618.

Summary of Changes in Membership

	Male	Female	Total
Active and Inactive Members 7/1/01	18,954	62,664	81,618
New Membership 7/1/01 to 6/30/2002	<u>1,409</u>	<u>4,619</u>	<u>6,028</u>
Total Membership Before Decreases	20,363	67,283	87,646
Decreases:			
Service Retirements	688	1,554	2,242
Disability Retirements	10	31	41
Withdrawals	477	1,302	1,779
Deaths	21	43	64
Other Terminations	67	285	352
Previous Memberships Voided	37	82	119
Reciprocity	<u>0</u>	<u>0</u>	<u>0</u>
Subtotal	1,300	3,297	4,597
Net membership 6/30/02 (includes Inactive Members)	19,063	63,986	83,049

Benefit Recipients

On June 30, 2002, PSRS was paying benefits to a total of 30,865 retired members, beneficiaries and survivors. The total number of benefit recipients increased 5.6% from 29,234 on June 30, 2001. The benefit recipients were comprised of 28,128 service retirees, 597 disability retirees, 2,140 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 2001-2002 year were as follows:

	<u>Service Retirements</u>	<u>Disability Retirements</u>	<u>Beneficiaries</u>	<u>Total</u>
Retired Members, July 1, 2002	26,639	596	1,999	29,234
Added During Year	2,252	41	246	2,539
Died During Year	(758)	(39)	(89)	(886)
Resumed Teaching During Year	(15)	(2)	(18)	(35)
Resumed Retirement	<u>10</u>	<u>1</u>	<u>2</u>	<u>13</u>
Retired Members, June 30, 2003	28,128	597	2,140	30,865

As of June 30, 2002, the average monthly benefit payable to service retirees was \$2,414 compared to \$2,306 as of June 30, 2001. These average benefit amounts and the amounts shown in the tables that follow include all post-retirement benefit increases.

Actuarial Assumptions

The actuarial cost method and assumptions used in this valuation are those disclosed in the actuarial valuation report as of June 30, 2001. This set of assumptions is described in Appendix E.

Experience During 2002

Overall the system experienced a net actuarial loss of about \$752.9 million.

The favorable markets of the late 1990's have turned. As of the valuation date, the fund has experienced 27 months of negative investment performance. While the use of a smoothing technique in the valuation of assets has mitigated the investment loss for this valuation, the full level of these losses will be felt over the next few years.

In addition to the loss from investment activities, there was a loss of \$358.9 million on liabilities.

That is, actual experience in areas other than investment return deviated from the actuarial assumptions in ways that created an additional actuarial liability of \$358.9 million over that expected using our assumptions. Most of this loss was due to pay increases that exceeded those assumed by an average of about 2.3% (actual increases of about 8.4% against assumed increases of about 6.1%). These calculations are based on a revised actuarial accrued liability for 2001 of \$21,546 million. This revised value is about 1.24% greater than that set out in the 2001 valuation report. The total net actuarial loss for the year ending June 30, 2002 is shown below:

	<u>(\$ in millions)</u>
1. Actuarial Loss on Assets (at actuarial value)	394.0
2. Actuarial Loss on Liabilities	<u>358.9</u>
3. Total Actuarial (Gain) or Loss (1+2)	752.9

PSRS Benefits

The benefits of PSRS have not changed since the last valuation.

Asset Information

The market value of the assets of the fund, which are available for benefits, has been reduced from \$20.7 billion at the end of FY 2000 to \$20.2 billion in 2001 and to 19.4 billion at the end of FY 2002. Due to the smoothing process used in the determination of the actuarial value of assets, there was an increase in the actuarial value of assets from nearly \$21.1 billion to about \$22.2 billion. However, as of June 30, 2002, the actuarial value of assets is now nearly 15% greater than the market value.

Based on the actuarial value, the assets of the fund returned about 6.1%. This is due to investment gains of prior years whose recognition had been deferred.

The detailed determinations of asset values utilized in this valuation and asset growth in the last year are set out 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 106.3% at June 30, 2000 to 99.4% at June 30, 2001 (after the 2001 legislation), and to 95.3% as of June 30, 2002.

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.

