## ACTUARIAL



## 1990

The 100,000<sup>th</sup> annuitant was added to PSERS' monthly pension payroll.





January 18, 2008

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 as of June 30, 2007.

The valuation takes into account all of the promised benefits to which members are entitled as of June 30, 2007, including pension and survivor benefits; and as required by the Retirement Code is the basis for the contribution rate for fiscal year 2008/2009.

The valuation was based on the actuarial assumptions and methods as adopted by the Board of Trustees, including a valuation interest rate of 8½% per annum compounded annually. The actuarial assumptions and methods for funding are unchanged from the prior valuation.

The actuarial assumptions and methods for financial reporting meet the parameters set forth in Governmental Accounting Standards Board (GASB) Statements No. 25 and 43, 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 PSERS 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 PSERS 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 PSERS code for the PSERS pension plan.)

One North Dearborn Street, Suite 1400 • Chicago, IL 60602-4336 312.846.3000 • 312.846.3999 (fax)



#### **Assets and Membership Data**

The Retirement System reported the individual data for members of the 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 2008/2009 is 4.76%. As of June 30, 2007, the total funded ratio of the plan (for Pensions and Health Insurance combined) is 85.8%, 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.

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,

Josh

Janet Cranna, FSA Principal, Consulting Actuary

S. Spm Hill

S. Lynn Hill Director, Retirement Consulting

Inna

Dana Spangher, FSA Director, Consulting Actuary JC/SLH/DS:pl





This report presents the actuarial valuation as of June 30, 2007 for the Public School Employees' Retirement System of Pennsylvania.

The principal valuation results include:

- The employer contribution rate for fiscal year 2008/2009, which is 4.76%.
- The total funded ratio of the plan determined as of June 30, 2007 under the funding requirements of Section 8328 of the Retirement Code, which is 85.8% 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 gain or loss as of June 30, 2007, which is a gain of \$3.9 billion.
- Annual disclosures as of June 30, 2007 as required by Statements No. 25 and 43 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**

There were no significant changes to the actuarial assumptions or methods since the prior valuation.

The actuarial assumptions and methods are outlined in Table 12.

#### **Contribution Rates**

The results of the valuation as of June 30, 2007 determine the employer contribution rate for fiscal year 2008/2009. The calculated employer contribution rate for the 2008/2009 fiscal year is 4.76%, and the Board of Trustees certified this rate at their December 2007 meeting.

The average contribution rate payable by the members is 7.29%. 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 7.5%. The average member contribution rate of 7.29% 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 decreased from 7.13% for fiscal year 2007/ 2008 to 4.76% for fiscal year 2008/2009. The decrease of 2.37% is due to the following sources:

•	Change due to change in employer normal rate	0.00
•	Decrease due to payroll growth	(0.01)
•	Decrease due to actuarial gain on assets	(2.25)
•	Decrease due to actuarial gain on liabilities	(0.87)
•	Increase due to change in health insurance contribution rate	0.07
•	Increase due to effect of 4% floor on FY 2007 pension contribution	0.69
•	Total	(2.37)%





#### **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, 2007. Comparable results from the June 30, 2006 valuation are also shown.

ltem	June 30, 2007	June 30, 2006
Demographics		
Active Members		
Number	264,023	263,350
Average Annual Pay	\$ 43,217	\$ 43,361
Annuitants		
Number	168,026	161,813
Average Annual Benefit Payment	\$ 20,970	\$ 20,236
	+ - )	· · · / · ·
Contribution Rates (as a Percentage		
of Payroll)	(Fiscal Year 2008/2009)	(Fiscal Year 2007/2008)
Employer Contribution Rate:	4.000/	0.440/
Health Insurance Contribution Rate	4.00% 0.76	6.44% 0.69
Total Contribution Rate Calculated by Actuary	<u>0.70</u> 4.76%	<u> </u>
Total Contribution Rate Certified by Board	4.76%	7.13%
Member Average Contribution Rate	7.29	7.25
Total Rate	12.05%	14.38%
Actuarial Funded Status*		
Accrued Liability	\$ 66,593.1 Mil	\$ 64,720.1 Mil
Actuarial Value of Assets	57,155.1	52,557.5
Unfunded Accrued Liability	\$ 9,438.0	\$ 12,162.6
Funded Ratio	85.8 %	81.2 %
* Pensions and Health Insurance combined		





## **Five-Year History of Principal Financial Results**

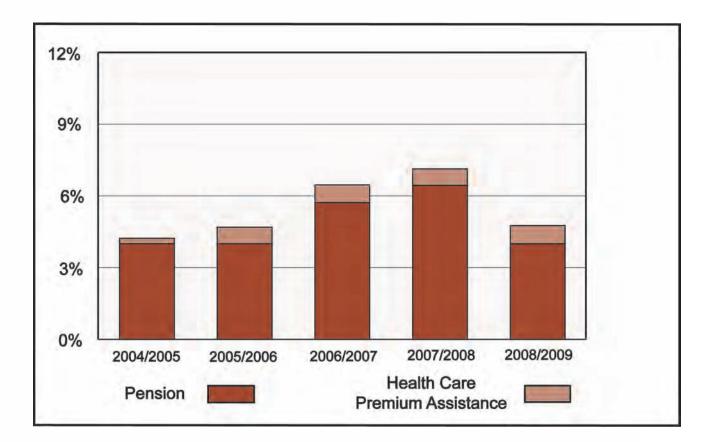
## **Five-Year History of Contribution Rates**

(As a % of Payroll)

		Employer Contributions							
Fiscal Year	Member Contributions	Normal Cost	Unfunded Accrued Liability	Health Care	Total *				
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				
2005/2006	7.16	7.61	(4.28)	0.69	4.69				
2004/2005	7.12	7.48	(7.10)	0.23	4.23				

\* Certified by the Board.

