



# Commonwealth of Pennsylvania State Employees' Retirement System

Supplement to the 2006 Actuarial Report—  
To Reflect Act 2007-8

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2006 Actuarial Report](#)

**COMMONWEALTH OF PENNSYLVANIA**

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**SUPPLEMENT TO THE 2006 ACTUARIAL REPORT -**

**TO REFLECT ACT 2007-8**

**HAY GROUP  
AUGUST 2007**

## **State Employees' Retirement System Supplement to the 2006 Actuarial Report**

### **Introduction**

On June 27, 2007, Governor Rendell signed into law House Bill 876 (Act 2007-8), extending the current 4 percent minimum employer contribution for the Pennsylvania State Employees' Retirement System (SERS) to apply to the fiscal year beginning July 1, 2007 and all future years. This occurred just a few weeks after the issuance of the Commonwealth of Pennsylvania State Employees' Retirement System (SERS) 2006 Actuarial Report, covering the results of Hay Group's December 31, 2006 actuarial valuation. Therefore, both the valuation and the report were based upon the prior law, under which the 4 percent rate floor was scheduled to expire on June 30, 2007.

Under Act 2007-8, the new composite minimum employer contribution rate of 4.00 percent of payroll became effective beginning July 1, 2007, superseding the 1.91 percent of payroll employer contribution rate previously determined in the December 31, 2006 actuarial valuation and communicated in the 2006 Actuarial Report. This change necessitated a redetermination of the employer contribution rates by group for the fiscal year beginning July 1, 2007, which had been previously provided on Page 2 of the 2006 Actuarial Report. Hay Group recalculated these rates and communicated the new rates to SERS in Edwin Husted's June 28, 2007 letter to Leonard Knepp. (A copy of the cover letter to this communication is included on the following page.)

Since the new law also required changes to several other schedules included in the 2006 Actuarial Report and both SERS and Hay Group wanted to communicate all such changes to readers of the report, it was agreed that supplemental information should be published. Thus, we have issued this Supplement to the 2006 Actuarial Report to provide replacement schedules for those included in the original report that were affected by Act 2007-8. Pages 1-6 of this Supplement supersede pages 1, 2, 12, 13, 14 and 26, respectively, of the 2006 Actuarial Report. It should be noted that none of the numbers on Schedule A (page 3 herein and page 12 previously) were affected by the law change; however, the schedule is included in this Supplement since it provides support for the Employer Normal Cost information shown on Schedule B (page 4 herein).

Hay Group, Inc.  
Suite 600  
4301 North Fairfax Drive  
Arlington, VA 22203-1653  
USA

tel +1.703.841.3100  
fax +1.703.841.3108

[www.haygroup.com](http://www.haygroup.com)

June 28, 2007

Mr. Leonard M. Knepp  
Acting Executive Director  
Pennsylvania State Employees' Retirement System  
30 North Third Street, Suite 150  
Harrisburg, PA 17101-1716

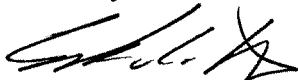
Dear Len:

We understand that yesterday Governor Rendell signed into law House Bill 876 (Act 2007-8), extending the current 4 percent minimum employer contribution for the Pennsylvania State Employees' Retirement System (SERS) to apply to the fiscal year beginning July 1, 2007 and thereafter. As a result, a composite minimum employer contribution rate of 4.00 percent of payroll will be effective beginning July 1, 2007, superseding the 1.91 percent of payroll employer contribution rate previously determined in our December 31, 2006 actuarial valuation.

Based upon the new law, we have now redetermined the employer contribution rates by group for the fiscal year beginning July 1, 2007. These new rates are included in the enclosed table, and they supersede the rates previously provided on Page 2 of our 2006 Actuarial Report.

We certify that the enclosed rates are accurate and appropriate for purposes of determining contributions to be made by the Commonwealth of Pennsylvania and other participating agencies to the Pennsylvania State Employees' Retirement System for the fiscal year beginning July 1, 2007.

Sincerely,



Edwin C. Husted, F.S.A.  
Member American Academy of Actuaries  
Enrolled Actuary No. 05-1499

**State Employees' Retirement System  
Supplement to the 2006 Actuarial Report**

**Table of Contents**

	<u>Schedule</u>	<u>Page</u>
Valuation Highlights.....	-	1
Employer Contribution Rate by Group .....	-	2
Unfunded Liability and Normal Cost .....	A	3
Employer Contribution Rate .....	B	4
Employer Contribution Rate by Group, Showing Development of Rates ....	C	5
Projection of Expected Contributions and Benefits.....	K	6

**State Employees' Retirement System  
Supplement to the 2006 Actuarial Report**

**Valuation Highlights, Reflecting Act 2007-8**

	<b><u>December 31, 2006</u></b>	<b><u>December 31, 2005</u></b>
	<b><u>Valuation</u></b>	<b><u>Valuation</u></b>
<b>Summary of Contributions as a Percent of Total Compensation</b>		
SERS Plan Contribution		
Normal Cost	8.21%	8.39%
Amortization of Liabilities	-6.30%	-6.32%
Contribution Before Minimum Under Law	1.91%	2.07%
Total SERS Plan Contribution*	4.00%	4.00%
Benefits Completion Plan Contribution	0.04%	0.02%
Total Contribution	4.04%	4.02%

\* Reflects the Minimum Under Law (12/31/06 - Act 2007-8; 12/31/05 - Act 2003-40)

**Demographic Characteristics of the Population**

Active Participants:

Number	110,972		109,981
Average age	46.3		46.0
Average service	12.7		12.6
Average annualized compensation	\$ 46,118	\$	44,815
Total annualized compensation	\$ 5,117,807,000	\$	4,928,799,000
Funding payroll	\$ 5,661,675,000	\$	5,138,377,000

Annuitants and Beneficiaries:

Number	102,060		101,179
Average age	68.4		68.3
Total annual pension	\$ 1,658,130,235	\$	1,603,630,204

Inactive and Vested Participants:

Number	5,843		5,461
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**Assets**

Market Value Assets	\$ 32,049,112,929	\$	28,749,012,029
Actuarial Value of Assets	\$ 28,148,833,847	\$	26,793,781,828

Funded Status (Market Assets)	105.5%		99.6%
Funded Status (Actuarial Assets)	92.7%		92.9%

**State Employees' Retirement System  
Supplement to the 2006 Actuarial Report**

**Employer Contribution Rate by Group  
Fiscal Year 2007 - 2008,  
Reflecting Act 2007-8**

	<u>SERS Plan</u>	<u>Benefits Completion Plan</u>	<u>Total</u>
Class AA Members:			
Age 60 Retirement	3.24%	0.04%	3.28%
Age 50 Retirement	5.07%	0.04%	5.11%
Park Rangers	4.83%	0.04%	4.87%
Capitol Police	4.83%	0.04%	4.87%
Enforcement Officers	5.07%	0.04%	5.11%
Class A Members:			
Age 60 Retirement	2.59%	0.04%	2.63%
Age 50 Retirement	4.06%	0.04%	4.10%
Park Rangers	4.00%	0.04%	4.04%
Capitol Police	4.00%	0.04%	4.04%
State Police	11.15%	0.04%	11.19%
Enforcement Officers	4.06%	0.04%	4.10%
Class C Members:			
State Police	11.15%	0.04%	11.19%
Enforcement Officers	4.06%	0.04%	4.10%
Class D Members:			
D-3 Legislators	15.21%	0.04%	15.25%
D-4 Legislators	0.00%	0.04%	0.04%
Class E Members	4.11%	0.04%	4.15%

**State Employees' Retirement System  
Supplement to the 2006 Actuarial Report**

**Unfunded Liability and Normal Cost as of December 31, 2006**

I.	Present Value of Benefits:		
	A) Active and Inactive Participants		
	1) Superannuation and Withdrawal	\$	20,849,750,161
	2) Disability		1,271,202,525
	3) Death		884,768,305
	4) Refunds		48,162,832
	5) Special Police and Enforcement Officer Benefits		2,684,335
	6) Subtotal	\$	23,056,568,158
	B) Annuitants and Beneficiaries		14,474,525,244
	C) Total	\$	37,531,093,402
II.	Present Value of Member and Employer Contributions:		
	A) Employer Portion of Normal Cost	\$	4,223,450,068
	B) Member Contributions		2,942,646,773
	C) Total	\$	7,166,096,841
III.	Actuarial Accrued Liability: (I) - (II)	\$	30,364,996,561
IV.	Actuarial Value of Assets	\$	28,148,833,847
V.	Unfunded Liability (III) - (IV)	\$	2,216,162,714
VI.	Employer Normal Cost Rate		
	A) Normal Cost Rate for new active members to fund:		
	1) Superannuation and Withdrawal		12.32%
	2) Disability		1.20%
	3) Death		0.55%
	4) Refunds		<u>0.39%</u>
	5) Total		14.46%
	B) Member Deductions		6.25%
	C) Employer Normal Cost (A) - (B)		8.21%



**State Employees' Retirement System  
Supplement to the 2006 Actuarial Report**

**Employer Contribution Rate in Fiscal Year 2007-2008**

	Funding Period		Outstanding Balance as of 12/31/06	Annual Payment Amount	Payment as a Percent of Payroll *
	Initial Years From July 1	Initial Amount of Liability			
<b>I. Amortization of Liability (Asset) For:</b>					
A) Supplemental Annuities as of 12/31/01	10	\$ 1,143,657,729	\$ 686,855,212	\$ 174,303,527	3.08%
B) Act 2001-9 Benefits	30	2,735,791,064	2,277,342,953	222,524,490	3.93%
C) Other Benefits as of 12/31/01	10	(7,726,186,132)	(4,640,174,341)	(1,177,538,922)	-20.80%
D) Supplemental Annuities (2002 COLA)	10	256,500,000	178,010,153	39,092,863	0.69%
E) Changes in 2002	30	1,119,058,089	1,013,643,397	97,898,155	1.73%
F) Supplemental Annuities (2003 COLA)	10	395,800,000	308,762,493	60,323,412	1.07%
G) Changes in 2003	30	341,601,015	332,629,195	31,786,301	0.56%
H) Changes in 2004	30	1,942,541,016	1,909,933,055	180,755,296	3.19%
I) Changes in 2005	30	494,664,846	490,682,322	46,029,036	0.81%
J) Changes in 2006	30	(341,521,725)	(341,521,725)	(31,778,923)	-0.56%
<b>Total</b>			<b>\$ 2,216,162,714</b>	<b>\$ (356,604,765)</b>	<b>-6.30%</b>
<b>II. Employer Normal Cost</b>					
<b>III. Total Employer Cost before Act 2007-8 minimum = (I) + (II)</b>					
<b>IV. Total Employer Cost (III), but not less than 4.00 percent as required by Act 2007-8</b>					

\* The payment is expressed as a percentage of the total projected payroll for active members in fiscal year 2007-2008 of \$5,661,675,000. Percentages may not add due to rounding.

**State Employees' Retirement System  
Supplement to the 2006 Actuarial Report**

**Employer Contribution Rate by Group, Showing Development of Rates  
(excluding Benefits Completion Plan Rate)**

Employer Group (1)	Basic Contribution Rate (2)	Age 50 Retirement Adjustment (3)	Multiplier Adjustment* (4)	Past Liability Adjustment (5)	Adjusted Contribution Rate** (6)	Projected 2007-2008 Payroll (7)	Employer Contribution Amount (8)
Class AA - Age 60 Retirement	3.24%		1.0000		3.24%	\$ 4,293,981,000	\$ 139,124,984
Class A - Age 60 Retirement	3.24%		0.8000		2.59%	37,954,000	983,009
Class AA - Age 50 Retirement (Including Enforcement Officers)	3.24%	1.83%	1.0000		5.07%	802,954,000	40,709,768
Class A - Age 50 Retirement (Including Class A & Class C Enforcement Officers)	3.24%	1.83%	0.8000		4.06%	14,711,000	597,267
Class AA - Park Rangers & Capitol Police	3.24%	0.92%	1.0000	0.67%	4.83%	13,921,000	672,384
Class A - Park Rangers & Capitol Police	3.24%	0.92%	0.8000	0.67%	4.00%	94,000	3,760
State Police (Class A & Class C)	3.24%	1.83%	1.1395	5.37%	11.15%	354,041,000	39,475,572
Class D3	3.24%	1.83%	3.0000		15.21%	309,000	46,999
Class D4	3.24%	1.83%	1.2000	-6.08%	0.00%	18,962,000	-
Class E	3.24%		1.2677		4.11%	124,748,000	5,127,143

Total\*\*\*      \$ 5,661,675,000    \$ 226,740,885

\* The multiplier adjustment at column 4 is the adjustment for the employer group contribution rate. Because the majority of SERS members are covered under Class AA(60), the 2.5 percent accrual rate for that Class is used to determine the basic contribution rate. Column (4) is the ratio of the class contribution rate to 2.5 percent.

\*\* The adjusted contribution rate is [ (2) + (3) ] times (4) + (5).

\*\*\* The total employer contribution (\$226,740,885) is approximately equal to the average employer contribution rate from Schedule B (4.00 percent) times the total projected payroll of \$5,661,675,000. The Basic Contribution Rate of 3.24 percent was determined as the percentage needed to produce employer contribution amounts by employer group that sum to \$226,740,885.

**State Employees' Retirement System  
Supplement to the 2006 Actuarial Report**

**Projection of Expected Contributions and Benefits  
Actual Data Through 2006, Reflecting Act 2007-8  
(Dollars in Millions)**

Calendar Year	Contributions		Contributions as a Percent of Pay		Benefits and Expenses
	Employee	Employer	Employee	Employer	
1991	\$ 183	\$ 381			\$ 664
1992	187	319			851
1993	190	304			781
1994	193	343			812
1995	202	385			894
1996	210	374			943
1997	213	324			1,037
1998	222	311			1,080
1999	224	270			1,248
2000	232	168			1,198
2001	240	77			1,266
2002	304	51			1,450
2003	308	68			1,656
2004	302	106			1,880
2005	306	147			1,966
2006	317	196			1,943
2007	335	216	6.2%	4.0%	2,198
2008	353	228	6.2%	4.0%	2,439
2009	361	233	6.2%	4.0%	2,639
2010	373	241	6.2%	4.0%	2,848
2011	386	249	6.2%	4.0%	3,145
2012	398	605	6.2%	9.4%	3,468
2013	412	942	6.2%	14.2%	3,712
2014	425	891	6.2%	13.0%	3,964
2015	439	876	6.2%	12.4%	4,341
2016	454	1,029	6.2%	14.1%	4,757
2017	469	1,188	6.2%	15.7%	5,032

The projection is based upon the following assumptions: a projected investment return of 8.5 percent in 2007 and after; general pay increases of 3.3 percent adjusted for negotiated increases; and supplemental annuity increases in 2007, 2011 and 2015. The employer contribution is projected to peak at around 9.1 percent of payroll assuming no future supplemental annuity increases.



# Commonwealth of Pennsylvania State Employees' Retirement System

2006 Actuarial Report

**NOTE:** This report has been updated to reflect actuarial changes brought about by the passage of Act 2007-8. The changes can be viewed in a separate report, *Supplement to the 2006 Actuarial Report*

**COMMONWEALTH OF PENNSYLVANIA**

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**2006 ACTUARIAL REPORT**

**DEFINED BENEFIT PLAN**

**HAY GROUP  
APRIL 25, 2007**

**COMMONWEALTH OF PENNSYLVANIA**

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**2006 ACTUARIAL REPORT**

**DEFINED BENEFIT PLAN**

**HAY GROUP APRIL 25, 2007**

Hay Group, Inc.  
Suite 600  
4301 North Fairfax Drive  
Arlington, VA 22203  
USA

April 25, 2007

Mr. Eric Henry  
Executive Director  
State Employees' Retirement System  
30 North Third Street  
Suite 150  
Harrisburg, PA 17101-1716



Dear Mr. Henry:

The purpose of this letter is to certify the actuarial adequacy of the contributions being made by the Commonwealth of Pennsylvania and other participating agencies to the Pennsylvania State Employees' Retirement System (SERS), and to discuss the approach currently being taken toward meeting the financing objectives of the plan. The results provided herein are based upon the December 31, 2006 annual actuarial valuation.

The funding objective of the plan is set forth in the SERS code. The annual employer contribution is equal to the sum of the following for the fiscal year beginning July 1, 2007:

- (1) The employer share of the normal cost.
- (2) The amortization of the December 31, 2001 liability for Act 2001-9 benefits over a 30-year period beginning July 1, 2002 and ending on June 30, 2032.
- (3) The amortization of the remaining unfunded liabilities as of December 31, 2001 over a ten-year period beginning July 1, 2002 and ending on June 30, 2012.
- (4) The amortization of all unfunded liabilities due to supplemental annuities (COLAs) after 2001, or other legislated benefit improvements after June 30, 2003, over ten-year periods beginning with the July first following the effective date of the change.
- (5) The amortization of changes in liability due to actual experience differing from assumed experience after December 31, 2001 over 30-year periods beginning with the July first following the actuarial valuation determining such changes.

The amortization payments are level amounts over the applicable amortization periods. The employer cost is determined as a percent of payroll. The total employer cost is the average contribution amount that needs to be received by the employer groups participating in the system. Some employer groups contribute a higher percent of pay, and some employer groups contribute a lower percent of pay depending on the benefits payable to their employees.

All costs and liabilities have been determined in conformance with generally accepted actuarial principles and procedures in accordance with the principles of practice prescribed by the American Academy of Actuaries. The calculations were performed on the basis of actuarial assumptions and methods, which are internally consistent, and reasonable (taking into account past experience under the SERS and reasonable expectations) and which in combination represent the best estimate of anticipated experience under the plan.

