

**PUBLIC EDUCATION EMPLOYEE RETIREMENT SYSTEM  
OF MISSOURI**  
ACTUARIAL VALUATION AS OF JUNE 30, 2008

October 17, 2008

Board of Trustees  
Public Education Employee Retirement System of Missouri  
3210 W. Truman Blvd.  
Jefferson City, MO 65109

Dear Members of the Board:

We are pleased to present the report of the actuarial valuation of the Public Education Employee Retirement System of Missouri ("PEERS") as of June 30, 2008.

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

This valuation is based on the provisions of PEERS in effect as of June 30, 2008, data on the PEERS membership and information on the asset value of the trust fund. All member data and asset information were provided by PEERS 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 the same as those used in the prior actuarial valuation of PEERS.

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. One or more of the undersigned are members of the American Academy of Actuaries (M.A.A.A.), as indicated and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

Respectfully submitted,

Gabriel, Roeder, Smith & Company



Alex Rivera, F.S.A., M.A.A.A.  
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## **SUMMARY OF THE VALUATION**

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# PURPOSES OF THE ACTUARIAL VALUATION

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At your request we have performed the actuarial valuation of the Public Education Employee Retirement System of Missouri (“PEERS”) as of June 30, 2008.

The purposes of an actuarial valuation are as follows:

- To determine the funding status of PEERS 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, 2010, under the statute, and
- To provide accounting and other data required by PEERS.

## REPORT HIGHLIGHTS

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The key results of the valuation are summarized in the following table:

	<u>June 30, 2007</u>	<u>June 30, 2008</u>
	<u>(\$ in Millions)</u>	
<b>A. Summary of Results</b>		
(1) Present Value of Future Benefits for:		
(a) Active Members	\$ 2,863.4	\$ 3,122.5
(b) Retired members	1,093.7	1,215.0
(c) Inactive Members and Other Liabilities	<u>85.9</u>	<u>108.1</u>
(d) Total	\$ 4,043.0	\$ 4,445.6
(2) Present Value of Future Normal Costs	\$ 1,060.1	\$ 1,167.0
(3) Actuarial Accrued Liability: (1) – (2)	\$ 2,982.9	\$ 3,278.6
(4) Actuarial Value of Assets	\$ 2,481.6	\$ 2,703.8
(5) Unfunded Actuarial Accrued Liability: (3) – (4)	\$ 501.3	\$ 574.8
(6) Total Contribution Rate, Member + Employer	12.00%	12.50%
(7) Normal Cost Rate	11.04%	11.23%
(8) Approximate Rate Available for Unfunded Actuarial Accrued Liability: (6) – (7)	0.96%	1.27%
(9) 30-Year Contribution Rate	12.98%	13.29%
(10) Recommended Contribution Fiscal Year End 2009 and 2010 Based on Statutes	12.50%	13.00%

**B. Highlights of Report**

(1) Actuarial Accrued Liability Funding Ratio:		
(a) Actuarial Value of Assets	\$2,481.6	\$2,703.8
(b) Actuarial Accrued Liability	2,982.9	3,278.6
(c) Funding Ratio: (a) / (b)	83.2%	82.5%
(2) Active Members:		
(a) Number:		
Male	12,013	12,481
Female	<u>37,268</u>	<u>38,384</u>
Total	49,281	50,865
(b) Total Compensation for Fiscal Year (for Active Members at end of year):		
Male	384.6	417.5
Female	<u>890.6</u>	<u>960.1</u>
Total	1,275.2	1,377.6
(c) Average Age:		
Male	47.4	47.6
Female	46.3	46.5
Total	46.6	46.8
(d) Average Service:		
Male	7.1	7.0
Female	7.3	7.4
Total	7.2	7.3
(e) Average Compensation for Fiscal Year (not in millions):		
Male	\$32,012	\$33,447
Female	23,898	25,012
Total	\$25,876	\$27,082
(f) Average Amount of Assets per Active Member (based on actuarial value, not in millions)	\$26,420	\$27,144
(3) Retired Members and Beneficiaries		
(a) Number Service Retired:		
Life Annuities	11,652	11,967
Options	<u>4,357</u>	<u>4,729</u>
Total	16,009	16,696
(b) Number Disability Retired	489	514
(c) Number Survivors, Beneficiaries	<u>1,041</u>	<u>1,078</u>
(d) Total Persons Receiving Benefits	17,539	18,288
(e) Average Monthly Pension Being Paid at Valuation Date for New Service Retired, Including Options (not in millions)	718	761
(f) Average Amount of Assets per Retired Member (based on actuarial value, not in millions)	\$62,355	\$66,439
(g) Average Amount of Assets per New Service Retired (based on actuarial value, not in millions)	\$114,484	\$106,101

# MEMBERSHIP CHARACTERISTICS

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## Active and Inactive Membership

A total of 67,488 active and inactive members of PEERS are included in this 2008 actuarial valuation.

Active members	50,865
Inactive members	<u>16,623</u>
Total active and inactive members	67,488

Between the 2007 and 2008 actuarial valuations, the number of active employees increased by 1,584 or 3.21%. The average annual salaries of employees increased by 4.7% to \$27,082.

### Summary of Changes in Membership

	Male	Female	Total
Active and Inactive Members 7/1/2007	16,204	50,491	66,695
New Membership 7/1/2007 to 6/30/2008	<u>2,463</u>	<u>6,098</u>	<u>8,561</u>
Total Membership Before Decreases	18,667	56,589	75,256
Decreases:			
Service Retirements	347	895	1,242
Disability Retirements	13	33	46
Withdrawals	1,413	3,739	5,152
Deaths	100	79	179
Other Terminations	348	705	1,053
Previous Memberships Voided	39	55	94
Reciprocity	<u>1</u>	<u>1</u>	<u>2</u>
Subtotal	2,261	5,507	7,768
Net membership 6/30/2008 (includes Inactive Members)	16,406	51,082	67,488

## Benefit Recipients

On June 30, 2008, PEERS was paying benefits to a total of 18,288 retired members, beneficiaries and survivors. The total number of benefit recipients increased 4.3% from 17,539 on June 30, 2007. The benefit recipients were comprised of 16,696 service retirees, 514 disability retirees, and 1,078 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 2007-2008 year were as follows:

	<u>Service Retirements</u>	<u>Disability Retirements</u>	<u>Beneficiaries</u>	<u>Total</u>
Retired Members, July 1, 2007	16,009	489	1,041	17,539
Added During Year	1,245	46	99	1,390
Died During Year	(542)	(21)	(57)	(620)
Resumed Retirement During Year	11	0	0	11
Resumed Employment During Year	(27)	0	(5)	(32)
Retired Members, June 30, 2008	16,696	514	1,078	18,288

As of June 30, 2008, the average monthly benefit payable to new service retirees was \$761 compared to \$718 as of June 30, 2007. These average benefit amounts and the amounts shown in the tables that follow include all post-retirement benefit increases.

