

Introductory

Financial

Investment

ACTUARIAL

Statistical



January 15, 2010

The Retirement Board

Public School Employees'

Retirement System of Pennsylvania

P.O. Box 125

Harrisburg, Pennsylvania 17108

Ladies and Gentlemen:

This report presents the results of the annual actuarial valuation of the Public School Employees' Retirement System of Pennsylvania (Retirement System or PSERS) as of June 30, 2009.

The valuation takes into account all of the promised benefits to which members are entitled as of June 30, 2009, including pension and survivor benefits, and as required by the Public School Employees' Retirement Code, 24 Pa. C.S. §8101 et. seq. (Retirement Code) is the basis for the contribution rate for fiscal year 2010/2011.

The valuation was based on the actuarial assumptions and methods as adopted by the Board of Trustees. As adopted by the Board of Trustees at their January 2009 meeting, the valuation interest rate was changed to 8.25% for the June 30, 2008 valuation and to 8.00% for all future valuation years.

The actuarial assumptions and methods for financial reporting meet the parameters set forth in Governmental Accounting Standards Board (GASB) Statements No. 25, 43, and 50, and are unchanged from the prior valuation. The actuarial assumptions and methods for GASB 25 disclosure are the same as for pension funding, except that in fiscal years in which the amortization requirements of the Retirement Code result in an equivalent single amortization period that is longer than 30 years, the GASB 25 amortization payment will be determined based on 30-year level-dollar funding. The Health Insurance funding provisions of the Retirement Code differ from the GASB 43 disclosure retirements. For funding purposes the actuarial liability equals the assets in the health insurance account, and a contribution is determined that will assure the solvency of the account through the third fiscal year following the valuation date. For purposes of GASB 43 disclosure the Health Insurance actuarial liability and normal cost requirements have been determined under the entry age actuarial cost method, with 30-year level dollar funding. (The entry age actuarial cost method meets the GASB 43 parameters for determining actuarial liability and normal cost, and is the cost method specified by the Retirement Code for the PSERS pension plan.)

**Assets and Membership Data**

The Retirement System reported the individual data for members of the Retirement System as of the valuation date to the actuary. While we did not verify the data at their source, we did perform tests for internal consistency and reasonableness. The amount of assets in the trust fund taken into account in the valuation was based on statements prepared for us by the Retirement System.

**Funding Adequacy**

The valuation results determine that the employer contribution rate for fiscal year 2010/2011 is 8.22%. As of June 30, 2009, the total funded ratio of the plan (for Pensions and Health Insurance combined) is 79.2%, based on the accrued liability and actuarial value of assets calculated under the funding requirements of Section 8328 of the Retirement Code.

**Financial Results and Membership Data**

Detailed summaries of the financial results of the valuation and membership data used in preparing the valuation are shown in the valuation report. The actuary prepared supporting schedules included in the Actuarial and Statistical Section of the PSERS Comprehensive Annual Financial Report (CAFR), and also prepared the trend data schedules included in the Financial Section of the CAFR.

The report does not take into account any changes in U.S. equity prices and bond yields that have occurred after the valuation date. Taking these into account may significantly change the market and actuarial value of assets shown. The effect of these events on any funded ratios shown, and on Retirement System calculations, is not known. Retirement System funding and financial accounting rules generally prohibit reflection of changes in assets and underlying economic conditions that occur after the valuation date.

Qualified actuaries completed the valuation in accordance with accepted actuarial procedures as prescribed by the Actuarial Standards Board. The qualified actuaries are members of the American Academy of Actuaries and are experienced in performing actuarial valuations of public employee retirement systems. To the best of our knowledge, this report is complete and accurate and has been prepared in accordance with generally accepted actuarial principles and practice.

Respectfully submitted,



Janet Cranna, FSA, MAAA, EA  
Principal, Consulting Actuary



Dana Spangher, FSA, MAAA, EA  
Principal, Consulting Actuary



Edward Quinn, MAAA, EA  
Director, Retirement Actuary

**Executive Summary**

This report presents the actuarial valuation as of June 30, 2009 for the Public School Employees' Retirement System of Pennsylvania.

The principal valuation results include:

- The employer contribution rate for fiscal year 2010/2011, which is 8.22%.
- The total funded ratio of the plan determined as of June 30, 2009 under the funding requirements of Section 8328 of the Retirement Code, which is 79.2% based on the accrued liability and the actuarial value of assets for Pensions and Health Insurance as of that date.
- The determination of the actuarial experience as of June 30, 2009, which is a loss of \$4.6 billion.
- Annual disclosures as of June 30, 2009 as required by Statements No. 25, 43, and 50 of the Governmental Accounting Standards Board.

The valuation was completed based upon membership and financial data submitted by the Retirement System. Detailed summaries of the financial results of the valuation and membership data used in preparing the valuation are included in the valuation report. The actuary prepared supporting schedules included in the Actuarial and Statistical Section of the PSERS Comprehensive Annual Financial Report (CAFR), and also prepared the trend data schedules included in the Financial Section of the CAFR.

**Changes Since Last Year**

*Legislative and Administrative Changes*

There were no legislative or administrative changes since the prior valuation.

The benefit provisions and contribution provisions are summarized in Table 13.

*Actuarial Assumptions and Methods*

As adopted by the Board of Trustees at their January 2009 meeting, the valuation interest rate was changed to 8.00% for the June 30, 2009 valuation.

The actuarial assumptions and methods are outlined in Table 12.

**Contribution Rates**

The results of the valuation as of June 30, 2009 determine the employer contribution rate for fiscal year 2010/2011. The calculated employer contribution rate for the 2010/2011 fiscal year is 8.22%, and the Board of Trustees certified this rate at their December 2009 meeting.

The average contribution rate payable by the members is 7.34%. Effective January 1, 2002, the employee contribution rate for members who elected to have prior school service and intervening military service converted to Class T-D service increased by 1.25%. However, anyone who enrolls (or re-enrolls) in PSERS on or after July 1, 2001 is *automatically* a member of Class T-D with regard to all subsequent school service and subsequent intervening military service, with a member rate equal to 7.50%. The average member contribution rate of 7.34% is a pay-weighted average of member rates that vary based on date of hire and based on Class T-D membership.

*Reasons for Change in the Rate Calculated by the Actuary*

The employer contribution rate calculated by the actuary increased from 4.78% for fiscal year 2009/2010 to 8.22% for fiscal year 2010/2011. The reconciliation of the employer contribution rates by source is as follows:

• FY2009/2010 rate after adjustment for pension floor	4.78%
• Adjustment due to effect of 4% floor on FY 2010 pension contribution	<u>(0.37)</u>
• FY 2009 /2010 rate prior to adjustment for pension floor	4.41%
• Increase due to change in normal rate	0.00
• Net decrease due to payroll growth and liability experience	(0.03)
• Increase due to actuarial loss on assets	2.04
• Increase due to change in interest rate from 8.25% to 8.00%	1.94
• Decrease due to change in health insurance contribution rate	<u>(0.14)</u>
• FY 2010/2011 employer contribution rate	8.22%

## ACTUARIAL SECTION

### Summary of Principal Results

Summarized below are the principal financial results for the Public School Employees' Retirement System based upon the actuarial valuation as of June 30, 2009. Comparable results from the June 30, 2008 valuation are also shown.

Item	June 30, 2009	June 30, 2008
<b>Demographics</b>		
Active Members		
• Number	279,701	272,690
• Average Annual Pay	\$ 44,779	\$ 43,718
Annuitants		
• Number	177,963	173,540
• Average Annual Benefit Payment	\$ 22,456	\$ 21,963
<b>Contribution Rates (as a Percentage of Payroll)</b>		
	(Fiscal Year 2010/2011)	(Fiscal Year 2009/2010)
Employer Contribution Rate:		
• Total Pension Contribution Rate	7.58%	4.00%
• Health Insurance Contribution Rate	<u>0.64</u>	<u>0.78</u>
• Total Contribution Rate Calculated by Actuary	8.22%	4.78%
• Total Contribution Rate Certified by Board	**8.22%	4.78%
Member Average Contribution Rate		
• Total Rate	<u>7.34</u> 15.56%	<u>7.32</u> 12.10%
<b>Actuarial Funded Status*</b>		
• Accrued Liability	\$ 75,625.9 Mil	\$ 70,941.4 Mil
• Actuarial Value of Assets	<u>59,886.7</u>	<u>61,017.9</u>
• Unfunded Accrued Liability	\$ 15,739.2	\$ 9,923.5
• Funded Ratio	79.2%	86.0%

\*Pensions and Health Insurance combined

\*\* In July 2010 the PA General Assembly passed Fiscal Code Bill (Act 2010-46) that accompanied the Commonwealth's General Fund Budget (Act 2010-1A). As a result the PSERS Board met in July 2010 and recertified the employer contribution rate for Fiscal Year 2010-2011. The rate was decreased from 8.22% to 5.64% as directed under the provisions of Act 46.