Tel + 1.703.841.3100

Fax + 1.703.841.3108

[www.haygroup.com](http://www.haygroup.com)

Mr. Eric Henry Executive Director State Employees' Retirement System 30 North Third Street Suite 150  
Harrisburg, PA 17101-1716

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**Tel + 1.703.841.3100 Fax + 1.703.841.3108 [www.haygroup.com](http://www.haygroup.com)**



Mr. Eric Henry  
April 25, 2007  
Page 2


The actuarial valuation is based on financial and participant data, which is prepared by SERS staff. The data are reviewed for internal and year-to-year consistency as well as general reasonableness prior to their use in the actuarial valuation.

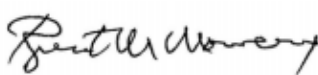
The actuarial valuation uses assumptions regarding future rates of investment return and rates of retirement, withdrawal, death, and disability among SERS members and their beneficiaries. The current set of assumptions used in the December 31, 2006 actuarial valuation was adopted by the Board and was based on actual experience of SERS during the years 2001 through 2005. The actuarial value of assets is developed by recognizing the difference between the expected actuarial value of assets and the market value of assets over a five-year period.

Governmental Accounting Standards Board (GASB) Statement No. 25, *Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans* establishes a range of actuarial cost and amortization methods for the Unfunded Actuarial Accrued Liability. The scheduled payments since July 1, 2005 have been below the minimum amount required to meet the GASB minimum. This is a temporary result of financing changes implemented by Act 2003-40 in December 2003. After June 30, 2009, we expect the SERS contribution to exceed the GASB minimum.

Based upon the valuation results, it is our opinion that the Pennsylvania State Employees' Retirement System is in sound condition in accordance with generally accepted actuarial principles and procedures. The employer contribution has been below the GASB #25 minimum since July 1, 2005 and will likely remain below the minimum through June 30, 2009. However, we project the employer payments scheduled after that time will exceed the GASB minimum and that the plan is in sound condition over the long run.

Respectfully submitted,  
Hay Group

  
By \_\_\_\_\_  
Edwin C. Hustead, F.S.A.  
Member American Academy of Actuaries  
Enrolled Actuary No. 05-1499

  
By \_\_\_\_\_  
Brent M. Mowery, F.S.A.  
Member American Academy of Actuaries  
Enrolled Actuary No. 05-3885

Tel + 1.703.841.3100

Fax + 1.703.841.3108

[www.haygroup.com](http://www.haygroup.com)

data are reviewed for internal and year-to-year consistency as well as general reasonableness prior to their use in the actuarial valuation.

The actuarial valuation uses assumptions regarding future rates of investment return and rates of retirement, withdrawal, death, and disability among SERS members and their beneficiaries. The current set of assumptions used in the December 31, 2006 actuarial valuation was adopted by the Board and was based on actual experience of SERS during the years 2001 through 2005. The actuarial value of assets is developed by recognizing the difference between the expected actuarial value of assets and the market value of assets over a five-year period.

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Based upon the valuation results, it is our opinion that the Pennsylvania State Employees' Retirement System is in sound condition in accordance with generally accepted actuarial principles and procedures. The employer contribution has been below the GASB #25 minimum since July 1, 2005 and will likely remain below the minimum through June 30, 2009. However, we project the employer payments scheduled after that time will exceed the GASB minimum and that the plan is in sound condition over the long run.

Respectfully submitted, Hay Group

By \_\_\_\_\_ By \_\_\_\_\_ Edwin C. Husted,  
F.S.A. Brent M. Mowery, F.S.A. Member American Academy of Actuaries Member American Academy  
of Actuaries Enrolled Actuary No. 05-1499 Enrolled Actuary No. 05-3885

**Tel + 1.703.841.3100 Fax + 1.703.841.3108 [www.haygroup.com](http://www.haygroup.com)**

## State Employees' Retirement System

### Table of Contents

	<u>Schedule</u>	<u>Page</u>
Valuation Highlights .....	-	1
Comments on Schedules .....	-	6
Unfunded Liability and Normal Cost .....	A	12
Employer Contribution Rate .....	B	13
Employer Contribution Rate by Group .....	C	14
State Police and Enforcement Officers Additional Annuity Rate .....	D	15
Analysis of Change in Employer Contribution Rate and Unfunded Actuarial Accrued Liability .....	E	16
Actuarial Balance Sheet .....	F	17
Required Transfers Within SERS Accounts .....	G	18
Accounting Disclosure Statements .....	H	19
Solvency Test .....	I	23
Actuarial Value of Assets .....	J	24
Projection of Population, Benefits, and Contributions.....	K	25
Profile of Plan Participants .....	L	27
Summary of Benefit and Contribution Provisions .....	M	37
Actuarial Assumptions .....	N	44
Actuarial Methods .....	O	50
Definition of Technical Terms .....	P	55

Schedule Page

Valuation Highlights .....	- 1
Comments on Schedules .....	- 6
Unfunded Liability and Normal Cost .....	A 12
Employer Contribution Rate .....	B 13
Employer Contribution Rate by Group .....	C 14
State Police and Enforcement Officers Additional	
Annuity Rate .....	D 15
Analysis of Change in Employer Contribution Rate	
and Unfunded Actuarial Accrued Liability .....	E 16
Actuarial Balance Sheet .....	F 17
Required Transfers Within SERS Accounts .....	G 18
Accounting Disclosure Statements .....	H 19
Solvency Test .....	I 23
Actuarial Value of Assets .....	J 24
Projection of Population, Benefits, and Contributions.....	K 25
Profile of Plan Participants .....	L 27
Summary of Benefit and Contribution Provisions .....	M 37
Actuarial Assumptions .....	N 44
Actuarial Methods .....	O 50
Definition of Technical Terms .....	P 55

**State Employees' Retirement System**  
**Valuation Highlights**

<b><u>December 31, 2006</u></b>	<b><u>December 31, 2005</u></b>
<b><u>Valuation</u></b>	<b><u>Valuation</u></b>

**Summary of Contributions as a Percent of Total Compensation**

SERS Plan Contribution		
Normal Cost	8.21%	8.39%
Amortization of Liabilities	-6.30%	-6.32%
Contribution Before Act 2003-40 Minimum	NA	2.07%
Total SERS Plan Contribution	1.91%	4.00% *
Benefits Completion Plan Contribution	0.04%	0.02%
Total Contribution	1.95%	4.02%

\* Reflects the Act 2003-40 Minimum

**Demographic Characteristics of the Population**

Active Participants:		
Number	110,972	109,981
Average age	46.3	46.0
Average service	12.7	12.6
Average annualized compensation	\$ 46,118	\$ 44,815
Total annualized compensation	\$ 5,117,807,000	\$ 4,928,799,000
Funding payroll	\$ 5,661,675,000	\$ 5,138,377,000
Annuitants and Beneficiaries:		
Number	102,060	101,179
Average age	68.4	68.3
Total annual pension	\$ 1,658,130,235	\$ 1,603,630,204
Inactive and Vested Participants:		
Number	5,843	5,461
<b>Assets</b>		
Market Value Assets	\$ 32,049,112,929	\$ 28,749,012,029
Actuarial Value of Assets	\$ 28,148,833,847	\$ 26,793,781,828
Funded Status (Market Assets)	105.5%	99.6%
Funded Status (Actuarial Assets)	92.7%	92.9%

## Summary of Contributions as a Percent of Total Compensation

### SERS Plan Contribution

Normal Cost 8.21% 8.39% Amortization of Liabilities -6.30% -6.32% Contribution Before Act  
2003-40 Minimum NA 2.07% Total SERS Plan Contribution 1.91% 4.00% \*

Benefits Completion Plan Contribution 0.04% 0.02%

Total Contribution 1.95% 4.02%

\* Reflects the Act 2003-40 Minimum

### Demographic Characteristics of the Population Active Participants:

Number 110,972 109,981 Average age 46.3 46.0 Average service 12.7 12.6 Average annualized  
compensation \$ 46,118 \$ 44,815 Total annualized compensation \$ 5,117,807,000 \$  
4,928,799,000 Funding payroll \$ 5,661,675,000 \$ 5,138,377,000

Annuitants and Beneficiaries: Number 102,060 101,179 Average age 68.4 68.3 Total annual  
pension \$ 1,658,130,235 \$ 1,603,630,204

Inactive and Vested Participants: Number 5,843 5,461

Assets Market Value Assets \$ 32,049,112,929 \$  
28,749,012,029 Actuarial Value of Assets \$ 28,148,833,847 \$ 26,793,781,828

Funded Status (Market Assets) 105.5% 99.6% Funded Status (Actuarial Assets) 92.7% 92.9%

**State Employees' Retirement System**

**Employer Contribution Rate by Group  
Fiscal Year 2007 - 2008**

	<u>SERS Plan</u>	<u>Benefits Completion Plan</u>	<u>Total</u>
Class AA Members:			
Age 60 Retirement	1.17%	0.04%	1.21%
Age 50 Retirement	3.00%	0.04%	3.04%
Park Rangers	2.76%	0.04%	2.80%
Capitol Police	2.76%	0.04%	2.80%
Enforcement Officers	3.00%	0.04%	3.04%
Class A Members:			
Age 60 Retirement	0.94%	0.04%	0.98%
Age 50 Retirement	2.40%	0.04%	2.44%
Park Rangers	2.34%	0.04%	2.38%
Capitol Police	2.34%	0.04%	2.38%
State Police	8.79%	0.04%	8.83%
Enforcement Officers	2.40%	0.04%	2.44%
Class C Members:			
State Police	8.79%	0.04%	8.83%
Enforcement Officers	2.40%	0.04%	2.44%
Class D Members:			
D-3 Legislators	9.00%	0.04%	9.04%
D-4 Legislators	0.00%	0.04%	0.04%
Class E Members	1.48%	0.04%	1.52%

**Benefits SERS Plan Completion Plan Total Class AA Members:**

Age 60 Retirement 1.17% 0.04% 1.21% Age 50 Retirement 3.00% 0.04% 3.04% Park Rangers  
2.76% 0.04% 2.80% Capitol Police 2.76% 0.04% 2.80% Enforcement Officers 3.00% 0.04%  
3.04%

**Class A Members:**

Age 60 Retirement 0.94% 0.04% 0.98% Age 50 Retirement 2.40% 0.04% 2.44% Park Rangers  
2.34% 0.04% 2.38% Capitol Police 2.34% 0.04% 2.38% State Police 8.79% 0.04% 8.83%  
Enforcement Officers 2.40% 0.04% 2.44%

**Class C Members:**

State Police 8.79% 0.04% 8.83% Enforcement Officers 2.40% 0.04% 2.44%

**Class D Members:**

D-3 Legislators 9.00% 0.04% 9.04% D-4 Legislators 0.00% 0.04% 0.04%

**Class E Members 1.48% 0.04% 1.52%**



## State Employees' Retirement System

### General Discussion

The liabilities and costs in this report were based on actuarial assumptions adopted by the State Employees' Retirement Board in 2006 and funding procedures specified in the State Employees' Retirement System (SERS) code. The most important actuarial assumptions are the investment return and salary growth. The investment return assumption is 8.5 percent per year. Salary growth is the total of assumed increases in salary rates and career salary growth. It is generally assumed that the salary rates will increase at 3.3 percent a year due to general salary schedule increases and that career salary growth (promotion and longevity growth) will average an additional 3.8 percent a year. Thus, the total average salary increase for an individual will generally be 7.1 percent a year. These assumed salary increases were modified in this valuation to reflect negotiated increases beginning July 1, 2007. The investment return and the salary rate increase assumptions are based on an underlying inflation rate of 3.0 percent a year.

The SERS plan employer contribution is determined as a percent of payroll that is the total of (1) the employer normal cost percent and (2) the net amortization of the unfunded liability, but not less than any applicable minimum contribution prescribed by the SERS code. The employer contribution determined as of December 31, 2006 was 1.91 percent of payroll. Act 2003-40 had set a floor on the contribution of 4 percent of payroll for the year beginning July 1, 2006. However, that floor ended on June 30, 2007 so there is no floor for the year beginning July 1, 2007.

The SERS code requires that the Board conduct a study of the actuarial experience of the SERS plan every five years as a basis for setting the actuarial assumptions used in the valuation. A five year study was conducted and delivered to the Board for review and approval in March 2006. The Board approved the recommendations of the actuary and the new assumptions were first used in the December 31, 2005 valuation.

The funded ratio is the ratio of assets to the actuarial accrued liability. The funded ratio based on market value of assets increased from 99.6 percent to 105.5 percent in the last year. The funded ratio based on the actuarial value of assets declined slightly from 92.9 percent to 92.7 percent in the last year. If the fund continues to earn at least 8.5 percent a year then the funded ratio based on actuarial assets will increase to over 100 percent within the next five years.

A separate and distinct Benefits Completion Plan (BCP) provides benefits to certain members whose SERS benefits are limited by IRC Section 415(b) maximum benefit limitations. The BCP employer contribution requirements for fiscal year 2007-2008, which were determined by a separate December 31, 2006 actuarial valuation, are presented in the Valuation Highlights herein. Otherwise, BCP costs and liabilities are not included in the schedules of this report.

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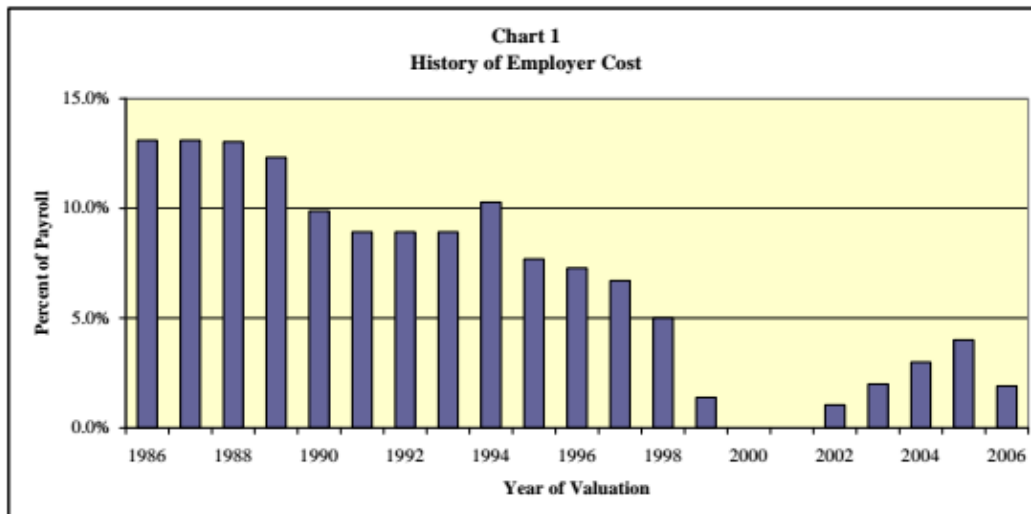
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## State Employees' Retirement System

### History of the Employer Contribution Rate

Chart 1 shows the history of the employer contribution rate from 1986 through 2006. With some fluctuations, the general trend from 1986 through 2001 had been downward, with the rate declining from 13.09 percent in 1986 to zero in 2000 and 2001. The investment returns were below the 8.5 percent actuarial assumption in 2000 through 2002. Those low investment returns, coupled with a legislated floor on the employer contribution, resulted in the increase in the contribution between 2002 and 2005.



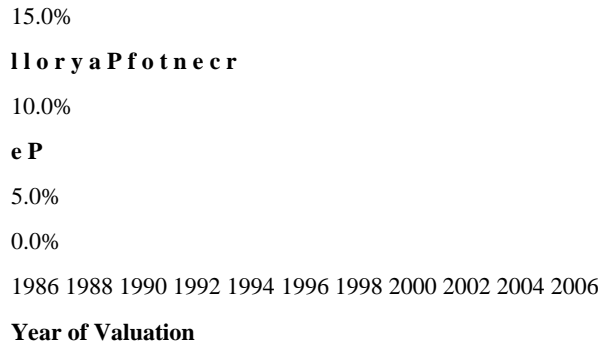
The total employer cost is the actual contribution rate during the succeeding fiscal year. For instance, the rate of 1.91 percent will be the employer contribution for the fiscal year beginning July 1, 2007.

### History of Inflation, Investment Return and Salary Growth

Table 1 below shows the rate of inflation, the nominal and real investment return based on the market value of assets, and the nominal and real salary growth for the past twenty years. The nominal rates are the actual investment rate and salary growth. The real rates are the nominal rates adjusted by removing inflation. The inflation rates shown are based on the Consumer Price Index for All Urban Consumers (CPI-U) data. The nominal rate of salary growth is the percentage increase in general pay levels specified by the collective bargaining agreement.

Chart 1 shows the history of the employer contribution rate from 1986 through 2006. With some fluctuations, the general trend from 1986 through 2001 had been downward, with the rate declining from 13.09 percent in 1986 to zero in 2000 and 2001. The investment returns were below the 8.5 percent actuarial assumption in 2000 through 2002. Those low investment returns, coupled with a legislated floor on the employer contribution, resulted in the increase in the contribution between 2002 and 2005.

**Chart 1 History of Employer Cost**



The total employer cost is the actual contribution rate during the succeeding fiscal year. For instance, the rate of 1.91 percent will be the employer contribution for the fiscal year beginning July 1, 2007.

**History of Inflation, Investment Return and Salary Growth**

Table 1 below shows the rate of inflation, the nominal and real investment return based on the market value of assets, and the nominal and real salary growth for the past twenty years. The nominal rates are the actual investment rate and salary growth. The real rates are the nominal rates adjusted by removing inflation. The inflation rates shown are based on the Consumer Price Index for All Urban Consumers (CPI-U) data. The nominal rate of salary growth is the percentage increase in general pay levels specified by the collective bargaining agreement.