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







#### **Funded Ratio**

The financing objective of the 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 4.76% 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 System's total funded ratio on the 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 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 System's total funded ratio (for Pensions and Health Insurance combined) is 85.8% as of June 30, 2007. This funded ratio is based on an actuarial value of assets of \$57.2 billion and an accrued liability of \$66.6 billion. The funded ratio for Pensions alone is also 85.8% as of June 30, 2007, based on an actuarial value of assets of \$57.1 billion, and an accrued liability of \$66.5 billion.

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

The total funded ratio increased from 81.2% as of June 30, 2006 to 85.8% as of June 30, 2007. This increase is primarily due to experience gains on the assets and liabilities that occurred during the year. These gains were partially offset by contributions that were less than normal cost plus one year's interest on the June 30, 2006 unfunded accrued liability.





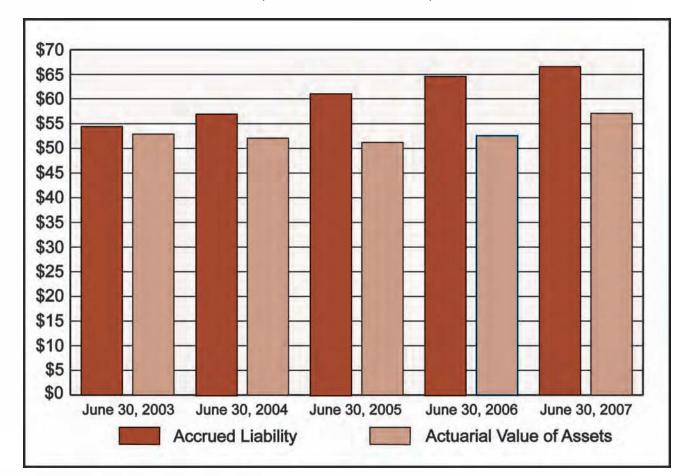
#### Five-Year History of Total Funded Ratio\*

Valuation as of June 30	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio
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
2004	57,123.0	52,094.5	5,028.5	91.2
2003	54,443.8	52,900.5	1,543.3	97.2

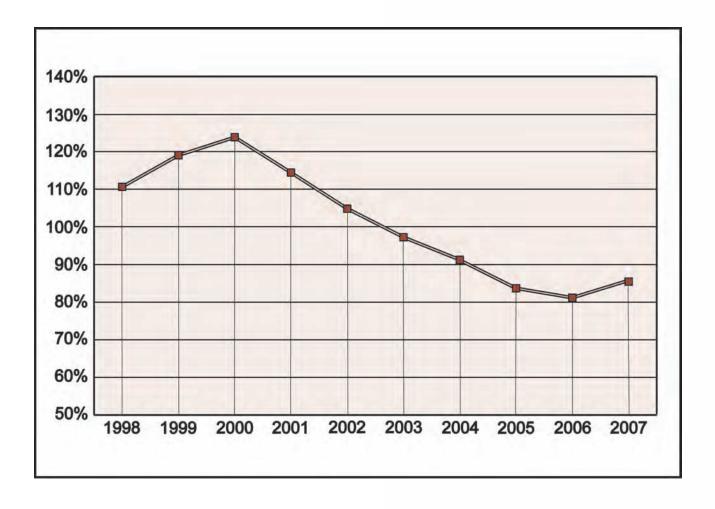
(Dollar Amounts in Millions)

\* For Pensions and Health Insurance (under the funding provisions of the PSERS code)

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 (Dollar Amounts in Billions) The following chart shows a ten-year history of the total funded ratio for Pensions and Health Insurance:



## Ten-Year History of Funded Ratio (1998 - 2007)



## 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 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 System's financial statements.

The schedule of funding progress shows historical trend information about the 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 System's funding method and reflects future pay increases for active employees. On this basis, the System's funded ratio for pensions is 85.8% as of June 30, 2007. This funded ratio is based on an actuarial value of pension assets of \$57.1 billion and an accrued liability for pensions of \$66.5 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 System. The pension contribution requirements of the PSERS 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 PSERS 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 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 System's financial statements.



The health insurance liability and funding provisions of the PSERS 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 PSERS code for the PSERS pension plan.)

The GASB 43 schedule of funding progress, presented in Table 7, shows that as of June 30, 2007, the health insurance assets were \$97,292,000, measured on a market value basis, while the GASB 43 health insurance liabilities were \$1,058,092,000, resulting in a funded ratio of 9.2%.

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 2002/2003 through 2006/2007 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					
fear	Market Value *	Actuarial Value				
2006/2007	22.9%	13.9%				
2005/2006	15.3	7.9				
2004/2005	12.9	3.2				
2003/2004	19.7	2.6				
2002/2003	2.7	1.4				

\* Market value rate of return provided by Wilshire Associates Incorporated, the PSERS investment consultant.