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				
	1998	1999	2000	2001	2002
Number	17,003	17,197	17,267	17,283	17,353
Average Age	43.3	43.1	43.0	42.8	42.7
Average years of Service	13.4	12.9	12.7	12.1	11.9
Average Annual Salary	\$42,694	\$43,233	\$44,521	\$45,928	\$48,866
Total Payroll (000's)	\$725,926	\$743,478	\$768,210	\$793,780	\$847,977

FEMALE

Item	Actuarial Valuation as of June 30				
	1998	1999	2000	2001	2002
Number	51,706	52,895	54,439	55,405	56,320
Average Age	42.2	42.3	42.3	42.2	42.2
Average years of Service	11.4	11.3	11.2	11.1	11.0
Average Annual Salary	\$35,811	\$36,806	\$38,014	\$39,496	\$42,001
Total Payroll (000's)	\$1,851,668	\$1,946,875	\$2,067,848	\$2,188,271	\$2,365,484

TOTAL

Item	Actuarial Valuation as of June 30				
	1998	1999	2000	2001	2002
Number	68,709	70,092	71,706	72,688	73,673
Average Age	42.5	42.5	42.5	42.4	42.3
Average years of Service	11.9	11.7	11.6	11.3	11.2
Average Annual Salary	\$37,514	\$38,383	\$39,581	\$41,025	\$43,618
Total Payroll (000's)	\$2,577,594	\$2,690,353	\$2,836,058	\$2,982,051	\$3,213,461

Table 2

**Employee Distribution by Age and Years of Service
June 30, 2002**

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Over	
20-24	1,844	-	-	-	-	-	-	1,844
25-29	7,944	1,703	-	-	-	-	-	9,647
30-34	3,629	5,261	879	-	-	-	-	9,769
35-39	2,652	2,280	2,807	792	-	-	-	8,531
40-44	2,190	2,032	1,692	2,493	945	-	-	9,352
45-49	2,051	2,181	1,840	1,566	2,775	1,348	-	11,761
50-54	1,616	1,887	1,916	1,821	1,834	3,229	841	13,144
55-59	880	942	981	1,129	1,120	940	1,008	7,000
60-64	273	260	267	391	342	285	316	2,134
65 & Over	85	56	44	60	64	64	95	468
Unknown	23							23
Total	23,187	16,602	10,426	8,252	7,080	5,866	2,260	73,673

Table 3

**Salary Distribution
Employees in Active Service
on June 30, 2002**

Annual Salary	Number	Percent
Under \$20,000	2,393	3.25%
\$20,000-24,499	1,334	1.81%
\$25,000-29,999	5,704	7.74%
\$30,000-34,999	12,014	16.31%
\$35,000-39,999	13,119	17.81%
\$40,000-44,999	10,988	14.91%
\$45,000-49,999	8,242	11.19%
\$50,000-54,999	5,771	7.83%
\$55,000-59,999	4,132	5.61%
\$60,000 & Over	<u>9,976</u>	<u>13.54%</u>
Total	73,673	100.00%

Based on compensation actually paid during the plan year.

Table 4

Salary Increase Rates by Service Group
Employees in Both 2001 & 2002 Actuarial Valuations

Service in 2001	Number	Percent Increase In Average Salary	
		Expected	Actual
1-4	19,273	8.4%	10.0%
5-9	14,632	6.7%	9.1%
10-14	10,062	5.0%	8.1%
15-19	7,723	5.0%	7.4%
20 & Over	<u>13,750</u>	<u>5.0%</u>	<u>7.2%</u>
Total	65,440	6.1%	8.4%

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

Table 6

Pensions in Force on June 30, 2002
by Type and Monthly Amount

<u>Monthly Amount</u>	<u>Service</u>	<u>Disability</u>	<u>Beneficiary</u>	<u>Survivor</u>	<u>Total</u>
Less than \$500	935	6	99	20	1,060
\$500 - 999	1,917	77	368	322	2,684
\$1,000 - 1,499	2,899	200	395	53	3,547
\$1,500 - 1,999	5,347	174	279	15	5,815
\$2,000 - 2,499	4,807	89	234	4	5,134
\$2,500 - 2,999	4,252	39	143	-	4,434
\$3,000 - 3,499	3,382	6	111	-	3,499
\$3,500 & Over	<u>4,589</u>	<u>6</u>	<u>97</u>	<u>-</u>	<u>4,692</u>
Total	28,128	597	1,726	414	30,865