**State Employees' Retirement System**

**Table 1: Comparison of Annual Rates of Growth**

Year	Inflation	Investment Return		Salary Growth	
		Nominal	Real	Nominal	Real
1987	4.4	3.3	(1.1)	3.4	(1.0)
1988	4.4	12.8	8.0	5.0	0.6
1989	4.6	17.8	12.6	6.0	1.3
1990	6.1	1.0	(4.8)	5.0	(1.0)
1991	3.1	22.6	19.0	1.0	(2.0)
1992	2.9	7.4	4.4	2.1	(0.8)
1993	2.7	13.2	10.2	5.1	2.3
1994	2.7	(1.1)	(3.7)	3.9	1.2
1995	2.5	25.5	22.4	3.8	1.2
1996	3.3	15.9	12.2	2.0	(1.3)
1997	1.7	18.0	16.0	3.0	1.3
1998	1.6	16.3	14.5	3.0	1.4
1999	2.7	19.9	16.8	3.0	0.3
2000	3.4	2.2	(1.1)	3.0	(0.4)
2001	1.6	(7.9)	(9.3)	3.3	1.7
2002	2.4	(10.9)	(13.0)	3.5	1.1
2003	1.9	24.3	22.0	2.0	0.1
2004	3.3	15.1	11.4	1.9	(1.4)
2005	3.4	14.5	10.7	3.0	(0.4)
2006	2.5	16.4	13.6	3.5	1.0
<b>Average 1987-2006</b>	<b>3.1%</b>	<b>10.8%</b>	<b>7.6%</b>	<b>3.3%</b>	<b>0.3%</b>

**Year Inflation**

**Investment Return Salary Growth**

**Nominal Real Nominal Real 1987 1988 1989 1990 1991**

1992 1993 1994 1995 1996

1997 1998 1999 2000 2001

2002 2003 2004 2005 2006

**Average 1987-2006**

4.4 3.3 (1.1) 3.4 (1.0) 4.4 12.8 8.0 5.0 0.6 4.6 17.8 12.6 6.0 1.3 6.1 1.0 (4.8) 5.0 (1.0) 3.1 22.6  
19.0 1.0 (2.0)

2.9 7.4 4.4 2.1 (0.8) 2.7 13.2 10.2 5.1 2.3 2.7 (1.1) (3.7) 3.9 1.2 2.5 25.5 22.4 3.8 1.2 3.3 15.9  
12.2 2.0 (1.3)

1.7 18.0 16.0 3.0 1.3 1.6 16.3 14.5 3.0 1.4 2.7 19.9 16.8 3.0 0.3 3.4 2.2 (1.1) 3.0 (0.4) 1.6 (7.9)  
(9.3) 3.3 1.7

2.4 (10.9) (13.0) 3.5 1.1 1.9 24.3 22.0 2.0 0.1 3.3 15.1 11.4 1.9 (1.4) 3.4 14.5 10.7 3.0 (0.4) 2.5  
16.4 13.6 3.5 1.0

**3.1% 10.8% 7.6% 3.3% 0.3%**

# Commonwealth of Pennsylvania State Employees' Retirement System

2006 Actuarial Report

**NOTE:** This report has been updated to reflect actuarial changes brought about by the passage of Act 2007-8. The changes can be viewed in a separate report, *Supplement to the 2006 Actuarial Report*

**COMMONWEALTH OF PENNSYLVANIA**

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**2006 ACTUARIAL REPORT**

**DEFINED BENEFIT PLAN**

**HAY GROUP**  
**APRIL 25, 2007**



**Hay Group. Inc.**  
Suite 600  
4301 North Fairfax Drive  
Arlington, VA 22203  
USA

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April 25, 2007

Mr. Eric Henry  
Executive Director  
State Employees' Retirement System  
30 North Third Street  
Suite 150  
Harrisburg, PA 17101-1716



Dear Mr. Henry:

The purpose of this letter is to certify the actuarial adequacy of the contributions being made by the Commonwealth of Pennsylvania and other participating agencies to the Pennsylvania State Employees' Retirement System (SERS), and to discuss the approach currently being taken toward meeting the financing objectives of the plan. The results provided herein are based upon the December 31, 2006 annual actuarial valuation.

The funding objective of the plan is set forth in the SERS code. The annual employer contribution is equal to the sum of the following for the fiscal year beginning July 1, 2007:

- (1) The employer share of the normal cost.
- (2) The amortization of the December 31, 2001 liability for Act 2001-9 benefits over a 30-year period beginning July 1, 2002 and ending on June 30, 2032.
- (3) The amortization of the remaining unfunded liabilities as of December 31, 2001 over a ten-year period beginning July 1, 2002 and ending on June 30, 2012.
- (4) The amortization of all unfunded liabilities due to supplemental annuities (COLAs) after 2001, or other legislated benefit improvements after June 30, 2003, over ten-year periods beginning with the July first following the effective date of the change.
- (5) The amortization of changes in liability due to actual experience differing from assumed experience after December 31, 2001 over 30-year periods beginning with the July first following the actuarial valuation determining such changes.

The amortization payments are level amounts over the applicable amortization periods. The employer cost is determined as a percent of payroll. The total employer cost is the average contribution amount that needs to be received by the employer groups participating in the system. Some employer groups contribute a higher percent of pay, and some employer groups contribute a lower percent of pay depending on the benefits payable to their employees.

All costs and liabilities have been determined in conformance with generally accepted actuarial principles and procedures in accordance with the principles of practice prescribed by the American Academy of Actuaries. The calculations were performed on the basis of actuarial assumptions and methods, which are internally consistent, and reasonable (taking into account past experience under the SERS and reasonable expectations) and which in combination represent the best estimate of anticipated experience under the plan.

Mr. Eric Henry  
April 25, 2007  
Page 2

The actuarial valuation is based on financial and participant data, which is prepared by SERS staff. The data are reviewed for internal and year-to-year consistency as well as general reasonableness prior to their use in the actuarial valuation.

The actuarial valuation uses assumptions regarding future rates of investment return and rates of retirement, withdrawal, death, and disability among SERS members and their beneficiaries. The current set of assumptions used in the December 31, 2006 actuarial valuation was adopted by the Board and was based on actual experience of SERS during the years 2001 through 2005. The actuarial value of assets is developed by recognizing the difference between the expected actuarial value of assets and the market value of assets over a five-year period.

Governmental Accounting Standards Board (GASB) Statement No. 25, *Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans* establishes a range of actuarial cost and amortization methods for the Unfunded Actuarial Accrued Liability. The scheduled payments since July 1, 2005 have been below the minimum amount required to meet the GASB minimum. This is a temporary result of financing changes implemented by Act 2003-40 in December 2003. After June 30, 2009, we expect the SERS contribution to exceed the GASB minimum.

Based upon the valuation results, it is our opinion that the Pennsylvania State Employees' Retirement System is in sound condition in accordance with generally accepted actuarial principles and procedures. The employer contribution has been below the GASB #25 minimum since July 1, 2005 and will likely remain below the minimum through June 30, 2009. However, we project the employer payments scheduled after that time will exceed the GASB minimum and that the plan is in sound condition over the long run.

Respectfully submitted,  
Hay Group



By \_\_\_\_\_  
Edwin C. Hustead, F.S.A.  
Member American Academy of Actuaries  
Enrolled Actuary No. 05-1499



By \_\_\_\_\_  
Brent M. Mowery, F.S.A.  
Member American Academy of Actuaries  
Enrolled Actuary No. 05-3885

# State Employees' Retirement System

## Table of Contents

	<u>Schedule</u>	<u>Page</u>
Valuation Highlights .....	-	1
Comments on Schedules .....	-	6
Unfunded Liability and Normal Cost .....	A	12
Employer Contribution Rate .....	B	13
Employer Contribution Rate by Group .....	C	14
State Police and Enforcement Officers Additional Annuity Rate .....	D	15
Analysis of Change in Employer Contribution Rate and Unfunded Actuarial Accrued Liability .....	E	16
Actuarial Balance Sheet .....	F	17
Required Transfers Within SERS Accounts .....	G	18
Accounting Disclosure Statements .....	H	19
Solvency Test .....	I	23
Actuarial Value of Assets .....	J	24
Projection of Population, Benefits, and Contributions.....	K	25
Profile of Plan Participants .....	L	27
Summary of Benefit and Contribution Provisions .....	M	37
Actuarial Assumptions .....	N	44
Actuarial Methods .....	O	50
Definition of Technical Terms .....	P	55

**State Employees' Retirement System**  
**Valuation Highlights**

**December 31, 2006**  
**Valuation**

**December 31, 2005**  
**Valuation**

**Summary of Contributions as a Percent of Total Compensation**

SERS Plan Contribution		
Normal Cost	8.21%	8.39%
Amortization of Liabilities	-6.30%	-6.32%
Contribution Before Act 2003-40 Minimum	NA	2.07%
Total SERS Plan Contribution	1.91%	4.00% *
Benefits Completion Plan Contribution	0.04%	0.02%
Total Contribution	1.95%	4.02%

\* Reflects the Act 2003-40 Minimum

**Demographic Characteristics of the Population**

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Total annualized compensation	\$ 5,117,807,000	\$ 4,928,799,000
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## State Employees' Retirement System

### Employer Contribution Rate by Group Fiscal Year 2007 - 2008

	<u>SERS Plan</u>	<u>Benefits Completion Plan</u>	<u>Total</u>
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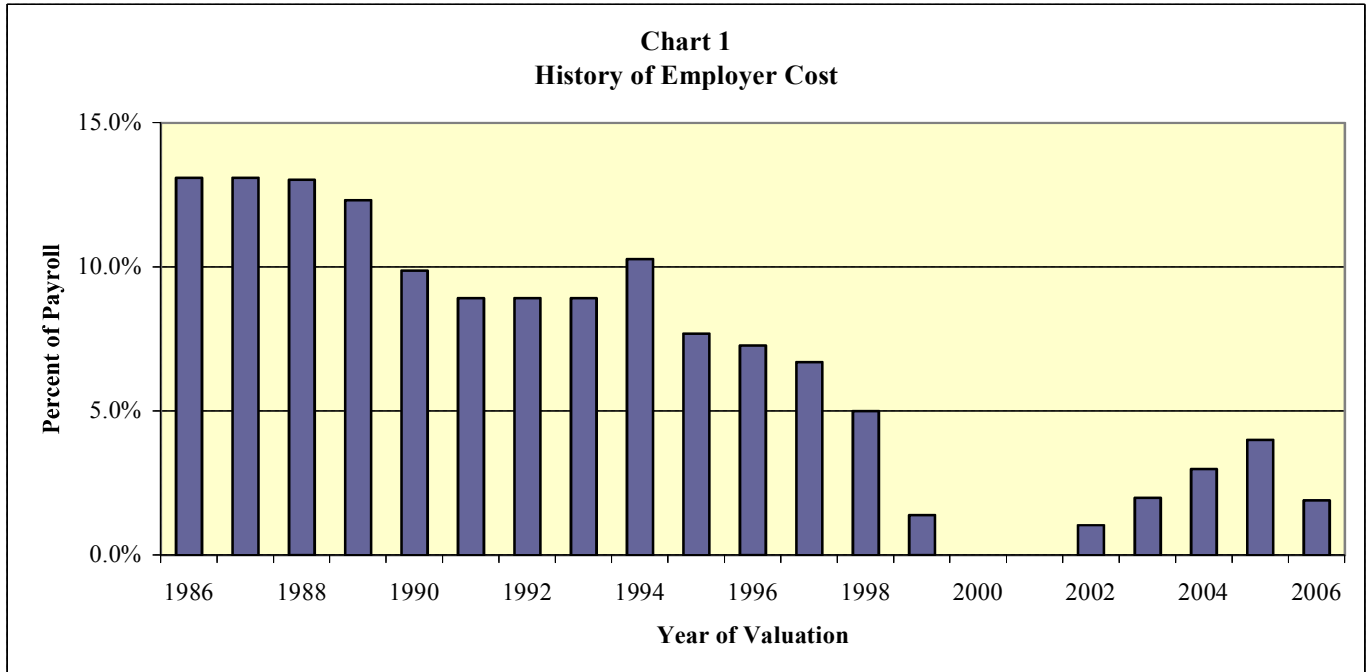
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# State Employees' Retirement System

## History of the Employer Contribution Rate

Chart 1 shows the history of the employer contribution rate from 1986 through 2006. With some fluctuations, the general trend from 1986 through 2001 had been downward, with the rate declining from 13.09 percent in 1986 to zero in 2000 and 2001. The investment returns were below the 8.5 percent actuarial assumption in 2000 through 2002. Those low investment returns, coupled with a legislated floor on the employer contribution, resulted in the increase in the contribution between 2002 and 2005.



The total employer cost is the actual contribution rate during the succeeding fiscal year. For instance, the rate of 1.91 percent will be the employer contribution for the fiscal year beginning July 1, 2007.

## History of Inflation, Investment Return and Salary Growth

Table 1 below shows the rate of inflation, the nominal and real investment return based on the market value of assets, and the nominal and real salary growth for the past twenty years. The nominal rates are the actual investment rate and salary growth. The real rates are the nominal rates adjusted by removing inflation. The inflation rates shown are based on the Consumer Price Index for All Urban Consumers (CPI-U) data. The nominal rate of salary growth is the percentage increase in general pay levels specified by the collective bargaining agreement.

## State Employees' Retirement System

<b>Table 1: Comparison of Annual Rates of Growth</b>					
<b>Year</b>	<b>Inflation</b>	<b>Investment Return</b>		<b>Salary Growth</b>	
		<b>Nominal</b>	<b>Real</b>	<b>Nominal</b>	<b>Real</b>
1987	4.4	3.3	(1.1)	3.4	(1.0)
1988	4.4	12.8	8.0	5.0	0.6
1989	4.6	17.8	12.6	6.0	1.3
1990	6.1	1.0	(4.8)	5.0	(1.0)
1991	3.1	22.6	19.0	1.0	(2.0)
1992	2.9	7.4	4.4	2.1	(0.8)
1993	2.7	13.2	10.2	5.1	2.3
1994	2.7	(1.1)	(3.7)	3.9	1.2
1995	2.5	25.5	22.4	3.8	1.2
1996	3.3	15.9	12.2	2.0	(1.3)
1997	1.7	18.0	16.0	3.0	1.3
1998	1.6	16.3	14.5	3.0	1.4
1999	2.7	19.9	16.8	3.0	0.3
2000	3.4	2.2	(1.1)	3.0	(0.4)
2001	1.6	(7.9)	(9.3)	3.3	1.7
2002	2.4	(10.9)	(13.0)	3.5	1.1
2003	1.9	24.3	22.0	2.0	0.1
2004	3.3	15.1	11.4	1.9	(1.4)
2005	3.4	14.5	10.7	3.0	(0.4)
2006	2.5	16.4	13.6	3.5	1.0
<b>Average 1987-2006</b>	<b>3.1%</b>	<b>10.8%</b>	<b>7.6%</b>	<b>3.3%</b>	<b>0.3%</b>



# State Employees' Retirement System

## Comments on Schedules

### Employer Contribution Rate

Schedules A and B summarize the development of the employer contribution rate before allocation by group. The employer contribution is equal to the sum of (1) the employer share of the normal cost and (2) amortization of the unfunded liability.

The normal cost is the level percentage of compensation needed to fund the liability for any prospective benefits earned by new active members over the period of their actual service. The normal cost calculation uses data for all active members in Class AA (60) who had not yet completed one year of credited service. The employer share of the normal cost decreased from 8.39 percent in 2005 to 8.21 percent in 2006.

Portions of the unfunded liability are amortized over either 10 years or 30 years as required by the SERS law. The cost of the Act 2001-9 benefits and actuarial gains and losses since 2001 are being amortized over 30 years. The cost of supplemental annuities (COLAs) are being funded over 10 years. The surplus that existed as of December 31, 2001 is being amortized over ten years. The total unfunded liability as of December 31, 2006 was \$2.22 billion. As of December 31, 2005, the unfunded liability was \$2.06 billion.

Schedule B shows the allocation of the total unfunded liability by year into those liabilities being amortized over 10 years and those being amortized over 30 years. All amortization payments are level amounts over the applicable amortization period.

Although there is an unfunded liability as of December 31, 2006 of \$2.22 billion, the bottom-line annual amortization payment to fund this liability in the 2007-2008 fiscal year is a net credit, which serves to offset the employer normal cost. Although this net result may seem contradictory, it is appropriate and occurs because the large negative unfunded liability that existed on December 31, 2001 is being amortized over 10 years, whereas most of the remaining positive unfunded liability is being amortized over 30 year periods. The total net credit for amortization of the unfunded liability decreased from 6.32 percent of payroll in 2005 to 6.30 percent of payroll in 2006.

The employer contribution rate is equal to the total of the normal cost and the amortization of the unfunded liabilities. The employer contribution rate calculated as a result, 1.91 percent of payroll in 2006, will be applied in the year beginning July 1, 2007.

### Employer Contribution Rates by Group

Schedule C summarizes the development of the employer contribution rate for each group of members with different benefits. The Class AA(60) rate is used to determine the basic contribution rate because the majority of new members enter that class. The basic employer contribution rate for Class AA benefits is 1.17 percent of salary.

The employer contribution rate for each class is a function of the Class AA(60) rate. Three adjustments are made for the Class rates. The first is to add the cost of earlier full retirement

## State Employees' Retirement System

conditions if applicable. The second is to multiply by the ratio of (1) the annual accrual rate applicable to the Class to (2) the annual accrual rate of 2.5 percent for Class AA(60). Third, the Park Rangers, Capitol Police and State Police Officers are also charged the amount necessary to fund the past service cost of benefit improvements that were effective in prior years. These charges are explained in Schedule O. The complete schedule of contributions by group is shown in Table 2.