## Table 1Summary of Results of Actuarial ValuationAs of June 30, 2007

(Dollar Amounts in Thousands)

ltem	June 30, 2007	June 30, 2006
Member Data		
1. Number of Members		
a) Active Members	264,023	263,350
b) Inactive Members and Vestees	109,186	94,071
c) Annuitants, Beneficiaries and Survivor Annuitants	168,026	161,813
d) Total	541,235	519,234
2. Annualized Salaries	\$ 11,410,257	\$ 11,419,049
3. Annual Annuities	\$ 3,523,429	\$ 3,274,451
Valuation Results		
4. Present Value of Future Pension Benefits		
a) Active Members	\$ 49,167,907	\$ 50,310,197
b) Inactive Members and Vestees	1,589,329	823,575
c) Annuitants, Beneficiaries and Survivor Annuitants	31,603,788	29,117,164
d) Total	\$ 82,361,024	\$ 80,250,936
5. Present Value of Future Pension Normal Cost		
a) Active Members	\$ 8,430,801	\$ 8,131,437
b) Employer	7,434,353	7,492,138
c) Total	\$ 15,865,154	\$ 15,623,575
6. Pension Accrued Liability	\$ 33,302,753	¢ 24 696 622
<ul><li>a) Active Members (4a) - (5c)</li><li>b) Inactive Members and Vestees</li></ul>	\$ 33,302,753 1,589,329	\$ 34,686,622 823,575
c) Annuitants, Beneficiaries and Survivor Annuitants	31,603,788	29,117,164
d) Total	\$ 66,495,870	\$ 64,627,361
7. Health Insurance Assets for Premium Assistance	\$ 97,292	\$ 92,777
8. Total Accrued Liability for Funding (6) + (7)	\$ 66,593,162	\$ 64,720,138
9. Actuarial Value of Assets	\$ 57,155,130	\$ 52,557,503
10. Funded Status (9) / (8)	85.8 %	81.2 %
11. Unfunded Accrued Liability (8) - (9)	\$ 9,438,032	\$ 12,162,635
12. Total Normal Cost Rate	13.97 %	13.93 %
13. Member Contribution Rate	7.29 %	7.25 %
14. Employer Normal Cost Rate (12 - (13)	6.68 %	6.68 %
Employer Annual Funding Requirement for Fiscal 2007/2008	Fiscal 2008/2009	Fiscal 2007/2008
15. Employer Contribution Rate Calculated by Actuary		
a) Normal	6.68 %	6.68 %
b) Unfunded Accrued Liability	(3.37)	(0.24)
c) Preliminary Pension Rate	3.31 %	6.44 %
d) Preliminary Pension Rate with 4% Floor	4.00	6.44
e) Health Insurance	0.76	0.69
f) Total Rate	4.76 %	7.13 %





# Table 2Summary of Sources of Employer Contribution RateAs of June 30, 2007

(Dollar Amounts in Thousands)

	Funding Period (Years)	Beginning July 1		Initial Liability	7/1/2007 Outstanding Balance	Annual F Amount	ayment Percent *	
1. Amortization of:								
a) 2001 Fresh Start Unfunded Base	10	2002	\$	(9,137,130)	\$ (5,954,063)	\$ (1,510,937)	(12.09)%	
b) 2001 Asset Method Change (Act 38)	10	2002		(4,638,306)	(3,022,477)	(767,001)	(6.14)%	
c) Other 2001 Changes	30	2002		7,570,507	6,837,575	668,111	5.34 %	
d) 2002 Changes	30	2003		3,014,171	2,962,314	286,101	2.30 %	
e) 2002 COLA	10	2003		463,795	349,234	76,694	0.61 %	
f) 2003 COLA	10	2004		754,524	692,921	135,375	1.08 %	
g) 2003 Changes	30	2004		3,229,593	3,412,081	326,059	2.61 %	
h) 2004 Changes	30	2005		2,903,093	3,096,984	293,096	2.35 %	
i) 2005 Changes	30	2006		3,765,745	4,052,939	380,189	3.04 %	
j) 2006 Changes	30	2007		812,226	881,265	82,002	0.66 %	
k) 2007 Changes	30	2008		(3,870,741)	(3,870,741)	(390,789)	(3.13)%	
Total Amortization Payments					\$ 9,438,032	\$ (421,100)	(3.37)%	
2. Employer Normal Cost Rate							6.68 %	
3. Preliminary Pension Rate (1) + (2)								
4. Preliminary Pension Rate with	4% Floor N	Maximum of (3	3) an	d 4%			4.00 %	
5. Health Insurance Rate							0.76 %	
6. Final Total Employer Contribution	on Rate Calc	culated by Actu	uary	(4) + (5)			4.76 %	

\* Based on Estimated Employer Payroll for Fiscal Year Ending 2009 of \$12,500,000.





