

COMMONWEALTH OF PENNSYLVANIA  
STATE EMPLOYEES' RETIREMENT SYSTEM

2000 Actuarial Report

June 6, 2001

**HayGroup**

**COMMONWEALTH OF PENNSYLVANIA**

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**2000 ACTUARIAL REPORT**

**HAY GROUP  
JUNE 6, 2001**

Hay Group, Inc.

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Suite 500  
4301 North Fairfax Drive  
Arlington, VA 22203  
USA

June 6, 2001

**HayGroup**

Mr. John Brosius  
Executive Director  
State Employees' Retirement System  
30 North Third Street  
Harrisburg, PA 17108-1147

Dear Mr. Brosius:

The purpose of this letter is to certify the actuarial adequacy of the contributions being made by the State 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 funding objective of the plan as set forth in the SERS code is the sum of: (1) the employer share of the normal cost, (2) the amortization of the unfunded liabilities as of December 31, 1990 over a twenty-year period ending on June 30, 2011, and (3) the amortization of changes in liability after 1990 over twenty-year periods typically beginning with the July first following the effective date of the change. Changes include actuarial gains and losses and plan amendments. The amortization payments increase five percent a year.

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 contribution rate is based on the results of the actuarial valuation, which is performed annually. The most recent valuation was performed as of December 31, 2000.

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.

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, 2000 actuarial valuation was adopted by the Board and was based on actual experience of SERS during the years 1996 through 2000.

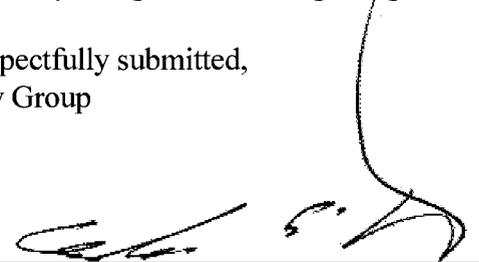
The actuarial value of assets is developed by recognizing the difference between the expected actuarial value of assets and the market value of assets over a five-year period.

The actuarial valuation is based on the plan provisions as of December 31, 2000. Act 2001-9, enacted on May 17, 2001, provides substantial changes in the benefits, contributions and funding of the retirement system. These changes will be reflected in the December 31, 2001 valuation.

Government Accounting Standards Board (GASB) Statement No. 25, *Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans* establishes the range of funding methods for the Unfunded Actuarial Accrued Liability. The minimum funding can be over a 40-year period with payments increasing by the assumed increase in payroll. The SERS contributions increase at 5 percent, which is greater than the 3.3 percent salary growth assumption. However, the use of a 20-year amortization period results in payments that are greater than the minimum required under GASB #25.

Based upon the valuation results, it is our opinion that the Pennsylvania State Employees' Retirement System continues in sound condition in accordance with generally accepted actuarial principles and procedures.

Respectfully submitted,  
Hay Group

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# State Employees' Retirement System

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

**December 31, 2000**      **December 31, 1999**  
**Valuation**                      **Valuation**

**Summary of Contributions as a Percent of Members' Compensation**

Normal Cost	8.72%	9.02%
Amortization of Liabilities	-10.36%	-7.63%
Total Cost	-1.64%	1.39%

Contribution Rates by Employee Group:

Class A Members:

Age 60 Retirement	0.00%	0.61%
Age 50 Retirement	0.55%	2.03%
Park Rangers	1.54%	2.96%
Capitol Police	1.54%	2.96%
State Police	8.38%	11.17%

Class C Members:

State Police	8.38%	11.17%
Enforcement Officers	0.55%	2.03%

Class D Members

2.06%      7.61%

Class E Members

1.10%      2.15%

**Demographic Characteristics of the Population**

Active Participants:

Number	109,469	108,035
Average annualized compensation	\$ 41,110	\$ 39,698
Total annualized compensation	\$ 4,500,270,590	\$ 4,288,773,430

Annuitants and Beneficiaries:

Number	88,392	88,043
Total annual pension	\$ 987,422,521	\$ 963,766,896

Inactive Participants:

Number	3,777	3,664
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**Assets**

Market Value Assets	\$ 27,880,467,761	\$ 28,093,181,182
Actuarial Value of Assets	\$ 26,094,306,293	\$ 23,624,267,185

## 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 2001 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 assumed that the salary rates will increase at 3.3 percent a year and that career salary growth will average 3.5 percent a year. The total average salary increase for an individual will be 6.8 percent a year. The investment return and the salary rate increase assumptions are based on an underlying inflation rate of 3.0 percent a year.

This is the first valuation following the latest, 1996 through 2000, study of the actuarial experience of SERS. The Board reviewed this study and agreed with the actuary's recommended changes in the actuarial assumptions to reflect the results of the experience study. There was no change in the economic assumptions. The demographic assumptions were generally set to be the same as experience in the last five years. All post-retirement liabilities are now being funded assuming mortality on the 1983 Group Annuity Mortality table. As a result, that table will now be used to establish the actuarial equivalence for optional and early retirement benefits to members.

The normal retirement conditions for most employees under SERS are the earlier of age 60 or 35 years of service. Retirement with full benefits had been permitted at 30 years of service from 1985 through June 30, 1999. In the 1995 through 1999 valuations, the Board agreed with the actuary that it would be prudent to fund for the 30-year retirement benefit as if it were a permanent feature of the system. Since the feature has not been renewed since June 30, 1999 and there is no indication that it will be renewed in the future, the actuary recommended, and the Board agreed, that the 30-year retirement benefit should no longer be funded.

The basic employer contribution is determined as the total of the normal cost plus the amortization of the unfunded liability. This unfunded liability is negative so the net amortization of the unfunded liability has reduced the normal cost. This year, for the first time, the net amortization credit is greater than the normal cost. This has resulted in a zero percent basic employer contribution.

Act 2001-9, enacted on May 17, 2001 substantially changed the benefits, contributions and funding of the SERS system. In general, the benefits and employee contributions were both increased by 25 percent. The amortization of the unfunded liability was changed from 20-year increasing to 10-year level funding. These important changes will first be reflected in the December 31, 2001 valuation.