<b>Table 2</b> <b>Employer Contribution Rate by Group</b> <b>Fiscal Year 2007/2008</b> <b>(Excluding Benefits Completion Plan Contribution)</b>	
Class AA	
Age 60 benefit	1.17%
Age 50 benefit	3.00
Park Rangers	2.76
Capitol Police	2.76
Enforcement Officers	3.00
Class A	
Age 60 benefit	0.94
Age 50 benefit	2.40
Park Rangers	2.34
Capitol Police	2.34
State Police	8.79
Enforcement Officers	2.40
Class C	
State Police	8.79
Enforcement Officers	2.40
Class D	
D-3 Legislators	9.00
D-4 Legislators	0.00
Class E	
	1.48

The contribution rate for Class D-4 Legislators is 0.0 percent of payroll. In conjunction with the passage of Act 2001-9, the D-4 employer contributed a lump sum amount which was more than sufficient to fund the additional cost of the higher accrual rate and the retirement at age 50. Therefore, the past service liability for Class D-4 Legislators is \$0, and the past liability adjustment has been set to produce a contribution rate of zero. The excess contribution made by the D-4 employer will continue to be used to offset future D-4 employer contribution requirements until the balance is expended.

Schedule D shows the development of the contribution rates for additional annuities for certain State Police and Enforcement Officers. These members receive an additional annuity that is equal

## **State Employees' Retirement System**

to the accumulated member contributions and interest at retirement determined as if the members were at least age 60 at retirement. These benefits have been fully funded by past contributions so no future contribution is required. It was necessary to transfer some of the reserves from the State Accumulation Account as of December 31, 2006 to bring the State Police Benefit Account into balance. This transfer is necessary because funds had been previously transferred from the State Police Benefit Account to the State Accumulation Account.

### **Change in Employer Contribution Rate**

Schedule E contains an analysis of the change in the employer contribution rate and unfunded liability from the 2005 to 2006 valuation.

The largest reduction in the unfunded liability and employer contribution rate was the gain from investment earnings. The investment return has been greater than the assumed 8.5 percent in the last four years. However, recognition of a portion of these gains was partly offset by the recognition of a portion of the investment loss in 2002. The result was a net gain of \$568.2 million, or 0.93 percent of payroll.

The largest increase in the unfunded liability, \$213 million, resulted from the fact that employee salaries increased more than expected in the actuarial assumptions. There were two sources of change that, in combination, increased the employer cost by 0.93 percent of salary. One was a result of the actual 2006 payroll increase being above expectations. The second increase resulted from the change in unfunded liability amortization due to the higher payroll (whereby the level dollar annual amortization payments for past liabilities expressed as a percent of payroll change each year as the payroll changes). So the net impact of the investment return and salary increase was a zero percent change in the employer contribution rate.

The 2007 collective bargaining agreement provides that employees who retire after June 30, 2007 will have to pay a higher share of the post-retirement medical costs than employees who retire before July 1, 2007. We expect an increase in retirements as a result of that change in post-retirement health benefit provisions. The 2005 valuation had assumed a different pattern of retirements in respect to potential changes in the post-retirement medical provisions. The net impact of removing our assumption from the old contract and adding our assumption for the new contract was a net decrease in employer cost of 0.01 percent of salary.

All other changes from last year to this year decreased the employer cost by 0.15 percent of salary.

### **Actuarial Balance Sheet and Account Balance Transfers**

Schedule F contains the actuarial balance sheet that compares the total assets and liabilities of \$37.5 billion. The assets include current assets and the present value of future contributions. The liabilities include the present value of all benefits to current active and retired members.

Each year the account balances in the three benefit payment accounts are compared to the actuarial liabilities developed in the valuation. If needed, transfers are made to bring the accounts into balance with the liabilities. The accounts go out of balance during the year as a result of differences

## State Employees' Retirement System

between actual experience and the reserves set for retirees. In 2006, a transfer of \$97.7 million was made to the Annuity Reserve Account from the State Accumulation Account to keep the former account in balance. A transfer of \$35.9 million was made from the State Accumulation Account to the State Police Benefit Account to keep the latter account in balance.

The details of these transfers are shown in Schedule G.

### **Accounting Disclosure Statements**

Schedule H is a statement of disclosure to report the information required by the Governmental Accounting Standards Board (GASB) Statement No. 25. Page 1 of Schedule H shows the funding progress from December 31, 1992 through December 31, 2006.

Page 2 of Schedule H shows a comparison of the actual contributions to the system over recent years to the Annual Required Contribution (ARC) as defined by GASB Statement No. 25.

GASB Statement No. 25 defines the ARC to be equal to the employer normal cost plus an amount to amortize the unfunded actuarial accrued liability over an acceptable amortization period. The 2006-2007 employer contribution is lower than the ARC. GASB requires that the net unfunded liability be funded over a period of no more than 30 years. Because of the different funding periods for different portions of the unfunded liability, the net payments on the unfunded liability are actually negative thus reducing the total employer contribution to less than the normal cost. We anticipate that the SERS contribution will be lower than the ARC through June 30, 2009.

We project that from July 1, 2009 through June 30, 2011, the required GASB contribution will be zero because there will be a surplus in the fund. There will be some employer contribution from some of the groups with higher contribution rates. As in 2001 through 2003 this will result in an employer contribution that exceeds the minimum of zero. After June 30, 2011 we expect the employer contribution to equal the ARC. Overall, the amortization schedules are reasonable and will assure the long-term financial soundness of SERS.

Schedule I shows the results of the solvency test. A short-term solvency test is one means of checking a pension system's progress under its funding program. In this solvency test, the SERS assets are compared with the actuarial accrued liabilities. The liabilities are classified into the following categories:

- Liability for active member contributions in the Fund,
- Liability for future benefits to present retired members, and
- Liability for service already rendered by the active members.

The schedule shows that from 1992 through 2003 the total actuarial accrued liability was fully covered by the assets. In 2004 the funded ratio dropped below 100 percent and it is currently at 92.7 percent. Absent unusual circumstances, retirement funds will be below 100 percent and gradually approach 100 percent funding as liabilities become fully amortized. The SERS retirement fund had exceeded 100 percent of liabilities as a result of the high level of investment

## State Employees' Retirement System

returns between 1985 and 1999. This funded ratio dropped below 100 percent largely as a result of the low investment returns of 2000 to 2002 and the amortization schedule. However, the current funding policy will eventually restore the funded ratio to 100 percent. The fund is on a sound actuarial basis even though the liabilities are temporarily greater than the assets.

### **Plan Assets**

Schedule J summarizes the development of the actuarial value of assets as of December 31, 2006. The assets are based on the financial statements prepared by SERS. The asset valuation method smoothes out year-to-year fluctuations in the market value. The approach gradually recognizes, over a 5-year period, the differences between total investment return and the actuarial assumed rate of return (8.5 percent in 2006). This smoothing method recognizes 20 percent of the 2006 asset gain of \$2.5 billion this year, with the remainder to be recognized over the next four years.

### **Projection**

Schedule K shows the number of members, contributions, and benefits from 1991 through 2006 with a projection through 2017. The first half of Schedule K shows new retirements, deaths from former employees, new survivors, and deaths from survivors during the year. The second half of Schedule K shows the projection of employer and employee contributions and a projection of the benefits and expenses. The projections reflect the greater numbers of retirements anticipated as a result of the medical program change that will occur on July 1, 2007.

Schedule K shows the projected employee and employer contributions in dollars and as a percentage of pay. We expect the employer contributions to increase sharply after June 30, 2012 when credit for the pre Act 9 surplus has been completely amortized. The increase will begin to show up in calendar year 2012 and be fully reflected in calendar year 2013.

The Schedule K projection assumes that there will be ad hoc supplemental annuity increases in the future similar to those that have occurred in the past. The projection assumes supplemental annuity increases in 2007, 2011 and 2015. If there are no supplemental annuity increases in the future we expect the employer contribution rate to peak at around 10 percent of payroll in calendar year 2013.

### **Participant Data**

Sections I and II of Schedule L provide a distribution of the total of the active, inactive, and terminated vested participants as of December 31, 2006 by benefit class, sex, age, and length of service. Inactive employees include employees on furlough as well as employees with prior SERS service currently participating in the Pennsylvania Public School Employees' Retirement System (PSERS). The table also shows the average annualized salary in 2006 by age group and sex. Section III of the schedule shows retired annuitants, disabled annuitants, survivors and beneficiaries receiving benefits by age, sex, and benefit amounts.

Although we have made tests to check for reasonableness and consistency, we have not independently audited the data, which were submitted by SERS. As appropriate, we have made

## State Employees' Retirement System

certain adjustments to the SERS data, including the use of a minimum annual salary assumption of \$20,000.

Section III of Schedule L shows the monthly annuities that were being paid as of December 31, 2006. Total benefits from the fund include lump sum payments and death benefits so these are much higher than the sum of annuities shown in Schedule L and in the highlights.

### **Plan Provisions**

Schedule M contains a summary of the principal provisions of the plan. There were no significant changes in plan provisions in 2006.

### **Actuarial Assumptions**

Schedule N summarizes the actuarial assumptions used for the valuation. The two types of assumptions are the economic assumptions, such as the investment return and salary growth assumptions, and demographic assumptions, such as the assumed rate of mortality and retirement. The assumptions have been changed as a result of new collective bargaining agreement effective July 1, 2007. These changes are discussed in Schedule N.

### **Actuarial Methods**

Schedule O explains the asset valuation and funding method used in the valuation, and the determination of the annual contribution. The asset valuation method amortizes investment gains and losses over five years. The funding method provides for reasonable levels of contribution that will fund the cost of future benefits with a credit for amortization of the excess of assets over liabilities. Schedule O also explains how the individual class rates are determined. The final section of Schedule O discusses the plan provisions that are not valued.

The Board contracted with Milliman to conduct an actuarial review of the actuarial methods, procedures and assumptions in 2005. Milliman found that the valuation was in compliance with all major aspects of the applicable actuarial standards. However, Milliman found a number of areas for changes to be considered by SERS and the actuary. All but a few of these recommendations have been addressed. The remaining recommendations will be addressed in the December 31, 2007 valuation.

### **Definitions**

Schedule P defines certain technical terms used in the valuation.

**State Employees' Retirement System**  
**Unfunded Liability and Normal Cost as of December 31, 2006**

I.	Present Value of Benefits:	
	A) Active and Inactive Participants	
	1) Superannuation and Withdrawal	\$ 20,849,750,161
	2) Disability	1,271,202,525
	3) Death	884,768,305
	4) Refunds	48,162,832
	5) Special Police and Enforcement Officer Benefits	2,684,335
	6) Subtotal	\$ 23,056,568,158
	B) Annuitants and Beneficiaries	14,474,525,244
	C) Total	\$ 37,531,093,402
II.	Present Value of Member and Employer Contributions:	
	A) Employer Portion of Normal Cost	\$ 4,223,450,068
	B) Member Contributions	2,942,646,773
	C) Total	\$ 7,166,096,841
III.	Actuarial Accrued Liability: (I) - (II)	\$ 30,364,996,561
IV.	Actuarial Value of Assets	\$ 28,148,833,847
V.	Unfunded Liability (III) - (IV)	\$ 2,216,162,714
VI.	Employer Normal Cost Rate	
	A) Normal Cost Rate for new active members to fund:	
	1) Superannuation and Withdrawal	12.32%
	2) Disability	1.20%
	3) Death	0.55%
	4) Refunds	<u>0.39%</u>
	5) Total	14.46%
	B) Member Deductions	6.25%
	C) Employer Normal Cost (A) - (B)	8.21%

**State Employees' Retirement System**  
**Employer Contribution Rate in Fiscal Year 2007 - 2008**

	<u>Funding Period</u>		Outstanding Balance as of 12/31/06	Annual Payment Amount	Payment as a Percent of Payroll *
	Initial Years	From July 1			
<b>I. Amortization of Liability (Asset) For:</b>					
A) Supplemental Annuities as of 12/31/01	10	2002	\$ 1,143,657,729	\$ 174,303,527	3.08%
B) Act 2001-9 Benefits	30	2002	2,735,791,064	222,524,490	3.93%
C) Other Benefits as of 12/31/01	10	2002	(7,726,186,132)	(1,177,538,922)	-20.80%
D) Supplemental Annuities (2002 COLA)	10	2003	256,500,000	39,092,863	0.69%
E) Changes in 2002	30	2003	1,119,058,089	97,898,155	1.73%
F) Supplemental Annuities (2003 COLA)	10	2004	395,800,000	60,323,412	1.07%
G) Changes in 2003	30	2004	341,601,015	31,786,301	0.56%
H) Changes in 2004	30	2005	1,942,541,016	180,755,296	3.19%
I) Changes in 2005	30	2006	494,664,846	46,029,036	0.81%
J) Changes in 2006	30	2007	(341,521,725)	(31,778,923)	-0.56%
<b>Total</b>				<b>\$ 2,216,162,714</b>	<b>-6.30%</b>
<b>II. Employer Normal Cost</b>					<b>8.21%</b>
<b>III. Total Employer Cost = (I) + (II)</b>					<b>1.91%</b>

\* The payment is expressed as a percentage of the total projected payroll for active members in fiscal year 2007-2008 of \$5,661,675,000. Percentages may not add due to rounding.



**State Employees' Retirement System  
Employer Contribution Rate by Group  
(excluding Benefits Completion Plan rate)**

Employer Group (1)	Basic Contribution Rate (2)	Age 50 Retirement Adjustment (3)	Multiplier Adjustment* (4)	Past Liability Adjustment (5)	Adjusted Contribution Rate** (6)	Projected 2007-2008 Payroll (7)	Employer Contribution Amount (8)
Class AA - Age 60 Retirement	1.17%		1.0000		1.17%	\$ 4,293,981,000	\$ 50,239,578
Class A - Age 60 Retirement	1.17%		0.8000		0.94%	37,954,000	356,768
Class AA - Age 50 Retirement (Including Enforcement Officers)	1.17%	1.83%	1.0000		3.00%	802,954,000	24,088,620
Class A - Age 50 Retirement (Including Class A & Class C Enforcement Officers)	1.17%	1.83%	0.8000		2.40%	14,711,000	353,064
Class AA - Park Rangers & Capitol Police	1.17%	0.92%	1.0000	0.67%	2.76%	13,921,000	384,220
Class A - Park Rangers & Capitol Police	1.17%	0.92%	0.8000	0.67%	2.34%	94,000	2,200
State Police (Class A & Class C)	1.17%	1.83%	1.1395	5.37%	8.79%	354,041,000	31,120,204
Class D3	1.17%	1.83%	3.0000		9.00%	309,000	27,810
Class D4	1.17%	1.83%	1.2000	-3.60%	0.00%	18,962,000	-
Class E	1.17%		1.2677		1.48%	124,748,000	1,846,270
Total***						\$ 5,661,675,000	\$ 108,418,733

\* The multiplier adjustment at column 4 is the adjustment for the employer group contribution rate. Because the majority of SERS members are covered under Class AA(60), the 2.5 percent accrual rate for that Class is used to determine the basic contribution rate. Column (4) is the ratio of the class contribution rate to 2.5 percent.

\*\* The adjusted contribution rate is [ (2) + (3) ] times (4) + (5).

\*\*\* The total employer contribution (\$108,418,733) is approximately equal to the average employer contribution rate from Schedule B (1.91 percent) times the total projected payroll of \$5,661,675,000. The Basic Contribution Rate of 1.17 percent was determined as the percentage needed to produce employer contribution amounts by employer group that sum to \$108,418,733.

**State Employees' Retirement System**  
**State Police and Enforcement Officers Additional Annuity Rate**  
**(Fiscal Year 2007 - 2008)**

	<u>State Police</u>	<u>Enforcement Officers</u>
1) Balance in Benefit Account as of December 31, 2006	\$1,346,663,439	\$41,780,095
2) Present Value of Benefits for Annuitants and Beneficiaries	1,344,426,093	40,013,799
3) Assets available for additional annuities for Active Members: (1) - (2)	2,237,346	1,766,296
4) Present Value of additional annuities for Active Members	2,237,346	446,989
5) Present Value of Future Contribution to fund additional annuities: (4) - (3); not less than zero	-	-
6) Present Value of Future Compensation for eligible Active Members	*	*
7) Contribution Rate as a percentage of payroll payable January 1: (5) / (6)	0.00%	0.00%

\* Not calculated because additional annuity is fully funded.