## **ACTUARIAL ASSUMPTIONS AND METHODS**

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The actuarial assumptions used in this valuation are the same as those disclosed in the actuarial valuation report as of June 30, 2007. This set of assumptions and methods is described in Appendix E.

## **EXPERIENCE DURING FY 2008**

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Overall the system experienced a net actuarial loss of about \$58.9 million.

The total net actuarial loss for the year ending June 30, 2008, is shown below and is broken out further in Table 18:

	<u>(\$ in millions)</u>
1. Actuarial (Gain) or Loss on Assets (at actuarial value)	\$2.4
2. Actuarial (Gain) or Loss on Liabilities Due to actual COLA vs. 3.25% expected (2.7% Jan. 2008, 5.0% Jan. 2009)	7.9
3. Actuarial (Gain) or Loss on Unfunded Liabilities Due to Reinstated and Purchased Service	5.1
4. Actuarial (Gain) or Loss on Liabilities Due to Legislative Changes	0.0
5. Actuarial (Gain) or Loss on Liabilities Due to Salary, Demographic and Other Experience	43.5
6. Total Actuarial (Gain) or Loss (Sum 1-5)	\$58.9



The PEERS investment return was about \$(131) million, compared with an expected return on the actuarial value of \$200 million resulting in a total loss of approximately \$330 million. The use of the five-year smoothing method to determine the actuarial value of assets recognizes 20% of this loss. Thus, the actuarial loss on investments was \$ 2.4 million as shown above.

COLA increases were more than expected, producing a loss of \$7.9 million. The reinstatement of forfeited service generated a liability loss of approximately \$1.54 million which was offset by member contributions of \$0.44 million, producing a net increase in the unfunded actuarial liability of \$1.10 million. The purchase of service other than reinstated service generated a liability loss of approximately \$7.06 million which was offset by member contributions of \$3.01 million, producing a net increase in the unfunded actuarial liability of \$4.05 million.

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## **PEERS BENEFITS**

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A summary of the current benefit provisions appears in Appendix F. There were no changes to the benefit provisions of PEERS during the 2008 session of the Legislature which impact the results of this valuation.

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## **ASSET INFORMATION**

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The market value of the assets of the fund which are available for benefits has been reduced from \$2.681 billion as of June 30, 2007 to \$2.576 billion as of June 30, 2008. The actuarial value of assets increased from \$2.482 billion as of June 30, 2007, to \$2.704 billion as of June 30, 2008. On a market value basis there was a \$346 million loss and the actuarial value of assets now exceeds the market value by \$128 million.

Based on the actuarial value, the assets of the fund returned about 7.9% which compares to the market value return of -4.85%. The difference is due to the deferral of investment losses from the current year's return and recognition of prior year's gains 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.

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## **FUNDING STATUS**

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The funding status of PEERS 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 PEERS actuarial accrued liability funding ratio dropped from 83.2% at June 30, 2007, to 82.5% as of June 30, 2008. A significant portion of the decrease is due to demographic and other experience.

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## **GASB DISCLOSURE**

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PEERS produces its accounting statements under the terms of GASB Statement Number 25. In Table 16, you will find Required Supplemental Information mandated by that statement.

This information is presented in draft form for review by the System’s auditor. Please let us know if there are any changes so that we may maintain consistency with the System’s financial statements.

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## **FUNDING PROCESS**

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

1. The limitation on the total contribution rate (10% 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 0.5% of pay.

As a result, the total contribution rate for the 2010 fiscal year may not increase by more than 0.5% of pay over the rate for the current fiscal year.

In the 2007 session of the Legislature the unfunded actuarial accrued liabilities associated with benefit changes shall be amortized over a twenty-year period. This provision had no impact on the contribution requirements of the plan, which were already limited by the annual increase limitation of 0.5% of pay established in the 2003 session of the legislature.

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## **APPENDICES**

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**APPENDIX A**  
**MEMBERSHIP DATA**

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

<b>Item</b>	<b>Actuarial Valuation as of June 30</b>				
	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Number	11,346	11,492	11,818	12,013	12,481
Average Age	46.9	47.5	47.3	47.4	47.6
Average Years of Service	6.8	6.9	7.0	7.1	7.0
Average Annual Salary	\$26,265	\$27,708	\$30,652	\$32,012	\$33,447
Total Payroll (000's)	\$298,006	\$318,421	\$362,245	\$384,561	\$417,454

**Female**

<b>Item</b>	<b>Actuarial Valuation as of June 30</b>				
	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Number	34,534	35,106	36,370	37,268	38,384
Average Age	46.0	46.3	46.1	46.3	46.5
Average Years of Service	7.0	7.2	7.2	7.3	7.4
Average Annual Salary	\$19,889	\$20,987	\$22,787	\$23,898	\$25,012
Total Payroll (000's)	\$686,860	\$736,783	\$828,749	\$890,638	\$960,052

**Total**

<b>Item</b>	<b>Actuarial Valuation as of June 30</b>				
	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Number	45,880	46,598	48,188	49,281	50,865
Average Age	46.2	46.6	46.4	46.6	46.8
Average Years of Service	7.0	7.1	7.1	7.2	7.3
Average Annual Salary	\$21,466	\$22,645	\$24,716	\$25,876	\$27,082
Total Payroll (000's)	\$984,866	\$1,055,204	\$1,190,994	\$1,275,199	\$1,377,506