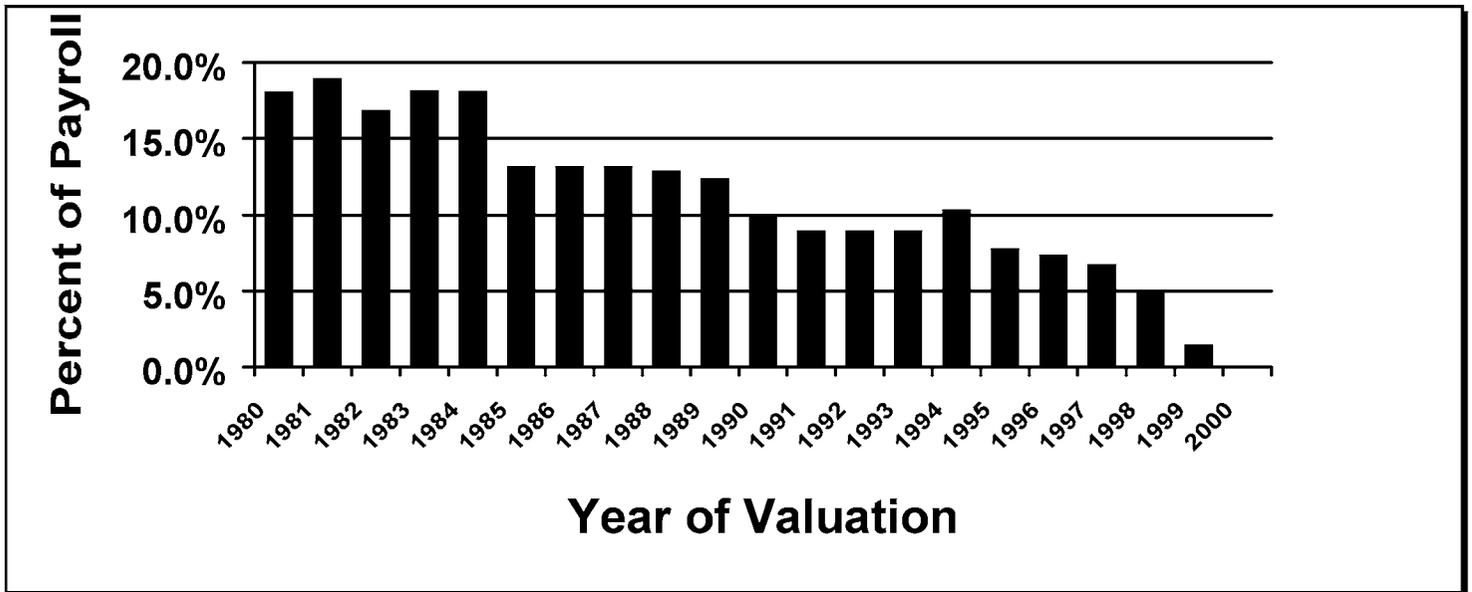
# State Employees' Retirement System

## History of the Employer Contribution Rate

Chart 1 shows the history of the employer contribution rate from 1980 through 2000. With some fluctuations, the general trend has been downward with the rate declining from 18.02 percent in 1980 to 0.00 percent in 2000. The primary reason for the trend has been the excess of the investment return over the assumed valuation investment return over the last twenty years. For instance, as shown in Table 1, the average investment return in the last five years has been 14.5 percent compared to the 8.5 percent investment return.

The total employer cost is the actual contribution rate during the succeeding fiscal year. For instance, the rate of 0.00 percent will be the employer contribution for fiscal year 2001/2002. In some years the rate was adjusted for events occurring after the valuation.

**Chart 1**  
**History of Employer Cost**



## State Employees' Retirement System

### 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 2000 numbers reflect actual experience through December 31, 2000. The inflation rates shown are based on the Consumer Price Index (CPI-U) data.

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

Year	Investment Return			Salary Growth	
	Inflation	Nominal	Real	Nominal	Real
1981	8.9%	0.9%	(7.4%)	8.0%	(0.8%)
1982	3.8	27.8	23.1	8.0	4.0
1983	3.8	13.0	8.9	0.0	(3.7)
1984	3.9	9.4	5.2	5.1	1.1
1985	3.8	23.1	18.6	3.6	(0.2)
1986	1.1	15.2	13.9	3.5	2.4
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)
<b>Average 1996-2000</b>	<b>2.5%</b>	<b>14.5%</b>	<b>11.7%</b>	<b>2.8%</b>	<b>0.3%</b>

# State Employees' Retirement System

## Comments on Schedules

### **Basic Employer Contribution Rate**

Schedules A and B summarize the development of the basic employer contribution rate before allocation by group.

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 who had not yet completed one year of credited service. The employer share of the normal cost decreased from 9.02 percent in 1999 to 8.72 percent in 2000.

The unfunded liability that existed on December 31, 1990 is being funded over 20 years from July 1, 1991. Unfunded liability increases (decreases) due to changes in assumptions, changes in legislation, or gains or losses because actual experience differs from the actuarial assumptions, are amortized over 20 years from the July 1 following the effective date of the change. Increases in the unfunded liability due to supplemental annuities are amortized over 20 years.

Schedule B shows a reduction in the unfunded liability of \$1.8 billion in 2000. The primary reason for the reduction was the high rate of return on the fund in the last five years even after including the low rate of return during 2000.

The total negative unfunded liability is a temporary surplus that will gradually be recognized as an offset to future employer normal costs. The total credit for amortization of the surplus increased from 7.63 percent of payroll in 1999 to 10.36 percent of payroll in 2000.

The basic employer contribution rate is equal to the total of the normal cost and the amortization of the unfunded liabilities, but not less than zero. The employer contribution rate calculated as a result of the December 31, 2000 actuarial valuation is 0.00 percent of payroll compared to a rate of 1.39 percent of payroll based on the 1999 valuation.

### **Employer Contribution Rates by Group**

Schedule C summarizes the development of the rate for the cost of additional benefits for each group of members with different benefits. The basic employer contribution rate for general benefits is 0.00 percent of salary. There is an additional employer contribution required to pay for the added liability for members entitled to full benefits at age 50; and for those entitled to an annual benefit rate that is greater than the basic 2 percent rate. The Park Rangers, Capitol Police, State Police Officers, and the Class E members are charged the amount necessary to fund the past service cost of benefit improvements that were effective in prior years. The complete schedule of contributions by group is shown in Table 2.

## State Employees' Retirement System

Class A	
Age 60 benefit	0.00%
Age 50 benefit	0.55
Park Rangers	1.54
Capitol Police	1.54
State Police	8.38
Class C	
State Police	8.38
Enforcement Officers	0.55
Class D	2.06
Class E	1.10

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 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.