## Table 3

### Determination of Health Insurance Contribution Rate For Fiscal Year 2008/2009

(Dollar Amounts in Thousands)

			ltem				
1.	June 30, 2007 Balance in Health Insurar	nce A	ccount			\$	97,292
2.	Estimated Fiscal 2007/2008 Contribution						
	(a) Contribution Rate Certified in 2006 Valuation						0.69%
	(b) Estimated Fiscal 2007/2008 payroll					\$ 1	1,977,344
	(c) Estimated Contribution = (a) x (b)					\$	82,644
3.	Estimated Number of Annuitants who:			Ar	e Eligible	Eleo	ct Coverage
	(a) Fiscal 2007/2008				110,000		72,600
	(b) Fiscal 2008/2009				113,000		74,580
	(c) Fiscal 2009/2010				115,900		76,494
4.	Estimated Disbursements:	Adm	ninistration	As	sistance		Total
	(a) Fiscal 2007/2008	\$	2,205	\$	87,120	\$	89,325
	(b) Fiscal 2008/2009		1,963		89,496		91,459
	(c) Fiscal 2009/2010		2,042		91,793		93,835
	(d) Total	\$	6,210	\$	268,409	\$	274,619
5.	Required Fiscal 2008/2009 Contribution					\$	94,683
	(4d) - (1) - (2c)						
6.	Required Health Insurance Contribution Rate						
	(a) Estimated 2008/2009 Payroll					\$ 12	2,500,000
	<ul> <li>(b) Required Health Insurance</li> <li>Contribution Rate</li> <li>(5) / (6a) (rounded up)</li> </ul>						0.76%

#### Notes:

1. Current estimates of fiscal 2007/2008 membership payroll and administrative expenses, and of fiscal 2008/2009 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.



## Table 4

## Summary of Market Value of Plan Assets

As of June 30, 2007

(Dollar Amounts in Thousands)

Market Value	
1. Market Value of Assets as of June 30, 2006	\$ 57,328,444
2. Contributions During Fiscal Year 2006/2007	1,601,630
3. Disbursements During Fiscal Year 2006/2007	4,150,656
4. Investment Return During Fiscal Year 2006/2007	
a) Net Investment Return	\$ 12,696,900
b) Administrative Expenses	38,029
c) Investment Return After Expenses (a) - (b)	\$ 12,658,871
5. Market Value of Assets as of June 30, 2007	
(1) + (2) - (3) + (4c)	\$ 67,438,289
6. Rate of Return (per Wilshire)	22.93%
Asset Allocation by Account	
1. Members' Savings Account	\$ 10,183,433
2. Annuity Reserve Account	31,603,788
3. State Accumulation Account	25,553,776
4. Health Insurance Account	97,292
5. Total (1) + (2) + (3) + (4)	\$ 67,438,289



## <u>Table 5</u> Derivation of Actuarial Value of Assets As of June 30, 2007

۱ او او او او او

(Dollar Amounts in Thousands)

1. Market Value of Assets	1. Market Value of Assets as of June 30, 2007									
2. Determination of Defer	2. Determination of Deferred Gain (Loss)									
	Return on Assets									
Year		Actual		Expected		Difference	% Deferred		Deferred Amount	
2006/2007	\$	12,658,871	\$	4,359,054	\$	8,299,817	80%	\$	6,639,854	
2005/2006		7,901,068		4,242,878		3,658,190	60%		2,194,914	
2004/2005		6,044,305		4,321,981		1,722,324	40%		688,929	
2003/2004		8,201,871		4,404,561		3,797,310	20%		759,462	
								\$	10,283,159	
3. Actuarial Value of Assets (1) - (2)									57,155,130	
4. Actuarial Rate of Retur	n *								13.94%	

\* The actuarial rate of return is the investment return based on the change in the actuarial value of the assets from the June 30, 2006 valuation to the June 30, 2007 valuation.





## Table 6

## Analysis of Change in Unfunded Accrued Liability

As of June 30, 2007

(Dollar Amounts in Thousands)

Item	Amount
1. Unfunded Accrued Liability at June 30, 2006	\$ 12,162,635
2. Interest Credit at 8.50% to June 30, 2007	1,033,825
3. Contributions toward Unfunded Accrued Liability	(112,313)
<ol> <li>Change due to Effect of 4% Floor on FY 2007 Pension Contribution</li> </ol>	-
<ol> <li>5. Expected Unfunded Accrued Liability at June 30, 2007</li> <li>(1) + (2) - (3) + (4)</li> </ol>	\$ 13,308,773
6. Actual Unfunded Accrued Liability at June 30, 2007	\$ 9,438,032
7. Increase (Decrease) from Expected (6) - (5)	\$ (3,870,741)
8. Reasons for Increase (Decrease)	
(a) Experience (Gains) Losses	
(i) Gain from Investment Return on Actuarial Value of Assets	\$ (2,787,600)
(ii) Loss from New Entrants and Pickups	242,000
(iii) Gain from Salary Increases Less than Expected	(1,154,455)
(iv) Loss from Mortality Experience	113,484
<ul><li>(v) Gain from Vested Termination Experience (Retirement/Disability/Termination)</li></ul>	(342,086)
(vi) Gain from Non-vested Termination Experience	(93,416)
(vii) Loss from Data/Miscellaneous	151,332
Subtotal	\$ (3,870,741)
(b) Changes in Assumptions and Funding Method	-
(c) Grand Total	\$ (3,870,741)





## Table 7Schedule of Funding Progress For Pensions \*GASB Statement No. 25 Disclosure

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
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
2003	52,770,018	54,313,328	1,543,310	97.2	9,652,881	16.0
2002	54,193,064	51,693,207	( 2,499,857)	104.8	9,378,944	(26.7)

(Dollar Amounts in Thousands)

\* 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

(Dollar 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
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 PSERS code.





### Table 8a

### Schedule of Employer Contributions for Pensions GASB Statement No. 25 Disclosure

Fiscal Year Ended June 30	Annual Required Contribution	Actual Employer Contribution	Percentage Contributed
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
2003	20,831	20,831	100
2002	539	539	100

(Dollar Amounts in Thousands)

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, 2007 was determined by the valuation completed as of June 30, 2005).