**Table 2**  
**Employee Distribution by Age and Years of Service**  
**June 30, 2008**

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Over	
Under 20	68	0	0	0	0	0	0	68
20-24	1,703	16	0	0	0	0	0	1,719
25-29	2,764	377	9	0	0	0	0	3,150
30-34	2,892	808	140	1	0	0	0	3,841
35-39	3,203	1,115	389	87	0	0	0	4,794
40-44	3,436	1,900	816	256	108	10	0	6,526
45-49	3,429	2,566	1,544	523	258	164	15	8,499
50-54	2,747	2,267	1,800	853	436	209	86	8,398
55-59	2,007	1,531	1,260	920	610	219	104	6,651
60-64	1,401	1,041	766	525	403	220	129	4,485
65 & Over	870	747	424	223	190	131	149	2,734
Unknown	0	0	0	0	0	0	0	0
Total	24,520	12,368	7,148	3,388	2,005	953	483	50,865

**Table 3**

**Salary Distribution  
Employees in Active Service  
on June 30, 2008**

<b>Annual Salary</b>	<b>Number</b>	<b>Percent</b>
Under \$10,000	4,817	9.5%
\$10,000 - 12,499	2,526	5.0%
\$12,500 - 14,999	3,308	6.5%
\$15,000 - 17,499	4,357	8.6%
\$17,500 - 19,999	4,554	9.0%
\$20,000 - 22,499	4,590	9.0%
\$22,500 - 24,999	4,139	8.1%
\$25,000 - 27,499	3,363	6.6%
\$27,500 - 29,999	3,173	6.2%
\$30,000 - 32,499	2,766	5.4%
\$32,500 - 34,999	2,345	4.6%
\$35,000 - 37,499	2,191	4.3%
\$37,500 - 39,999	1,675	3.3%
\$40,000 - 42,499	1,364	2.7%
\$42,500 - 44,999	1,217	2.4%
\$45,000 & Over	<u>4,480</u>	<u>8.8%</u>
Total	50,865	100.0%

**Table 4**

**Salary Increase Rates by Service Group  
Employees in Both 2007 & 2008 Actuarial Valuations**

<b>Service in 2007</b>	<b>Number</b>	<b>Percent Increase In Average Salary</b>	
		<b>Actual</b>	<b>Expected</b>
1-4	15,193	10.19%	7.01%
5-9	11,781	7.00%	5.48%
10-14	6,122	6.26%	5.00%
15-19	3,120	5.91%	5.00%
20 & Over	<u>2,870</u>	<u>5.29%</u>	<u>5.00%</u>
Total	39,086	7.91%	6.14%



**Table 5**

**Pensions in Force on June 30, 2008  
by Type and Monthly Amount**

<u>Monthly</u>	<u>Service</u>	<u>Disability</u>	<u>Beneficiary</u>	<u>Total</u>
Less than \$100	1,536	34	158	1,728
\$100 - 199	3,293	131	263	3,687
\$200 - 299	2,551	111	205	2,867
\$300 - 399	1,840	71	145	2,056
\$400 - 499	1,405	43	99	1,547
\$500 - 999	3,825	116	150	4,091
\$1,000 – 1,499	1,311	7	37	1,355
\$1,500 & Over	<u>935</u>	<u>1</u>	<u>21</u>	<u>957</u>
Total	16,696	514	1,078	18,288

**Table 6****Pensions in Force on June 30, 2008  
by Type and Age**

<b>Age</b>	<b>Service</b>	<b>Disability</b>	<b>Beneficiary</b>	<b>Total</b>
Under 55	133	138	112	383
55-59	789	104	59	952
60-64	2,633	117	86	2,836
65-69	3,665	72	142	3,879
70-74	3,244	51	196	3,491
75-79	2,683	22	185	2,890
80-84	1,886	5	165	2,056
85-89	1,136	3	103	1,242
90 & Over	<u>527</u>	<u>2</u>	<u>30</u>	<u>559</u>
Total	16,696	514	1,078	18,288

**Table 7**

**Cost of Living Increases to Retired Members  
June 30, 2008**

<b>Retirement In</b>	<b>First Increase Effective Date</b>	<b>Percentage Increase</b>	<b>Total Increases Through January 2008</b>	<b>January 2009 Increase</b>	<b>Total Increases Through January 2009</b>	<b>Number of Retired Members at 6/30/08</b>
1984 & Earlier	Various	Various	80.00%	0.00%	80.00%	955
1985	Jan. 1989	4.00%	79.16%	0.47%	80.00%	255
1986	Jan. 1990	4.00%	72.55%	4.32%	80.00%	281
1987	Jan. 1991	4.00%	65.91%	5.00%	74.21%	278
1988	Jan. 1992	4.00%	59.50%	5.00%	67.48%	391
1989	Jan. 1993	3.10%	53.38%	5.00%	61.05%	395
1990	Jan. 1994	3.00%	48.79%	5.00%	56.23%	470
1991	Jan. 1995	2.50%	44.46%	5.00%	51.68%	455
1992	Jan. 1996	3.00%	40.92%	5.00%	47.97%	513
1993	Jan. 1997	2.80%	36.82%	5.00%	43.66%	511
1994	Jan. 1998	2.30%	33.08%	5.00%	39.73%	581
1995	Jan. 1999	1.70%	30.09%	5.00%	36.59%	632
1996	Jan. 2000	2.00%	27.90%	5.00%	34.30%	674
1997	Jan. 2001	3.70%	25.41%	5.00%	31.68%	745
1998	Jan. 2002	3.30%	20.93%	5.00%	26.98%	744
1999	Jan. 2003	1.10%	17.08%	5.00%	22.93%	837
2000	Jan. 2004	2.10%	15.80%	5.00%	21.59%	885
2001	Jan. 2005	3.30%	13.41%	5.00%	19.08%	866
2002	Jan. 2006	2.50%	9.80%	5.00%	15.29%	924
2003	Jan. 2007	4.30%	7.12%	5.00%	12.48%	996
2004	Jan. 2008	2.70%	2.70%	5.00%	7.84%	1,051
2005	Jan. 2009	5.00%		5.00%	5.00%	1,074
2006						1,095
2007						1,263
2008						339
<b>Total</b>						<b>17,210</b>

**Table 8**

**Analysis of Retired Membership by Type of Benefit**  
**(Dollar Amounts in Millions)**  
**June 30, 2008**

<b>Type of Benefit</b>	<b>Number</b>	<b>Annual Benefit</b>	<b>Total Liability</b>
Service Retirees			
Options 1 & 10 (Life Only)	11,967	69.4	705.8
Options 2 & 21 (100% J&S with Pop-Up)	2,526	18.1	230.0
Option 3 & 31 (75% J&S with Pop-Up)	318	3.2	40.3
Option 4 & 41 (50% J&S with Pop-Up)	668	7.0	81.3
Option 5 (10 Years Certain & Life)	433	2.6	29.4
Option 6 (5 Years Certain & Life)	144	1.0	11.3
Option 20 (100% J & S)	201	0.9	8.0
Option 30 (75% J & S)	1	0.0	0.0
Option 40 (50% J & S)	29	0.2	1.2
Accelerated Payment	<u>409</u>	<u>3.6</u>	<u>36.5</u>
 Total	 16,696	 \$105.8	 \$1,143.9
 Disability Retirees	 514	 \$2.2	 \$21.3
 Beneficiaries of Retiree Deaths	 1,078	 \$4.6	 \$45.8

Note: Excludes retirees returned to work.