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

Schedule E contains an analysis of the change in the employer contribution rate and unfunded liability from the 1999 to 2000 valuation, both of which declined over the year. There were three reasons that accounted for most of the change. The first was the gain from investment earnings over the last five years. One-fifth of those gains was added to the actuarial value of assets in 2000. The second large reduction resulted from no longer considering 30 year retirement as a permanent provision of the retirement system. The third reduction resulted from the introduction of the new assumptions resulting from the experience study.

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

Schedule F contains the actuarial balance sheet that compares the total assets and liabilities of \$26.9 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.

## State Employees' Retirement System

Each year it is necessary to compare the account balance in the benefit payment accounts, the Annuity Reserve Account, the State Police Benefit Account, and the Enforcement Officers' Benefit Account with the actuarial liability of the accounts and make any transfer necessary to bring the accounts into balance with the liabilities. The accounts go out of balance during the year as a result of differences between actual experience and the reserves set for retirees. The transfer of \$278.8 million from the State Accumulation Account to the Annuity Reserve Account and the transfer of \$1.2 million from the State Accumulation Account to the Enforcement Officer's Account is shown on Schedule G.

## State Employees' Retirement System

### 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, 2000. The actuarial value of the assets has been greater than the actuarial accrued liability since the December 31, 1992 actuarial valuation. This causes the unfunded actuarial accrued liability (UAAL) to be negative.

Page 2 of Schedule H shows that the actual contribution to the system has been consistent with the Annual Required Contribution (ARC). The ARC is the actual contribution unless the contribution rates differed from the actuarial calculation. In those cases, the ARC is the amount that would have been paid based on the contribution rate calculated in the valuation.

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 supported an adjustment to the valuation rate.

The Board adopted the valuation rate as the contribution rate in 1995 through 2000. The Board adopted slightly different rates in 1993 and 1994 based on information available after the valuation was performed. The actuary agreed with the actions taken by the Board in 1993 and 1994. The effect of the adjustments to the contribution rate extended over three calendar years so the 1993 through 1995 actual contributions are different from the ARCs in those years.

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 lives, and
- Liability for service already rendered by the active members.

The schedule shows that the total actuarial accrued liability has been fully covered by the assets since December 31, 1992.

### Plan Assets

Schedule J summarizes the development of the actuarial value of assets as of December 31, 2000. The assets are based on the unaudited financial statements prepared by SERS. The asset valuation method will smooth 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 2000). This smoothing method recognizes 20 percent of the 2000 asset loss of \$1.4 billion this year, with the remainder to be recognized over the next four years.

## State Employees' Retirement System

### **Projection**

Schedule K shows the number of members, contributions, and benefits from 1990 through 2000 with a projection through 2011. 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.

### **Participant Data**

Section I of Schedule L provides a distribution of the active and inactive participants as of December 31, 2000 by benefit class, sex, age, and length of service. It also shows the average annualized salary in 2000 by age group and sex. Section II of the schedule shows the retired participants and beneficiaries 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.

The current valuation does not include approximately 200 participants transferred from County pension plans to SERS effective January 1, 2000. The participants, and assets equal to their unfunded liability will be transferred to SERS in 2001 and included in the December 31, 2001 valuation.

### **Plan Provisions**

Schedule M contains a summary of the principal provisions of the plan. There have been significant changes in plan benefits since December 31, 2000.

The first of these was a change in the actuarial tables used to determine the optional and early retirement benefits for newly retiring members. The actuarial table used for members who entered after August 1983 was changed from the 1971 Group Annuity Mortality (GAM) male table set back two years to the 1983 GAM unisex table. Members who entered before August 1983 had received benefits based on other variations of the 1971 GAM table. Those members will receive the better of the benefits under the prior 1971 GAM tables and the new 1983 GAM tables.

The second change was to transfer approximately 200 participants from Pennsylvania county retirement systems to SERS effective January 1, 2000. The counties are required to transfer assets equal to the unfunded liability for those members. These transfers were not completed until after December 31, 2000 so the members are not included in the current valuation.

The retirement plan was substantially changed by Act 2001-9 enacted on May 17, 2001. The primary changes were to increase benefits and employee contributions for most members by 25 percent. Act 2001-9 also changed the amortization period for gains and losses from 20-year increasing amortization to 10-year level amortization. Since these changes were effective after December 31, 2000, they will first be included in the December 31, 2001 valuation.

# State Employees' Retirement System

## **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 economic assumptions are the same as in the 1999 valuation. Almost all of the demographic assumptions have been changed to reflect the findings in the Fifteenth Investigation of Actuarial Experience of The State Employees' Retirement System of the Commonwealth of Pennsylvania. That report can be obtained from SERS.

## **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.

## **Definitions**

Schedule P defines certain technical terms used in the valuation.

**State Employees' Retirement System**  
**Unfunded Liability and Normal Cost as of December 31, 2000**

I.	Present Value of Benefits:	
1)	Active and Inactive Participants	
	a) Superannuation and Withdrawal	\$ 16,828,906,717
	b) Disability	847,103,471
	c) Death	949,380,280
	d) Refunds	66,287,473
	e) Special Police and Enforcement Officer Benefits	17,215,503
2)	Annuitants and Beneficiaries	8,148,876,339
3)	Total	<u>\$ 26,857,769,783</u>
II.	Present Value of Member and Employer Contributions:	
1)	Employer Portion of Normal Cost	\$ 4,356,548,073
2)	Member Contributions	2,798,943,647
3)	Special Police and Enforcement Officer Contributions	0
4)	Total	<u>\$ 7,155,491,720</u>
III.	Actuarial Accrued Liability: (I) - (II)	\$ 19,702,278,063
IV.	Actuarial Value of Assets	\$ 26,094,306,293
V.	Unfunded Liability (III) - (IV)	\$ (6,392,028,230)
VI.	Employer Normal Cost Rate	
1)	Normal Cost Rate for new active members to fund:	
	a) Superannuation and Withdrawal	11.61%
	b) Disability	0.90%
	c) Death	0.66%
	d) Refunds	<u>0.55%</u>
	e) Total	13.72%
2)	Member Deductions	5.00%
3)	Employer Normal Cost (1) - (2)	8.72%