**State Employees' Retirement System**  
**Analysis of the Change in Employer Contribution Rate**

	<u>Normal</u> <u>Cost</u>	<u>Unfunded</u> <u>Liability</u>	<u>Total</u>
I. December 31, 2005 Valuation	8.39%	-6.32%	2.07%
II. Changes in the December 31, 2006 Valuation:			
A) Gain from investment earnings		-0.93%	-0.93%
B) Pay increases different than assumptions		0.35%	0.35%
C) Change in demographics of new entrants	-0.18%	0.15%	-0.03%
D) Other differences		-0.12%	-0.12%
E) Assumption changes	0.00%	-0.01%	-0.01%
F) Change in amortization due to change in payroll	<u>0.00%</u>	<u>0.58%</u>	<u>0.58%</u>
G) Total Change	-0.18%	0.02%	-0.16%
III. December 31, 2006 Valuation: (I) + (II.G)	8.21%	-6.30%	1.91%

**Analysis of the Change in the Unfunded Liability**

I. December 31, 2005 Unfunded Liability	\$ 2,057,934,192
II. Expected Amortization Payment	(324,825,842)
III. Expected Liability as of December 31, 2006 [(I) x 1.085] - (II)	\$ 2,557,684,440
IV. Change in Liability Due to:	
A) Gain from investment earnings	\$ (568,176,041)
B) Pay increases different than assumptions	213,715,254
C) Change in demographics of new entrants	92,596,956
D) Other differences	(73,112,328)
E) Assumption changes	<u>(6,545,567)</u>
F) Total change	\$ (341,521,726)
V. December 31, 2006 Unfunded Liability: (III) + (IV.F)	\$ 2,216,162,714

**State Employees' Retirement System**  
**Actuarial Balance Sheet as of December 31, 2006**

**ASSETS**

Present Assets:

Members Savings Account	\$ 3,916,840,773
Annuity Reserve Account	13,090,085,352
State Police Benefit Account	1,346,663,439
Enforcement Officers Benefit Account	41,780,095
State Accumulation Account *	14,827,371,128
Supplemental Annuity Account	<u>(1,173,627,858)</u>
Total Present Assets (Market Value)	\$ 32,049,112,929
Adjustment to Smooth Market Fluctuations	(3,900,279,082)
Total Present Assets (Actuarial Value)	\$ 28,148,833,847

Present Value of Future Contributions

Members' Contributions (Employee)	\$ 2,942,646,773
Normal Cost Contributions (Employer)	4,223,450,068
Accrued Liability Amortization (Employer)	1,042,534,856
Supplemental Annuity Amortization (Employer)	1,173,627,858
Special State Police Contributions (Employer)	0
Special Enforcement Officer Contributions (Employer)	<u>0</u>

Total Future Contributions

\$ 9,382,259,555

**TOTAL ASSETS**

**\$ 37,531,093,402**

\* Includes \$3,175,681 in directed commissions.

**LIABILITIES**

Present Value of Benefits Payable to Annuitants and Beneficiaries from:

Annuity Reserve Account	\$ 13,090,085,352
State Police Benefit Account	1,344,426,093
Enforcement Officers Benefit Account	<u>40,013,799</u>
Total for Annuitants and Beneficiaries	\$ 14,474,525,244

Present Value of Benefits to Active and Inactive Members from:

Members Savings Account and State Accumulation Account	\$ 20,849,750,161
Disability	1,271,202,525
Death	884,768,305
Refunds	<u>48,162,832</u>
Subtotal	\$ 23,053,883,823

State Police Benefit Account

2,237,346

446,989

Enforcement Officers Benefit Account  
Total Present Value of Benefits to

Active and Inactive Members

\$ 23,056,568,158

**TOTAL LIABILITIES**

**\$ 37,531,093,402**

**State Employees' Retirement System**  
**Required Transfers Within SERS Accounts**

I. Annuity Reserve Account

Balance as reported by SERS	\$ 12,992,383,242
Transfer from State Accumulation Account	97,702,110
Transfer to Supplemental Annuity Account	<u>-</u>
December 31, 2006 balance after transfers	\$ 13,090,085,352

II. State Accumulation Account \*

Balance as reported by SERS	\$ 14,960,939,222
Transfer to State Police Benefit Account	(35,865,984)
Transfer to Annuity Reserve Account	<u>(97,702,110)</u>
December 31, 2006 balance after transfers	\$ 14,827,371,128

III. Enforcement Officers' Benefit Account

Balance as reported by SERS	\$ 41,780,095
Transfer from Supplemental Annuity Account	<u>-</u>
December 31, 2006 balance after transfers	\$ 41,780,095

IV. State Police Benefit Account

Balance as reported by SERS	\$ 1,310,797,455
Transfer from State Accumulation Account	35,865,984
Transfer from Supplemental Annuity Account	<u>-</u>
December 31, 2006 balance after transfers	\$ 1,346,663,439

V. Supplemental Annuity Account

Balance as reported by SERS	\$ (1,173,627,858)
Transfer from Annuity Reserve Account	-
Transfer to State Police Benefit Account	-
Transfer to Enforcement Officers' Benefit Account	<u>-</u>
December 31, 2006 balance after transfers	\$ (1,173,627,858)

\* Balance includes \$3,175,681 in directed commissions.

**State Employees' Retirement System  
Accounting Disclosure Statements**

**I. Schedule of Funding Progress as of December 31, 2006**

(Dollars in Thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded Actuarial Accrued Liability (UAAL) (b-a)	Funded Ratio (a) / (b)	Covered Payroll (c)	Unfunded Actuarial Accrued Liability as a Percentage of Covered Payroll ((b-a)/c)
12/31/1992	11,769,388	11,488,414	(280,974)	102.4%	3,533,428	-8.0%
12/31/1993	13,060,613	12,213,736	(846,877)	106.9%	3,731,515	-22.7%
12/31/1994	13,991,485	13,742,056	(249,429)	101.8%	3,990,440	-6.3%
12/31/1995 *	15,510,309	15,067,205	(443,104)	102.9%	4,021,605	-11.0%
12/31/1996	16,841,069	15,936,616	(904,453)	105.7%	4,163,683	-21.7%
12/31/1997	18,565,136	17,288,413	(1,276,723)	107.4%	4,219,034	-30.3%
12/31/1998	20,670,711	18,357,899	(2,312,812)	112.6%	4,446,147	-52.0%
12/31/1999	23,624,267	19,091,840	(4,532,427)	123.7%	4,519,112	-100.3%
12/31/2000 *	26,094,306	19,702,278	(6,392,028)	132.4%	4,769,180	-134.0%
12/31/2001	27,505,494	23,658,757	(3,846,737)	116.3%	4,872,375	-78.9%
12/31/2002	27,497,464	25,650,389	(1,847,075)	107.2%	5,093,454	-36.3%
12/31/2003	27,465,615	26,179,761	(1,285,854)	104.9%	4,965,360	-25.9%
12/31/2004	26,900,027	27,999,026	1,099,000	96.1%	5,093,573	21.6%
12/31/2005 *	26,793,782	28,851,716	2,057,934	92.9%	5,138,377	40.1%
12/31/2006	28,148,834	30,364,997	2,216,163	92.7%	5,661,675	39.1%

\* Revised economic and demographic assumptions due to experience review.

**State Employees' Retirement System**  
**Accounting Disclosure Statements (Continued)**

**II. Schedule of Employer Contributions as of December 31, 2006**  
(Dollars in Thousands)

Calendar Year	Annual Required Contribution (ARC)	Actual Contribution	Percentage Contributed
1992	319,093	319,093	100.0%
1993	310,089	304,122	98.1%
1994	342,158	342,927	100.2%
1995	376,692	384,506	102.1%
1996	373,903	373,903	100.0%
1997	324,093	324,093	100.0%
1998	310,501	310,501	100.0%
1999	269,869	269,869	100.0%
2000	168,002	168,002	100.0%
2001	52,104	76,709	147.2%
2002	22,906	50,831	221.9%
2003	55,079	67,947	123.4%
2004	105,229	105,229	100.0%
2005	319,190	147,163	46.1%
2006	548,745	195,407	35.6%

**Notes Pertaining to Governmental Accounting Standards Board Statement No. 25**

The actual contribution amounts in the above table include the employer share of regular contributions, the employer share of purchased service and contributions for employee service under the Public School Employees' Retirement System.

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows.

## State Employees' Retirement System

### Accounting Disclosure Statements (continued)

Valuation Date	December 31, 2006
Actuarial cost method	Variation of Entry-age Actuarial Cost Method
Amortization method	10-year or 30-year schedule with level payments
Remaining amortization period	5 to 30 years
Asset valuation method	5-year smooth market
Actuarial Assumptions	
Investment rate of return	8.5 percent
Projected salary increases	Average increase of 7.1 percent (range: 4.9 to 20.2 percent)
Inflation	3.0 percent
Cost-of-living adjustments	None

The annual employer contribution is equal to the sum of the following:

- (1) The employer share of the normal cost.
- (2) The amortization of the December 31, 2001 liability for Act 2001-9 benefits over a 30-year period beginning July 1, 2002 and ending on June 30, 2032.
- (3) The amortization of the remaining unfunded liabilities as of December 31, 2001 over a ten-year period beginning July 1, 2002 and ending on June 30, 2012.
- (4) The amortization of all unfunded liabilities due to supplemental annuities (COLAs) after 2001, or other legislated benefit improvements after June 30, 2003, over ten-year periods beginning with the July first following the effective date of the change.
- (5) The amortization of changes in liability due to actual experience differing from assumed experience after December 31, 2001 over 30-year periods beginning with the July first following the actuarial valuation determining such changes.

Valuations are performed on December 31 of each year and the results are presented to the Board as a basis for determining the employer contribution rate for the year beginning July 1 after the valuation date. The Board has adopted the rate from the valuation unless information available after the valuation supports an adjustment to the valuation rate.

As long as the annual employer contribution, as defined above, is at least equal to the minimum contribution required under GASB Statement No. 25, the annual employer contribution will be deemed to be the Annual Required Contribution (ARC). Should the annual employer contribution be less than the minimum contribution required under GASB, the GASB minimum will be the ARC.



## State Employees' Retirement System

### Accounting Disclosure Statements (continued)

The Board has adopted the valuation rate as the contribution rate since 1995. The Board adopted slightly different rates in 1993 and 1994 based on information available after the valuation was performed. In 1993, the valuation rate of 9.27 percent was lowered to 8.92 percent because it was determined that the payroll reported for the valuation was unusually high and that future payrolls were expected to be relatively lower. In 1994, the valuation rate of 8.53 percent was increased to 8.92 percent to allow for the extension of the early retirement window and acceleration of the longevity pay scales.

The actuary agreed with the actions taken by the Board that resulted in some difference between the ARC and the actual contribution. The table presented on page 20 shows the ARC based on the actuarial valuation. The effect of the adjustments in 1993 and 1994 extended over three calendar years so the 1993 through 1995 actual contributions are different from the ARCs in those years.

During 2001, 2002, and 2003, actual contributions exceeded the ARC. For the period July 1, 2001 through June 30, 2003, the ARC was set at zero. However, contributions were made by employers of some special class employees for the cost of additional benefits including payment of past liabilities for retroactive benefit enhancements. Collection of those amounts resulted in the actual contributions exceeding the ARC for all or part of calendar years 2001, 2002 and 2003.

All amortization payments are currently based upon a 10-year or 30-year schedule of contributions which remain level during the amortization period. The employer cost is determined as a percent of payroll, and the employer contributes that percent of the payroll of all covered members during each fiscal year.

GASB Statement No. 25 defines the ARC to be equal to the employer normal cost plus an amount to amortize the unfunded actuarial accrued liability. The Statement prescribes the maximum acceptable period over which the total unfunded actuarial liability should be amortized. When portions of the unfunded actuarial liability are amortized over different periods, as they now are under Act 40, GASB requires that the "equivalent single amortization period" for all portions combined should not exceed the maximum acceptable period. Under the Act 40 amortization rules, the current contribution level results in an "equivalent single amortization period" in excess of the maximum acceptable period and thus an actual contribution less than the ARC. Because of the different funding periods for different portions of the unfunded liability, the net payments on the unfunded liability are actually negative thus reducing the total employer contribution to less than the normal cost. The employer contribution has been below the GASB minimum since July 1, 2005 and we anticipate that the SERS contribution will be lower than the ARC through June 30, 2009. After that date, we project the SERS contribution will exceed the GASB minimum.

**State Employees' Retirement System**  
**Solvency Test**

Valuation Date	Actuarial Accrued Liabilities For			Retirees & Beneficiaries	Active Member Contributions	Active Members		Total Actuarial Liability (AAL)	Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Reported Assets	Funded Ratio
	(1)	(2)	(3)			(Employer Financed Portion)	Total Actuarial Liability (AAL)				
December 31, 1992	\$ 1,994,567	\$ 4,621,318	\$ 4,872,529	\$ 11,488,414	\$ 11,769,388	100.0%	100.0%	100.0%	100.0%	102.4%	
December 31, 1993	2,170,593	4,806,907	5,236,236	12,213,736	13,060,613	100.0	100.0	100.0	100.0	106.9	
December 31, 1994	2,352,731	5,039,221	6,350,104	13,742,056	13,991,485	100.0	100.0	100.0	100.0	101.8	
December 31, 1995	2,499,485	5,649,454	6,918,265	15,067,205	15,510,309	100.0	100.0	100.0	100.0	102.9	
December 31, 1996	2,646,630	6,027,333	7,262,653	15,936,616	16,841,069	100.0	100.0	100.0	100.0	105.7	
December 31, 1997	2,748,177	6,951,411	7,588,825	17,288,413	18,565,136	100.0	100.0	100.0	100.0	107.4	
December 31, 1998	2,904,232	7,200,000	8,253,666	18,357,899	20,670,711	100.0	100.0	100.0	100.0	112.6	
December 31, 1999	2,989,489	7,779,993	8,322,358	19,091,840	23,624,267	100.0	100.0	100.0	100.0	123.7	
December 31, 2000	3,182,776	8,148,876	8,370,626	19,702,278	26,094,306	100.0	100.0	100.0	100.0	132.4	
December 31, 2001	3,344,107	8,684,734	11,629,915	23,658,757	27,505,494	100.0	100.0	100.0	100.0	116.3	
December 31, 2002	3,498,672	10,129,669	12,022,048	25,650,389	27,497,464	100.0	100.0	100.0	100.0	107.2	
December 31, 2003	3,588,664	11,296,520	11,294,578	26,179,761	27,465,615	100.0	100.0	100.0	100.0	104.9	
December 31, 2004	3,593,576	12,779,570	11,625,880	27,999,026	26,900,027	100.0	100.0	100.0	100.0	96.1	
December 31, 2005	3,696,477	14,000,196	11,155,043	28,851,716	26,793,782	100.0	100.0	100.0	100.0	92.9	
December 31, 2006	3,916,841	14,474,525	11,973,631	30,364,997	28,148,834	100.0	100.0	100.0	100.0	92.7	

(Amounts in Thousands)

**State Employees' Retirement System**  
**Actuarial Value of Assets**

I.	Development of 12/31/06 Expected Actuarial Value:	
A)	Actuarial Value as of 12/31/05	\$ 26,793,781,828
B)	Contributions in 2006	513,196,638
C)	Benefits and Expenses in 2006	(1,943,024,434)
D)	Investment return at 8.5% to 12/31/06 on (A)	2,277,471,455
E)	Investment return at 8.5% to 12/31/06 on (B) and (C) .5 x ((B) + (C))	<u>(60,767,681)</u>
F)	Expected Actuarial Value as of 12/31/06: (A) + (B) + (C) + (D) + (E)	\$ 27,580,657,806
II.	Previous Differences Not Yet Amortized:	
A)	Unrecognized amount of 12/31/02 Difference: .2 x (\$5,022,717,365)	\$ (1,004,543,473)
B)	Unrecognized amount of 12/31/03 Difference: .4 x \$2,652,816,560	1,061,126,624
C)	Unrecognized amount of 12/31/04 Difference: .6 x \$1,296,989,107	778,193,464
D)	Unrecognized amount of 12/31/05 Difference: .8 x \$1,400,566,981	<u>1,120,453,585</u>
E)	Total	\$ 1,955,230,200
III.	Gain or Loss from 2006	
A)	Market Value of Assets on 12/31/06	\$ 32,049,112,929
B)	Expected Market Value II(E) + I(F)	<u>29,535,888,006</u>
C)	Gain (loss) from 2006 Investments (A) - (B)	\$ 2,513,224,923
IV.	Development of Actuarial Value of Assets as of 12/31/06:	
A)	20% of (\$5,022,717,365) (12/31/02 Difference):	\$ (1,004,543,473)
B)	20% of \$2,652,816,560 (12/31/03 Difference):	530,563,312
C)	20% of \$1,296,989,107 (12/31/04 Difference):	259,397,821
D)	20% of \$1,400,566,981 (12/31/05 Difference):	280,113,396
E)	20% of \$2,513,224,923 (12/31/06 Difference):	<u>502,644,985</u>
F)	Total Difference: (A) + (B) + (C) + (D) + (E)	\$ 568,176,041
G)	Actuarial Value at 12/31/06: I(F) + IV(F)	\$ 28,148,833,847

**State Employees' Retirement System**  
**Projection of Population, Benefits, and Contributions**

**Projection of Annuitants and Employees**  
**Actual Data Through 2006**

Calendar Year	New Retirements During the Year	Deaths During the Year	Former Employees (EOY)	New Survivors During the Year	Deaths During the Year	Survivors (EOY)	Total Retired and Survivor Lives	Active Employees
1991			69,908			6,332	76,240	105,731
1992			73,897			6,595	80,492	109,609
1993			73,894			6,796	80,690	111,962
1994			73,780			7,055	80,835	114,120
1995			74,110			7,094	81,204	112,637
1996			75,609			7,477	83,086	110,922
1997			77,667			7,790	85,457	108,684
1998			78,017			7,817	85,834	108,893
1999			80,095			7,948	88,043	108,035
2000			80,289			8,103	88,392	109,469
2001			80,911			8,306	89,217	109,716
2002			82,805			8,423	91,228	111,059
2003			85,808			8,604	94,412	109,018
2004			89,869			8,858	98,727	108,405
2005			92,120			9,059	101,179	109,981
2006			92,879			9,181	102,060	110,972
2007	5,417	3,274	95,022	655	526	9,310	104,332	110,972
2008	5,534	3,308	97,248	662	574	9,398	106,646	110,972
2009	5,689	3,330	99,607	666	615	9,449	109,056	110,972
2010	5,679	3,355	101,931	671	649	9,471	111,402	110,972
2011	5,560	3,371	104,120	674	675	9,470	113,590	110,972
2012	5,410	3,397	106,133	679	697	9,452	115,585	110,972
2013	5,142	3,412	107,863	682	711	9,423	117,286	110,972
2014	4,878	3,431	109,310	686	721	9,388	118,698	110,972
2015	4,637	3,449	110,498	690	727	9,351	119,849	110,972
2016	4,499	3,469	111,528	694	729	9,316	120,844	110,972
2017	4,210	3,501	112,237	700	731	9,285	121,522	110,972

The retirement projections in Schedule K are based upon the current retirement assumptions used for the valuation; however they also reflect the effect of a change in the post-retirement medical benefits on July 1, 2007.