## ACTUARIAL SECTION

### FIVE-YEAR HISTORY OF PRINCIPAL FINANCIAL RESULTS

#### *Five-Year History of Contribution Rates*

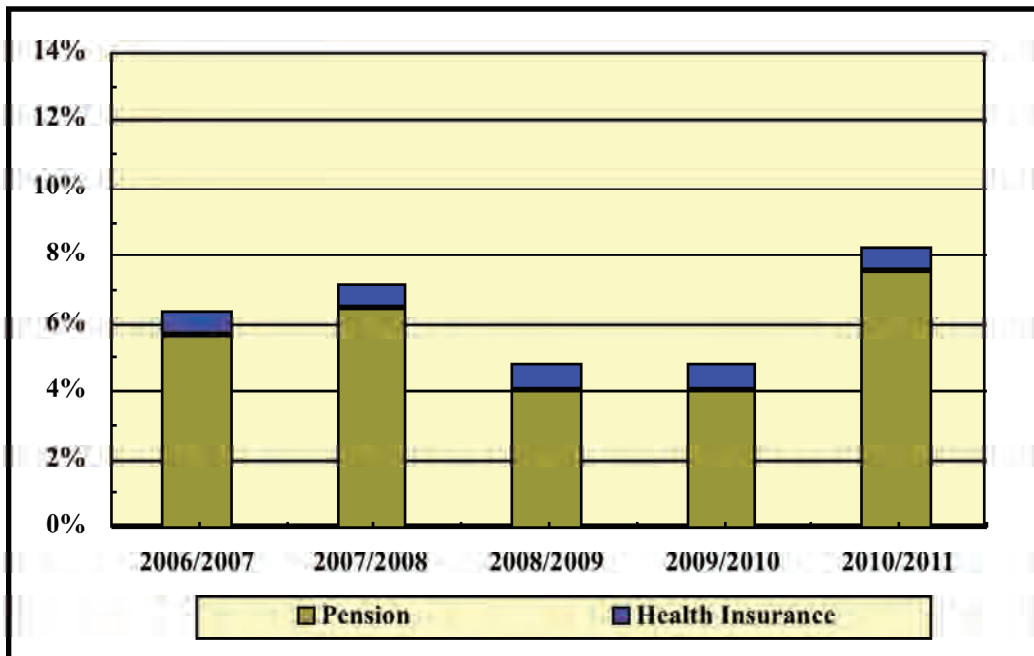
(As a % of Payroll)

Fiscal Year	Member Contributions	Employer Contributions			
		Normal Cost	Unfunded Accrued Liability	Health Insurance	Total*
2010/2011	7.34%	8.08%	(0.50)%	0.64%	8.22%
2009/2010	7.32	7.35	(3.72)	0.78	4.78
2008/2009	7.29	6.68	(3.37)	0.76	4.76
2007/2008	7.25	6.68	(0.24)	0.69	7.13
2006/2007	7.21	6.62	(0.95)	0.74	6.46

\* Certified by the Board.

The following chart shows a five-year history of employer contribution rates:

#### FIVE-YEAR HISTORY OF EMPLOYER CONTRIBUTION RATES



**Funded Ratio**

The financing objective of the Retirement System is to:

- Fully fund all current costs based on the normal contribution rate determined under the funding method; and
- Liquidate the unfunded accrued liability based on the amortization schedules as required by the Retirement Code, i.e., a schedule of 10 or 30 years for each change in the unfunded accrued liability according to Act 40.

The total contribution rate of 8.22% of payroll payable by employers, when taken together with the contributions payable by the members, current assets, and expected future asset returns, is sufficient to achieve the financing objective.

The Retirement System's total funded ratio on this funding basis is measured by comparing the actuarial value of assets (based on a 5-year moving average market value) with the accrued liability. The accrued liability for pensions is the present value of benefits accumulated to date under the Retirement System's funding method and reflects future pay increases for active employees. The accrued liability for Health Insurance equals the assets in the Health Insurance account.

On this basis, the Retirement System's total funded ratio (for Pensions and Health Insurance combined) is 79.2% as of June 30, 2009. This funded ratio is based on an actuarial value of assets of \$59.9 billion and an accrued liability of \$75.6 billion. The funded ratio for Pensions alone is also 79.2% as of June 30, 2009, based on an actuarial value of assets of \$59.8 billion, and an accrued liability of \$75.5 billion.

***Reasons for Change in the Total Funded Ratio***

The total funded ratio decreased from 86.0% as of June 30, 2008 to 79.2% as of June 30, 2009. This decrease is primarily due to asset losses that occurred during the year and the additional actuarial liability due to the change in the valuation interest rate from 8.25% to 8.00%. There were additional losses due to contributions that were less than the normal cost plus one year's interest on the June 30, 2008 unfunded accrued liability. These losses were partially offset by a net actuarial experience gain.

## ACTUARIAL SECTION

### FIVE-YEAR HISTORY OF TOTAL FUNDED RATIO\*

(\$ Amounts in Millions)

Valuation as of June 30	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio
2009	\$75,625.9	\$59,886.7	\$15,739.2	79.2%
2008	70,941.4	61,017.9	9,923.5	86.0
2007	66,593.1	57,155.1	9,438.0	85.8
2006	64,720.1	52,557.5	12,162.6	81.2
2005	61,226.6	51,219.3	10,007.3	83.7

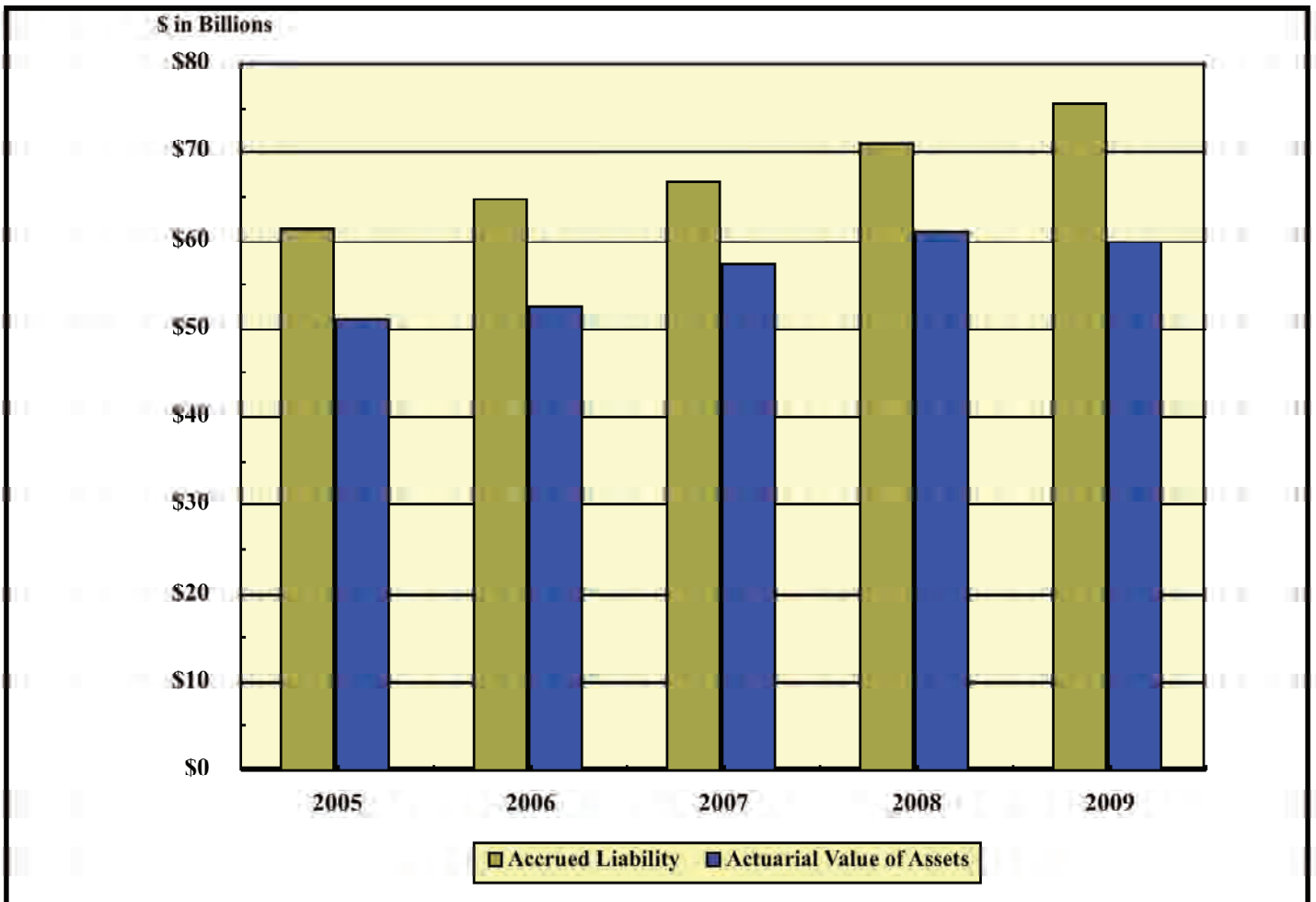
\* For Pensions and Health Insurance (under the funding provisions of the Retirement Code)



## ACTUARIAL SECTION

The following chart shows a five-year history of the accrued liability and the actuarial value of assets:

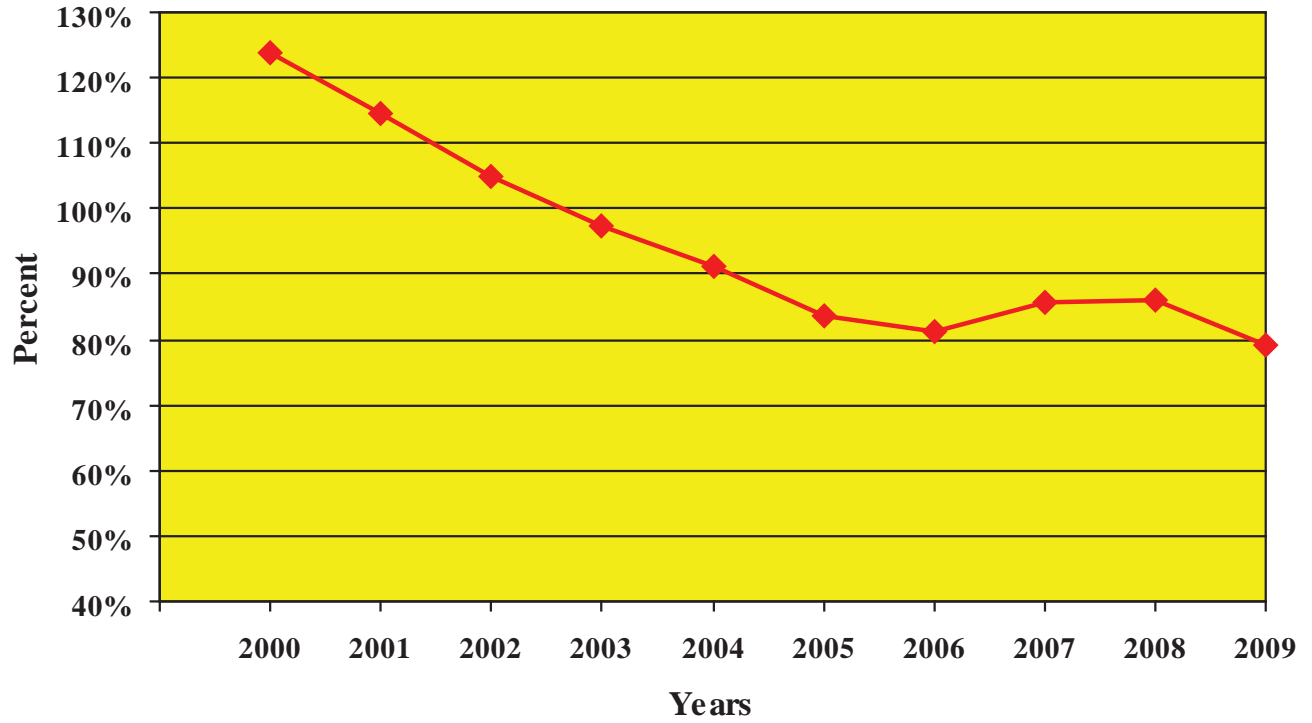
### FIVE-YEAR HISTORY OF ACCRUED LIABILITY AND ACTUARIAL VALUE OF ASSETS



## ACTUARIAL SECTION

The following chart shows a ten-year history of the total funded ratio for Pensions and Health Insurance:

**TEN-YEAR HISTORY OF TOTAL FUNDED RATIO (2000 – 2009)**



**GASB No. 25 Disclosure**

Statement No. 25 of the Governmental Accounting Standards Board (GASB) established reporting standards for the annual financial reports of defined benefit pension plans. The Retirement System complied with Statement No. 25 beginning with the June 30, 1996 valuation. The statement requires disclosure of the “schedule of funding progress” and the “schedule of employer contributions” in the Retirement System’s financial statements.

The “schedule of funding progress” shows historical trend information about the Retirement System’s actuarial value of pension assets, the actuarial accrued liability for pensions and the unfunded actuarial accrued liability for pensions. The actuarial funded ratio for pensions is measured by comparing the actuarial value of pension assets (based on a 5-year moving average market value) with the accrued liability for pensions. The accrued liability is the present value of pension benefits accumulated to date under the Retirement System’s funding method and reflects future pay increases for active employees. On this basis, the Retirement System’s funded ratio for pensions is 79.2% as of June 30, 2009. This funded ratio is based on an actuarial value of pension assets of \$59.8 billion and an accrued liability for pensions of \$75.5 billion. See Table 7 for more detail.

The schedule of employer contributions shows historical trend information about the GASB Annual Required Contribution (ARC) for pensions, and the percentage of the ARC contributed to the Retirement System. The pension contribution requirements of the Retirement Code differ from the GASB disclosure requirements. As a result, there may be different determinations of contribution requirements for GASB accounting purposes and for State funding purposes. For GASB accounting purposes, the ARC equals the employer normal cost for pensions plus an amount that will amortize the unfunded actuarial accrued liability for pensions over a period no longer than 30 years. (For years ending on or before June 30, 2006, the maximum amortization period for the GASB ARC was 40 years.) Although the employer normal cost for GASB accounting equals the PSERS normal cost for funding, section 8328 of the Retirement Code specifies different amortization periods for different portions of the unfunded accrued liability – each change in the unfunded accrued liability is amortized over either a 10 or 30-year period – as well as a 4% floor on the employer pension rate. Therefore, the resulting equivalent single amortization period may be any number of years. Table 8a presents the GASB 25 schedule of employer contributions.

**GASB No. 43 Disclosure**

GASB Statement No. 43 established reporting standards for the annual financial reports of postemployment benefit plans other than pension plans, and these reporting requirements apply to the PSERS health insurance premium assistance plan. The Retirement System complied with Statement No. 43 beginning with the June 30, 2006 valuation. The statement requires disclosure of the “schedule of funding progress” and the “schedule of employer contributions” in the Retirement System’s financial statements.

The health insurance liability and funding provisions of the Retirement Code differ from the GASB disclosure requirements. As a result, there are different determinations of actuarial liability and contribution requirements for GASB accounting purposes and for State funding purposes. For purposes of funding, the actuarial liability equals the assets in the health insurance account, and the contribution required is the amount necessary to establish reserves sufficient to provide premium assistance payments to all participating eligible annuitants during the fiscal year that immediately follows the year the employer contribution is made. For GASB accounting purposes, the actuarial liability has been determined under the entry age actuarial cost method, and the Annual Required Contribution (ARC) is equal to the entry age normal cost for health insurance plus an amount that will amortize the entry age unfunded actuarial liability for health insurance over a period of 30 years. (The entry age actuarial cost method was selected for this calculation because it meets the GASB parameters for determining actuarial liability and normal cost, and is the cost method specified by the Retirement Code for the PSERS pension plan.)

The GASB 43 schedule of funding progress, presented in Table 7, shows that as of June 30, 2009, the health insurance assets were \$105,114,000, measured on a market value basis, while the GASB 43 health insurance liabilities were \$1,159,055,000, resulting in a funded ratio of 9.1%.

The GASB 43 schedule of employer contributions first applies to fiscal year 2006/2007, and is presented in Table 8b.

**Rate of Return**

The investment return of the trust fund (i.e. total return including both realized and unrealized gains and losses) for fiscal years 2004/2005 through 2008/2009 is shown in the table below. The return based on the actuarial value of assets used for determining annual contribution rates is also shown.

The rate of return on market value reflects the investment earnings on the market value of assets from the beginning of the fiscal year to the end of the fiscal year. The actuarial assets are the assets recognized for valuation purposes. Actuarial assets are based on a smoothed market value that spreads the difference between the actual and expected return over a period of five years. The rate of return on the actuarial value of assets is a measure of the increase in the actuarial value of assets from the beginning of the fiscal year to the end of the fiscal year.

Fiscal Year	Rate of Return Based on	
	Market Value*	Actuarial Value
2008/2009	-26.5%	3.5%
2007/2008	-2.8	12.4
2006/2007	22.9	13.9
2005/2006	15.3	7.9
2004/2005	12.9	3.2

\* Market Value Rate of return provided by Wilshire Associates Incorporated, PSERS investment consultant.

# ACTUARIAL SECTION

## TABLE 1

SUMMARY OF RESULTS OF ACTUARIAL VALUATION AS OF JUNE 30, 2009

(\$ Amounts in Thousands)

Item	June 30, 2009	June 30, 2008
<b>Member Data</b>		
1. Number of Members		
a) Active Members	279,701	272,690
b) Inactive Members and Vestees	103,805	100,803
c) Annuitants, Beneficiaries and Survivor Annuitants	177,963	173,540
d) Total	561,469	547,033
2. Annualized Salaries	\$ 12,524,593	\$ 11,921,469
3. Annual Annuities	\$ 3,996,288	\$ 3,811,499
<b>Valuation Results</b>		
4. Present Value of Future Pension Benefits		
a) Active Members	\$ 57,954,419	\$ 53,857,049
b) Inactive Members and Vestees	930,887	941,679
c) Annuitants, Beneficiaries and Survivor Annuitants	37,112,318	34,617,953
d) Total	\$ 95,997,624	\$ 89,416,681
5. Present Value of Future Pension Normal Cost		
a) Active Members	\$ 9,879,309	\$ 9,090,223
b) Employer	10,597,579	9,480,821
c) Total	\$ 20,476,888	\$ 18,571,044
6. Pension Accrued Liability		
a) Active Members (4a) - (5c)	\$ 37,477,531	\$ 35,286,005
b) Inactive Members and Vestees	930,887	941,679
c) Annuitants, Beneficiaries and Survivor Annuitants	37,112,318	34,617,953
d) Total	\$ 75,520,736	\$ 70,845,637
7. Health Insurance Assets for Premium Assistance	\$ 105,114	\$ 95,785
8. Total Accrued Liability for Funding (6) + (7)	\$ 75,625,850	\$ 70,941,422
9. Actuarial Value of Assets	\$ 59,886,689	\$ 61,017,942
10. Funded Status (9) / (8)	79.2 %	86.0 %
11. Unfunded Accrued Liability (8) - (9)	\$ 15,739,161	\$ 9,923,480
12. Total Normal Cost Rate	15.42 %	14.67 %
13. Member Contribution Rate	7.34 %	7.32 %
14. Employer Normal Cost Rate (12) - (13)	8.08 %	7.35 %
<b>Employer Annual Funding Requirement</b>		
15. Employer Contribution Rate Calculated by Actuary	<b>Fiscal 2010/2011</b>	<b>Fiscal 2009/2010</b>
a) Normal	8.08 %	7.35 %
b) Unfunded Accrued Liability	<u>(0.50)</u>	<u>(3.72)</u>
c) Preliminary Pension Rate	7.58 %	3.63 %
d) Preliminary Pension Rate with 4% Floor	7.58	4.00
e) Health Insurance	<u>0.64</u>	<u>0.78</u>
f) Total Rate	8.22 %	4.78 %