Table 7

Pensions in Force on June 30, 2002
by Type and Age

Age	Service	Disability	Beneficiary	Survivor	Total
Under 55	1,641	166	113	131	2,051
55-59	4,477	109	98	27	4,711
60-64	5,345	70	144	42	5,601
65-69	4,611	67	221	42	4,941
70-74	3,946	64	295	52	4,357
75-79	2,858	42	327	27	3,254
80-84	2,326	37	240	36	2,639
85-89	1,539	27	164	30	1,760
90 & Over	<u>1,385</u>	<u>15</u>	<u>124</u>	<u>27</u>	<u>1,551</u>
Total	28,128	597	1,726	414	30,865

Table 8
Cost of Living Increases to Retired Members
June 30, 2002

Retirement In	First Increase Eff. Date	First % Increase	Total Increases Through January 2002	January 2003 Increase	Total Increases Through January 2003	Number of Retirees at 6/30/02
1973 & Earlier	Jan. 1977	2.0%	80.00%	0.00%	80.00%	752
1974	Jan. 1978	2.0%	80.00%	0.00%	80.00%	235
1975	Jan. 1979	2.0%	80.00%	0.00%	80.00%	295
1976	Jan. 1980	2.0%	80.00%	0.00%	80.00%	431
1977	Jan. 1981	4.0%	80.00%	0.00%	80.00%	394
1978	Jan. 1982	4.0%	80.00%	0.00%	80.00%	457
1979	Jan. 1983	4.0%	80.00%	0.00%	80.00%	419
1980	Jan. 1984	2.6%	76.48%	1.10%	78.42%	446
1981	Jan. 1985	4.0%	72.77%	1.10%	74.67%	574
1982	Jan. 1986	3.7%	67.06%	1.10%	68.90%	638
1983	Jan. 1987	1.7%	61.79%	1.10%	63.57%	528
1984	Jan. 1988	3.7%	59.43%	1.10%	61.18%	578
1985	Jan. 1989	4.0%	54.01%	1.10%	55.70%	674
1986	Jan. 1990	4.0%	48.37%	1.10%	50.00%	787
1987	Jan. 1991	4.0%	42.66%	1.10%	44.23%	769
1988	Jan. 1992	4.7%	37.17%	1.10%	38.68%	936
1989	Jan. 1993	3.1%	31.02%	1.10%	32.46%	832
1990	Jan. 1994	3.0%	27.08%	1.10%	28.48%	948
1991	Jan. 1995	2.5%	23.38%	1.10%	24.74%	1,015
1992	Jan. 1996	3.0%	20.37%	1.10%	21.69%	1,174
1993	Jan. 1997	2.8%	16.81%	1.10%	18.09%	981
1994	Jan. 1998	2.3%	13.68%	1.10%	14.93%	1,086
1995	Jan. 1999	1.7%	11.12%	1.10%	12.34%	1,290
1996	Jan. 2000	2.0%	9.26%	1.10%	10.46%	1,743
1997	Jan. 2001	3.7%	7.12%	1.10%	8.30%	1,702
1998	Jan. 2002	3.3%	3.30%	1.10%	4.44%	1,922
1999	Jan. 2003	1.1%		1.10%	1.10%	2,110
2000 – after 7/1	Jan. 2003	1.1%		1.10%	1.10%	2,625
2001 – after 7/1	Jan. 2003	1.1%		1.10%	1.10%	2,262
2002	Jan. 2004					122
Total						28,725