**State Employees' Retirement System**  
**Projection of Population, Benefits, and Contributions**

**Projection of Expected Contributions and Benefits**  
**Actual Data Through 2006**  
**(Dollars in Millions)**

Calendar Year	Contributions		Contributions as a Percent of Pay		Benefits and Expenses
	Employee	Employer	Employee	Employer	
1991	\$ 183	\$ 381			\$ 664
1992	187	319			851
1993	190	304			781
1994	193	343			812
1995	202	385			894
1996	210	374			943
1997	213	324			1,037
1998	222	311			1,080
1999	224	270			1,248
2000	232	168			1,198
2001	240	77			1,266
2002	304	51			1,450
2003	308	68			1,656
2004	302	106			1,880
2005	306	147			1,966
2006	317	196			1,943
2007	335	160	6.2%	3.0%	2,198
2008	353	98	6.2%	1.7%	2,439
2009	361	45	6.2%	0.8%	2,639
2010	373	0	6.2%	0.0%	2,848
2011	386	0	6.2%	0.0%	3,145
2012	398	520	6.2%	8.1%	3,468
2013	412	1,039	6.2%	15.6%	3,712
2014	425	997	6.2%	14.5%	3,964
2015	439	981	6.2%	13.8%	4,341
2016	454	1,135	6.2%	15.5%	4,757
2017	469	1,294	6.2%	17.1%	5,032

The projection is based upon the following assumptions: a projected investment return of 8.5 percent in 2007 and after; general pay increases of 3.3 percent adjusted for negotiated increases; and supplemental annuity increases in 2007, 2011 and 2015. The employer contribution is projected to peak at around 10 percent of payroll assuming no future supplemental annuity increases.

**State Employees' Retirement System**  
**I. Age, Service and Salary Profile of Active Participants as of December 31, 2006**

**Active Employees\***

Males - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	32	0	0	0	0	0	0	32	\$ 23,540
20-24	894	8	0	0	0	0	0	902	26,047
25-29	2,031	382	6	0	0	0	0	2,419	33,210
30-34	1,535	1,008	259	6	0	0	0	2,808	37,962
35-39	1,552	1,187	1,116	387	16	0	0	4,258	41,657
40-44	1,466	1,074	1,027	1,194	580	37	0	5,378	45,246
45-49	1,541	1,088	975	1,261	1,364	981	52	7,262	46,740
50-54	1,534	1,086	1,078	1,233	1,235	1,640	1,089	8,895	49,368
55-59	1,305	918	916	997	1,010	1,210	2,214	8,570	52,269
60-64	776	520	515	507	402	329	776	3,825	52,324
65+	<u>283</u>	<u>245</u>	<u>273</u>	<u>149</u>	<u>82</u>	<u>63</u>	<u>265</u>	<u>1,360</u>	<u>54,619</u>
Total	12,949	7,516	6,165	5,734	4,689	4,260	4,396	45,709	\$ 46,661

Average Age 47.75  
Average Service 13.30

Females - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	43	0	0	0	0	0	0	43	\$ 23,014
20-24	1,120	31	0	0	0	0	0	1,151	25,589
25-29	2,083	612	22	0	0	0	0	2,717	31,648
30-34	1,603	1,085	363	33	0	0	0	3,084	35,227
35-39	1,637	1,124	928	611	64	0	0	4,364	37,394
40-44	1,636	1,085	850	1,019	728	136	0	5,454	39,884
45-49	1,769	1,224	1,016	1,095	1,044	1,195	111	7,454	41,695
50-54	1,605	1,151	988	1,243	1,032	1,373	1,624	9,016	44,311
55-59	1,045	882	820	1,072	929	950	1,479	7,177	45,289
60-64	398	405	445	458	384	278	353	2,721	43,893
65+	<u>122</u>	<u>128</u>	<u>187</u>	<u>132</u>	<u>78</u>	<u>57</u>	<u>108</u>	<u>812</u>	<u>43,153</u>
Total	13,061	7,727	5,619	5,663	4,259	3,989	3,675	43,993	\$ 40,816

Average Age 46.40  
Average Service 12.72

\* The following three pages contain information on members in special categories. These include selected hazardous duty members, legislators, judges and district justices. The above information is for all other active members. Page five of Schedule L is the total of all active categories. Page six is the total of all active employees and inactive and vested participants.

## State Employees' Retirement System

### I. Age, Service and Salary Profile of Active Participants as of December 31, 2006

#### Selected Hazardous Duty\*

##### Males - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	0	0	0	0	0	0	0	0	\$ -
20-24	246	0	0	0	0	0	0	246	34,872
25-29	1,022	113	1	0	0	0	0	1,136	38,707
30-34	821	902	227	1	0	0	0	1,951	45,181
35-39	691	923	1,547	698	12	0	0	3,871	55,268
40-44	458	507	876	1,290	402	3	0	3,536	57,879
45-49	280	346	375	591	716	183	3	2,494	58,840
50-54	174	254	294	335	340	244	59	1,700	57,339
55-59	152	185	317	284	224	143	127	1,432	54,529
60-64	62	80	122	129	97	35	39	564	53,503
65+	<u>9</u>	<u>7</u>	<u>39</u>	<u>18</u>	<u>13</u>	<u>5</u>	<u>4</u>	<u>95</u>	<u>55,948</u>
<b>Total</b>	<b>3,915</b>	<b>3,317</b>	<b>3,798</b>	<b>3,346</b>	<b>1,804</b>	<b>613</b>	<b>232</b>	<b>17,025</b>	<b>\$ 53,868</b>

Average Age 42.23

Average Service 11.42

##### Females - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	0	0	0	0	0	0	0	0	\$ -
20-24	58	0	0	0	0	0	0	58	31,875
25-29	238	19	0	0	0	0	0	257	37,182
30-34	206	129	22	0	0	0	0	357	40,726
35-39	171	163	138	24	0	0	0	496	45,405
40-44	138	127	110	85	20	0	0	480	47,579
45-49	118	85	88	93	88	30	2	504	51,315
50-54	85	75	106	81	43	65	12	467	52,004
55-59	39	36	60	54	25	20	13	247	53,061
60-64	12	11	21	15	11	6	2	78	54,555
65+	<u>1</u>	<u>2</u>	<u>10</u>	<u>8</u>	<u>3</u>	<u>1</u>	<u>0</u>	<u>25</u>	<u>57,300</u>
<b>Total</b>	<b>1,066</b>	<b>647</b>	<b>555</b>	<b>360</b>	<b>190</b>	<b>122</b>	<b>29</b>	<b>2,969</b>	<b>\$ 47,236</b>

Average Age 42.65

Average Service 9.12

\* Enforcement officers, correction officers, psychiatric security aides, and officers of the Pennsylvania State Police and the Delaware River Port Authority

**State Employees' Retirement System**

**I. Age, Service and Salary Profile of Active Participants as of December 31, 2006**

**Legislators**

Males - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	0	0	0	0	0	0	0	0	\$ -
20-24	0	0	0	0	0	0	0	0	-
25-29	4	0	0	0	0	0	0	4	73,614
30-34	7	2	0	0	0	0	0	9	73,614
35-39	9	4	1	0	0	0	0	14	73,614
40-44	11	6	5	0	0	0	0	22	74,553
45-49	17	8	7	4	2	2	0	40	77,525
50-54	9	7	10	3	5	4	1	39	76,035
55-59	6	3	6	5	3	4	6	33	78,695
60-64	4	4	0	4	5	3	6	26	80,690
65+	<u>1</u>	<u>1</u>	<u>5</u>	<u>1</u>	<u>7</u>	<u>2</u>	<u>11</u>	<u>28</u>	<u>75,247</u>
<b>Total</b>	<b>68</b>	<b>35</b>	<b>34</b>	<b>17</b>	<b>22</b>	<b>15</b>	<b>24</b>	<b>215</b>	<b>\$ 76,725</b>

Average Age 52.12

Average Service 12.76

Females - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	0	0	0	0	0	0	0	0	\$ -
20-24	0	0	0	0	0	0	0	0	-
25-29	1	0	0	0	0	0	0	1	73,614
30-34	2	0	0	0	0	0	0	2	73,614
35-39	0	1	0	0	0	0	0	1	73,614
40-44	2	0	0	0	0	0	0	2	73,614
45-49	1	1	4	2	0	0	0	8	76,749
50-54	0	1	0	0	1	0	0	2	81,432
55-59	3	0	1	1	0	0	0	5	73,614
60-64	2	1	6	0	0	0	0	9	74,761
65+	<u>0</u>	<u>0</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>6</u>	<u>74,943</u>
<b>Total</b>	<b>11</b>	<b>4</b>	<b>13</b>	<b>5</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>36</b>	<b>\$ 75,253</b>

Average Age 53.92

Average Service 9.56



**State Employees' Retirement System**

**I. Age, Service and Salary Profile of Active Participants as of December 31, 2006**

**Judges And Magisterial District Judges**

Males - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	0	0	0	0	0	0	0	0	\$ -
20-24	0	0	0	0	0	0	0	0	-
25-29	0	0	0	0	0	0	0	0	-
30-34	3	2	0	0	0	0	0	5	74,578
35-39	6	6	1	0	0	0	0	13	80,319
40-44	16	14	6	3	1	0	0	40	92,398
45-49	26	26	16	9	2	0	0	79	95,423
50-54	41	35	32	29	19	4	3	163	104,601
55-59	30	49	40	44	31	17	10	221	110,942
60-64	13	14	30	39	27	20	12	155	120,850
65+	<u>4</u>	<u>15</u>	<u>16</u>	<u>26</u>	<u>12</u>	<u>8</u>	<u>17</u>	<u>98</u>	<u>123,061</u>
<b>Total</b>	139	161	141	150	92	49	42	774	\$ 109,834

Average Age 56.06  
Average Service 13.39

Females - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	0	0	0	0	0	0	0	0	\$ -
20-24	0	0	0	0	0	0	0	0	-
25-29	0	0	0	0	0	0	0	0	-
30-34	3	2	0	0	0	0	0	5	74,724
35-39	11	6	0	0	0	0	0	17	87,760
40-44	8	7	5	1	0	0	0	21	95,552
45-49	13	12	7	4	3	0	0	39	105,808
50-54	16	17	18	14	4	1	0	70	116,780
55-59	2	11	10	15	9	3	1	51	118,815
60-64	2	5	4	11	11	2	0	35	121,060
65+	<u>1</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>2</u>	<u>4</u>	<u>1</u>	<u>13</u>	<u>98,548</u>
<b>Total</b>	56	61	45	48	29	10	2	251	\$ 110,562

Average Age 52.25  
Average Service 11.41

## State Employees' Retirement System

### I. Age, Service and Salary Profile of Active Participants as of December 31, 2006

#### All Active Employees

##### Males - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	32	0	0	0	0	0	0	32	\$ 23,540
20-24	1,140	8	0	0	0	0	0	1,148	27,938
25-29	3,057	495	7	0	0	0	0	3,559	35,010
30-34	2,366	1,914	486	7	0	0	0	4,773	41,019
35-39	2,258	2,120	2,665	1,085	28	0	0	8,156	48,234
40-44	1,951	1,601	1,914	2,487	983	40	0	8,976	50,505
45-49	1,864	1,468	1,373	1,865	2,084	1,166	55	9,875	50,310
50-54	1,758	1,382	1,414	1,600	1,599	1,892	1,152	10,797	51,554
55-59	1,493	1,155	1,279	1,330	1,268	1,374	2,357	10,256	53,934
60-64	855	618	667	679	531	387	833	4,570	54,955
65+	<u>297</u>	<u>268</u>	<u>333</u>	<u>194</u>	<u>114</u>	<u>78</u>	<u>297</u>	<u>1,581</u>	<u>59,307</u>
<b>Total</b>	17,071	11,029	10,138	9,247	6,607	4,937	4,694	63,723	\$ 49,455

Average Age 46.39

Average Service 12.80

##### Females - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	43	0	0	0	0	0	0	43	\$ 23,014
20-24	1,178	31	0	0	0	0	0	1,209	25,890
25-29	2,322	631	22	0	0	0	0	2,975	32,140
30-34	1,814	1,216	385	33	0	0	0	3,448	35,876
35-39	1,819	1,294	1,066	635	64	0	0	4,878	38,392
40-44	1,784	1,219	965	1,105	748	136	0	5,957	40,712
45-49	1,901	1,322	1,115	1,194	1,135	1,225	113	8,005	42,648
50-54	1,706	1,244	1,112	1,338	1,080	1,439	1,636	9,555	45,225
55-59	1,089	929	891	1,142	963	973	1,493	7,480	46,066
60-64	414	422	476	484	406	286	355	2,843	45,234
65+	<u>124</u>	<u>131</u>	<u>200</u>	<u>145</u>	<u>85</u>	<u>62</u>	<u>109</u>	<u>856</u>	<u>44,630</u>
<b>Total</b>	14,194	8,439	6,232	6,076	4,481	4,121	3,706	47,249	\$ 41,616

Average Age 46.2

Average Service 12.49

**State Employees' Retirement System**

**II. Age and Service Profile of Active Employees and Inactive and Vested Participants**

**As of December 31, 2006**

**Active Employees and Inactive and Vested Participants**

Males - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total
Less than 20	32	0	0	0	0	0	0	32
20-24	1,140	8	0	0	0	0	0	1,148
25-29	3,063	515	8	0	0	0	0	3,586
30-34	2,380	2,009	494	7	0	0	0	4,890
35-39	2,288	2,237	2,732	1,096	28	0	0	8,381
40-44	1,985	1,707	2,015	2,520	984	40	0	9,251
45-49	1,912	1,551	1,464	1,917	2,096	1,177	55	10,172
50-54	1,858	1,490	1,508	1,652	1,641	1,917	1,167	11,233
55-59	1,650	1,244	1,373	1,395	1,299	1,407	2,406	10,774
60-64	955	658	719	718	559	412	870	4,891
65+	338	284	357	218	124	84	311	1,716
<b>Total</b>	<b>17,601</b>	<b>11,703</b>	<b>10,670</b>	<b>9,523</b>	<b>6,731</b>	<b>5,037</b>	<b>4,809</b>	<b>66,074</b>

Average Age 46.55

Average Service 12.73

Females - Full Years of Service to December 31, 2006

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total
Less than 20	43	0	0	0	0	0	0	43
20-24	1,179	32	0	0	0	0	0	1,211
25-29	2,336	656	22	0	0	0	0	3,014
30-34	1,846	1,326	390	33	0	0	0	3,595
35-39	1,873	1,467	1,130	648	64	0	0	5,182
40-44	1,850	1,342	1,080	1,135	756	137	0	6,300
45-49	2,007	1,473	1,249	1,250	1,148	1,231	114	8,472
50-54	1,955	1,440	1,290	1,423	1,112	1,459	1,657	10,336
55-59	1,463	1,090	1,040	1,211	998	996	1,524	8,322
60-64	601	501	541	533	439	305	377	3,297
65+	172	156	211	158	89	65	118	969
<b>Total</b>	<b>15,325</b>	<b>9,483</b>	<b>6,953</b>	<b>6,391</b>	<b>4,606</b>	<b>4,193</b>	<b>3,790</b>	<b>50,741</b>

Average Age 46.53

Average Service 12.21

**State Employees' Retirement System**  
**III. Age and Benefit Profile of Annuitants and Beneficiaries as of December 31, 2006**

**Superannuation Annuitants**

<u>Age</u>	<u>Male</u>		<u>Female</u>		<u>Total</u>	
	<u>Number</u>	<u>Annual Pension</u>	<u>Number</u>	<u>Annual Pension</u>	<u>Number</u>	<u>Annual Pension</u>
Under 25	-	\$ -	-	\$ -	-	\$ -
25-29	-	-	-	-	-	-
30-34	-	-	-	-	-	-
35-39	-	-	-	-	-	-
40-44	-	-	-	-	-	-
45-49	-	-	-	-	-	-
50-54	403	12,624,948	159	4,617,454	562	17,242,401
55-59	1,803	65,446,390	841	28,740,968	2,644	94,187,358
60-64	4,623	157,759,278	2,555	65,020,029	7,178	222,779,307
65-69	5,393	150,080,876	3,618	70,142,468	9,011	220,223,344
70-74	4,881	107,677,760	3,386	48,952,971	8,267	156,630,732
75-79	4,615	87,177,423	3,548	41,019,735	8,163	128,197,158
80-84	3,887	61,695,786	3,516	34,509,610	7,403	96,205,396
85-89	2,104	27,129,994	2,515	20,639,448	4,619	47,769,441
90 & over	969	11,804,575	1,495	12,453,518	2,464	24,258,092
<b>Total</b>	<b>28,678</b>	<b>\$ 681,397,029</b>	<b>21,633</b>	<b>\$ 326,096,200</b>	<b>50,311</b>	<b>\$ 1,007,493,230</b>

Average Age 73.4  
Average Annual Pension \$20,025

**State Employees' Retirement System**  
**III. Age and Benefit Profile of Annuitants and Beneficiaries as of December 31, 2006**