# ACTUARIAL SECTION

## TABLE 2

### SUMMARY OF SOURCES OF EMPLOYER CONTRIBUTION RATE AS OF JUNE 30, 2009

(\$ Amounts in Thousands)

	Funding Period (Years)	Beginning July 1	Initial Liability	7/1/2009 Outstanding Balance	Annual Payment Amount	Percent *
1. Amortization of:						
a) 2001 Fresh Start Unfunded Base	10	2002	\$ (9,137,130)	\$ (3,858,968)	\$ (1,499,028)	(11.09)%
b) 2001 Asset Method Change (Act 38)	10	2002	(4,638,306)	(1,958,938)	(760,956)	(5.63)%
c) Other 2001 Changes	30	2002	7,570,507	6,656,353	642,168	4.75 %
d) 2002 Changes	30	2003	3,014,171	2,890,790	274,704	2.03 %
e) 2002 COLA	10	2003	463,795	251,220	75,928	0.56 %
f) 2003 COLA	10	2004	754,524	533,466	133,746	0.99 %
g) 2003 Changes	30	2004	3,229,593	3,336,953	312,757	2.32 %
h) 2004 Changes	30	2005	2,903,093	3,034,742	280,869	2.08 %
i) 2005 Changes	30	2006	3,765,745	3,978,527	363,995	2.69 %
j) 2006 Changes	30	2007	812,226	866,473	78,440	0.58 %
k) 2007 Changes	30	2008	(3,870,741)	(4,165,943)	(373,502)	(2.76)%
l) 2008 Changes	30	2009	(347,095)	(375,730)	(33,388)	(0.25)%
m) 2009 Changes	30	2010	4,550,216	4,550,216	436,519	3.23 %
Total Amortization Payments				\$ 15,739,161	\$ (67,748)	(0.50)%
2. Employer Normal Cost Rate						8.08 %
3. Preliminary Pension Rate (1) + (2)						7.58 %
4. Preliminary Pension Rate with 4% Floor -- Maximum of (3) and 4%						7.58 %
5. Health Insurance Rate						0.64 %
6. Final Total Employer Contribution Rate Calculated by Actuary (4) + (5)						8.22 %

\* Based on Estimated Employer Payroll for Fiscal Year Ending 2011 of \$ 13,510,000.

## ACTUARIAL SECTION

**TABLE 3**

DETERMINATION OF HEALTH INSURANCE CONTRIBUTION RATE FOR FISCAL YEAR 2010/2011

(\$ Amounts in Thousands)

Item			
1. June 30, 2009 Balance in Health Insurance Account		\$	105,114
2. Estimated Fiscal 2009/2010 Contribution			
(a) Contribution Rate Certified in 2008 Valuation			0.78%
(b) Estimated Fiscal 2009/2010 payroll		\$	<u>12,990,231</u>
(c) Estimated Contribution = (a) x (b)		\$	101,324
3. Estimated Number of Annuitants who:	Are Eligible		Elect Coverage
(a) Fiscal 2009/2010	117,100		77,286
(b) Fiscal 2010/2011	119,900		79,134
(c) Fiscal 2011/2012	122,600		80,916
4. Estimated Disbursements:	Administration	Assistance	Total
(a) Fiscal 2009/2010	\$ 2,233	\$ 92,743	\$ 94,976
(b) Fiscal 2010/2011	2,252	94,961	97,213
(c) Fiscal 2011/2012	<u>2,342</u>	<u>97,099</u>	<u>99,441</u>
(d) Total	\$ 6,827	\$ 284,803	\$ 291,630
5. Required Fiscal 2010/2011 Contribution		\$	85,192
(4d) - (1) -(2c)			
6. Required Health Insurance Contribution Rate			
(a) Estimated 2010/2011 Payroll		\$	13,510,000
(b) Required Health Insurance Contribution Rate (5) / (6a)			0.64%
(rounded up)			

Notes:

1. Current estimates of fiscal 2009/2010 membership payroll and administrative expenses, and of fiscal 2010/2011 administrative expenses, were provided by PSERS staff.
2. 66% of eligible annuitants are assumed to elect coverage.
3. Premium Assistance payments equal \$100 per month per eligible annuitant.

**ACTUARIAL SECTION**

**TABLE 4**

SUMMARY OF MARKET VALUE OF PLAN ASSETS AS OF JUNE 30, 2009

(\$ Amounts in Thousands)

<b>Market Value</b>	
1. Market Value of Assets as of June 30, 2008	\$ 62,569,211
2. Contributions During Fiscal 2008/2009	1,519,500
3. Disbursements During Fiscal 2008/2009	4,750,819
4. Investment Return During Fiscal 2008/2009	
a) Investment Return (Net of Investment Expenses)	\$ (16,199,840)
b) Administrative Expenses	<u>37,458</u>
c) Investment Return After Expenses (a) - (b)	\$ (16,237,298)
5. Market Value of Assets as of June 30, 2009 (1) + (2) - (3) + (4c)	\$ 43,100,594
6. Rate of Return (per Wilshire)	(26.54)%
<b>Asset Allocation by Account</b>	
1. Members' Savings Account	\$ 11,087,345
2. Annuity Reserve Account	37,112,318
3. State Accumulation Account	(5,204,183)
4. Health Insurance Account	<u>105,114</u>
5. Total (1) + (2) + (3) + (4)	\$ 43,100,594



## ACTUARIAL SECTION

TABLE 5

DERIVATION OF ACTUARIAL VALUE OF ASSETS AS OF JUNE 30, 2009\*

(\$ Amounts in Thousands)

1. Market Value of Assets as of June 30, 2009					\$ 43,100,594
2. Determination of Deferred Gain (Loss)					
	Return on Assets				
<u>Fiscal Year</u>	<u>Actual</u>	<u>Expected</u>	<u>Difference</u>	<u>% Deferred</u>	<u>Deferred Amount</u>
2008/2009	\$ (16,237,298)	\$ 4,900,688	\$ (21,137,986)	80%	\$ (16,910,389)
2007/2008	(1,816,980)	4,728,472	(6,545,452)	60%	(3,927,271)
2006/2007	12,658,871	4,359,054	8,299,817	40%	3,319,927
2005/2006	7,901,068	4,242,878	3,658,190	20%	731,638
					\$ (16,786,095)
3. Actuarial Value of Assets (1) - (2)					\$ 59,886,689
4. Actuarial Rate of Return **					3.54%

\* The amounts reported include assets for both Pensions and Health Insurance.

\*\* The actuarial rate of return is the investment return based on the change in the actuarial value of assets from the June 30, 2008 valuation to the June 30, 2009 valuation.

## ACTUARIAL SECTION

TABLE 6

ANALYSIS OF CHANGE IN UNFUNDED ACCRUED LIABILITY AS OF JUNE 30, 2009\*

(\$ Amounts in Thousands)

Item	Amount
1. Unfunded Accrued Liability at June 30, 2008	\$ 9,923,480
2. Interest Credit to June 30, 2009	844,364
3. Contributions Toward Unfunded Accrued Liability	(421,101)
4. Expected Unfunded Accrued Liability at June 30, 2009 (1) + (2) - (3)	\$ 11,188,945
5. Actual Unfunded Accrued Liability at June 30, 2009	<u>\$ 15,739,161</u>
6. Increase (Decrease) from Expected (5) - (4)	\$ 4,550,216
7. Reasons for Increase (Decrease)	
(a) Experience (Gains) Losses	
(i) Loss from Investment Return on Actuarial Value of Assets	\$ 2,800,622
(ii) Loss from New Entrants and Pickups	310,489
(iii) Gain from Salary Increases Less than Expected	(225,166)
(iv) Loss from Mortality Experience	90,538
(v) Gain from Vested Termination Experience (Retirement/Disability/Termination)	(71,915)
(vi) Gain from Non-vested Termination Experience	(215,117)
(vii) Loss from Data/Miscellaneous	<u>75,133</u>
Subtotal	\$ 2,764,584
(b) Change in Assumption	\$ 1,785,632
(c) Grand Total	\$ 4,550,216

\* The amounts reported include liabilities for Pensions only.

## ACTUARIAL SECTION

**TABLE 7**

**SCHEDULE OF FUNDING PROGRESS FOR PENSIONS\***

**GASB STATEMENT NO. 25 DISCLOSURE**

(\$ Amounts in Thousands)

Valuation as of June 30	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	Unfunded Accrued Liability as a Percentage of Covered Payroll
2009	\$ 59,781,575	\$ 75,520,736	\$ 15,739,161	79.2 %	\$ 12,524,593	125.7 %
2008	60,922,157	70,845,637	9,923,480	86.0	11,921,469	83.2
2007	57,057,838	66,495,870	9,438,032	85.8	11,410,257	82.7
2006	52,464,726	64,627,361	12,162,635	81.2	11,419,049	106.5
2005	51,122,156	61,129,444	10,007,288	83.6	10,527,668	95.1
2004	51,949,622	56,978,143	5,028,521	91.2	10,030,705	50.1

\* The amounts reported above include assets and liabilities for Pensions.

**SCHEDULE OF FUNDING PROGRESS FOR  
POSTEMPLOYMENT BENEFITS OTHER  
THAN PENSIONS\***

**GASB STATEMENT NO. 43 DISCLOSURE**

(\$ Amounts in Thousands)

Valuation as of June 30	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	Unfunded Accrued Liability as a Percentage of Covered Payroll
2009	\$ 105,114	\$ 1,159,055	\$ 1,053,941	9.1 %	\$ 12,524,593	8.4 %
2008	95,785	1,133,011	1,037,226	8.5	11,921,469	8.7
2007	97,292	1,058,092	960,800	9.2	11,410,257	8.4
2006	92,777	1,056,154	963,377	8.8	11,419,049	8.4

\* The amounts reported above include assets and liabilities for Health Insurance Premium Assistance. The health insurance liabilities for GASB 43 disclosure have been calculated under the entry age normal cost method, which provides liabilities that differ from those determined under the funding requirements of the Retirement Code.