Table 9

**Analysis of Retired Membership by Type of Benefit
(Dollar Amounts in Millions)
June 30, 2002**

<u>Type of Benefit</u>	<u>Number</u>	<u>Annual Benefit</u>	<u>Total Liability</u>
Service Retirees			
Options 1 & 10 (Life Only)	15,791	419.6	4,617.7
Options 2 & 21 (100%J&S with Pop-Up)	6,504	210.1	3,040.2
Option 3 & 31 (75% J&S with Pop-Up)	1,042	37.7	561.3
Option 4 & 41(50% J&S with Pop-Up)	2,472	80.9	1,072.9
Option 5 (10 Years Certain & Life)	376	12.1	169.6
Option 6 (5 Years Certain & Life)	82	2.5	35.0
Option 20 (100% J & S)	1,217	34.5	392.3
Option 30 (75% J & S)	27	1.1	15.9
Option 40 (50% J & S)	<u>617</u>	<u>16.2</u>	<u>134.7</u>
Total	28,128	814.7	10,039.6
Disability Retirees			
	597	11.6	105.2
Beneficiaries of Retiree Deaths			
	1,726	35.7	348.0
Survivors of Active Deaths			
	414	5.0	34.0

Note: Excludes retirees returned to teaching and additional deposit annuities

Table 10

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

<u>June 30</u>	<u>Females</u>	<u>Males</u>	<u>Total Retired</u>	<u>Total Monthly Pensions</u>	<u>Average Monthly Pensions</u>	<u>Average New Pension Granted</u>
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

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 Pensions	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

Notes: 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, 2001</u>	<u>June 30, 2002</u>
ASSETS:		
Cash	\$ 44,618,633	\$ 27,773,096
Contribution Receivable	101,777,075	111,666,847
Accrued Interest and Dividends	77,268,442	89,720,380
Investments	20,368,878,935	19,806,384,374
Trades Pending	391,226,373	434,393,341
Other Assets	242,909	335,312
Furniture & Equipment	8,021,343	9,747,433
Due from NTRS	<u>74,122</u>	<u>79,234</u>
Total	\$20,922,107,832	\$20,480,100,017
LIABILITIES:		
Accounts Payable	\$ 6,399,433	\$ 6,516,231
Employer-Pay Liability	233,659	267,223
Interest Payable	245,545	311,13
Trades Pending	801,538,387	1,069,508,913
Other Liabilities	<u>2,175</u>	<u>19,619</u>
Total	\$ 808,419,199	\$ 1,076,623,119
NET ASSETS	\$20,183,688,633	\$19,403,476,898

Table 13

**Statement of Revenue and Expenses
Market Value Reconciliation For Fiscal Year Ended June 30, 2002**

	<u>Amount</u>
Operating Revenues	
<i>Contributions:</i>	
Employers	\$ 340,000,556
Members	<u>356,684,657</u>
Total contributions	\$ 696,685,213
<i>Net Investment Income:</i>	
Interest	357,838,908
Dividends	99,211,051
Income from Security Lending Activities	<u>18,054,982</u>
Total Investment Income	\$475,104,941
Net Capital Appreciation (Depreciation)	(1,034,796,138)
Less: Investment Expenses	<u>(23,267,281)</u>
Total Investment Return	\$ (582,958,478)
Other Income	<u>2,761,581</u>
Total Operating Revenues	\$116,488,316
Operating Expenses	
Benefit Payments	860,434,779
Refunds to Members	31,779,306
Administrative Expenses	4,439,493
Other	<u>46,473</u>
Total Operating Expenses	\$ 896,700,051
Excess of Revenues over Expenses	(780,211,735)
Fund Balance, June 30, 2001	<u>\$20,183,688,633</u>
Fund Balance, June 30, 2002	<u>\$19,403,476,898</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)	\$ 97,356	\$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)	(474,087)	88,264	2,577,594	18.4
1999	589,882	(565,662)	(3,141)	(568,803)	21,079	2,690,007	21.0
2000	624,524	(675,079)	(3,712)	(678,791)	(54,267)	2,836,065	(1.9)
2001	658,801	(784,938)	(4,009)	(788,947)	(129,146)	2,982,051	(4.3)
2002	696,685	(892,214)	(4,486)	(896,700)	(200,015)	3,213,461	(6.2)