Additional information as of the latest actuarial valuation follows:

Valuation Date:	6/30/2007
Actuarial Cost Method:	Entry Age
Amortization Method:	Level dollar open
Remaining Amortization Period:	30 years
Asset Valuation Method:	5-year smoothed market
Actuarial Assumptions:	
<ul> <li>Investment Rate of Return *</li> </ul>	8.50%
- Projected Salaried Increases *	6.00%
* Includes Inflation at:	3.25%





## Table 8b

## Schedule of Employer Contributions for Postemployment Benefits Other than Pensions GASB Statement No. 43 Disclosure

(Dollar Amounts in Thousands)

Fiscal Year Ended June 30	Annual Required Contribution	Actual Employer Contribution	Percentage Contributed
2007	\$ 94,970	\$ 86,763	91 %

The Annual Required Contribution (ARC) presented above was determined as part of the actuarial valuation as of one year prior to the dates indicated (i.e., the ARC for the fiscal year ended June 30, 2007 was determined by the valuation completed as of June 30, 2006).

Additional information as of the latest actuarial valuation follows:

Valuation Date:	6/30/2007
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 * - Projected Salaried Increases *	8.50% 6.00%
* Includes Inflation at:	3.25%





## Table 9

Solvency Test Comparative Summary of Accrued Liability and Actuarial Value of Assets\*

(Dollar Amounts in Thousands)

	(1)	(2)	(3)				
Valuation as of June 30	Active Member Contributions	Retirees and Beneficiaries	Active Member Employer Financed	Actuarial Value of Assets	Liabilit	on of Aco ty Cover ation As (2)	ed by
2007	\$10,183,433	\$ 31,701,080	\$ 24,708,649	\$ 57,155,130	100%	100%	62%
2006	9,571,668	29,209,941	25,938,529	52,557,503	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
2003	8,282,753	22,094,109	24,066,913	52,900,465	100	100	94
2002	7,780,370	19,978,567	24,037,574	54,296,368	100	100	100

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



## Table 10History and Projection ofContribution Rates and Funded Ratios1

			Contribution Rates <sup>2</sup>						
Fiscal Year	Employer Payroll	Member	Employer Normal Cost Rate	Unfunded Liability Rate	Preliminary Employer Pension Rate	Final Employer Pension	Health Insurance Rate	Total Employer Rate	Funded Ratio
1999/2000	\$ 8,939,598	5.72%	6.40%	(2.04)%	4.36%	4.36%	0.25%	4.61%	123.8%
2000/2001	9,414,884	5.77	6.29	(4.65)	1.64	1.64	0.30	1.94	114.4
2001/2002 <sup>3</sup>	9,378,944	6.43	5.63	(6.05)	(0.42)	0.00	1.09	1.09	104.8
2002/20034	9,652,881	7.10	7.20	(10.03)	1.00	0.18	0.97	1.15	97.2
2003/2004	10,030,705	7.08	7.25	(4.27)	2.98	2.98	0.79	3.77	91.2
2004/20055	11,062,589	7.12	7.48	(7.10)	0.38	4.00	0.23	4.23	83.7
2005/2006	11,505,093	7.16	7.61	(4.28)	3.33	4.00	0.69	4.69	81.2
2006/2007 <sup>6</sup>	11,821,951	7.21	6.62	(0.95)	5.67	5.72	0.74	6.46	85.8
2007/2008	12,881,244	7.25	6.68	(0.24)	6.44	6.44	0.69	7.13	90.5
2008/2009	12,500,000	7.29	6.68	(3.37)	3.31	4.00	0.76	4.76	93.8
2009/2010	12,866,029	7.31	6.64	(6.15)	0.49	4.00	0.75	4.75	96.8
2010/2011	13,226,878	7.33	6.62	(8.37)	(1.75)	4.00	0.74	4.74	99.0
2011/2012	13,603,456	7.35	6.59	(10.55)	(3.96)	4.00	0.74	4.74	99.1
2012/2013	14,001,264	7.37	6.57	3.93	10.50	10.50	0.73	11.23	100.1
2013/2014	14,420,497	7.39	6.54	2.18	8.72	8.72	0.72	9.44	100.6
2014/2015	14,859,650	7.41	6.52	1.01	7.53	7.53	0.72	8.25	100.9
2015/2016	15,333,694	7.42	6.50	0.88	7.38	7.38	0.70	8.08	101.1
2016/2017	15,848,584	7.44	6.48	0.80	7.28	7.28	0.68	7.96	101.3
2017/2018	16,409,583	7.45	6.46	0.75	7.21	7.21	0.67	7.88	101.5
2018/2019	17,015,045	7.46	6.44	0.72	7.16	7.16	0.64	7.80	101.7

1. The projection of contribution rates is based on the assumption that there are no changes in demographic or economic 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; the Final Employer Pension Rate is the greater of the Preliminary Pension Rate and any Pension Rate Floor stated in the PSERS Code (the Code). The Total Employer Rate is the sum of the Final Employer Pension Rate and the Employer Health Insurance Rate.

3. For fiscal year ending on or before June 30, 2002, there was no floor specified in the 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 Code.

4. Act 2002-38 amended the 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 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.