## ACTUARIAL SECTION

**TABLE 8a**

SCHEDULE OF EMPLOYER CONTRIBUTIONS FOR PENSIONS

GASB STATEMENT NO. 25 DISCLOSURE

(\$ Amounts in Thousands)

Fiscal Year Ended June 30	Annual Required Contribution	Actual Employer Contribution	Percentage Contributed
2009	\$ 1,761,295	\$ 503,227	29 %
2008	1,852,238	753,532	41
2007	1,708,821	659,545	39
2006	1,328,373	456,878	34
2005	945,107	431,556	46
2004	321,091	321,091	100

The Annual Required Contribution (ARC) presented above was determined as part of the actuarial valuation as of two years prior to the dates indicated (i.e., the ARC for the fiscal year ended June 30, 2009 was determined by the valuation completed as of June 30, 2007 which was based on an 8.50% interest rate).

Additional information as of the latest actuarial valuation follows:

Valuation Date:	6/30/2009
Actuarial Cost Method:	Entry Age
Amortization Method:	Level dollar open
Remaining Amortization Period:	30 Years
Asset Valuation Method:	5-year smoothed market

Actuarial Assumptions:	
- Investment Rate of Return *	8.00%
- Projected Salaried Increases *	6.00%

* Includes Inflation at:	3.25%
--------------------------	-------

## ACTUARIAL SECTION

TABLE 8b

### SCHEDULE OF EMPLOYER CONTRIBUTIONS FOR POSTEMPLOYMENT BENEFITS OTHER THAN PENSIONS

GASB STATEMENT NO. 43 DISCLOSURE

(\$ Amounts in Thousands)

Fiscal Year Ended June 30	Annual Required Contribution	Actual Employer Contribution	Percentage Contributed
2009	\$ 109,531	\$ 92,493	84 %
2008	101,352	81,317	80
2007	94,970	86,763	91

The fiscal year ended June 30, 2009 Annual Required Contribution (ARC) presented above was determined as part of the actuarial valuation as of two years prior to the date indicated (i.e., the ARC for the fiscal year ended June 30, 2009 was determined by the valuation completed as of June 30, 2007, which was based on an 8.50% interest rate.) Prior to that, the ARC was determined as part of the actuarial valuation as of one year prior to the dates indicated.

Additional information as of the latest actuarial valuation follows:

Valuation Date:	6/30/2009
Actuarial Cost Method:	Entry Age
Amortization Method:	Level dollar open
Remaining Amortization Period:	30 Years
Asset Valuation Method:	Market

Actuarial Assumptions:	
- Investment Rate of Return *	8.00%
- Projected Salaried Increases *	6.00%

* Includes Inflation at:	3.25%
--------------------------	-------

## ACTUARIAL SECTION

**TABLE 9**

**SOLVENCY TEST**

**COMPARATIVE SUMMARY OF ACCRUED LIABILITY AND ACTUARIAL VALUE OF ASSETS**

(\$ Amounts in Thousands)

**PENSIONS**

Valuation as of June 30	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Member Employer Financed	Actuarial Value of Assets	Portion of Accrued Liability Covered by Valuation Assets		
					(1)	(2)	(3)
2009	\$ 11,087,345	\$ 37,112,318	\$ 27,321,073	\$ 59,781,575	100 %	100 %	42 %
2008	10,532,683	34,617,953	25,695,001	60,922,157	100	100	61
2007	10,183,433	31,603,788	24,708,649	57,057,838	100	100	62
2006	9,571,668	29,117,164	25,938,529	52,464,726	100	100	53
2005	9,116,347	27,051,245	25,058,989	51,219,293	100	100	60
2004	8,755,109	24,482,234	23,885,657	52,094,479	100	100	79

**POSTEMPLOYMENT BENEFITS OTHER THAN PENSIONS**

Valuation as of June 30	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Member Employer Financed	Actuarial Value of Assets	Portion of Accrued Liability Covered by Valuation Assets		
					(1)	(2)	(3)
2009	\$ 0	\$ 759,891	\$ 399,164	\$ 105,114	N/A	14 %	0 %
2008	0	749,070	383,941	95,785	N/A	13	0
2007	0	684,677	373,415	97,292	N/A	14	0
2006	0	684,435	371,719	92,777	N/A	14	0

# ACTUARIAL SECTION

## TABLE 10

### HISTORY AND PROJECTION OF CONTRIBUTION RATES AND FUNDED RATIOS<sup>1</sup>

Fiscal Year Ending June	Appropriation Payroll (thousands)	Contribution Rates <sup>2</sup>							Funded Ratio
		Employee	Employer Normal Cost	Employer Unfunded Liability	Preliminary Employer Pension	Final Employer Pension	Employer Health Insurance	Total Employer	
2000	\$ 8,939,598	5.72 %	6.40 %	(2.04) %	4.36 %	4.36 %	0.25 %	4.61 %	123.8 %
2001	9,414,884	5.77	6.29	(4.65)	1.64	1.64	0.30	1.94	114.4
2002 <sup>3</sup>	9,378,944	6.43	5.63	(6.05)	(0.42)	0.00	1.09	1.09	104.8
2003 <sup>4</sup>	9,652,881	7.10	7.20	(10.03)	1.00	0.18	0.97	1.15	97.2
2004	10,030,705	7.08	7.25	(4.27)	2.98	2.98	0.79	3.77	91.2
2005 <sup>5</sup>	11,062,589	7.12	7.48	(7.10)	0.38	4.00	0.23	4.23	83.7
2006	11,505,093	7.16	7.61	(4.28)	3.33	4.00	0.69	4.69	81.2
2007 <sup>6</sup>	11,821,951	7.21	6.62	(0.95)	5.67	5.72	0.74	6.46	85.8
2008	12,881,244	7.25	6.68	(0.24)	6.44	6.44	0.69	7.13	86.0
2009	12,500,000	7.29	6.68	(3.37)	3.31	4.00	0.76	4.76	<b>79.2</b>
2010 <sup>7</sup>	12,899,000	7.32	7.35	(3.72)	3.63	4.00	0.78	4.78	73.4
<b>2011<sup>7</sup></b>	<b>13,510,000</b>	<b>7.34</b>	<b>8.08</b>	<b>(0.50)</b>	<b>7.58</b>	<b>7.58</b>	<b>0.64</b>	<b>8.22</b>	66.8
2012	13,920,859	7.37	8.02	1.85	9.87	9.87	0.72	10.59	58.3
2013	14,345,321	7.38	8.00	20.50	28.50	28.50	0.72	29.22	54.2
2014	14,797,664	7.40	7.96	23.42	31.38	31.38	0.71	32.09	55.1
2015	15,280,148	7.42	7.93	24.97	32.90	32.90	0.70	33.60	56.7
2016	15,794,512	7.43	7.91	24.68	32.59	32.59	0.68	33.27	58.5
2017	16,341,270	7.44	7.89	24.18	32.07	32.07	0.67	32.74	60.5
2018	16,926,735	7.45	7.87	23.54	31.41	31.41	0.65	32.06	62.6
2019	17,557,664	7.46	7.85	22.78	30.63	30.63	0.64	31.27	64.7
2020	18,232,076	7.46	7.84	21.97	29.81	29.81	0.61	30.42	66.8
2021	18,948,040	7.47	7.82	21.15	28.97	28.97	0.59	29.56	68.9

1. The projection of contribution rates is based on the assumption that there are no changes in demographic assumptions, no changes in benefit provisions, and no actuarial gains or losses other than gains or losses on the actuarial value of assets that result from recognizing currently deferred gains or losses on the market value of assets.
2. In general, the Preliminary Employer Pension Rate equals the sum of the rates for the Employer Normal Cost and the Unfunded Liability; and the Final Employer Pension Rate is the greater of the Preliminary Pension Rate and any Pension Rate Floor stated in the Retirement Code. The Total Employer Rate is the sum of the Final Employer Pension Rate and the Employer Health Insurance Rate.
3. For fiscal years ending on or before June 30, 2002, there was no floor specified in the Retirement Code, but the Final Employer Pension Rate could not be less than 0%, since money can only be removed from the trust for purposes allowed by the Retirement Code.
4. Act 2002-38 amended the Retirement Code to place a permanent 1% floor on the Employer Pension Rate, but also provided that the Total Employer Rate for the year ending June 30, 2003 could not exceed 1.15%, resulting in a 0.18% Final Employer Pension Rate (the Total Employer Rate of 1.15% minus the 0.97% Employer Health Insurance Rate).
5. Act 2003-40 amended the Retirement Code to increase the Employer Pension Rate Floor from 1% to 4%.
6. Revised actuarial assumptions based on a five-year experience review ending June 30, 2005 were used to determine the contributions for the fiscal year ending June 30, 2007. Since the benefit changes under Act 2001-9 had not been in effect throughout the entire period covered by the study the Board decided, at its December 2005 meeting, to delay making any changes to the retirement rate assumptions until further data became available. The 5.72% Final Employer Pension Rate equals the 6.46% Total Employer Rate certified by the Board at that meeting, minus the 0.74% Employer Health Insurance Rate. The 5.67% Preliminary Employer Pension Rate equals the sum of the Employer Normal Cost and Unfunded Liability rates. The Normal Cost and Unfunded Liability rates were calculated by the actuary in January 2006, based on the package of assumptions adopted at the December 2005 meeting.
7. The Board at its January 2009 meeting adopted to reduce the interest rate from 8.50% to 8.25% for the June 30, 2008 valuation and to 8.00% thereafter.