Table 15

Development of the Actuarial Value of Assets

1. Valuation Assets June 30, 2001		\$21,146,294,308
2. Activity for FY 2002		
a. Contributions	\$ 696,685,213	
b. Benefits and Expenses	(896,700,051)	
c. Net Cash Flow	<u>(200,014,838)</u>	
3. Expected Returns	1,683,856,866	
4. Valuation Assets Before Allocation of G/L (1+2+3)		22,630,136,336
5. Actual Returns for 2002	(582,958,478)	
6. Excess Returns for 2002 (5-3)	(2,266,815,344)	
7. Recognized Excess Returns		
2002	(453,363,069)	
2001	(391,416,658)	
2000	16,068,450	
1999	119,365,867	
1998	315,314,290	
Total		<u>(394,031,120)</u>
8. Actuarial Value of Assets June 30, 2002		\$22,236,105,216

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

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)**

	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
Active Members	58,493	60,595	62,854	64,624	66,456	68,709	70,092	71,706	72,688	73,673
Retired Members	19,519	19,982	20,642	21,706	22,730	23,955	25,339	27,238	29,234	30,865
Actuarial Assets	\$7,787,379	\$9,177,070	\$10,193,084	\$11,510,625	\$13,099,219	\$14,979,358	\$17,209,870	\$19,437,223	\$21,146,294	\$22,236,105
UAAL	1,169,109	792,689	788,738	721,121	(650,041)	(508,309)	(836,726)	(1,158,110)	135,909	1,097,832
Benefit Payments and Refunds	(270,529)	(290,636)	(320,343)	(372,954)	(425,848)	(474,087)	(568,803)	(675,079)	(784,938)	(892,214)
Accumulated Members' Contributions	\$2,384,406	\$2,616,067	\$2,856,389	\$3,098,448	\$3,312,090	\$3,541,459	\$3,765,854	\$3,976,059	\$4,129,191	\$4,354,507
APV of Retirees' Benefits	\$2,980,210	\$3,206,061	\$3,705,807	\$4,265,851	\$4,553,628	\$5,523,768	\$6,603,148	\$7,801,845	\$9,504,921	\$10,589,546

Table 18

**Determination of Normal Cost
June 30, 2002
For the 2003 Plan Year**

	<u>Dollar</u>	<u>Rate</u>
Active Members		
Retirement Benefits	\$ 602,267,818	18.74%
Termination Benefits	45,735,570	1.42
Death Benefits	6,849,316	0.21
Disability Benefits	<u>6,349,402</u>	<u>0.20</u>
Total Normal Cost	\$ 661,202,106	20.57%
Estimated Employee Contributions	<u>337,413,289</u>	
Employer Normal Cost	\$ 323,788,817	
(Total Normal Cost less Employee Contributions)		

Table 19

**Determination of the Unfunded Actuarial Accrued Liability
June 30, 2002**

Active Members:	
Service Retirement	\$12,378,267,249
Termination Benefits	(53,578,395)
Death Benefits	65,345,494
Disability Benefits	57,968,620
Inactives	296,388,994
Total for Active and Inactive Members	\$12,744,391,972
Pay Status Members:	
Service Retirees	10,051,969,685
Disability Retirees	105,164,174
Survivors	382,058,037
Tax-sheltered Annuitants	1,276,650
Death Benefit	<u>49,077,059</u>
Total for Pay Status Members	10,589,545,605
Total Actuarial Accrued Liability	23,333,937,577
Actuarial Value of Assets	<u>22,236,105,216</u>
Total Unfunded Actuarial Accrued Liability	\$1,097,832,361

**Table 20
GASB 25 Exhibits**

**Schedule of Funding Progress
(\$ in 000's)**

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
6/30/96	11,510,625	12,231,746	721,121	94.1	2,283,994	31.6
6/30/97	13,099,219	12,449,178	(650,041)	105.2	2,427,429	(26.8)
6/30/98	14,979,358	14,471,049	(508,309)	103.5	2,577,594	(19.7)
6/30/99	17,209,870	16,373,144	(836,726)	105.1	2,690,007	(31.1)
6/30/00	19,437,223	18,279,113	(1,158,110)	106.3	2,836,062	(40.8)
6/30/01	21,146,294	21,282,203	135,909	99.4	2,982,051	4.6
6/30/02	22,236,105	23,333,937	1,097,832	95.3	3,213,461	34.2