## **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
1998			120,665	6,149	126,814	220,703
1999			126,448	6,421	132,869	223,495
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	15,018	4,351	170,427	8,735	179,162	264,023
2009	11,839	4,522	177,744	9,173	186,917	264,023
2010	12,188	4,704	185,228	9,574	194,802	264,023
2011	12,199	4,903	192,524	9,953	202,477	264,023
2012	12,170	5,088	199,606	10,307	209,913	264,023
	11.000			10.010		
2013	11,802	5,264	206,144	10,643	216,787	264,023
2014	11,671	5,458	212,357	10,971	223,328	264,023
2015	11,583	5,645	218,295	11,298	229,593	264,023
2016	11,405	5,822	223,878	11,618	235,496	264,023
2017	11,280	6,011	229,147	11,938	241,085	264,023

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





### **Description of Actuarial Assumptions and Methods**

#### ASSUMPTIONS

**Interest Rate:** 8.5% per annum, compounded annually (adopted as of June 30, 1990). The components are 3.25% for inflation and 5.25% for the real rate of return (both adopted as of June 30, 2005). 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):

	Annual Rate of:							
		Vested W	ithdrawal*					
Age	Non-Vested Withdrawal	Less than 10 Years of Service	10 or More Years of Service	Death	Disability	Early Retirement**	Superannuation Retirement	
	Males							
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	
				Females				
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.)

**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:** 65% 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.



#### Description of Actuarial Assumptions and Methods (Continued)

**Asset Valuation Method:** A five-year moving market average value of assets that recognizes the 8½% 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 PSERS 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 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 System as of June 30, 2007 and does not take into account future members. All census data was supplied by the 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 System until after the actuarial valuation is performed. Asset data was supplied by the 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, 2007, the adjusted limit is \$225,000.
	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.



Summary of Benefit and Contribution Provisions (Continued)

🌕 🌍 🧶 🌏

#### **Disability Annuity**

 $\left( \right)$ 

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 which would have been effective if the member retired on the day before death. Option 1 (see below) assumed payable if no other option elected.
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.



Summary of Benefit and Contribution Provisions (Continued)

#### Health Care Premium Assistance

Eligibility Retired members who: (a) have  $24\frac{1}{2}$  or more years of service, or (b) are disability annuitants, or (c) have 15 or more years of service and who both terminated school service and retired after attaining superannuation age and (d) participate in the PSERS Health Options Program or in an employer-sponsored health insurance program. 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** Members who elected coverage under Class T-D and who were By Members most recently enrolled prior to July 22, 1983 contribute at a rate of 61/2% 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 71/2% 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 51/4% 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 61/4% 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 71/2% of compensation. Reduction in rate for a joint coverage member: 40% of Social Security tax, exclusive of disability and medical coverage portion. By Commonwealth Balance of required contribution determined as normal contribution, and School Districts accrued liability contribution, supplemental annuity contribution,



experience adjustment factor and premium assistance contribution,

is funded by the Commonwealth and the School Districts.



Table 14 Summary of Membership Data As of June 30, 2007 (Dollar Amounts in Thousands)

#### **Active Members \***

ltem	Male	Female	Total
Number of Members	72,195	191,828	264,023
Annual Salaries **	\$ 3,553,463	\$ 7,856,794	\$ 11,410,257
Average Age***	44.5	44.7	44.6
Average Service***	11.7	10.5	10.8

\* Excludes 109,186 inactive members and vestees.

\*\* The salaries shown in the table above represent an annual rate of pay for for the year ended June 30, 2007 for members who were in active service on June 30, 2007.

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

#### **Annuitants and Beneficiaries**

ltem	Number	Annual Annuities #	Average Annuities	Average Age
Annuitants (Normal, Early and Withdrawal)	152,361	\$ 3,327,020	\$ 21,836	69.7
Survivors and Beneficiaries	8,266	76,055	9,201	75.7
Disabled Annuitants	7,399	120,354	16,266	62.6
Total	168,026	\$ 3,523,429	\$ 20,970	69.7

# The annuities shown in the table above represent the annual amount payable as of July 1, 2007 for participants who were in payment on June 30, 2007.





## Exhibit I

#### Active Membership Data as of June 30, 2007 Number and Average Annual Salary

	Years of Service									
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 +	Total
Under 25	9,003	56								9,059
	\$29,360	\$26,889								\$29,345
25 - 29	20,474	5,886	46							26,406
	\$36,666	\$45,601	\$35,033							\$38,655
30 - 34	9,697	13,078	2,962	32						25,769
	\$34,466	\$49,371	\$55,846	\$41,510						\$44,497
35 - 39	9,840	8,710	9,342	2,112	56					30,060
	\$27,009	\$45,838	\$58,494	\$61,905	\$42,436					\$44,730
40 - 44	11,230	7,486	5,015	5,399	2,035	82				31,247
40 - 44	\$23,277	\$35,818	\$52,668	\$63,420	\$62,958	\$43,322				\$40,572
45 - 49	10,939	9,431	5,714	4,276	4,712	2,289	137			37,498
	\$22,998	\$31,581	\$42,688	\$56,654	\$65,676	\$64,275	\$43,807			\$39,953
50 - 54	7,775	8,323	6,879	5,616	4,341	6,968	5,220	71		45,193
	\$23,510	\$32,381	\$40,916	\$51,088	\$61,303	\$70,428	\$71,531	\$48,462		\$47,670
55 - 59	5,074	4,837	4,645	5,246	4,515	3,673	7,648	1,943	24	37,605
	\$24,046	\$32,616	\$40,185	\$48,404	\$56,264	\$66,307	\$75,110	\$76,949	\$46,653	\$51,669
60 - 64	2,807	2,220	1,940	2,225	2,027	1,608	945	821	165	14,758
	\$20,590	\$29,522	\$34,935	\$42,714	\$48,766	\$52,980	\$61,517	\$77,817	\$77,937	\$40,999
Over 64	1,966	1,193	818	737	583	482	326	172	151	6,428
	\$14,567	\$19,700	\$25,428	\$29,726	\$33,933	\$36,145	\$39,048	\$49,160	\$72,101	\$25,533
Total	88,805	61,220	37,361	25,643	18,269	15,102	14,276	3,007	340	264,023
	\$28,368	\$39,156	\$47,596	\$53,602	\$59,047	\$65,394	\$71,777	\$74,924	\$73,137	\$43,217