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**APPENDIX B**  
**ASSET INFORMATION**

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**Table 9****Market Value of Assets  
Balance Sheet**

	<b>June 30, 2007</b>	<b>June 30, 2008</b>
<b>Assets:</b>		
Cash	\$ 11,155,973	\$ 13,656,824
Contribution Receivable	14,737,110	14,796,308
Accrued Interest and Dividends	24,718,316	15,963,556
Investments	2,661,112,814	2,564,645,329
Investment Sales – Receivable	389,156,882	257,017,695
Due to PSRS	-	-
Other Assets	17,975	41,889
Capital Assets	-	-
Prepaid Expenses	-	-
Total	<u>\$ 3,100,899,070</u>	<u>\$ 2,866,121,601</u>
<b>Liabilities:</b>		
Accounts Payable	1,920,381	1,421,358
Investment Purchases – Payable	415,766,143	284,291,457
Net OPEB Obligation	-	73,316
Other Liabilities	2,036,250	4,673,037
Total	<u>\$ 419,722,774</u>	<u>\$ 290,459,168</u>
<b>Net Assets</b>	<b>\$ 2,681,176,296</b>	<b>\$ 2,575,662,433</b>

**Table 10****Statement of Revenue and Expenses  
Market Value Reconciliation For Fiscal Year Ended June 30, 2008**

<b>Operating Revenues</b>	<b>Amount</b>
<i>Contributions:</i>	
Employers	\$ 77,988,839
Members	81,370,202
Total Contributions	<u>159,359,041</u>
<i>Net Investment Income:</i>	
Interest	23,483,346
Dividends	29,772,418
Net Income from Security Lending Activities	5,831,530
Total Investment Income	<u>59,087,294</u>
Net Capital Appreciation (Depreciation)	(183,462,063)
Less: Investment Expenses	<u>(6,244,145)</u>
Total Investment Return	<u>(130,618,914)</u>
<i>Other Income</i>	<u>396</u>
Total Operating Revenues	<u><u>28,740,523</u></u>
<b>Operating Expenses</b>	
Benefit Payments	114,063,510
Refunds to Members	15,509,484
Administrative Expenses	4,680,634
Other Expense	758
Total Operating Expenses	<u><u>134,254,386</u></u>
<b>Excess of Revenues over Expenses</b>	(105,513,863)
<b>Fund Balance, June 30, 2007</b>	2,681,176,296
<b>Fund Balance, June 30, 2008</b>	\$ 2,575,662,433

**Table 11**

**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			
1986	\$ 20,140	\$ (8,974)	(411)	\$ (9,385)	\$ 10,755	\$ 245,407	3.8 %
1987	21,986	(9,641)	(500)	(10,141)	11,845	268,173	3.8
1988	23,927	(10,886)	(538)	(11,424)	12,503	304,029	3.8
1989	26,110	(12,567)	(585)	(13,152)	12,958	331,352	4.0
1990	28,176	(14,643)	(712)	(15,355)	12,821	359,577	4.3
1991	30,505	(16,634)	(721)	(17,355)	13,150	389,080	4.5
1992	31,470	(18,858)	(813)	(19,671)	11,799	398,147	4.9
1993	32,640	(21,025)	(821)	(21,846)	10,794	415,672	5.3
1994	35,298	(23,772)	(901)	(24,673)	10,625	452,339	5.5
1995	38,706	(27,067)	(905)	(27,972)	10,734	495,449	5.6
1996	42,122	(30,338)	(1,233)	(31,571)	10,551	538,022	5.9
1997	49,009	(34,425)	(1,950)	(36,375)	12,634	556,534	6.5
1998	54,844	(38,460)	(2,652)	(41,112)	13,732	616,303	6.7
1999	60,385	(41,813)	(1,604)	(43,417)	16,967	685,272	6.3
2000	68,684	(51,432)	(1,920)	(53,352)	15,332	735,362	7.3
2001	75,434	(58,239)	(2,246)	(60,485)	14,949	814,158	7.4
2002	91,990	(67,737)	(2,574)	(70,311)	21,679	895,420	7.8
2003	97,927	(75,432)	(2,946)	(78,378)	19,549	971,177	8.1
2004	100,602	(85,290)	(3,210)	(88,500)	12,102	984,866	9.0
2005	108,809	(95,798)	(3,564)	(99,362)	9,447	1,055,204	9.4
2006	129,763	(104,704)	(4,358)	(109,062)	20,701	1,190,989	9.2
2007	142,306	(116,880)	(4,427)	(121,307)	20,999	1,275,199	9.5
2008	159,359	(129,573)	(4,681)	(134,254)	25,105	1,377,506	9.7



**Table 12****Development of the Actuarial Value of Assets**

1. Valuation Assets June 30, 2007		\$ 2,481,562,443
2. Activity for FY 2008		
a. Contributions	\$ 159,359,041	
b. Benefits and Expenses	<u>(134,254,386)</u>	
c. Net Cash Flow	25,104,655	
3. Expected Returns	199,509,863	
4. Assets Before Allocation of G/L (1+2+3)		2,706,176,961
5. Actual Returns for 2008	(130,618,518)	
6. Excess Returns for 2008 (5-3)	(330,128,381)	
7. Recognized Excess Returns		
2008	(66,025,676)	
2007	38,976,583	
2006	7,179,034	
2005	4,714,942	
2004	<u>12,740,539</u>	
Total		(2,414,578)
8. Actuarial Value of Assets June 30, 2008		\$ 2,703,762,383

Note: Excess returns are total return on assets at market in excess of expected investment return at 8% on actuarial value.