**State Employees' Retirement System**  
**Basic Employer Contribution Rate in Fiscal Year 2001 - 2002**

	Funding Period 20 Years from July 1	Initial Amount of Liability	Outstanding Balance as of 12/31/00	Annual Payment Amount	Payment as a Percent of Payroll *
<b>I. Amortization of:</b>					
1) Liability for Supplemental Annuities	1991	\$ 405,641,841	\$ 422,955,827	\$ 52,952,173	1.13%
2) Liability for Other Benefits	1991	461,468,532	481,165,379	60,239,746	1.26%
3) Liability (Asset) for Changes in 1991	1992	(735,926,889)	(786,720,914)	(90,934,474)	-1.91%
4) Liability (Asset) for Changes in 1992	1993	(428,770,084)	(465,537,114)	(50,089,641)	-1.05%
5) Liability (Asset) for Changes in 1993	1994	(556,924,445)	(609,166,508)	(61,433,245)	-1.29%
6) Liability for Changes in 1994	1995	392,912,465	431,543,561	41,030,180	0.86%
7) Liability for Supplemental Annuities (1994 COLA)	1995	224,936,857	247,052,618	23,489,200	0.49%
8) Liability (Asset) for Changes in 1995	1996	(173,981,943)	(179,360,398)	(16,158,487)	-0.34%
9) Liability (Asset) for Changes in 1996	1997	(455,733,960)	(470,168,657)	(40,310,543)	-0.85%
10) Liability (Asset) for Changes in 1997	1998	(840,207,534)	(864,146,425)	(70,779,017)	-1.48%
11) Liability for Supplemental Annuities (1998 COLA)	1998	478,000,000	491,619,006	40,266,682	0.84%
12) Liability (Asset) for Changes in 1998	1999	(1,024,082,513)	(1,046,470,879)	(82,160,601)	-1.72%
13) Liability (Asset) for Changes in 1999	2000	(2,198,887,921)	(2,225,781,174)	(168,012,831)	-3.52%
14) Liability (Asset) for Changes in 2000	2001	(1,819,012,552)	(1,819,012,552)	(132,368,837)	-2.78%
15) Total Liability Payment Sum of (1) through (14)			\$(6,392,028,230)	\$(494,269,695)	-10.36%
<b>II. Employer Normal Cost</b>					<b>8.72%</b>
<b>III. Basic Employer Contribution Rate = (I) + (II), but not less than zero</b>					<b>0.00%</b>

\* The payment is expressed as a percentage of the total projected payroll for active members in fiscal year 2001-2002 of \$4,769,180,000. Percentages may not add due to rounding

**State Employees' Retirement System  
Employer Contribution Rate By Group**

	----- Class A -----		----- Class C -----		----- Class D -----		----- Class E -----	
	Age 60 Retirement	Age 50 Retirement	Park Rangers & Capitol Police	State Police	State Police	Enforcement Officers	Class D	Class E
1) Basic Contribution Rate*	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2) Age 50 Retirement	-	0.55%	0.50%	0.55%	0.55%	0.55%	0.55%	0.00%
3) Multiplier Adjustment	1.0000	1.0000	1.0000	1.5580	1.5580	1.0000	3.7500	1.6582
4) Past Liability	-	-	1.04%	7.52%	7.52%	-	-	1.10%
5) Class C Additional Annuities	-	-	-	0.00	0.00	-	-	-
6) Adjusted Contribution Rates: [(1) + (2)] x 3 + 4 + 5	0.00%	0.55%	1.54%	8.38%	8.38%	0.55%	2.06%	1.10%
7) Projected 2001/02 Payroll (dollars in thousands)	\$3,761,701	\$656,299	\$9,018	\$236,632	\$16,063	\$2,007	\$663	\$86,798
8) Employer Contribution Amount (dollars in thousands)	\$0	\$3,610	\$139	\$19,830	\$1,346	\$11	\$14	\$955

\* This Basic Employer Contribution Rate of 0.00 percent of payroll is used in Line 1 to determine employer contribution rates by group. Although the fiscal 2001-2002 contribution requirement for the Class A-Age 60 Retirement group is zero, all other groups have contribution requirements.

**State Employees' Retirement System**

**State Police and Enforcement Officers Additional Annuity Rate**  
**(Fiscal Year 2001 - 2002)**

	<u>State Police</u>	<u>Enforcement Officers</u>
1) Balance in Benefit Account as of December 31, 2000	\$1,142,535,303	\$24,450,068
2) Present Value of Benefits for Annuitants and Beneficiaries	1,072,819,305	22,351,170
3) Assets available for additional annuities for Active Members: (1) - (2)	69,715,998	2,098,898
4) Present Value of additional annuities for Active Members	15,116,605	2,098,898
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>Liabilities</u>	<u>Total</u>
I. December 31, 1999 Valuation	9.02%	-7.63%	1.39%
II. Changes - December 31, 2000 Valuation:			
1) Gain from investment earnings		-1.98%	-1.98%
2) Change in demographics of new entrants	0.12%	-0.09%	0.03%
3) Pay increase different than assumptions		0.04%	0.04%
4) Removal of 30 and out provision	-0.13%	-0.52%	-0.65%
5) New Assumptions and other experience	-0.29%	-0.23%	-0.52%
6) Amount of payment increasing at a rate different than funding payroll*		0.05%	0.05%
7) Total Change	-0.30%	-2.73%	-3.03%
III. December 31, 2000 Valuation:	8.72%	-10.36%	-1.64%
(I) + (II.7)			

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

I. December 31, 1999 Unfunded Liability	\$ (4,532,426,876)
II. Expected Amortization Payment	(344,667,482)
III. Expected Liability as of December 31, 2000 [((I) x 1.085) - (II)]	\$ (4,573,015,678)
IV. Change in Liability Due to:	
1) Gain from investment earnings	\$ (1,294,334,937)
2) Change in demographics of new entrants	(61,091,829)
3) Pay increase different than assumptions	28,655,250
4) Removal of 30 and out provision	(340,797,972)
5) New Assumptions and other experience	(151,443,064)
6) Total Change	\$ (1,819,012,552)
V. December 31, 2000 Unfunded Liability: (III) + (IV. 6)	\$ (6,392,028,230)

\* Note: the increase in the contribution rate for funding payroll changes as a percent of payroll does not affect the dollar amount of the unfunded liability.