#### Exhibit II The Number and Average Annual Annuity As of June 30, 2007

#### Retired on Account of Superannuation, Early Retirement and Those in Receipt of Withdrawal Annuities

				Yea	rs of Serv	/ice				
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 +	Total
Under 50	1	1,991	1,280	399	115	22	1			3,809
	\$64	\$776	\$1,727	\$4,234	\$8,105	\$12,617	\$23,910			\$1,753
50-54		502	1,089	503	264	259	151	13		2,781
		\$1,355	\$1,645	\$4,431	\$9,861	\$21,460	\$31,332	\$33,623		\$6,483
55-59		415	2,252	1,201	753	1,401	7,479	3,059	2	16,562
		\$2,188	\$1,935	\$5,695	\$11,649	\$26,498	\$43,330	\$53,410	\$39,672	\$32,938
60-64	115	627	2,965	2,193	1,796	2,879	11,230	7,986	204	29,995
	\$999	\$3,035	\$2,939	\$7,750	\$14,856	\$27,212	\$38,037	\$52,479	\$59,070	\$33,041
65-69	533	937	2,782	2,902	2,849	3,553	7,739	5,022	731	27,048
05-05	\$917	\$2,889	\$3,876	\$8,183	\$13,848	\$22,376	\$32,626	\$42,877	\$56,107	\$24,605
70-74	575	938	2,714	2,646	2,988	3,189	4,136	3,596	1,316	22,098
	\$633	\$2,235	\$3,544	\$6,708	\$11,174	\$18,107	\$27,038	\$35,882	\$43,496	\$18,964
75-79	594	1,102	2,645	2,665	2,977	3,109	3,378	2,156	1,529	20,155
	\$551	\$1,822	\$3,395	\$6,048	\$10,722	\$16,503	\$24,108	\$32,020	\$41,329	\$16,092
80-84	508	1,000	2,310	2,471	2,457	2,297	1,853	1,621	751	15,268
	\$490	\$1,595	\$3,304	\$6,094	\$10,426	\$15,517	\$20,707	\$26,701	\$37,552	\$12,814
85-89	311	689	1,622	1,580	1,355	1,225	872	962	354	8,970
	\$555	\$1,581	\$3,346	\$5,928	\$9,426	\$13,648	\$18,499	\$22,774	\$30,469	\$10,521
Over 89	175	474	895	888	750	730	583	685	495	5,675
	\$688	\$2,059	\$3,943	\$6,712	\$10,367	\$13,772	\$18,150	\$22,030	\$25,701	\$11,772
Total	2,812	8,675	20,554	17,448	16,304	18,664	37,422	25,100	5,382	152,361
	\$653	\$1,788	\$3,067	\$6,634	\$11,648	\$19,946	\$33,852	\$42,892	\$41,859	\$21,836



### Exhibit III

#### The Number and Average Annual Annuity As of June 30, 2007

#### **Beneficiaries and Survivor Annuitants**

				Yea	rs of Serv	vice				
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 +	Total
Under 50	2	20	50	46	47	36	36	22	16	275
	\$488	\$1,715	\$2,043	\$3,559	\$5,643	\$7,551	\$12,698	\$13,836	\$11,518	\$6,487
50 - 54	2	13	22	25	37	30	32	29	11	201
	\$365	\$1,400	\$2,423	\$3,113	\$6,224	\$10,286	\$16,027	\$13,647	12,722	8,644
55 - 59	2	10	42	31	43	60	97	93	15	393
	\$291	\$2,023	\$3,150	\$4,285	\$6,299	\$13,171	\$16,489	\$19,677	\$13,354	\$12,663
60 - 64	3	16	53	55	56	69	191	150	34	627
	\$331	\$2,281	\$2,815	\$4,771	\$7,176	\$12,012	\$16,605	\$20,565	\$12,473	\$13,333
65 - 69	9	21	84	87	75	87	175	183	52	773
	\$631	\$1,757	\$3,259	\$5,476	\$7,234	\$12,598	\$16,911	\$20,356	\$18,214	\$13,018
70 74										
70 - 74	8 ¢005	42	124	100	113 ¢7 000	104	213	180	106	990
	\$605	\$1,695	\$2,869	\$4,488	\$7,202	\$10,075	\$13,068	\$17,205	\$21,985	\$11,064
75 - 79	25	54	155	179	168	170	219	223	128	1,321
	\$551	\$1,433	\$2,979	\$4,196	\$6,659	\$8,446	\$12,597	\$13,949	\$18,065	\$9,114
80 - 84	29	97	216	191	177	205	222	295	117	1,549
	\$639	\$1,434	\$2,539	\$3,980	\$6,391	\$8,565	\$10,116	\$11,494	\$15,627	\$7,629
85 - 89	11	96	175	140	152	145	168	266	140	1,293
	\$531	\$1,187	\$2,235	\$3,324	\$5,537	\$7,028	\$9,191	\$10,814	\$12,194	\$6,933
Over 89	3	61	104	76	68	74	100	187	171	844
	\$505	\$1,112	\$2,082	\$3,679	\$4,937	\$6,417	\$7,066	\$8,829	\$9,500	\$6,348
Total	94	430	1,025	930	936	980	1,453	1,628	790	8,266
	\$569	\$1,432	\$2,619	\$4,106	\$6,359	\$9,213	\$12,897	\$14,414	\$14,808	\$9,201