Schedule of Employer Contributions

Actuarial Valuation Date	Annual Required Contribution	Percentage Contributed
6/30/96	238,630,542	100.0
6/30/97	251,957,622	100.0
6/30/98	273,125,719	100.0
6/30/99	287,698,736	100.0
6/30/00	304,944,352	100.0
6/30/01	324,525,673	100.0
6/30/02	340,000,556	100.0

Notes in Trend Data:

Information:	Data
Valuation Date	6/30/02
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percent, Open
Remaining Amortization Period (years)	30
Asset Valuation Method	5-Year Smoothed Market
Actuarial Assumptions:	
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, 2002**

	<u>Amount</u>
(1) Present Value of Future Benefits for:	
Active Members	\$18,658,799,822
Service Retirees	10,051,969,685
Disability Retirees	105,164,174
Tax-sheltered Annuitants	1,276,650
Survivors	382,058,037
Death Benefits	49,077,059
Inactive Members	<u>296,388,994</u>
Total	29,544,734,421
(2) Present Value of Future Normal Costs	<u>6,210,796,844</u>
(3) Actuarial Accrued Liability ((1)-(2))	23,333,937,577
(4) Actuarial Value of Assets	<u>22,236,105,216</u>
(5) Unfunded Actuarial Accrued Liability ((3)-(4))	\$ 1,097,832,361

**Required Contribution Rate & Amortization of Unfunded Liability
June 30, 2002**

	<u>Percentage of Payroll</u>
(1) Total Contribution Rate, Member + Employer	21.00%
(2) Normal Cost Rate	20.57
(3) Approximate Rate Available for Unfunded Actuarial Accrued Liability ((1)-(2))	0.43
(4) Number of Years Required to Amortize Unfunded Actuarial Accrued Liability	Never
(5) Benchmark Contribution Rate – Normal Cost Plus a Rate to fund UAAL over 30 years	22.22%

Table 22

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

	<u>Amount</u>
1. Unfunded Actuarial Liability as of June 30, 2001 (rev.)	399,702
2. Normal Cost for 2001 Plan Year	(613,173)
3. Contribution Received during Year	(696,685)
4. Interest to Year End @ 8.00% on 1., 2., and 3.	+ 28,700
5. Expected Unfunded Actuarial Liability as of June 30, 2002	344,890
6. Actuarial (Gain)/Loss During the Year	
a. From Investment	394,031
b. From Actuarial Liabilities	<u>358,911</u>
c. Total	752,942
7. Actual Unfunded Actuarial Liability as of June 30, 2002	1,097,832

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
6/30/91	56,908	\$1,750,191	\$30,755	4.0%	42.0	12.1
6/30/92	57,711	1,809,458	31,354	1.9	42.2	12.2
6/30/93	58,493	1,867,948	31,935	1.9	42.3	12.3
6/30/94	60,595	1,996,908	32,955	3.2	42.5	12.3
6/30/95	62,854	2,137,134	34,002	3.2	42.5	12.3
6/30/96	64,624	2,283,994	35,343	3.9	42.6	12.3
6/30/97	66,456	2,427,429	36,527	3.3	42.5	12.1
6/30/98	68,709	2,577,594	37,514	2.7	42.5	11.9
6/30/99	70,092	2,690,353	38,383	2.3	42.5	11.7
6/30/00	71,706	2,836,062	39,581	3.1	42.5	11.6
6/30/01	72,688	2,982,051	41,025	3.7	42.4	11.3
6/30/02	73,673	3,213,461	43,618	6.3	42.4	11.2

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)
6/30/92	2,191,277	2,635,808	3,544,964	6,878,981	100.00	100.00	57.9
6/30/93	2,384,406	2,980,210	3,591,872	7,787,379	100.00	100.00	67.5
6/30/94	2,616,067	3,206,061	4,147,631	9,177,070	100.00	100.00	80.9
6/30/95	2,856,389	3,705,807	4,419,626	10,193,084	100.00	100.00	82.2
6/30/96	3,098,448	4,265,851	4,867,447	11,510,625	100.00	100.00	85.2
6/30/97	3,312,090	4,553,628	4,583,460	13,099,219	100.00	100.00	100.0
6/30/98	3,541,459	5,523,768	5,405,822	14,979,358	100.00	100.00	109.4
6/30/99	3,765,854	6,602,915	5,305,210	17,209,870	100.00	100.00	113.9
6/30/00	3,976,059	7,801,845	6,501,209	19,437,223	100.00	100.00	117.8
6/30/01	4,129,191	9,504,921	7,648,091	21,146,294	100.00	100.00	98.2
6/30/02	4,354,507	10,589,546	8,389,885	22,236,105	100.00	100.00	86.9