## ACTUARIAL SECTION

**TABLE 11**

**HISTORY AND PROJECTION OF ANNUITANTS, BENEFICIARIES, SURVIVOR ANNUITANTS  
AND ACTIVE MEMBERS**

Valuation as of June 30	New Annuitants During the Year	Annuitant Deaths During the Year	Annuitants at End of Year	Beneficiaries and Survivor Annuitants at End of Year	Total Annuitants, Beneficiaries and Survivor Annuitants	Active Members
2000			127,404	6,654	134,058	234,210
2001			125,880	6,836	132,716	243,311
2002			134,300	7,114	141,414	242,616
2003			138,383	7,310	145,693	246,700
2004			143,997	7,555	151,552	247,901
2005			148,727	7,792	156,519	255,465
2006			153,757	8,056	161,813	263,350
2007			159,760	8,266	168,026	264,023
2008			165,091	8,449	173,540	272,690
<b>2009</b>			<b>169,919</b>	<b>8,044</b>	<b>177,963</b>	<b>279,701</b>
2010	15,634	4,666	180,887	8,590	189,477	279,701
2011	12,845	4,808	188,924	9,099	198,023	279,701
2012	12,936	5,014	196,846	9,566	206,412	279,701
2013	12,870	5,226	204,490	10,003	214,493	279,701
2014	12,674	5,422	211,742	10,414	222,156	279,701
2015	12,137	5,618	218,261	10,812	229,073	279,701
2016	11,747	5,823	224,185	11,200	235,385	279,701
2017	11,634	6,019	229,800	11,582	241,382	279,701
2018	11,431	6,211	235,020	11,965	246,985	279,701
2019	11,405	6,406	240,019	12,346	252,365	279,701

\* The number for the first year of the projection reflects the assumption that all Active members age 74 and above, and that all vested inactive members who have reached superannuation age retire immediately.



# ACTUARIAL SECTION

**TABLE 12**

**DESCRIPTION OF ACTUARIAL ASSUMPTIONS AND METHODS**

**ASSUMPTIONS**

**Interest Rate:** 8.00% per annum, compounded annually (adopted as of June 30, 2009). The components are 3.25% for inflation and 4.75% for the real rate of return. Actuarial equivalent benefits are determined based on 4% (since 1960).

**Separation from Service:** Illustrative rates of assumed separation from service are shown in the following table. (Rates of non-vested withdrawal, of death, and of disability were adopted as of June 30, 2005; other rates were adopted as of June 30, 2000):

Age	Annual Rate of:						
	Non-Vested Withdrawal	Vested Withdrawal*		Death	Disability	Early Retirement**	Superannuation Retirement
		Less Than 10 Years of Service	10 or More Years of Service				
<i><b>Males</b></i>							
25	12.40%	5.50%	1.40%	.042%	.024%		
30	10.00	3.00	1.40	.057	.024		
35	11.00	3.00	1.10	.062	.100		
40	11.00	3.00	.80	.072	.180		
45	11.00	3.00	.50	.100	.180		
50	11.00	3.00	1.78	.152	.280		24.00%
55	10.50	3.00	3.50	.252	.430	10.00%	24.00
60	10.00	2.40	4.50	.467	.580	10.00	28.00
65				.870	.100		20.00
69				1.335	.100		20.00
<i><b>Females</b></i>							
25	14.10%	9.50%	4.00%	.019%	.040%		
30	14.10	7.50	4.00	.023	.040		
35	14.10	5.50	2.00	.031	.080		
40	10.90	3.50	1.00	.043	.130		
45	10.90	3.00	.55	.061	.180		
50	10.90	3.00	1.50	.085	.250		10.00%
55	10.90	3.00	3.00	.146	.480	10.00%	10.00
60	10.90	3.50	5.90	.284	.480	15.00	25.00
65				.561	.160		28.00
69				.866	.160		20.00

\* Vested Withdrawal – At least 5 years service but not eligible for Early or Superannuation retirement.

\*\* Early Retirement – Age 55 with 25 years service, but not eligible for Superannuation retirement.

**Death after Retirement:** The Uninsured Pensioners 1994 Mortality Table (UP94) with mortality improvements projected 10 years, and with age set back one year for males and females, adopted in 2005, are used to project mortality for healthy annuitants and for dependent beneficiaries. Special mortality tables based on PSERS' experience are used for disability retirements. (The 1995 George B. Buck Mortality Tables, rated forward one year for males and unadjusted for females, adopted in 2000, are used to determine actuarial equivalent benefits.)

**Table 12 (Continued)**

**Salary Increase:** Effective average of 6% per annum, compounded annually (adopted as of June 30, 2005). The components are 3.25% for inflation, 1% for real wage growth and 1.75% for merit or seniority increases. Representative values are as follows:

Age	Annual Rate of Salary Increase
20	12.00%
30	9.00
40	7.00
50	4.75
55	4.50
60	4.25
65	4.25
70	4.25

**MISCELLANEOUS**

**Option 4 Elections:** 100% of members are assumed to elect a refund of contributions and a reduced annuity.

**Withdrawal Annuity:** 90% of members are assumed to commence payment immediately and 10% are assumed to defer payment to superannuation age.

**Health Insurance**

**Elections:** 66% of eligible retirees are assumed to elect premium assistance.

**Administrative Expenses:** Assumed equal to 2% of contributions made during the year.

**METHODS**

**Calculations:** The actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system, and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

**Asset Valuation Method:** A five-year moving market average value of assets that recognizes the 8.00% (8.25% prior to June 30, 2009 and 8.50% prior to June 30, 2008) actuarial expected investment return immediately and spreads the difference between the actual return on the market value of assets and the expected return on the actuarial value of assets over a period of five years (adopted as of June 30, 2001).

**Actuarial Cost Method for Pension Funding:** Entry Age Normal Cost Method (modified slightly as of June 30, 2005 to use a pay-weighted average normal contribution rate). The results of each June 30 valuation normally determine the employer contribution rate for the second succeeding fiscal year. The outstanding balance of the unfunded accrued liability as of June 30, 2001 and the decrease in the unfunded accrued liability due to the actuarial asset method change provided by Act 38 continue to be amortized over a 10-year period, with level dollar funding, beginning July 1 2002. The increases in the unfunded accrued liability due to the July 1, 2002 and July 1, 2003 cost-of-living adjustments provided by Act 38 were both recognized at June 30, 2002 and continue to be amortized over a 10-year period, with level dollar funding starting on July 1, 2003 and July 1, 2004, respectively. All other changes in the unfunded accrued liability at June 30, 2001 and June 30, 2002 – including the Act 9 benefit changes – are amortized over a 30-year period, with level dollar funding starting on July 1, 2002, and July 1, 2003, respectively. Post June 30, 2002 benefit changes for active members and retirees are amortized over a 10-year period with level dollar funding. Post June 30, 2002 gains and losses, and changes in the unfunded accrued liability resulting from changes in actuarial assumptions and methods, are amortized over a 30-year period with level dollar funding. Act 40 also provided a 4.00% floor on the employer pension rate.

### **Actuarial Cost Method for GASB 25 Accounting for**

**Pensions:** Same as for pension funding, except that in fiscal years in which the amortization requirements of the Retirement Code result in an equivalent single amortization period that is longer than the maximum allowable period specified by GASB 25 (40 years for fiscal years ending on or before June 30, 2006; and 30 years for subsequent fiscal years), the GASB 25 amortization payment will be set equal to the level dollar amount that will amortize the unfunded accrued liability over a period equal to the maximum allowable period specified by GASB 25.

### **Actuarial Cost Method for Health Insurance Funding:**

The actuarial liability equals the assets in the health insurance account, and the results of the June 30 valuation determine the contribution rate for the second succeeding fiscal year. The rate so determined is the rate necessary to establish reserves sufficient to cover administrative expenses and provide premium assistance payments for all participating eligible annuitants during the third fiscal year that follows the valuation date.

### **Actuarial Cost Method for GASB 43 Accounting for Health**

**Insurance:** The actuarial liability is determined under the entry age actuarial cost method, and the Annual Required Contribution (ARC) for the second fiscal year that follows the valuation date is equal to the entry age normal cost for health insurance plus an amount that will amortize the entry age unfunded actuarial liability for health insurance over a period of 30 years.

### **DATA**

**Census and Assets:** The valuation was based on members of the Retirement System as of June 30, 2009 and does not take into account future members. All census data was supplied by the Retirement System and was subject to reasonable consistency checks. The actuary adjusts the data to account for service and pay earned by members on or before the valuation that is not reported by the Retirement System until after the actuarial valuation is performed. Asset data was supplied by the Retirement System.

**TABLE 13**

**SUMMARY OF BENEFIT AND CONTRIBUTION PROVISIONS**

**MEMBERSHIP**

For valuation purposes, all employees are considered to be full coverage. All employees who become members on and after January 1, 1966 are members of the dual coverage group. Dual coverage members contribute to both PSERS and to Social Security.

**BENEFITS**

**Superannuation Annuity**

Eligibility	Age 62, or age 60 with 30 years of service, or 35 years of service regardless of age.
Amount	2.5% of final average salary times years of school service and intervening military service. 2% of final average salary for non-school service and for members who do not elect Class T-D coverage. Minimum of \$100 per year of service. "Final average salary" means the highest average annual salary for any 3 years of service.  Annual salary is subject to a limit of \$200,000, as adjusted under Section 401(a)(17). As of June 30, 2009, the adjusted limit is \$230,000.  For members who elect coverage under Class T-D, the maximum benefit is equal to the limit established by Section 415 of the Internal Revenue Code.

**Early Retirement Annuity**

Eligibility	Age 55 with 25 years of service.
Amount	Accrued benefit as of date of retirement, reduced 1/4% for each month by which commencement of payments precedes Superannuation Age.  For members who elect coverage under Class T-D, the maximum benefit is equal to the limit established by Section 415 of the Internal Revenue Code.