### Exhibit IV The Number and Average Annual Annuity As of June 30, 2007

#### **Retired on Account of Disability**

				Yea	rs of Serv	vice				
Age	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 +	Total
Under 50		239	167	111	46	13	2			578
		\$10,349	\$13,505	\$18,032	\$22,420	\$24,180	\$24,371			\$14,057
50 - 54		196	190	156	150	134	26			852
		\$9,290	\$11,383	\$16,768	\$23,923	\$36,819	\$43,048			\$19,062
55 - 59		251	285	241	271	381	214	2		1,645
		\$8,144	\$11,421	\$15,383	\$23,390	\$35,010	\$47,413	\$50,776		\$23,667
60 - 64		236	311	281	317	297	118	4		1,564
		\$6,930	\$9,295	\$12,317	\$20,056	\$28,640	\$40,574	\$46,850		\$17,792
65 - 69		181	269	235	202	139	19			1,045
		\$5,317	\$8,063	\$10,322	\$15,896	\$25,862	\$31,337			\$12,400
70 - 74		132	185	147	122	81	15	3		685
		\$4,787	\$6,848	\$8,657	\$13,837	\$21,060	\$27,409			\$10,374
75 - 79		93	158	103	104	44	5	. ,	1	508
10 10		\$3,238	\$5,630	\$8,803	\$12,919	\$19,578	\$22,130		\$54,601	\$8,795
80 - 84		71	66	50	57	40	11	2	<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	297
00 - 04		\$3,660	\$6,183	\$8,263	\$11,539	40 \$16,362	\$21,261	_		\$9,027
05 00								Ψ20,943		
85 - 89		30	35	25	29	21 ©15 005	12 ©			152 © 000
		\$3,613	\$5,719	\$7,680	\$10,469	\$15,205	\$23,408			\$9,239
Over 89		8	23	21	9	4	8			73
		\$2,753	\$5,001	\$8,217	\$10,349	\$15,562	\$18,641			\$8,413
Total		1,437	1,689	1,370	1,307	1,154	430	11	1	7,399
		\$7,140	\$9,243	\$12,532	\$18,832	\$29,715	\$41,589	\$42,910	\$54,601	\$16,266





## Exhibit V

#### Annuitant and Beneficiary Membership Data As of June 30, 2007

#### Number and Average Annual Benefit Excludes Partial Lump Sum Payments

Age Last Birthday	Number	Annual Benefit (Thousands)	Average Annual Benefit
Annuitants			
(Normal, Early and Withdrawal)			
Under 60	23,152	\$ 570,235	\$ 24,630
60 - 64	29,995	991,054	33,041
65 - 69	27,048	665,516	24,605
70 - 74	22,098	419,059	18,964
75 - 79	20,155	324,327	16,092
Over 79	29,913	356,829	11,929
Total	152,361	\$ 3,327,020	\$ 21,836
Survivors and Beneficiaries			
Under 60	869	\$ 8,498	\$ 9,779
60 - 64	627	8,360	13,333
65 - 69	773	10,063	13,018
70 - 74	990	10,953	11,064
75 - 79	1,321	12,040	9,114
Over 79	3,686	26,141	7,092
Total	8,266	\$ 76,055	\$ 9,201
Disabled Annuitants			
Under 60	3,075	\$ 63,297	\$ 20,584
60 - 64	1,564	27,826	17,792
65 - 69	1,045	12,958	12,400
70 - 74	685	7,106	10,374
75 - 79	508	4,468	8,795
Over 79	522	4,699	9,002
Total	7,399	\$ 120,354	\$ 16,266
Grand Total Average Annual Benefit	168,026	\$ 3,523,429	\$ 20,970





## Exhibit VI

## **10 Year History of Membership Data**

#### **Active Members**

Valuation as of June 30	Number of Active Members	Percentage Change in Membership	Total Annual Payroll (Dollars in Thousands)	Percentage Change in Payroll
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%
1999	223,495	1.27%	8,247,602	1.93%
1998	220,703	2.62%	8,091,481	4.47%





## Exhibit VI

#### **10 Year History of Membership Data**

Year Ended June 30	Number on roll	Annual Annuities (Dollars in Millions)	Average Annual Annuities	Additions *	Annual Annuities * (Dollars in Millions)	Deletions *	Annual Annuities * (Dollars in Millions)	Percentage Change in Membership	Percentage Change in Annuities
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%
1999	132,869	1,830.6	13,777	10,609		4,554		4.77%	10.77%
1998	126,814	1,652.6	13,032	7,132		4,442		2.17%	14.21%

#### The Number and Annual Annuities of Annuitant and Survivor Annuitant Members

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