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**APPENDIX C**  
**ACTUARIAL DETERMINATIONS**

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**Table 13****Ten Year Historical Summary  
(All Dollar Figures in Thousands)**

	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Active Members	41,599	43,533	45,517	46,728	46,863	45,880	46,598	48,188	49,281	50,865
Retired Members	12,461	13,061	13,673	14,270	14,837	15,445	16,142	16,760	17,539	18,288
Actuarial Assets	\$1,335,308	\$1,522,660	\$1,686,242	\$1,810,619	\$1,677,770	\$1,837,308	\$2,011,566	\$2,218,638	\$2,481,562	\$2,703,762
UAAL	(\$166,796)	(\$127,360)	(\$50,166)	\$45,363	\$371,946	\$383,902	\$402,928	\$538,195	\$501,250	\$574,840
Benefit And Refunds	\$41,813	\$51,432	\$58,239	\$67,737	\$75,432	\$85,290	\$95,798	\$104,704	\$116,880	\$129,573
Accumulated Members' Contributions	\$250,327	\$274,167	\$301,936	\$354,296	\$394,925	\$444,318	\$466,259	\$524,014	\$580,853	\$650,970
APV of Retirees' Benefits	\$396,846	\$467,653	\$565,126	\$651,295	\$731,059	\$804,864	\$904,292	\$1,020,486	\$1,093,650	\$1,215,036

**Table 14**

**Determination of Normal Cost  
June 30, 2008  
For the 2008 - 2009 Plan Year**

	<u>Dollar</u>	<u>Rate<sup>1</sup></u>
<b>Active Members</b>		
Retirement Benefits	\$ 116,334,634	9.03%
Termination Benefits	24,201,083	1.88%
Death Benefits	2,248,775	0.18%
Disability Benefits	1,865,727	0.14%
<b>Total Normal Cost</b>	\$ 144,650,219	11.23%
<b>Estimated Employee Contributions</b>	<u>80,487,240</u>	
<b>Employer Normal Cost</b>	\$ 64,162,979	
(Total Normal Cost less Employee Contributions)		

<sup>1</sup> Normal cost rate was determined using an expected payroll of \$1,287,795,839.

**Table 15**

**Determination of the Unfunded Actuarial Accrued Liability  
June 30, 2008**

**Active Members:**

Service Retirement	\$	1,935,440,984
Death Benefits		29,722,162
Disability Benefits		16,851,096
Termination Benefits		(26,496,458)
Inactives		<u>108,048,630</u>
Total for Active and Inactive Members		2,063,566,414

**Pay Status Members:**

Service Retirees		1,147,875,296
Disability Retirees		21,312,291
Survivors		<u>45,848,045</u>
Total for Pay Status Members		1,215,035,632

Total Actuarial Accrued Liability 3,278,602,046

Actuarial Value of Assets 2,703,762,383

**Total Unfunded Actuarial Accrued Liability** \$ 574,839,663

**Table 16**  
**GASB 25 Exhibits**  
**Schedule of Funding Progress**  
**(In Thousands)**

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Liability (AAL) Entry Age (b)</b>	<b>Actuarial Accrued Unfunded AAL (UAAL) (b-a)</b>	<b>Funded Ratio (a/b)</b>	<b>Covered Payroll (c)</b>	<b>UAAL as a Percentage of Covered Payroll ((b-a)/c)</b>
6/30/1999	\$1,335,308	\$1,168,511	(\$166,797)	114.3%	\$685,272	-24.3%
6/30/2000	1,522,660	1,395,300	(127,360)	109.1%	735,400	-17.3%
6/30/2001	1,686,242	1,636,076	(50,166)	103.1%	814,158	-6.2%
6/30/2002	1,810,619	1,855,982	45,363	97.6%	895,420	5.1%
6/30/2003	1,677,770	2,049,716	371,946	81.9%	971,177	38.3%
6/30/2004	1,837,308	2,221,210	383,902	82.7%	984,866	39.0%
6/30/2005	2,011,566	2,414,494	402,928	83.3%	1,055,204	38.2%
6/30/2006	2,218,638	2,756,833	538,195	80.5%	1,190,994	45.2%
6/30/2007	2,481,562	2,982,813	501,250	83.2%	1,275,199	39.3%
6/30/2008	2,703,762	3,278,602	574,840	82.5%	1,377,506	41.7%

**Schedule of Employer Contributions**

<b>Actuarial Valuation Date</b>	<b>Annual Required Contribution<sup>1</sup></b>	<b>Employer Contribution</b>	<b>Percentage Contributed</b>
6/30/1999	\$30,012,859	\$30,012,859	100.0%
6/30/2000	34,185,605	34,185,605	100.0%
6/30/2001	37,500,243	37,500,243	100.0%
6/30/2002	45,773,119	45,773,119	100.0%
6/30/2003	52,847,992	48,933,326	92.6%
6/30/2004	62,315,910	49,976,898	80.2%
6/30/2005	73,948,917	53,109,687	71.8%
6/30/2006	79,707,834	61,745,505	77.5%
6/30/2007	89,945,503	69,235,160	77.0%
6/30/2008	90,727,016	77,988,839	86.0%

<sup>1</sup> Annual Required Contribution determined by applying the 30-year contribution rate, net of the employee contribution rate, to the estimated payroll on which contributions were made. This payroll is determined using the employer contribution over the statutory employer contribution rate.

**Notes in Trend Data**

**Information:**

Valuation Date  
Actuarial Cost Method  
Amortization Method  
Remaining Amortization Period (years)  
Asset Valuation Method

**Data**

6/30/2008  
Entry Age Normal  
Level Percent, Open  
30  
5-Year Smoothed Market

**Actuarial**

Investment rate of return 8.0%  
Projected salary increases 5.0% - 10.0%  
Cost-of-living adjustments 3.25%

**Table 17**

**Calculation of Unfunded Actuarial Accrued Liability  
June 30, 2008**

	<u>Amount</u>
(1) Present Value of Future Benefits for:	
Active Members	\$ 3,122,515,675
Service Retirees	1,147,875,296
Disability Retirees	21,312,291
Survivors	45,848,045
Inactive Members	108,048,630
Total	<u>4,445,599,937</u>
(2) Present Value of Future Normal Costs	1,166,997,891
(3) Actuarial Accrued Liability ((1)-(2))	3,278,602,046
(4) Actuarial Value of Assets	2,703,762,383
(5) Unfunded Actuarial Accrued Liability ((3)-(4))	\$ 574,839,663

**Required Contribution Rate & Amortization of Unfunded Liability  
for the Fiscal Year Ending 2009**

	<u>Percentage of Payroll</u>
(1) Total Contribution Rate, Member + Employer	12.50%
(2) Normal Cost Rate <sup>1</sup>	11.23%
(3) Approximate Rate Available for Unfunded Actuarial Accrued Liability ((1)-(2))	1.27%
(4) Benchmark Contribution Rate for the System to Amortize the Unfunded Actuarial Accrued Liability in 30 Years <sup>2</sup>	13.29%

<sup>1</sup> Normal cost rate was determined using an expected payroll of \$1,287,795,839.