**Withdrawal Annuity**

Eligibility	5 years of service.
Amount	Accrued benefit deferred to superannuation retirement age or an actuarially reduced benefit payable immediately. Actuarially equivalent benefits are based on 4% interest and the 1995 George B. Buck mortality tables, rated forward one year for males and unadjusted for females.

**Disability Annuity**

Eligibility	5 years of service.
Amount	The standard single life annuity if the total number of credited service is greater than 16.667, otherwise the standard single life annuity multiplied by the lesser of the following ratios: $(Y^*/Y)$ or $(16.667/Y)$ where Y is the number of years of credited service and Y* is the total years of credited service if the member were to continue as a school employee until superannuation retirement age (or at current age, if later). Minimum of \$100 per year of service.

**Return of Contributions**

Eligibility	Death or separation from service and member does not qualify for other benefits.
Amount	Refund of accumulated deductions includes interest (less annuity payments received prior to death in the case of a retired member).

**Death Benefit**

Eligibility	Death of an active member or vestee who was eligible to receive an annuity.
Amount	The present value of the annuity that would have been effective if the member retired on the day before death. Option 1 (see next page) assumed payable if no other option elected.

## ACTUARIAL SECTION

### Normal and Optional Forms of Benefits

Normal Form:	Life annuity with a guaranteed payment equal to member contributions with interest.
Option 1:	Reduced benefit with refund of balance of present value of annuity at retirement over payments received. If balance is less than \$5,000, benefit is paid in lump sum; otherwise, beneficiary may elect annuity and/or lump sum.
Option 2:	Joint and 100% survivorship annuity.
Option 3:	Joint and 50% survivorship annuity.
Option 4:	Benefit of equivalent actuarial value, including lump sum payment of member contributions.

### Health Care Premium Assistance

Eligibility	Retired members who: <ul style="list-style-type: none"> <li>(a) have 24½ or more years of service, or</li> <li>(b) are disability annuitants, or</li> <li>(c) have 15 or more years of service and who both terminated school service and retired after attaining superannuation age and</li> <li>(d) participate in the PSERS health options program or in an employer-sponsored health insurance program.</li> </ul>
-------------	--

Amount	Participating eligible annuitants receive health insurance premium assistance payments from the Health Insurance Account equal to the lesser of \$100 per month or the actual monthly premium. All administrative expenses necessary to operate the health insurance premium assistance program are to be funded by the Health Insurance Account. The Health Insurance Account is credited with contributions of the Commonwealth and the employers.
--------	--

### CONTRIBUTIONS

By Members	Members who elected coverage under Class T-D and who were most recently enrolled prior to July 22, 1983 contribute at a rate of 6½% of compensation, while members who elected coverage under Class T-D and who were most recently enrolled on or after July 22, 1983 contribute at a rate of 7½% of compensation. Members who did not elect coverage under Class T-D and who were most recently enrolled prior to July 22, 1983 contribute at a rate of 5¼% of compensation, while members who did not elect coverage under Class T-D and who were most recently enrolled on or after July 22, 1983 and prior to July 1, 2001 contribute at a rate of 6¼% of compensation. Anyone who enrolls or re-enrolls on or after July 1, 2001 automatically has coverage under class T-D for subsequent school service and subsequent intervening military service, and must contribute at a rate of 7½% of compensation. Reduction in rate for a joint coverage member: 40% of Social Security tax, exclusive of disability and medical coverage portion.
------------	--

By Commonwealth and School Districts	Balance of required contribution determined as normal contribution, accrued liability contribution, supplemental annuity contribution, experience adjustment factor and premium assistance contribution, is funded by the Commonwealth and the School Districts.
--------------------------------------	--

## ACTUARIAL SECTION

### TABLE 14

SUMMARY OF MEMBERSHIP DATA AS OF JUNE 30, 2009

(\$ Amounts in Thousands)

#### ACTIVE MEMBERS \*

Item	Male	Female	Total
Number of Members	75,892	203,809	279,701
Annual Salaries **	\$ 3,841,116	\$ 8,683,477	\$ 12,524,593
Average Age ***	44.4	44.7	44.6
Average Service ***	11.2	10.3	10.6

\* Excludes 103,805 inactive members and vestees.

\*\* The salaries shown in the table above represent an annual rate of pay for the year ended June 30, 2009 for members who were in active service on June 30, 2009.

\*\*\* Average completed years of age and service.

#### ANNUITANTS AND BENEFICIARIES

Item	Number	Annual Annuities <sup>#</sup>	Average Annuities	Average Age
Annuitants (Normal, Early and Withdrawal)	162,206	\$ 3,786,453	\$ 23,343	69.8
Survivors and Beneficiaries	8,044	79,117	9,836	76.0
Disabled Annuitants	<u>7,713</u>	<u>130,718</u>	16,948	63.1
Total	177,963	\$ 3,996,288	\$ 22,456	69.8

<sup>#</sup> The annuities shown in the table above represent the annual amount payable as of July 1, 2009 for participants who were in payment on June 30, 2009.

# ACTUARIAL SECTION

## EXHIBIT I

ACTIVE MEMBERSHIP DATA AS OF JUNE 30, 2009

NUMBER AND AVERAGE ANNUAL SALARY

Age	Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
<b>Under 25</b>	9,816 \$29,755	40 \$31,693								9,856 \$29,763
<b>25-29</b>	22,062 \$38,142	6,916 \$48,524	45 \$37,810							29,023 \$40,615
<b>30-34</b>	10,503 \$35,593	14,102 \$51,508	3,905 \$58,932	38 \$45,548						28,548 \$46,660
<b>35-39</b>	9,870 \$27,882	8,228 \$49,650	11,188 \$61,644	2,521 \$68,025	67 \$45,430					31,874 \$48,563
<b>40-44</b>	11,400 \$23,699	7,062 \$39,555	6,207 \$56,075	6,344 \$69,048	2,113 \$68,596	72 \$46,867				33,198 \$44,699
<b>45-49</b>	11,113 \$22,561	8,967 \$33,006	6,237 \$44,546	4,108 \$60,116	4,995 \$70,016	1,824 \$66,205	135 \$43,734			37,379 \$41,410
<b>50-54</b>	8,409 \$23,503	8,241 \$32,944	7,732 \$41,292	5,198 \$52,421	4,573 \$63,062	5,096 \$72,334	3,773 \$73,102	103 \$45,527		43,125 \$46,339
<b>55-59</b>	5,520 \$23,524	5,356 \$33,286	5,638 \$42,018	5,563 \$51,144	5,233 \$59,278	3,546 \$68,459	6,752 \$77,872	2,273 \$80,051	26 \$47,947	39,907 \$52,409
<b>60-64</b>	3,274 \$20,442	2,772 \$30,332	2,530 \$38,032	2,659 \$45,206	2,800 \$51,342	1,921 \$58,440	1,242 \$66,428	1,182 \$80,259	278 \$80,973	18,658 \$44,128
<b>Over 64</b>	2,466 \$14,637	1,520 \$21,555	1,091 \$27,635	855 \$34,105	773 \$39,126	557 \$40,252	421 \$42,200	221 \$52,802	229 \$75,317	8,133 \$27,974
<b>Total</b>	94,433 \$28,952	63,204 \$41,353	44,573 \$50,028	27,286 \$57,340	20,554 \$61,803	13,016 \$66,855	12,323 \$73,665	3,779 \$77,581	533 \$76,932	279,701 \$44,779

# ACTUARIAL SECTION

## EXHIBIT II

THE NUMBER AND AVERAGE ANNUAL ANNUITY AS OF JUNE 30, 2009

RETIRED ON ACCOUNT OF SUPERANNUATION, EARLY RETIREMENT AND THOSE IN RECEIPT  
OF WITHDRAWAL ANNUITIES

Age	Years of Service									Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+		
<b>Under 50</b>		2,694	1,145	366	116	19				4,340	
		\$835	\$1,934	\$4,584	\$9,566	\$14,953				\$1,730	
<b>50-54</b>		798	953	469	253	160	91	6		2,730	
		\$1,380	\$1,821	\$4,455	\$10,029	\$20,884	\$32,112	\$35,219		\$5,101	
<b>55-59</b>		691	1,917	1,034	817	1,404	5,936	2,412	3	14,214	
		\$4,243	\$2,249	\$6,121	\$15,336	\$32,034	\$45,524	\$54,047	\$60,065	\$33,187	
<b>60-64</b>		365	831	3,135	2,243	2,068	3,245	11,982	9,816	218	33,903
		\$7,402	\$3,694	\$3,269	\$9,141	\$19,068	\$29,914	\$41,171	\$54,349	\$59,654	\$35,767
<b>65-69</b>		706	1,271	3,138	3,152	2,998	3,754	9,397	6,189	715	31,320
		\$3,700	\$3,376	\$4,367	\$9,050	\$15,752	\$24,788	\$34,785	\$46,722	\$60,252	\$27,091
<b>70-74</b>		750	1,026	2,787	2,740	3,101	3,499	5,131	3,870	929	23,833
		\$1,386	\$2,615	\$3,939	\$7,419	\$12,270	\$20,001	\$29,530	\$37,680	\$47,554	\$20,332
<b>75-79</b>		760	1,031	2,550	2,499	2,880	3,168	3,564	2,609	1,105	20,166
		\$4,004	\$2,067	\$3,458	\$6,347	\$11,009	\$17,438	\$25,965	\$35,543	\$42,255	\$17,295
<b>80-84</b>		778	979	2,344	2,482	2,623	2,466	2,094	1,641	748	16,155
		\$5,772	\$1,732	\$3,346	\$6,276	\$10,939	\$16,650	\$22,635	\$29,621	\$39,715	\$13,932
<b>85-89</b>		766	670	1,527	1,657	1,442	1,360	956	996	335	9,709
		\$6,411	\$1,785	\$3,344	\$6,003	\$9,963	\$14,419	\$19,106	\$23,988	\$33,638	\$11,182
<b>Over 89</b>		270	483	1,007	902	836	746	549	648	395	5,836
		\$3,850	\$1,983	\$3,749	\$6,592	\$10,147	\$13,633	\$18,457	\$21,967	\$26,494	\$11,173
<b>Total</b>		4,395	10,474	20,503	17,544	17,134	19,821	39,700	28,187	4,448	162,206
		\$4,514	\$2,130	\$3,352	\$7,226	\$13,079	\$21,936	\$35,592	\$45,356	\$44,644	\$23,343