**State Employees' Retirement System**  
**Actuarial Balance Sheet as of December 31, 2000**

**ASSETS**

Present Assets:

Members Savings Account	\$ 3,182,775,638
Annuity Reserve Account	7,053,705,864
State Police Benefit Account	1,142,535,303
Enforcement Officers Benefit Account	24,450,068
State Accumulation Account *	17,638,628,339
Supplemental Annuity Account	<u>(1,161,627,451)</u>
Total Present Assets (Market Value)	\$ 27,880,467,761
Adjustment to Smooth Market Fluctuations	(1,786,161,468)
Total Present Assets (Actuarial Value)	\$ 26,094,306,293

Present Value of Future Contributions

Members' Contributions (Employee)	\$ 2,798,943,647
Normal Cost Contributions (Employer)	4,356,548,073
Accrued Liability Amortization (Employer)	(7,553,655,681)
Supplemental Annuity Amortization (Employer)	1,161,627,451
Special State Police Contributions (Employer)	0
Special Enforcement Officer Contributions (Employer)	<u>0</u>
Total Future Contributions	<u>\$ 763,463,490</u>
<b>TOTAL ASSETS</b>	<b><u><u>\$ 26,857,769,783</u></u></b>

\* Includes \$3,067,292 in directed commissions.

**LIABILITIES**

Present Value of Benefits Payable to Annuitants and Beneficiaries from:

Annuity Reserve Account	\$ 7,053,705,864
State Police Benefit Account	1,072,819,305
Enforcement Officers Benefit Account	<u>22,351,170</u>
Total for Annuitants and Beneficiaries	\$ 8,148,876,339

Present Value of Benefits to Active and Inactive Members from:

Members Savings Account and State Accumulation Account	
Superannuation and withdrawal	\$ 16,828,906,717
Disability	847,103,471
Death	949,380,280
Refunds	<u>66,287,473</u>
Subtotal	\$ 18,691,677,941
State Police Benefit Account	15,116,605
Enforcement Officers Benefit Account	<u>2,098,898</u>
Total Present Value of Benefits to Active and Inactive Members	<u>\$ 18,708,893,444</u>
<b>TOTAL LIABILITIES</b>	<b><u><u>\$ 26,857,769,783</u></u></b>

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

I. Annuity Reserve Account

Balance as reported by SERS	\$ 6,774,913,247
Transfer from State Accumulation Account	<u>278,792,617</u>
December 31, 2000 balance after transfers	\$ 7,053,705,864

II. Enforcement Officer's Account

Balance as reported by SERS	\$ 23,203,585
Transfer from State Accumulation Account	<u>1,246,483</u>
December 31, 2000 balance after transfers	\$ 24,450,068

III. State Accumulation Account \*

Balance as reported by SERS	\$17,918,667,439
Transfer to Annuity Reserve Account	(278,792,617)
Transfer to Enforcement Officer's Account	<u>(1,246,483)</u>
December 31, 2000 balance after transfers	\$17,638,628,339

\* Balance includes \$3,067,292 in directed commissions.

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

**I. Schedule of Funding Progress as of December 31, 2000**

(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)
12/31/92	11,769,388	11,488,414	(280,974)	102.4%	3,533,428	-8.0%
12/31/93	13,060,613	12,213,736	(846,877)	106.9%	3,731,515	-22.7%
12/31/94	13,991,485	13,742,056	(249,429)	101.8%	3,990,440	-6.3%
12/31/95 *	15,510,309	15,067,205	(443,104)	102.9%	4,021,605	-11.0%
12/31/96	16,841,069	15,936,616	(904,453)	105.7%	4,163,683	-21.7%
12/31/97	18,565,136	17,288,413	(1,276,723)	107.4%	4,219,034	-30.3%
12/31/98	20,670,711	18,357,899	(2,312,812)	112.6%	4,446,147	-52.0%
12/31/99	23,624,267	19,091,840	(4,532,427)	123.7%	4,519,112	-100.3%
12/31/00 *	26,094,306	19,702,278	(6,392,028)	132.4%	4,769,180	-134.0%

\* 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, 2000**

(Dollars in Thousands)

Calendar Year	Annual Required Contribution	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%

**Notes 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, 2000
Actuarial cost method	Variation of Entry-age Actuarial Cost Method
Amortization method	Increasing 5 percent annually
Remaining amortization period	10-19 years
Asset valuation method	5 – year smooth market
Actuarial Assumptions:	
Investment rate of return	8.5%
Projected salary increases	average increase of 6.8% (range: 5.16% to 8.98%)
Inflation	3.0%
Cost-of-living adjustments	None

The Annual Required Contribution (ARC) is equal to the sum of the following:

The employer share of the normal cost.

The amortization of the unfunded liabilities as of December 31, 1990 over a twenty-year period ending on June 30, 2011.

The amortization of changes in liability after 1990 over twenty-year periods typically beginning with the July first following the effective date of the change in liability. Changes include actuarial gains and losses and plan amendments.

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.

The Board adopted the valuation rate as the contribution rate every year 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 in 1993 and 1994. The ARC based on the information the Board used in setting the contribution rate is not available. The table above shows the ARC based on the actuarial valuation. The effect of the adjustments extended over three calendar years so the 1993 through 1995 actual contributions are different from the ARCs in those years.

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

All of the amortization payments are based on a schedule of contributions that increases five percent a year. 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 #25 establishes the range of funding methods for the Unfunded Actuarial Accrued Liability. The minimum funding can be over a 40-year period with payments increasing by the assumed increase in payroll. The SERS contributions increase at 5 percent, which is greater than the 3.3 percent salary growth assumption. However, the use of a 20-year amortization period results in payments that are greater than the minimum required under GASB #25.

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

Valuation Date	Actuarial Accrued Liabilities For			Total Actuarial Accrued Liability (AAL)	Actuarial Valuation of Assets (5)	Accrued Liability Covered by Assets		Funded Ratio (5)/(4)	
	Active Members*		Retirees & Beneficiaries (2)			Portion of (1)	Portion of (2)		Portion of (3)
	(1)	(3)							
	(Amounts in Thousands)								
December 31, 1992	\$ 1,994,567	\$ 4,872,529	\$ 4,621,318	\$ 11,488,414	\$ 11,769,388	100.0%	100.0%	102.4%	
December 31, 1993	2,170,593	5,236,236	4,806,907	12,213,736	13,060,613	100.0	100.0	106.9	
December 31, 1994	2,352,731	6,350,104	5,039,221	13,742,056	13,991,485	100.0	100.0	101.8	
December 31, 1995	2,499,485	6,918,265	5,649,454	15,067,205	15,510,309	100.0	100.0	102.9	
December 31, 1996	2,646,630	7,262,653	6,027,333	15,936,616	16,841,069	100.0	100.0	105.7	
December 31, 1997	2,748,177	7,588,825	6,951,411	17,288,413	18,565,136	100.0	100.0	107.4	
December 31, 1998	2,904,232	8,253,666	7,200,000	18,357,899	20,670,711	100.0	100.0	112.6	
December 31, 1999	2,989,489	8,322,358	7,779,993	19,091,840	23,624,267	100.0	100.0	123.7	
December 31, 2000	3,182,776	8,370,626	8,148,876	19,702,278	26,094,306	100.0	100.0	132.4	