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 Year
6/30/89	1,064	513	16,462	31	30	543	N/A	N/A	N/A
6/30/90	949	532	16,879	37	28	552	N/A	N/A	N/A
6/30/91	1,067	563	17,383	28	25	555	N/A	N/A	N/A
6/30/92	1,119	599	17,903	33	43	545	N/A	N/A	N/A
6/30/93	1,269	554	18,618	45	30	560	110	63	1,259
6/30/94	1,021	676	18,963	35	39	556	130	63	1,326
6/30/95	1,141	680	19,424	34	32	558	152	66	1,412
6/30/96	1,344	693	20,075	44	35	567	150	72	1,490
6/30/97	1,797	732	21,140	30	31	566	170	74	1,586
6/30/98	1,757	728	22,169	27	32	561	187	82	1,691
6/30/99	1,965	748	23,386	41	33	569	182	82	1,791
6/30/00	2,136	763	24,759	43	32	580	187	79	1,899
6/30/01	2,639	759	26,639	45	29	596	189	89	1,999
6/30/02	2,262	773	28,128	42	41	597	248	107	2,140

Table 26
Schedule of Retirees by Type

Actuarial Valuation Date	Service Retirees		Disability Retirees		Beneficiaries	
	Number	Benefits	Number	Benefits	Number	Benefits
6/30/91	17,383	184,744	555	4995	1,196	7,078
6/30/92	17,903	210,379	545	5392	1,262	8,149
6/30/93	18,618	234,933	560	5826	1,303	9,299
6/30/94	18,963	254,957	556	6102	1,372	10,373
6/30/95	19,424	281,897	558	6427	1,412	11,821
6/30/96	20,075	329,115	567	7180	1,490	13,403
6/30/97	21,140	377,172	566	7520	1,586	15,874
6/30/98	22,169	454,512	561	8349	1,691	20,048
6/30/99	23,386	542,071	569	9,338	1,793	29,625
6/30/00	24,759	623,827	580	10,088	1,899	30,843
6/30/01	26,639	737,218	596	11,154	1,999	36,769
6/30/02	28,128	814,734	597	11,590	2,140	40,743

Average New Retiree Statistics

Actuarial Valuation Date	Regular Retirement Benefit	% Increase From Previous Year	Age	Creditable Service
6/30/91	1,763.43	8	59.5	28.4
6/30/92	1,716.78	(3)	59.3	27.8
6/30/93	1,854.29	7	59.0	26.8
6/30/94	2,096.35	12	58.8	27.8
6/30/95	2,013.36	(3)	58.7	26.8
6/30/96	2,182.88	8	56.3	27.8
6/30/97	2,005.00	(8)	56.4	N/A
6/30/98	2,300.19	15	57.1	N/A
6/30/99	2,488.36	8	57.0	N/A
6/30/00	2,683.72	8	57.0	25.6
6/30/01	2,775.17	3	56.7	26.5
6/30/02	2,834.93	2	56.6	26.5

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
BelowAge60	0
60	250
61	250
62	250
63	250
64	300
65	400
66	300
67	300
68	300
69	300
70andOver	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:

Age	Rates
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

Age	Male	Female
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

Age	Rate
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 21% of pay.

Normal (Unreduced) Retirement

ELIGIBILITY

Attainment of age 60 with at least five years of Creditable Service, or

Attainment of age 55 with at least 25 years of Creditable Service, or

Attainment of age 55 and the total of age and Creditable Service is at least 80, or

Completion of 30 years of Creditable Service at any age.

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 .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 7-1-2003 at an age under 55 but with at least 25 years of creditable service but less than 30.

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.