# ACTUARIAL SECTION

## EXHIBIT III

THE NUMBER AND AVERAGE ANNUAL ANNUITY AS OF JUNE 30, 2009

BENEFICIARIES AND SURVIVOR ANNUITANTS

Age	Years of Service								Total
	0-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
<b>Under 50</b>	82	32	28	33	27	23	9	11	245
	\$7,817	\$1,716	\$3,461	\$5,076	\$7,100	\$12,755	\$16,412	\$11,832	\$7,034
<b>50-54</b>	69	21	26	24	18	15	16	10	199
	\$9,356	\$1,934	\$2,799	\$5,769	\$9,116	\$20,814	\$11,913	\$12,710	\$8,500
<b>55-59</b>	123	23	26	38	40	68	38	11	367
	\$14,768	\$3,629	\$4,191	\$6,544	\$12,778	\$13,646	\$16,317	\$8,607	\$12,020
<b>60-64</b>	172	36	30	40	58	138	120	25	619
	\$16,059	\$2,736	\$4,009	\$6,098	\$11,464	\$15,549	\$19,099	\$14,316	\$14,031
<b>65-69</b>	190	56	68	59	64	156	148	36	777
	\$15,068	\$3,240	\$5,155	\$7,039	\$11,683	\$17,356	\$20,687	\$15,556	\$14,012
<b>70-74</b>	220	100	84	85	85	160	153	72	959
	\$11,504	\$2,995	\$4,527	\$7,641	\$11,143	\$14,149	\$19,150	\$18,767	\$11,838
<b>75-79</b>	247	112	133	126	117	206	173	105	1,219
	\$9,665	\$2,883	\$4,309	\$6,627	\$9,020	\$12,695	\$14,768	\$20,900	\$10,286
<b>80-84</b>	330	149	136	154	162	183	229	102	1,445
	\$7,465	\$2,633	\$3,940	\$6,506	\$8,726	\$11,174	\$11,996	\$16,733	\$8,516
<b>85-89</b>	249	149	136	128	143	146	240	100	1,291
	\$6,382	\$2,384	\$3,627	\$5,517	\$7,299	\$9,552	\$11,011	\$12,714	\$7,356
<b>Over 89</b>	142	110	77	80	72	112	178	152	923
	\$4,485	\$2,099	\$3,507	\$5,169	\$7,226	\$7,028	\$9,063	\$10,223	\$6,528
<b>Total</b>	1,824	788	744	767	786	1,207	1,304	624	8,044
	\$10,052	\$2,614	\$4,035	\$6,284	\$9,236	\$12,835	\$14,417	\$14,980	\$9,836

# ACTUARIAL SECTION

## EXHIBIT IV

THE NUMBER AND AVERAGE ANNUAL ANNUITY AS OF JUNE 30, 2009

RETIRED ON ACCOUNT OF DISABILITY

Age	Years of Service									Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+		
<b>Under 50</b>		242	145	90	37	12					526
		\$11,504	\$14,032	\$20,412	\$25,284	\$26,131					\$15,028
<b>50-54</b>		214	177	151	127	99	13	1			782
		\$10,048	\$12,521	\$16,491	\$25,098	\$37,413	\$45,176	\$29,573			\$18,312
<b>55-59</b>		284	298	258	255	328	160				1,583
		\$9,388	\$11,950	\$17,499	\$24,134	\$36,229	\$47,983				\$23,030
<b>60-64</b>		292	329	303	333	384	207	3	1		1,852
		\$7,464	\$10,087	\$13,722	\$22,632	\$30,818	\$42,852	\$42,642	\$1,755		\$20,516
<b>65-69</b>		198	281	242	242	178	49	2			1,192
		\$5,730	\$8,116	\$10,568	\$17,167	\$26,066	\$33,816	\$47,699			\$13,858
<b>70-74</b>		129	182	159	128	91	25	2			716
		\$5,517	\$7,033	\$8,663	\$14,078	\$20,517	\$29,012	\$42,997			\$10,963
<b>75-79</b>		86	133	128	89	46	7	1			490
		\$3,921	\$5,954	\$8,837	\$13,010	\$20,079	\$22,730	\$43,179			\$9,274
<b>80-84</b>		69	107	47	69	42	6	1	1		342
		\$3,877	\$5,874	\$8,267	\$12,527	\$17,214	\$24,289	\$24,751	\$54,601		\$9,056
<b>85-89</b>		40	37	25	25	17	8	2			154
		\$3,854	\$6,743	\$7,382	\$10,338	\$15,288	\$18,540	\$35,460			\$8,609
<b>Over 89</b>		12	24	14	8	8	10				76
		\$3,246	\$4,856	\$8,794	\$10,031	\$16,327	\$21,642				\$9,288
<b>Total</b>		1,566	1,713	1,417	1,313	1,205	485	12	2		7,713
		\$7,934	\$9,619	\$13,241	\$19,901	\$30,081	\$41,529	\$39,812	\$28,178		\$16,948

# ACTUARIAL SECTION

## EXHIBIT V

ANNUITANT AND BENEFICIARY MEMBERSHIP DATA AS OF JUNE 30, 2009

NUMBER AND AVERAGE ANNUAL BENEFIT EXCLUDES PARTIAL LUMP SUM PAYMENTS

Age Last Birthday	Number	Annual Benefit (Thousands)	Average Annual Benefit
<b>Annuitants (Normal, Early and Withdrawal)</b>			
Under 60	21,284	\$ 493,158	\$ 23,170
60 - 64	33,903	1,212,609	35,767
65 - 69	31,320	848,505	27,091
70 - 74	23,833	484,580	20,332
75 - 79	20,166	348,765	17,295
Over 79	31,700	398,836	12,582
Total	162,206	\$ 3,786,453	\$ 23,343
<b>Survivors and Beneficiaries</b>			
Under 60	811	\$ 7,826	\$ 9,650
60 - 64	619	8,685	14,031
65 - 69	777	10,887	14,012
70 - 74	959	11,352	11,838
75 - 79	1,219	12,538	10,286
Over 79	3,659	27,829	7,606
Total	8,044	\$ 79,117	\$ 9,836
<b>Disabled Annuitants</b>			
Under 60	2,891	\$ 58,681	\$ 20,298
60 - 64	1,852	37,996	20,516
65 - 69	1,192	16,519	13,858
70 - 74	716	7,849	10,963
75 - 79	490	4,544	9,274
Over 79	572	5,129	8,967
Total	7,713	\$ 130,718	\$ 16,948
<b>Grand Total Average Annual Benefit</b>			
	177,963	\$ 3,996,288	\$ 22,456

## ACTUARIAL SECTION

### EXHIBIT VI

#### 10 YEAR HISTORY OF MEMBERSHIP DATA

Valuation as of June 30	Number of Active Members	Percentage Change in Membership	Total Annual Payroll (Thousands)	Percentage Change in Payroll
2009	279,701	2.57%	\$ 12,524,593	5.06%
2008	272,690	3.28%	11,921,469	4.48%
2007	264,023	0.26%	11,410,257	(0.08%)
2006	263,350	3.09%	11,419,049	8.47%
2005	255,465	3.05%	10,527,668	4.95%
2004	247,901	0.49%	10,030,705	3.91%
2003	246,700	1.68%	9,652,881	2.92%
2002	242,616	(0.29%)	9,378,944	(0.38%)
2001	243,311	3.89%	9,414,884	5.32%
2000	234,210	4.79%	8,939,598	8.39%

#### 10 YEAR HISTORY OF MEMBERSHIP DATA THE NUMBER AND ANNUAL ANNUITIES OF ANNUITANT AND SURVIVOR ANNUITANT MEMBERS

Year Ended June 30	Number	Annual Annuities (Millions)	Average Annual Annuities	Additions*	Annual Annuities* (Millions)	Deletions*	Annual Annuities* (Millions)	Percentage Change in Membership	Percentage Change in Annuities
2009	177,963	\$ 3,996.3	\$ 22,456	9,651	\$ 314.9	5,228	\$ 74.4	2.55%	4.85%
2008	173,540	3,811.5	21,963	10,911	345.3	5,397	73.9	3.28%	8.18%
2007	168,026	3,523.4	20,970	10,612	307.5	4,399	56.0	3.84%	7.60%
2006	161,813	3,274.5	20,236	10,637		5,343		3.38%	8.16%
2005	156,519	3,027.6	19,343	10,050		5,083		3.28%	8.20%
2004	151,552	2,798.2	18,464	10,526		4,667		4.02%	9.94%
2003	145,693	2,545.1	17,469	9,079		4,800		3.03%	13.20%
2002	141,414	2,248.3	15,899	13,003		4,305		6.55%	20.10%
2001	132,716	1,872.0	14,105	3,140		4,482		-1.00%	0.00%
2000	134,058	1,880.6	14,028	5,923		4,734		0.89%	2.73%

\* The annual annuities added and deleted are for the annuitants and survivor annuitants who were added and deleted. Changes in annuities for continuing payees may also occur due to finalization of benefit calculations and due to the commencement of supplemental annuity payments.