\* Employer paid

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

I. Development of 12/31/00 Expected Actuarial Value:	
1) Actuarial Value as of 12/31/99	\$ 23,624,267,185
2) Contributions in 2000	399,668,541
3) Benefits and Expenses in 2000	(1,198,093,999)
4) Investment return at 8.5% to 12/31/00 on (1)	2,008,062,711
5) Investment return at 8.5% to 12/31/00 on (2) and (3) .5 x ((2) + (3))	<u>(33,933,082)</u>
6) Expected Actuarial Value as of 12/31/00: (1) + (2) + (3) + (4) + (5)	\$ 24,799,971,356
II. Previous Differences Not Yet Amortized:	
1) Unrecognized amount of 12/31/96 Difference: .2 x \$1,156,993,365	\$ 231,398,673
2) Unrecognized amount of 12/31/97 Difference: .4 x \$1,909,855,668	763,942,267
3) Unrecognized amount of 12/31/98 Difference: .6 x \$1,805,107,670	1,083,064,602
4) Unrecognized amount of 12/31/99 Difference: .8 x \$2,988,135,569	<u>2,390,508,455</u>
5) Total	\$ 4,468,913,997
III. Gain or Loss from 2000	
1) Market Value of Assets on 12/31/00	\$ 27,880,467,761
2) Expected Market Value II(5) + I(6)	<u>29,268,885,353</u>
3) Gain (loss) from 2000 Investments (1) - (2)	\$ (1,388,417,592)
IV. Development of Actuarial Value of Assets as of 12/31/00:	
1) 20% of \$1,156,993,365 (12/31/96 Difference):	\$ 231,398,673
2) 20% of \$1,909,855,668 (12/31/97 Difference):	381,971,134
3) 20% of \$1,805,107,670 (12/31/98 Difference):	361,021,534
4) 20% of \$2,988,135,569 (12/31/99 Difference):	597,627,114
5) 20% of (\$1,388,417,591) (12/31/00 Difference):	<u>(277,683,518)</u>
6) Total Difference: (1) + (2) + (3) + (4) + (5)	\$ 1,294,334,937
7) Actuarial Value at 12/31/00: I(6) + IV(6)	\$ 26,094,306,293

The actuarial value of assets is based on the unaudited financial statements prepared by SERS. The differences between the audited financial values and the unaudited financial values are not material.

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

**Projection of Annuitants and Employees**  
**Actual Data Through 2000**

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
1990			68,156			6,066	74,222	111,248
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	4,676	3,200	81,765	687	439	8,351	90,116	109,469
2002	4,742	3,215	83,292	689	448	8,592	91,884	109,469
2003	4,865	3,253	84,904	695	473	8,814	93,718	109,469
2004	4,891	3,287	86,508	701	495	9,020	95,528	109,469
2005	4,774	3,319	87,963	706	519	9,207	97,170	109,469
2006	4,657	3,347	89,273	710	542	9,375	98,648	109,469
2007	4,575	3,366	90,482	713	565	9,523	100,005	109,469
2008	4,464	3,382	91,564	714	585	9,652	101,216	109,469
2009	4,396	3,396	92,564	716	607	9,761	102,325	109,469
2010	4,256	3,410	93,410	717	630	9,848	103,258	109,469
2011	4,189	3,423	94,176	718	648	9,918	104,094	109,469

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

**Projection of Expected Contributions and Benefits**  
**Actual Data Through 2000**  
**(Dollars in Millions)**

Calendar Year	Contributions		
	Employee	Employer	Benefits / Expenses
1990	\$ 175	\$ 418	\$ 607
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	225	271	1,248
2000	232	168	1,198
2001	239	32	1,359
2002	247	0	1,451
2003	255	0	1,609
2004	264	0	1,781
2005	272	0	1,893
2006	281	0	2,009
2007	291	0	2,130
2008	300	0	2,340
2009	310	0	2,572
2010	321	0	2,716
2011	331	0	2,868

The projection is based upon the following assumptions: a projected investment return of 8.5 percent; general pay increases of 3.3 percent; and supplemental annuity increases in 2003 and 2008.

**State Employees' Retirement System**  
**I. Age, Service and Salary Profile of Active Participants as of December 31, 2000**  
**Active Employees\***

Males - Full Years of Service to December 31, 2000

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	19	0	0	0	0	0	0	19	\$ 20,650
20-24	581	6	0	0	0	0	0	587	23,888
25-29	1,412	309	10	0	0	0	0	1,731	29,233
30-34	1,505	1,334	419	16	0	0	0	3,274	33,365
35-39	1,244	1,299	1,345	571	56	0	0	4,515	37,162
40-44	1,306	1,280	1,512	1,501	985	56	0	6,640	39,601
45-49	1,254	1,297	1,388	1,374	1,896	1,502	104	8,815	42,746
50-54	1,164	1,165	1,161	1,140	1,581	2,981	1,327	10,519	46,794
55-59	651	732	683	647	730	1,290	1,718	6,451	49,414
60-64	348	450	416	354	289	395	847	3,099	50,289
65+	191	233	192	115	114	103	312	1,260	50,843
Total	9,675	8,105	7,126	5,718	5,651	6,327	4,308	46,910	\$ 42,906

Average Age 47.34  
Average Service 14.77

Females - Full Years of Service to December 31, 2000

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	59	0	0	0	0	0	0	59	\$ 20,708
20-24	813	29	0	0	0	0	0	842	23,064
25-29	1,417	520	41	0	0	0	0	1,978	27,059
30-34	1,395	1,169	762	55	0	0	0	3,381	30,090
35-39	1,257	1,057	1,185	906	160	0	0	4,565	33,103
40-44	1,418	1,243	1,330	1,228	1,290	180	0	6,689	35,094
45-49	1,227	1,164	1,368	1,179	1,635	2,147	269	8,989	38,305
50-54	891	1,024	1,217	1,065	1,197	1,784	1,144	8,322	39,324
55-59	465	567	799	760	867	856	676	4,990	39,206
60-64	185	298	412	370	358	321	309	2,253	39,057
65+	89	122	162	106	120	79	121	799	36,932
Total	9,216	7,193	7,276	5,669	5,627	5,367	2,519	42,867	\$ 36,076

Average Age 45.88  
Average Service 13.96

\* 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 and inactive employees.