**Early Retirement Annuitants**

<u>Age</u>	<u>Male</u>		<u>Female</u>		<u>Total</u>	
	<u>Number</u>	<u>Annual Pension</u>	<u>Number</u>	<u>Annual Pension</u>	<u>Number</u>	<u>Annual Pension</u>
Under 25	-	\$ -	1	\$ 379	1	\$ 379
25-29	16	8,463	38	21,079	54	29,542
30-34	111	107,241	129	121,171	240	228,412
35-39	304	659,757	300	483,090	604	1,142,847
40-44	454	2,043,822	504	1,119,792	958	3,163,614
45-49	827	8,009,905	1,085	5,060,236	1,912	13,070,141
50-54	1,572	19,356,318	2,520	22,045,495	4,092	41,401,814
55-59	3,903	74,466,755	3,915	52,348,404	7,818	126,815,159
60-64	4,917	107,294,779	3,094	45,974,054	8,011	153,268,833
65-69	2,580	41,384,732	1,797	19,967,096	4,377	61,351,828
70-74	1,751	24,827,408	1,479	13,608,298	3,230	38,435,706
75-79	1,263	17,792,229	1,089	9,610,710	2,352	27,402,939
80-84	474	5,736,929	645	5,029,420	1,119	10,766,349
85-89	164	1,903,504	244	1,962,984	408	3,866,489
90 & over	50	613,930	70	664,016	120	1,277,946
<b>Total</b>	<b>18,386</b>	<b>\$ 304,205,772</b>	<b>16,910</b>	<b>\$ 178,016,225</b>	<b>35,296</b>	<b>\$ 482,221,998</b>

Average Age    61.2  
Average Annual Pension                                 \$13,662

**State Employees' Retirement System**  
**III. Age and Benefit Profile of Annuitants and Beneficiaries as of December 31, 2005**

**Disabled Annuitants**

Age	Male		Female		Total	
	Number	Annual Pension	Number	Annual Pension	Number	Annual Pension
Under 25	-	\$ -	-	\$ -	-	\$ -
25-29	2	16,350	1	8,748	3	25,098
30-34	10	102,569	9	93,321	19	195,890
35-39	39	513,615	59	628,452	98	1,142,068
40-44	150	1,912,729	140	1,559,025	290	3,471,753
45-49	246	3,638,534	336	4,545,193	582	8,183,727
50-54	516	8,173,037	631	9,414,412	1,147	17,587,449
55-59	770	12,237,940	776	11,267,987	1,546	23,505,927
60-64	673	8,812,792	645	8,368,735	1,318	17,181,527
65-69	458	4,733,233	450	4,284,745	908	9,017,979
70-74	270	2,526,221	317	2,669,848	587	5,196,070
75-79	189	1,904,292	215	1,614,504	404	3,518,796
80-84	107	998,032	125	892,325	232	1,890,357
85-89	41	347,360	72	449,684	113	797,044
90 & over	4	23,280	21	144,565	25	167,845
Total	3,475	\$ 45,939,985	3,797	\$ 45,941,545	7,272	\$ 91,881,530

Average Age 60.3  
Average Annual Pension \$12,635

**State Employees' Retirement System**  
**III. Age and Benefit Profile of Annuitants and Beneficiaries as of December 31, 2006**

**Beneficiaries and Survivor Annuitants**

<u>Age</u>	<u>Male</u>		<u>Female</u>		<u>Total</u>	
	<u>Number</u>	<u>Annual Pension</u>	<u>Number</u>	<u>Annual Pension</u>	<u>Number</u>	<u>Annual Pension</u>
Under 25	21	\$ 275,331	14	\$ 98,994	35	\$ 374,325
25-29	15	159,317	10	128,890	25	288,207
30-34	13	311,987	11	135,774	24	447,761
35-39	25	354,167	30	388,952	55	743,119
40-44	14	76,677	45	500,792	59	577,468
45-49	43	328,753	103	931,419	146	1,260,172
50-54	61	345,072	255	1,915,137	316	2,260,210
55-59	93	765,480	459	4,860,327	552	5,625,807
60-64	101	979,248	612	7,617,988	713	8,597,236
65-69	89	697,900	751	8,419,991	840	9,117,892
70-74	93	768,710	910	9,247,117	1,003	10,015,828
75-79	113	872,994	1,298	11,388,535	1,411	12,261,528
80-84	112	684,572	1,552	10,874,649	1,664	11,559,221
85-89	68	368,005	1,317	8,157,104	1,385	8,525,109
90 & over	31	125,446	922	4,754,150	953	4,879,596
Total	892	\$ 7,113,659	8,289	\$ 69,419,819	9,181	\$ 76,533,478

Average Age 75.0  
Average Annual Pension \$8,336

## State Employees' Retirement System

### **Benefit and Contribution Provisions as of December 31, 2006** **(as embodied in Act 31 of 1974, and amended through Act 40 in December 2003)**

The State Employees' Retirement System makes provision for retirement, disability, and death benefits for all State employees, except those specifically excluded under Section 5301 of the State Code, and certain other eligible groups. The major provisions are summarized as follows:

#### **Eligible Employees**

- Class AA - All eligible employees hired after June 30, 2001, except State Police Officers, members of the judiciary and legislators, and employees hired before July 1, 2001 who elected Class AA by December 31, 2001.
  
- Class A - State Police Officers hired on or after March 1, 1974, members of the judiciary who have not elected Class E-1 or E-2, legislators elected before July 1, 2001 who have not elected Class AA or Class D-4 and Class A employees hired before July 1, 2001 who remained in Class A.
  
- Class C - Liquor Law enforcement officers and other officers and certain employees of the State Police who have been members and employees continuously since prior to March 1, 1974.
  
- Class D-3 - Legislators who have been members and legislators continuously since prior to March 1, 1974.
  
- Class D-4 - Legislators coming into service after June 30, 2001 who elect to be SERS members, and legislators who elected Class D-4 before July 1, 2001.
  
- Class E-1 - Judges who elect Class E-1.
  
- Class E-2 - Magisterial District Judges who elect Class E-2.



## State Employees' Retirement System

### **Benefit and Contribution Provisions as of December 31, 2006 (continued)** **(as embodied in Act 31 of 1974, and amended through Act 40 in December 2003)**

#### **Age and Service Requirements for Superannuation (full formula benefits)**

##### Class AA & Class A

General Conditions	Age 60 with three years of service; or 35 or more years of credited service, regardless of age.
Legislators and certain enforcement officers	Age 50 with three years of service.
Park Rangers & Capitol Police	Age 50 with 20 years of Park Ranger or Capitol Police service.
State Police	Age 50. State Police are eligible for special unreduced benefits after 20 years of service, regardless of age; however, age 50 remains their superannuation age.

##### Class C

State Police	Age 50. State Police are eligible for special unreduced benefits after 20 years of service, regardless of age; however, age 50 remains their superannuation age.
Other Hazardous Duty	Age 50 with three years of service.
<u>Class D-3 &amp; Class D-4</u>	Age 50 with three years of service.
<u>Class E-1 &amp; Class E-2</u>	Age 60 with three years of service; or 35 or more years of credited service, regardless of age.

#### **Formula for Superannuation Annuity**

The single-life annuity applicable to members of Class AA is equal to 2.5 percent of the high 3-year final average salary (F.A.S.) of the member multiplied by the years and fractions of credited service.

The standard single-life annuity applicable to members of Class A and Class C is equal to 2 percent of the high 3-year final average salary of the member multiplied by the years and fractions of credited service.

The applicable single-life annuity for Class C State Police and Class A State Police is 50 percent of the highest annual salary if the member has over 20 but less than 25 years of service. With more than 25 years of service the benefit is 75 percent of the highest annual salary.

## State Employees' Retirement System

### **Benefit and Contribution Provisions as of December 31, 2006 (continued)** **(as embodied in Act 31 of 1974, and amended through Act 40 in December 2003)**

The benefit accrual rates for other classes of members are as follows:

<u>Class</u>	<u>Benefit Accrual Rate</u>
D-3	7.5 percent
D-4	3.0 percent
E-1	4.0 percent for each of the first 10 years of judicial service, dropping to 3.0 percent for each subsequent year of judicial service.
E-2	3.0 percent for each year of judicial service.

Members who have 41 or more years of combined Class A and AA service are entitled to a supplemental benefit ranging from 2 percent of the single-life annuity for members with 41 years of service to 10 percent of the single-life annuity for members with 45 or more years of service.

The benefit for a member who works past age 70 is at least equal to a benefit that is the actuarial equivalent of the prior year's benefit. This determination is made each year after age 70.

In addition to the standard single-life annuity as determined above, a member of Class C receives a "member's annuity" actuarially equivalent to the regular accumulated member contributions and interest at retirement but not less than such annuity determined as if the member was age 60 at retirement.

In addition to the above benefits, a member who has elected Social Security Integration Coverage is entitled to a single-life annuity of 2 percent of the members' "Average Non-Covered Salary" for each year of Social Security Integration (SSI) coverage. All Class E members can elect SSI coverage. Other members must have elected SSI coverage before March, 1974. "Average Non-Covered Salary" is the average annual salary received while covered by the Retirement System since January 1, 1956 in excess of the maximum covered wages under Social Security.

#### **Limitations on Annuity**

The annuity paid to a member shall not exceed the member's highest salary during any period of twelve consecutive months of creditable service; however, late retirement increase benefits, if any, are not subject to this limitation. The amount of annual retirement benefit a member may receive shall not exceed the dollar limit specified under Section 415 (b) of the Internal Revenue Code. However, members will not receive a lower benefit than they would have been entitled to receive had Act 2001-9 not been enacted. Some of the benefits in excess of the limit are paid through the Benefits Completion Plan.

## State Employees' Retirement System

### **Benefit and Contribution Provisions as of December 31, 2006 (continued)** **(as embodied in Act 31 of 1974, and amended through Act 40 in December 2003)**

#### **Age and Service Requirements for Disability Retirement**

A member is eligible for disability retirement if the member is unable to perform his or her current job and has at least 5 years of service. An officer of the State Police or enforcement officer does not have a service requirement.

#### **Formula for Disability Benefit**

The disability benefit is equal to the benefit calculated as for full retirement, based on years of credited service at disability, if the result is greater than or equal to 33-1/3 percent of F.A.S. at time of disability. If the benefit so calculated is less than 33-1/3 percent of F.A.S., the disability benefit is equal to the smaller of:

- (a) the benefit calculated as for full retirement based on service projected to retirement date, or
- (b) 33-1/3 percent of F.A.S. at time of disability.

For service connected disabilities, the disability benefit payable will be increased, as needed, so that the sum of the plan benefit and the benefits paid or payable under the Workers' Compensation Act, The Pennsylvania Occupational Disease Act, and the Social Security Act equals 70 percent of F.A.S.

#### **Eligibility for Vested Benefit**

A member is eligible for a vested benefit after 5 years of service.

#### **Vested Benefit**

The vested benefit is equal to the benefit calculated as for retirement, based on years of credited service at the time of leaving the plan. The former member can receive the full benefit beginning at retirement age, or an actuarially reduced early retirement benefit beginning at any date after separation but before retirement. The early retirement benefit is reduced from the earlier of age 60, or the age at which the member would have 35 years of credited service. Benefits for Park Rangers and Capitol Police who have 20 years of service are reduced from age 50. Benefits for other members who have an age 50 superannuation age are reduced from age 50 irrespective of the amount of service they have.

#### **Eligibility for Death Benefit Prior to Retirement**

A member is eligible if the member (1) is under superannuation age with 5 years of credited service or (2) has attained superannuation age with 3 years of credited service.

## State Employees' Retirement System

### **Benefit and Contribution Provisions as of December 31, 2006 (continued)** **(as embodied in Act 31 of 1974, and amended through Act 40 in December 2003)**

#### **Amount of Death Benefit Prior to Retirement**

An eligible beneficiary receives the full present value of the benefits to which the member would have been entitled had the member retired the day before he or she died, assuming the member had elected Option 1 if no other option had been elected. This death benefit includes the present value associated with benefits, if any, to which the member may not have been entitled because they exceeded the member's highest consecutive twelve months of salary and are limited by appropriate IRS limitations.

#### **Death Benefits After Retirement**

A member who elects the single-life annuity is entitled to a refund of the unpaid balance of the member accumulated contributions and interest at the time of retirement. A member may elect one of several optional reduced pensions in lieu of the single-life annuity to provide additional death benefit protection. The optional forms of benefit are actuarially equivalent to the single life benefit using 4.0 percent interest per annum, and the actuarial equivalence factors described below.

The beneficiary of a disabled member who did not elect an alternative option receives benefits determined under Option 1. Option 1 provides that the beneficiary will receive a benefit equal to the present value of the single-life annuity at retirement reduced by any payments received by the annuitant. The Option 1 benefit is provided to a disabled member without any reduction in the member's benefit.

The beneficiary of a member whose benefit was limited to the member's highest salary will be paid a death benefit equal to the present value of the benefit in excess of the highest salary. This payment is in addition to any death benefit that may be paid as a result of the optional election.

#### **The "Extra Piece"**

The retirement code provides for an "extra piece" to be added to the annual benefit if the member's accumulated deductions, excluding any Class C deductions, exceed one-half of the actuarially equivalent value of the annual benefit. The extra piece is equal to the difference between the total accumulated deductions and one-half of the actuarially equivalent value of the annual benefit.

#### **Cost-of-Living Allowances (COLAs)**

Supplemental annuities applying cost-of-living increases to the benefits of annuitants have been instituted from time to time. The last cost-of-living increase was a two-stage increase under Act 2002-38. The first stage was applicable to annuitants who retired on or before July 1, 1990, and it became effective in July of 2002. The second stage provided cost-of-living increases to annuitants who retired after July 1, 1990 but prior to July 2, 2002, and it became effective in July of 2003.

## State Employees' Retirement System

### Benefit and Contribution Provisions as of December 31, 2006 (continued) (as embodied in Act 31 of 1974, and amended through Act 40 in December 2003)

#### Rate of Member Contribution

(i) Regular member contributions, excluding Social Security Integration contributions

<u>Class AA</u> -	6.25 percent of total salary
<u>Class A</u> -	5.00 percent
<u>Class C</u> -	5.00 percent
<u>Class D-3</u> -	18.75 percent
<u>Class D-4</u> -	7.50 percent
<u>Class E-1</u> -	10.00 percent during the first 10 years of judicial service and 7.50 percent thereafter.
<u>Class E-2</u> -	7.50 percent

(ii) Additional contribution for Social Security Integration Credit

Any member who elects the Social Security Integration Credit pays 5.00 percent of any salary in excess of the amount of salary covered by Social Security during the year for which contributions are being made. A member electing to end additional contributions is ineligible to make future contributions or accrue future benefits.

(iii) Waiver of contributions

Members may elect to waive future contributions if their maximum single life annuity exceeds 110 percent of their highest calendar year compensation.

#### Interest Credited on Member Contributions

A rate of 4 percent, stipulated as the statutory rate of interest, has been credited on the member contributions since the inception of the system.

## State Employees' Retirement System

### **Benefit and Contribution Provisions as of December 31, 2006 (continued)** **(as embodied in Act 31 of 1974, and amended through Act 40 in December 2003)**

#### **Refund of Accumulated Member Contributions**

On the death of a member not qualifying for death benefits, the accumulated member contributions and interest will be paid to the beneficiary. Any member terminating service when not eligible for another form of benefit is paid a refund of the accumulated contributions and interest. Other terminating members may elect to receive a lump sum payment of a portion of the present value of their benefit, not to exceed their accumulated contributions and interest. Their lump sum payment results in a decrease to the annuity benefit otherwise payable.

#### **Employer Contributions**

The employer pays the balance of the cost in excess of the members' contributions with payment schedules determined by law. Act 2003-40 made changes to the SERS funding rules which significantly affect the required employer contributions. See Section III of Schedule O for the details.

#### **Actuarial Equivalence**

The actuarial table used to determine optional and early retirement benefits for members who entered service after August 1983 is the 1983 Group Annuity Mortality (1983GAM) Unisex table.

Members who entered service before August 1983 receive the better of benefits based on the 1983 GAM table or a variation of the 1971 Group Annuity Mortality (1971GAM) male table. The 1971 GAM table that applies in determining the benefits for members who entered service before August 1983 is:

For service before August, 1983:

Males (members or survivors) – 1971 GAM for males

Females (members or survivors) – 1971 GAM for males, set back 6 years

For service after August, 1983:

Members (male or female) – 1971 GAM for males, set back 6 years

Survivors (male or female) – 1971 GAM for males

## State Employees' Retirement System

### Actuarial Assumptions

**Schedule N** shows the actuarial assumptions used for the valuation. The assumptions were based on a review of experience under SERS from 2001 through 2005. Schedule N contains an extract of the full set of rates used in the valuation. The full set of rates is in the Sixteenth Investigation of Actuarial Experience of the State Employees' Retirement System of the Commonwealth of Pennsylvania - March 15, 2006, which can be obtained from SERS. The rates are the probabilities that an event will occur in the year after the valuation and are all assumed to occur at the beginning of the year. For instance, the male retirement rate of 25.0 percent at age 60 means that 250 of every 1,000 employees age 60 and who are eligible for full benefits are expected to retire at the date of the valuation.

**Interest Rate:** 8.5 percent compounded annually. The assumed interest rate of 8.5 percent is the investment return less investment and administrative expenses.

#### **Mortality After Retirement:**

Non-disabled Retirees, Beneficiaries and Survivors: The RP-2000 Healthy Annuitant Mortality Table projected to 2008.

Disability Retirees: The RP-2000 Disabled Retiree Mortality Table projected to 2008.