<sup>2</sup> Contribution rate to amortize the UAAL was determined using valuation payroll of \$1,377,506,240. The benchmark contribution shown here has been adjusted for the 20 year amortization of unfunded liabilities due to changes in benefit provisions as amended in the 2007 legislative session.

The increase in unfunded liabilities as of June 30, 2007, was \$1,120,898.

**Table 18****Analysis of Actuarial Gains and Losses**

	<u>Amount</u>
1. Unfunded Actuarial Liability as of July 1, 2007	\$ 501,250,385
2. Normal Cost for 2008 Plan Year	131,475,462
3. Contribution Expected to be Received During Year (30-Year Rate)	(168,715,855)
4. Interest to Year End @ 8.00% on 1., 2., and 3.	38,639,072
5. Expected Unfunded Actuarial Liability as of June 30, 2008	502,649,064
6. Contribution Shortfall <sup>1</sup>	13,313,680
7. Actuarial (Gain)/Loss During the Year	
a. From Investment	2,414,578
b. From Actuarial Liabilities Due to Actual vs. Expected COLA <sup>2</sup>	(3,114,817)
c. From Actuarial Liabilities Due to Actual vs. Expected COLA <sup>3</sup>	11,036,413
d. From Unfunded Actuarial Liabilities Due to Reinstated Service	1,097,416
e. From Unfunded Actuarial Liabilities Due to Other Purchased Service	4,048,698
f. From Actuarial Liabilities Due to Legislative Changes	0
g. From Actuarial Liabilities Due to Unexpected Salary Changes	11,087,163
h. From Actuarial Liabilities Due to Demographic Experience	29,684,076 <sup>4</sup>
i. From Actuarial Liabilities Due to Data and Other	2,623,392
j. Total	<u>58,876,919</u>
8. Actual Unfunded Actuarial Liability as of June 30, 2008	\$ 574,839,663

<sup>1</sup>Excludes employee contributions for purchased or reinstated service.

<sup>2</sup>For COLA granted January 1, 2008 (2.70%).

<sup>3</sup>For COLA granted January 1, 2009 (5.00%).

<sup>4</sup>Includes approximately \$15.3 million for new active members.



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**APPENDIX D**  
**ADDITIONAL DATA**

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**Table 19****Schedule of Active Member Valuation Data**

<b>Actuarial Valuation Date</b>	<b>Number of Members</b>	<b>Covered Annual Payroll (000)</b>	<b>Average Annual Salary</b>	<b>% Increase in Average Salary</b>	<b>Average Attained Age</b>	<b>Average Years of Service</b>
6/30/1991	28,554	\$389,080	\$13,626	5.1%	45.5	7.4
6/30/1992	28,410	398,147	14,014	2.8%	45.7	7.6
6/30/1993	29,055	415,672	14,306	2.1%	45.7	7.7
6/30/1994	30,662	452,339	14,752	3.1%	45.5	7.6
6/30/1995	32,598	495,449	15,199	3.0%	45.3	7.3
6/30/1996	34,153	538,022	15,753	3.6%	45.2	7.2
6/30/1997	35,982	556,534	15,467	-1.8%	45.1	7.1
6/30/1998	38,672	616,303	15,937	3.0%	44.8	6.7
6/30/1999	41,599	685,272	16,473	3.4%	44.6	6.5
6/30/2000	43,533	735,400	16,893	2.5%	44.5	6.4
6/30/2001	45,517	814,158	17,887	5.9%	44.6	6.3
6/30/2002	46,728	895,420	19,162	7.1%	44.8	6.4
6/30/2003	46,863	971,177	20,724	8.2%	45.3	6.6
6/30/2004	45,880	984,866	21,466	3.6%	46.2	7.0
6/30/2005	46,598	1,055,204	22,645	5.5%	46.6	7.1
6/30/2006	48,188	1,190,994	24,716	9.1%	46.4	7.1
6/30/2007	49,281	1,275,199	25,876	4.7%	46.6	7.2
6/30/2008	50,865	1,377,506	27,082	4.7%	46.8	7.3

**Table 20**

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

<b>Actuarial Accrued Liability</b>								
<b>Actuarial Valuation Date</b>	<b>Member Contributions (1)</b>	<b>Current Retirees &amp; Beneficiaries (2)</b>	<b>Active &amp; Inactive Members</b>		<b>Net Assets Available for Benefits</b>	<b>Percentage of Actuarial Liabilities Covered by Net Assets for:</b>		
			<b>Employer Financed Portion (3)</b>			<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
6/30/1993	140,790	196,936	277,693		583,058	100.0%	100.0%	88.3%
6/30/1994	155,238	224,650	306,192		698,988	100.0%	100.0%	104.2%
6/30/1995	169,846	252,034	364,519		778,325	100.0%	100.0%	97.8%
6/30/1996	185,763	293,937	399,861		876,886	100.0%	100.0%	99.3%
6/30/1997	204,757	312,390	447,065		1,001,035	100.0%	100.0%	108.2%
6/30/1998	225,454	350,860	460,033		1,150,311	100.0%	100.0%	124.8%
6/30/1999	231,252	396,846	540,413		1,335,308	100.0%	100.0%	130.9%
6/30/2000	274,167	467,653	653,480		1,522,660	100.0%	100.0%	119.5%
6/30/2001	301,936	565,126	769,014		1,686,242	100.0%	100.0%	106.5%
6/30/2002	354,296	651,295	850,391		1,810,619	100.0%	100.0%	94.7%
6/30/2003	394,925	731,059	923,732		1,677,770	100.0%	100.0%	59.7%
6/30/2004	444,318	804,864	972,028		1,837,308	100.0%	100.0%	60.5%
6/30/2005	466,259	904,292	1,043,943		2,011,566	100.0%	100.0%	61.4%
6/30/2006	524,014	1,020,486	1,212,333		2,218,638	100.0%	100.0%	55.6%
6/30/2007	580,853	1,093,650	1,308,310		2,481,562	100.0%	100.0%	61.7%
6/30/2008	650,970	1,215,036	1,412,596		2,703,762	100.0%	100.0%	59.3%