**State Employees' Retirement System**

**I. Age, Service and Salary Profile of Active Participants as of December 31, 2000**

**Selected Hazardous Duty\***

**Males - Full Years of Service to December 31, 2000**

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	129	2	0	0	0	0	0	131	26,131
25-29	1,124	235	0	0	0	0	0	1,359	34,025
30-34	1,152	1,981	283	0	0	0	0	3,416	43,896
35-39	544	1,164	1,103	172	2	0	0	2,985	46,974
40-44	369	480	658	654	155	1	0	2,317	48,770
45-49	282	401	436	384	419	109	3	2,034	49,306
50-54	256	437	451	313	267	388	118	2,230	50,254
55-59	109	198	217	149	84	130	133	1,020	50,219
60-64	23	89	79	72	41	37	32	373	48,076
65+	6	11	20	11	10	4	10	72	50,864
<b>Total</b>	<b>3,994</b>	<b>4,998</b>	<b>3,247</b>	<b>1,755</b>	<b>978</b>	<b>669</b>	<b>296</b>	<b>15,937</b>	<b>\$ 46,307</b>

Average Age 41.06  
Average Service 9.93

**Females - Full Years of Service to December 31, 2000**

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	43	0	0	0	0	0	0	43	26,027
25-29	189	30	0	0	0	0	0	219	31,498
30-34	201	143	20	0	0	0	0	364	36,743
35-39	161	114	76	25	2	0	0	378	38,677
40-44	118	111	94	95	43	3	0	464	43,745
45-49	98	126	90	73	74	25	0	486	44,555
50-54	47	69	87	53	32	33	9	330	47,241
55-59	19	41	39	23	25	8	8	163	46,977
60-64	3	24	13	17	10	5	6	78	52,298
65+	2	3	2	4	0	2	1	14	50,444
<b>Total</b>	<b>881</b>	<b>661</b>	<b>421</b>	<b>290</b>	<b>186</b>	<b>76</b>	<b>24</b>	<b>2,539</b>	<b>\$ 41,747</b>

Average Age 42.19  
Average Service 8.92

\* 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, 2000**

**Legislators**

Males - Full Years of Service to December 31, 2000

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	61,890
30-34	5	0	0	0	0	0	0	5	61,890
35-39	10	7	1	0	0	0	0	18	61,822
40-44	6	2	9	4	4	0	0	25	63,259
45-49	8	11	7	5	7	1	0	39	63,639
50-54	2	9	8	7	12	3	0	41	64,612
55-59	1	3	6	7	10	3	2	32	65,758
60-64	2	2	3	3	5	1	5	21	64,961
65+	<u>0</u>	<u>4</u>	<u>2</u>	<u>2</u>	<u>5</u>	<u>4</u>	<u>10</u>	<u>27</u>	<u>63,756</u>
Total	35	38	36	28	43	12	17	209	\$ 64,050

Average Age 52.27  
Average Service 15.04

Females - Full Years of Service to December 31, 2000

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	1	0	0	0	0	0	0	1	61,890
35-39	0	2	0	0	0	0	0	2	61,890
40-44	1	2	0	0	0	0	0	3	61,890
45-49	0	0	1	2	0	0	0	3	61,890
50-54	2	2	2	0	0	0	0	6	61,890
55-59	2	3	1	0	0	0	0	6	63,337
60-64	0	1	1	1	0	0	0	3	61,890
65+	<u>0</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>5</u>	<u>63,626</u>
Total	6	10	9	3	0	0	1	29	\$ 62,489

Average Age 54.00  
Average Service 10.41

**State Employees' Retirement System**

**I. Age, Service and Salary Profile of Active Participants as of December 31, 2000**

**Judges And District Justices**

Males - Full Years of Service to December 31, 2000

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	57,475
30-34	7	2	0	0	0	0	0	9	57,475
35-39	13	6	1	0	0	0	0	20	60,404
40-44	27	17	11	3	0	0	0	58	72,647
45-49	28	50	29	21	5	3	0	136	75,553
50-54	42	54	34	34	12	12	1	189	85,618
55-59	16	39	36	36	15	9	4	155	87,399
60-64	15	28	21	23	15	12	9	123	90,002
65+	<u>5</u>	<u>4</u>	<u>10</u>	<u>11</u>	<u>13</u>	<u>15</u>	<u>10</u>	<u>68</u>	<u>100,675</u>
Total	154	200	142	128	60	51	24	759	\$ 84,211

Average Age 53.77  
Average Service 12.01

Females - Full Years of Service to December 31, 2000

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	57,475
30-34	7	0	0	0	0	0	0	7	65,407
35-39	8	6	0	0	0	0	0	14	57,475
40-44	16	9	5	2	0	0	0	32	81,600
45-49	9	23	15	4	3	0	0	54	90,123
50-54	6	17	10	14	1	1	0	49	89,378
55-59	6	3	11	7	2	0	0	29	84,211
60-64	3	5	4	5	4	2	0	23	71,519
65+	<u>0</u>	<u>5</u>	<u>0</u>	<u>2</u>	<u>2</u>	<u>1</u>	<u>0</u>	<u>10</u>	<u>74,745</u>
Total	56	68	45	34	12	4	0	219	\$ 82,246

Average Age 50.00  
Average Service 9.46

**State Employees' Retirement System**

**I. Age, Service and Salary Profile of Active Participants as of December 31, 2000**

**All Active Employees**

Males - Full Years of Service to December 31, 2000

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	19	0	0	0	0	0	0	19	\$ 20,650
20-24	710	8	0	0	0	0	0	718	24,297
25-29	2,538	544	10	0	0	0	0	3,092	31,358
30-34	2,669	3,317	702	16	0	0	0	6,704	38,785
35-39	1,811	2,476	2,450	743	58	0	0	7,538	41,168
40-44	1,708	1,779	2,190	2,162	1,144	57	0	9,040	42,228
45-49	1,572	1,759	1,860	1,784	2,327	1,615	107	11,024	44,435
50-54	1,464	1,665	1,654	1,494	1,872	3,384	1,446	12,979	48,010
55-59	777	972	942	839	839	1,432	1,857	7,658	50,359
60-64	388	569	519	452	350	445	893	3,616	51,497
65+	<u>202</u>	<u>252</u>	<u>224</u>	<u>139</u>	<u>142</u>	<u>126</u>	<u>342</u>	<u>1,427</u>	<u>53,463</u>
Total	13,858	13,341	10,551	7,629	6,732	7,059	4,645	63,815	\$ 44,316