**Spouse Age Difference:** Females are assumed to be 2 years younger than males.

#### **Assumptions for General Employees while Active Members**

Employees who retire after June 30, 2007 will pay an increasing amount for retired health benefits. After July 1, 2010 this will be 3 percent of final salary. Employees who retire before July 1, 2007 will only pay 1 percent of final salary for health benefits. As a result, we expect a substantial increase in the number of retirements in the first half of 2007. Based on analysis of a similar situation in 2004, we have assumed that the rate of separation for full unreduced benefits for employees retiring under age 60 will be 50.0 percent in 2007.

On June 30, 2008, the minimum service for eligibility for subsidized health benefits will increase from 15 to 20 years but employees who reached 15 years of service by June 30, 2008 will remain eligible for subsidized health benefits even if they retire after June 30, 2008. Accordingly, we do not expect an increase in the separation rates for general employees with 15 to 19 years of service in 2008.

## State Employees' Retirement System

### Actuarial Assumptions (continued)

Rates of Separation for Eligibility for Full Unreduced Benefits:  
(35 year of service under age 60; 3 years of service over age 60)

Representative Rates of Separation for Eligibility for Full Unreduced Benefits		
Age	Male	Female
45 - 59	30.0%	30.0%
60 - 61	25.0	25.0
62	33.0	33.0
63 - 64	22.0	22.0
65	33.0	33.0
66 - 79	22.0	22.0
80	100.0%	100.0%

Rates of Separation for Eligibility for Reduced Benefits  
(only apply to members not eligible for full unreduced benefits)

Representative Rates of Separation for Eligibility for Reduced Benefits				
Age	5 – 14 Years of Service		15 or More Years of Service	
	Male	Female	Male	Female
25	3.0%	3.9%	N/A	N/A
30	2.5	3.5	N/A	N/A
35	1.9	2.8	2.6%	2.7%
40	1.7	1.7	2.6	2.7
45	1.1	1.6	2.6	2.7
50	1.0	1.3	2.6	2.7
55	2.3	2.3	3.9	3.9



## State Employees' Retirement System

### Actuarial Assumptions (continued)

#### Rates of Separation Due to Withdrawal

It is assumed that the benefit will be reduced from age 58 for general members (to factor 35 years of service before age 60) and at age 50 for members eligible for age 50 retirement.

<b>Representative Rates of Separation Due to Withdrawal</b>								
<b>Age</b>	<b>Male</b>				<b>Female</b>			
	<b>Years of Service</b>				<b>Years of Service</b>			
	<b>0</b>	<b>5</b>	<b>9</b>	<b>14</b>	<b>0</b>	<b>5</b>	<b>9</b>	<b>14</b>
20	11.9%	N/A	N/A	N/A	11.2%	N/A	N/A	N/A
25	11.6	2.0%	2.0%	N/A	10.2	2.7%	2.1%	N/A
30	11.1	2.0	1.5	1.5%	10.2	2.7	1.9	2.0%
35	10.9	1.8	1.0	1.1	10.2	2.2	1.4	1.6
40	10.9	1.3	1.0	1.1	10.0	2.2	0.9	0.6
45	10.5	1.3	0.5	0.6	9.8	2.0	0.9	0.6
50	10.2	1.1	0.5	0.6	9.8	2.0	0.5	0.6
55	10.2	1.5	1.5	1.5	9.8	1.7	1.4	1.6

#### Rates of Separation Due to Death and Disability

(Disability rates only apply to members not eligible for full retirement)

<b>Representative Rates of Separation Due to Death and Disability</b>				
<b>Age</b>	<b>Death</b>		<b>Disability</b>	
	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>
20	0.02%	0.02%	N/A	N/A
25	0.02	0.02	0.03%	0.07%
30	0.03	0.02	0.09	0.17
35	0.05	0.03	0.16	0.29
40	0.06	0.05	0.25	0.38
45	0.12	0.07	0.44	0.60
50	0.21	0.12	0.61	0.91
55	0.33	0.18	0.80	1.15
60	0.48	0.30	N/A	N/A

**State Employees' Retirement System**

**Actuarial Assumptions (continued)**

**For Special Benefit Classes if Different from General Employee Rates:**

<b>Rates of Separation Due to Withdrawal</b>			
<b>Years of Service</b>	<b>State Police/ Hazardous Duty</b>	<b>Legislators</b>	<b>Judicial Officers</b>
0	5.6%	0.0%	0.0%
1	5.6	3.9	0.2
2	3.7	3.9	0.2
3 - 4	2.8	3.9	0.2
5	1.9	3.9	0.2
6	1.9	3.9	0.2
7 - 9	.9	3.9	0.2
10+	.9	3.9	0.2

<b>Rates of Separation Due to Early Retirement at Any Age</b>		
<b>State Police/ Hazardous Duty</b>	<b>Legislators</b>	<b>Judicial Officers</b>
0.9%	3.9%	0.2%

<b>Representative Rates of Separation Due to Retirement other than State Police with 19 or More Years of Service</b>			
<b>Age</b>	<b>State Police/ Hazardous Duty</b>	<b>Legislators</b>	<b>Judicial Officers</b>
50	7.2%	1.25%	N/A
55	7.2	1.9	2.3
60	7.2	2.5	2.3
65	71.8	3.8	2.3
70	34.5	5.0	100.0
75	34.5	6.3	N/A
80	100.0	100.0	N/A

## State Employees' Retirement System

### Actuarial Assumptions (continued)

Rates of Separation due to Retirement for State Police with 19* or More Years of Service			
Years of Service	Rate	Years of Service	Rate
19*	4.0%	26-32	15.8%
20 – 23	1.0	33	29.7
24*	29.7	34-38	40.6
25	16.8	39+	100.0

\* State Police with 19 and 24 years of service at the beginning of the year are assumed to retire at the point they reach 20 and 25 years respectively during the year and to receive the FOP award.

### Years of Service Purchased by Eligible Members

Service	Number of Years Purchased
0	0.4
1	0.3
2	0.2
3	0.1
4+	0.0

It is assumed that the member will elect to pay for the reduction through an actuarial debt and that all purchased service is a 2 percent accrual.

**Form of Payment:** Members are assumed to elect the maximum benefit 32 percent of the time, some form of joint and survivor annuity 27 percent of the time, and some form of guaranteed present value (including joint and survivor with a guaranteed present value) 41 percent of the time. Also, 84 percent of members are assumed to elect an Option 4 withdrawal of contributions.

### Career Salary Increases

The career salary scale shown on the following page includes average increases in the employee salary due to promotions and longevity growth. The average career salary growth is 3.8 percent per year. In addition, it is assumed that the salary schedules will increase by 3.3 percent a year. The scale on the following page does not include the assumed 3.3 percent general salary increase.

## State Employees' Retirement System

### Actuarial Assumptions (continued)

A new negotiated contract will go into place on July 1, 2007 that will apply to general employee salary increases through October 1, 2010. The contract includes a bonus of \$1,250 on July 1, 2007 but the rest of the increases are reasonably close to the increases included in our salary increase assumptions. We included the bonus of \$1,250 in projecting general employee salaries for the year beginning July 1, 2007.

<b>Career Salary Scale for Members</b>			
<b>Completed Years of Service</b>	<b>Annual Increase</b>	<b>Completed Years of Service</b>	<b>Annual Increase</b>
1	16.90%	14	2.80%
2	8.30%	15	2.70%
3	5.90%	16	2.60%
4	4.60%	17	2.50%
5	4.20%	18	2.40%
6	3.80%	19	2.30%
7	3.50%	20	2.20%
8	3.20%	21	2.10%
9	3.20%	22	2.00%
10	3.10%	23	1.90%
11	3.00%	24	1.80%
12	2.90%	25	1.70%
13	2.80%	26+	1.60%

The above scale does not apply to members in Classes D and E. It is assumed that only the general salary increase (3.3 percent each year) would apply to members in these classes.

# State Employees' Retirement System

## Actuarial Methods

### **I. Asset Valuation**

The actuarial value of assets is developed by recognizing the difference between the expected actuarial value of assets and the market value of assets over a five-year period. The expected actuarial value is last year's actuarial value brought forward to reflect actual contributions, benefit payments and expenses, and assumed investment income. Each year 20 percent of the difference between this expected value and the market value is recognized in determining the current actuarial value of assets with the remaining 80 percent to be recognized over the next four years.

### **II. Funding Method**

The State Employees' Retirement System funding policy provides for employer contributions at actuarially determined rates that will amortize liabilities over a ten-year or 30-year period beginning with the July first following the measurement of the liability. See Section III below for details regarding the specific liabilities subject to amortization and the applicable amortization periods. This policy assures that the SERS is appropriately funded and also that the fund will accumulate sufficient assets to pay benefits when they are due. The policy is set by the State Employees' Retirement Board in conformance with specific legal requirements as to the method of funding.

A variation of the Entry-Age Actuarial Cost Method is used to determine the liabilities and costs related to all SERS benefits including retirement, withdrawal, death and disability benefits. The significant difference between the method used for SERS and the typical Entry-Age Actuarial Cost Method is that the normal cost is based on the benefits and contributions for new employees rather than for all current employees from their date of entry. The SERS variation should produce approximately the same results as the typical method over the long run.

### **III. Determination of the Annual Contribution**

The annual employer contribution is equal to the sum of the following:

- (1) The employer share of the normal cost.
- (2) The amortization of the December 31, 2001 liability for Act 2001-9 benefits over a 30-year period beginning July 1, 2002 and ending on June 30, 2032.
- (3) The amortization of the remaining unfunded liabilities as of December 31, 2001 over a ten-year period beginning July 1, 2002 and ending on June 30, 2012.
- (4) The amortization of all unfunded liabilities due to supplemental annuities (COLAs) after 2001, or other legislated benefit improvements after June 30, 2003, over ten-year periods beginning with the July first following the effective date of the change.
- (5) The amortization of changes in liability due to actual experience differing from assumed experience after December 31, 2001 over 30-year periods beginning with the July first following the actuarial valuation determining such changes.

## State Employees' Retirement System

### Actuarial Methods (Continued)

The amortization payments are level amounts over the applicable amortization period. The employer cost is determined as a percent of payroll, and the employer contributes that percent of the payroll of all covered members during each fiscal year. The employer cost for fiscal year 2007/2008 is the total of (1) the employer normal cost percent and (2) the net amortization payment for fiscal year 2007/2008 divided by the projected payroll for the fiscal year.

The assumptions used in determining the actuarial cost are stated in Schedule N, and the employer cost, as a percent of payroll, is determined in Schedules A and B. The assumptions used for the current valuation were based upon an evaluation of SERS experience from 2001 through 2005.

The investment return assumption is 8.5 percent per year. Salary growth is the total of assumed increases in salary rates and career salary growth. It is generally assumed that the total payroll will increase at 3.3 percent a year and that employee career salary growth (promotion and longevity growth) will average an additional 3.8 percent a year. Therefore, the average total salary growth for an individual will generally be 7.1 (3.3 plus 3.8) percent a year. These assumed salary increases were modified, however, in this valuation to reflect negotiated increases beginning July 1, 2007. The investment return and the salary rate increase assumptions are based on an assumed underlying inflation of 3.0 percent a year.

All costs and liabilities have been determined in conformance with generally accepted actuarial principles and procedures in accordance with the principles of practice prescribed by the Actuarial Standards Board of the American Academy of Actuaries. The calculations were performed on the basis of actuarial assumptions and methods, which are internally consistent, and reasonable (taking into account past experience under SERS and reasonable expectations) and which in combination represent the best estimate of anticipated experience under the plan.

#### **IV. Allocation of the Annual Contribution Among Employer Groups**

The annual contribution (total employer cost) is expressed as a percentage of the total projected payroll for active members. This amount is reflected on Schedule B, line III, and is referred to as the total employer cost. The total employer cost is the average contribution amount that needs to be received by the employer groups participating in the system. Therefore, some employer groups contribute a higher percent of pay, and some employer groups contribute a lower percent of pay.

## State Employees' Retirement System

### Actuarial Methods (Continued)

Schedule C develops the contribution rate for each of the employer groups. The allocation method used to determine the employer rate takes into consideration the cost of additional benefits for special classes of members. For example, the contribution rate for Class E members takes into consideration the additional accrual rate those members receive at retirement. The Basic Contribution Rate (column 2 on Schedule C) is determined as the percentage needed to produce employer contribution amounts by class that, when added together, equal the total employer contribution.

The following is an explanation of the elements of Schedule C.

Column (1) is the employer group.

Column (2) is the Basic Contribution Rate. The Basic Contribution Rate is the amount needed to fund the benefits for Class AA(60) members. Because the majority of SERS members are covered under Class AA(60), the 2.5 percent accrual rate for that Class is used to determine the basic contribution rate.

Column (3) is the additional cost for members who are eligible to retire before reaching age 60, (or 35 years of service if earlier). The age 50 normal cost is determined for two groups of members: members who can retire at age 50 if they have 3 years of service, and members who can retire at age 50 once they obtain 20 service credits. Park Rangers and Capitol Police fall into the latter category. The additional cost for members who can retire at age 50 if they have 3 years of service is larger than the additional cost for members who can retire at age 50 if they have 20 years of service.

Column (4) is the multiplier adjustment to the basic benefit, which is applicable to members in classes that receive a larger, or smaller, percent accrual rate than the accrual rate for Class AA members. The normal cost is determined for members who would receive the standard 2.5 percent single-life annuity set by Act 9 (Class AA). For example, members in Class D-3 receive an annuity equal to 3.75 times the standard single-life annuity. The multiplier adjustment (Column (4)) for Class D-3 is 3.0, which is the ratio of 3.75 to the 1.25 multiplier for Class AA. The multiplier adjustment for members who receive a smaller accrual rate will be less than 1.00 (members in Class A).

## State Employees' Retirement System

### Actuarial Methods (Continued)

Column (5) is the past-service liability component for certain employee groups. These employee groups were granted benefit improvements that were retroactive at the date of passage, and therefore cover all credited service for the class. The stipulation of each benefit improvement was that the employers of the individual employee group, not the Commonwealth, would fund the benefit improvement.

At implementation of the new benefit provision, a liability is established for the members who are eligible for the new benefit provisions, and a schedule is determined to pay off the increase in liability. For example, Park Rangers and Capitol Police Officers were formerly covered under the age 60 retirement provisions. Effective with the valuation at December 31, 1992, Park Rangers and Capitol Police Officers became eligible to retire at age 50 if they have 20 years of service. At that valuation, a liability was established that would fund the increase in benefits.

The liability for the increase in benefits for past service is paid off in equal installments by the employers of the member group. Each year, the annual contribution as a percent of payroll is determined as the annual payment divided by the funding payroll for the group. The outstanding balance is carried forward with interest each year.

The following table shows the payment schedule for the two groups of employees who have a past service liability.

<b>Amortization Schedule for Past Liabilities</b>		
<b>Employer Group</b>	<b>Payment</b>	<b>Last Payment (fiscal year beginning)</b>
State Police	\$19,004,493	July 2029
Park Rangers / Capitol Police	\$93,603	July 2027

In conjunction with the passage of Act 9, the D-4 employer contributed a lump sum amount which was more than sufficient to fund the additional cost of the higher accrual rate and the retirement at age 50. Therefore, the past service liability for Class D-4 Legislators is \$0, and the past liability adjustment has been set to produce a contribution rate of zero. The remaining excess contributions made by the D-4 employer, plus interest, was equal to \$3,167,099 as of December 31, 2006. The amount needed to produce a zero contribution rate in 2006 was greater than the interest earned on the excess contributions so the available fund decreased in 2006. These funds will continue to be used to offset future D-4 employer contribution requirements, until the balance is expended.

Column (6) is the adjusted contribution rate, and is equal to column (2) plus column (3), multiplied by column (4). Column (5) is added.



## State Employees' Retirement System

### Actuarial Methods (Continued)

Column (7) is the projected payroll for the class of employees. The projected payroll is for the fiscal year to which the contribution rate is applicable.

Column (8) is the dollar amount of the employer group contribution. Except when the basic employer contribution rate is zero, the sum of the dollar amounts for each group is (approximately) equal to the total employer contribution (as a percent of payroll) multiplied by the total projected payroll for the active members.

#### **V. Plan Provisions Not Valued**

The cost effect of two plan provisions was not included in this valuation because the effect of the provisions is minimal. These are the limit on the amount of retirement benefit imposed by Section 5702(c) (100 percent limit) and the supplemental death benefit payable when the retirement benefit is limited by Section 5702(c).

These two provisions are not valued because they only apply to very few SERS members. Since by definition the liability for the supplemental death benefit is lower than the reduction in liability for the 100 percent limit, the net effect of not including these provisions in the actuarial valuation is a minimal overstatement in the total employer cost.

#### **VI. Determination of Present Value of Benefits for Inactive and Vested Members**

The present value of benefits for inactive members not currently receiving benefits is determined using the same methods and procedures as for active members. They are valued using the final average pay and service as of separation and are assumed to begin receiving benefits in accordance with the active employee assumptions.

## State Employees' Retirement System

### Definition of Technical Terms

Accrued Service. Service credited under the system, which was rendered before the date of the actuarial valuation.

Actuarial Accrued Liability. The portion of the actuarial present value of benefits which is not provided for by the actuarial present value of future normal costs. Also referred to as Past Service Liability.

Actuarial Assumptions. Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, investment income and salary growth. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the actuarial present value of future benefits between future normal costs and the actuarial accrued liability.

Actuarial Present Value. The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting projected future payments at assumed rates of interest and probabilities of payment.

Amortization. Paying off an amount with periodic payments of interest and principal -- as opposed to paying off with a lump sum payment.

Normal Cost. The portion of the actuarial present value of future benefits that is allocated to the current year by the actuarial cost method.

Unfunded Actuarial Accrued Liability. The difference between actuarial accrued liability and valuation assets.