**Table 21**

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

<b>Actuarial Valuation Date</b>	<b>Service Retirees</b>			<b>Disability Retirees</b>			<b>Beneficiaries</b>		
	<b>Added to Rolls</b>	<b>Removed from Rolls</b>	<b>Rolls End of Year</b>	<b>Added to Rolls</b>	<b>Removed from Rolls</b>	<b>Rolls End of Year</b>	<b>Added to Rolls</b>	<b>Removed from Rolls</b>	<b>Rolls End of Year</b>
6/30/1989	703	272	7,645	24	14	151	30	1	148
6/30/1990	678	253	8,070	23	10	164	29	8	169
6/30/1991	712	277	8,505	24	13	175	54	4	219
6/30/1992	715	316	8,904	28	7	196	46	5	260
6/30/1993	689	336	9,257	26	10	215	40	7	293
6/30/1994	658	358	9,557	29	9	235	60	9	344
6/30/1995	782	372	9,967	33	19	249	54	12	386
6/30/1996	799	390	10,376	26	8	267	47	18	415
6/30/1997	823	388	10,811	22	13	276	63	18	460
6/30/1998	841	424	11,218	29	17	288	59	22	497
6/30/1999	813	431	11,600	35	7	316	67	19	545
6/30/2000	945	432	12,113	45	14	347	76	20	601
6/30/2001	987	468	12,632	53	22	378	76	14	663
6/30/2002	980	471	13,141	30	21	387	97	18	742
6/30/2003	979	501	13,619	31	13	405	96	25	813
6/30/2004	1,081	541	14,159	44	18	431	86	44	855
6/30/2005	1,116	505	14,770	43	26	448	98	29	924
6/30/2006	1,080	528	15,322	53	23	478	86	50	960
6/30/2007	1,250	563	16,009	29	18	489	120	39	1,041
6/30/2008	1,256	569	16,696	46	21	514	99	62	1,078

**Table 22**

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

<b>Actuarial Valuation Date</b>	<b><u>Service Retirees</u></b>		<b><u>Disability</u></b>		<b><u>Beneficiaries</u></b>	
	<b>Number</b>	<b>Benefits</b>	<b>Number</b>	<b>Benefits</b>	<b>Number</b>	<b>Benefits</b>
6/30/1993	9,257	16,464	215	347	293	478
6/30/1994	9,557	18,534	235	417	344	572
6/30/1995	9,967	20,842	249	481	383	699
6/30/1996	10,376	23,785	267	550	415	820
6/30/1997	10,811	27,250	276	616	460	1007
6/30/1998	11,218	30,240	288	672	497	1,126
6/30/1999	11,600	35,395	316	826	545	1,384
6/30/2000	12,113	41,091	347	1002	601	1,653
6/30/2001	12,632	50,512	378	1,232	663	2,038
6/30/2002	13,141	57,697	387	1,346	742	2,413
6/30/2003	13,619	63,860	405	1,449	813	2,752
6/30/2004	14,159	70,710	431	1,558	855	3,076
6/30/2005	14,770	78,435	448	1,709	924	3,569
6/30/2006	15,322	85,639	478	1,873	960	3,736
6/30/2007	16,009	95,809	489	2,011	1,041	4,277
6/30/2008	16,696	105,791	514	2,177	1,078	4,582

**Average New Retiree Statistics**

<b>Actuarial Valuation Date</b>	<b>New Service Retirees</b>	<b>Average New Benefit</b>	<b>% Change From Previous Year</b>
6/30/1993	597	275.23	12
6/30/1994	571	306.20	11
6/30/1995	679	298.76	(3)
6/30/1996	797	330.40	11
6/30/1997	823	327.16	(1)
6/30/1998	805	324.82	(1)
6/30/1999	813	366.42	13
6/30/2000	945	431.89	18
6/30/2001	987	565.29	31
6/30/2002	980	660.51	17
6/30/2003	979	676.19	2
6/30/2004	1,081	665.97	(2)
6/30/2005	1,116	652.87	(2)
6/30/2006	1,080	676.06	4
6/30/2007	1,250	717.59	6
6/30/2008	1,256	760.85	6

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## **APPENDIX E**

### **ACTUARIAL METHODS AND ASSUMPTIONS**

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## STATEMENT OF FUNDING POLICY

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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. The benchmark contribution shown has been adjusted for the 20 year amortization of unfunded liabilities due to changes in benefit provisions as amended in the 2007 legislative session. However, this amendment had no impact on the final contribution rates, which were limited by the annual increase limitation of 0.5% of pay established in the 2003 session of the legislature.
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, 2006, VALUATION)**

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**Investment Return**

It is assumed that investments of the System will return, on average, a yield of 8% per annum compound, net of system expenses (investment and administrative expenses).

**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.

<u>Service</u>	<u>Longevity Adjustment</u>	<u>Total Increase</u>
0	5.00%	10.00%
1	3.25	8.25
2	1.75	6.75
3	1.05	6.05
4	0.90	5.90
5	0.75	5.75
6	0.60	5.60
7	0.45	5.45
8	0.30	5.30
9	0.15	5.15
10 and Over	0.00	5.00

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



### 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>Male and Female Rates</u>
30	0.100
35	0.200
40	0.400
45	1.050
50	1.700
55	2.700

### Withdrawal Rates

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

<u>Service</u>	<u>Rate</u>
0	300.0
1	220.0
2	150.0
3	120.0
4	100.0
5	81.0
10	48.0
15	33.0
20	18.0
25	0.0

## Mortality Rates

Mortality Rates for retirees, beneficiaries, and survivors are based on the GAM94 Table with male ages set forward one year and female ages set back two years. Rates for active members are 70% of retiree rates for males and 60% of retiree rates for females. Illustrative rates per 1,000 for retirees and disabled members at various ages are as follows:

### Service Retired Members, Beneficiaries and Survivors

<u>Age</u>	<u>Male</u>	<u>Female</u>
20	0.530	0.273
30	0.821	0.314
40	1.156	0.598
50	2.872	1.206
60	8.986	3.359
70	25.951	11.763
80	68.615	31.727
90	167.260	93.820
100	333.461	237.713
110	496.356	444.368

### Disability Retired Members, 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

## Retirement Rates

Retirement rates are only applied to those eligible for retirement. Retirement is assumed in accordance with the following rates per 1,000 eligible members:

Age	Service						
	<25 <sup>2</sup>	25	26	27	28	29	30+
<50 <sup>1</sup>		50	50	50	50	50	150
50 <sup>1</sup>		50	50	50	50	50	250
51 <sup>1</sup>		50	50	50	50	250	150
52 <sup>1</sup>		50	50	50	250	150	150
53 <sup>1</sup>		50	50	250	150	150	150
54 <sup>1</sup>		50	250	150	150	150	150
55	30	270	170	170	170	170	170
56	30	170	170	170	170	170	170
57	30	170	170	170	170	170	170
58	30	170	170	170	170	170	170
59	30	170	170	170	170	170	170
60	160	160	160	160	160	160	160
61	100	100	100	100	100	100	100
62	240	240	240	240	240	240	240
63	200	200	200	200	200	200	200
64	140	140	140	140	140	140	140
65	260	260	260	260	260	260	260
66	200	200	200	200	200	200	200
67	200	200	200	200	200	200	200
68	200	200	200	200	200	200	200
69	200	200	200	200	200	200	200
70	200	200	200	200	200	200	200
71	200	200	200	200	200	200	200
72	200	200	200	200	200	200	200
73	200	200	200	200	200	200	200
74	200	200	200	200	200	200	200
75+	1000	1000	1000	1000	1000	1000	1000

<sup>1</sup> Rates for members with less than 30 years of service and not eligible under the Rule of 80 are applicable from 1999-2013

<sup>2</sup> Rates for members who are younger than 60 are for early (age reduced) retirement.

Age-based rates are increased by 10 percent at first eligibility for retirement under the Rule of 80 for participants under age 60.

### **Cost of Living Adjustments**

The cost of living adjustment assumed in the valuation is 3.25% per year. The total lifetime COLA cannot exceed 80% of the original benefit. Future COLAs for current benefit recipients reflect actual cumulative adjustments granted at the time of valuation.

### **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%. 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. The Actuarial Value of Assets has been marked to the market value as of June 30, 2003.

### **Provisions for Expenses**

The assumed investment return rate is intended to represent the net rate of return after payment of all investment and administrative expenses.

### **Beneficiaries**

Eighty percent (80%) of males and females are assumed to be married or to have eligible dependent beneficiaries. Beneficiaries are assumed to be of the opposite sex from the member. Female beneficiaries are assumed to be 3 years younger than the member, and male beneficiaries are assumed to be 3 years older than the member.

### **Joint and Survivor Election**

To recognize the subsidy present in the joint and survivor reduction factors calculated without provision for cost-of-living adjustments, the active member costs resulting from all decrements except disability and refunds were loaded by 0.75%.

### **Terminations**

Half of all active members who terminate for reasons other than death, disability or retirement are assumed to take of refund of their member account balance. The other half are expected to elect a termination benefit deferred to first unreduced retirement age. The same approach is used to value vested, inactive members.

If the present value of the deferred benefit is less than the member account balance, the value of the member account balance is valued.

### **Return of Unused Member Account Balance**

Under the single life annuity payment option, any unused balance of contributions and interest in the member account balance at the time of death is paid in a lump sum to a designated beneficiary. This benefit is approximated with a 3-year certain benefit.

### **Missing/Incomplete Data**

Members without a date of birth provided are assumed to be 30 years old. Pensionable pay for valuation purposes is assumed to be the greater of the current year's salary, the previous year's salary and \$5,000. Pensionable pay for active members hired in the current year is assumed to be the greater of annualized pay and \$5,000. Pensionable pay for valuation purposes for inactive members is assumed to be the greater of the two most recent years of salary history provided and \$5,000.

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## **APPENDIX F**

### **SUMMARY OF BENEFIT PROVISIONS OF PEERS**

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# MEMBER CONTRIBUTIONS

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Half the total PEERS contribution rate. The current total PEERS contribution rate is 12.5% of pay.

## NORMAL (UNREDUCED) RETIREMENT

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### **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**

1.61% of Final Average Salary for each year of Membership Service. A year of Prior Service is treated as 0.6 year of Membership Service. Any person retiring prior to age 62 under the Rule of 80 or with 30 years of creditable service will receive an additional benefit payable to attainment of age 62. This benefit is equal to 0.8% of Final Average Salary for each year of Membership Service.

### **Compensation**

All regular earnings as an employee of a PEERS-covered employer. Compensation or salary includes, but is not limited to, payments for extra duties, overtime payments and employer-paid medical, dental and vision insurance premiums for the member.

### **Final Average Salary**

Average monthly salary over the Member's three highest consecutive years of service. Effective August 28, 2007, the maximum increase in the annual compensation used for the final average salary shall not exceed ten percent.

### **Membership Service**

Service while a participating member of PEERS. Service is measured each year in relation to minimum salary for 20 hours per week in the position for that year.

### **Prior Service**

Service rendered in a covered position prior to November 1, 1965.

### **Creditable Service**

Membership Service plus any Prior Service.

### **Normal Form of Benefit**

#### Single Life Annuity

Options available include joint and survivor (50%, 75%, or 100%), term certain (60 or 120 months) and life thereafter, partial lump sum option (PLSO), and accelerated payment plan (APP).

## EARLY (AGE REDUCED) RETIREMENT

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### Eligibility

Attainment of age 55 and under age 60 with at least five 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

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### Eligibility

Retirement on or before July 1, 2013 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	1.51%
26-26.9	1.53
27-27.9	1.55
28-28.9	1.57
29-29.9	1.59



## COLA ADJUSTMENTS

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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 such adjustments commence in the fourth January after commencement of benefits. The total of such increases may not exceed 80% of the original benefit for any member.

## DISABILITY BENEFITS

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### **Definition of Disability**

Incapacity 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.

### **Form of Benefit**

If eligible, surviving spouse may elect a survivor benefit. COLA adjustments similar to those provided retirees are provided on this benefit.

## VESTING

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### **Eligibility**

Completion 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

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### **Refund**

Refund of accumulated member contributions with interest

### **Survivor Benefits**

If the member has at least 5 years of creditable service at date of death, the 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.