Average Age 45.86  
Average Service 13.53

Females - Full Years of Service to December 31, 2000

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total	Average Salary
Less than 20	59	0	0	0	0	0	0	59	\$ 20,708
20-24	856	29	0	0	0	0	0	885	23,208
25-29	1,607	550	41	0	0	0	0	2,198	27,515
30-34	1,604	1,312	782	55	0	0	0	3,753	30,809
35-39	1,426	1,179	1,261	931	162	0	0	4,959	33,608
40-44	1,553	1,365	1,429	1,325	1,333	183	0	7,188	35,871
45-49	1,334	1,313	1,474	1,258	1,712	2,172	269	9,532	38,924
50-54	946	1,112	1,316	1,132	1,230	1,818	1,153	8,707	39,921
55-59	492	614	850	790	894	864	684	5,188	39,730
60-64	191	328	430	393	372	328	315	2,357	39,841
65+	<u>91</u>	<u>130</u>	<u>168</u>	<u>112</u>	<u>122</u>	<u>82</u>	<u>123</u>	<u>828</u>	<u>37,779</u>
Total	10,159	7,932	7,751	5,996	5,825	5,447	2,544	45,654	\$ 36,630

Average Age 45.70  
Average Service 13.65

**State Employees' Retirement System**

**I. Age, Service and Salary Profile of Active Participants as of December 31, 2000**

**Active And Inactive Employees**

Males - Full Years of Service to December 31, 2000

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total
Less than 20	19	0	0	0	0	0	0	19
20-24	711	8	0	0	0	0	0	719
25-29	2,547	547	10	0	0	0	0	3,104
30-34	2,684	3,324	711	16	0	0	0	6,735
35-39	1,846	2,487	2,506	750	58	0	0	7,647
40-44	1,754	1,800	2,275	2,194	1,149	57	0	9,229
45-49	1,630	1,782	1,934	1,824	2,351	1,621	107	11,249
50-54	1,615	1,694	1,739	1,559	1,915	3,410	1,451	13,383
55-59	896	989	998	877	855	1,445	1,866	7,926
60-64	492	584	540	467	357	452	905	3,797
65+	<u>258</u>	<u>262</u>	<u>231</u>	<u>147</u>	<u>151</u>	<u>130</u>	<u>350</u>	<u>1,529</u>
Total	14,452	13,477	10,944	7,834	6,836	7,115	4,679	65,337

Average Age 46.00

Average Service 13.43

Females - Full Years of Service to December 31, 2000

Age Group	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total
Less than 20	59	0	0	0	0	0	0	59
20-24	856	29	0	0	0	0	0	885
25-29	1,617	551	42	0	0	0	0	2,210
30-34	1,640	1,325	810	55	0	0	0	3,830
35-39	1,456	1,195	1,328	943	162	0	0	5,084
40-44	1,629	1,402	1,565	1,377	1,341	183	0	7,497
45-49	1,487	1,389	1,603	1,342	1,743	2,179	269	10,012
50-54	1,189	1,212	1,429	1,202	1,267	1,838	1,157	9,294
55-59	665	665	933	833	916	874	689	5,575
60-64	306	351	459	414	375	333	321	2,559
65+	<u>142</u>	<u>138</u>	<u>176</u>	<u>117</u>	<u>122</u>	<u>84</u>	<u>125</u>	<u>904</u>
Total	11,046	8,257	8,345	6,283	5,926	5,491	2,561	47,909

Average Age 45.92

Average Service 13.40

**State Employees' Retirement System**  
**II. Age and Benefit Profile of Annuitants and Beneficiaries as of December 31, 2000**

**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>
50-54	317	\$ 9,411,029	52	\$ 918,014	369	\$ 10,329,043
55-59	901	27,712,750	183	3,549,878	1,084	31,262,628
60-64	2,843	67,548,721	1,741	26,265,111	4,584	93,813,832
65-69	4,676	84,938,668	3,165	37,980,018	7,841	122,918,686
70-74	5,502	86,140,270	4,073	41,261,064	9,575	127,401,334
75-79	5,299	69,641,313	4,350	36,191,540	9,649	105,832,853
80-84	3,502	34,545,252	3,587	24,796,042	7,089	59,341,294
85-89	1,900	17,927,904	2,262	15,156,955	4,162	33,084,859
90 & over	800	6,643,278	1,069	7,275,636	1,869	13,918,914
<b>Total</b>	<b>25,740</b>	<b>\$ 404,509,185</b>	<b>20,482</b>	<b>\$ 193,394,258</b>	<b>46,222</b>	<b>\$ 597,903,443</b>

Average Age 74.4  
Average Annual Pension \$12,935

**State Employees' Retirement System**

**II. Age and Benefit Profile of Annuitants and Beneficiaries as of December 31, 2000**

**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>
30-34	22	\$ 23,559	62	\$ 59,094	84	\$ 82,653
35-39	186	306,925	289	408,969	475	715,894
40-44	423	990,019	785	1,554,165	1,208	2,544,184
45-49	973	4,091,464	1,884	5,278,709	2,857	9,370,173
50-54	2,889	37,001,365	2,469	15,828,104	5,358	52,829,469
55-59	3,522	60,528,327	2,023	19,870,482	5,545	80,398,809
60-64	2,514	39,206,350	1,881	19,821,301	4,395	59,027,651
65-69	2,059	26,573,642	1,587	13,600,101	3,646	40,173,743
70-74	1,355	16,329,380	1,197	8,908,695	2,552	25,238,075
75-79	599	5,823,823	767	4,736,959	1,366	10,560,782
80-84	234	2,139,283	336	2,270,791	570	4,410,074
85-89	93	805,969	109	888,073	202	1,694,042
90 & over	24	149,608	43	297,689	67	447,297
<b>Total</b>	<b>14,893</b>	<b>\$ 193,969,714</b>	<b>13,432</b>	<b>\$ 93,523,132</b>	<b>28,325</b>	<b>\$ 287,492,846</b>

Average Age 59.2  
Average Annual Pension \$10,150

**State Employees' Retirement System**

**II. Age and Benefit Profile of Annuitants and Beneficiaries as of December 31, 2000**

**Disabled 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>
30-34	12	\$ 124,138	16	\$ 126,456	28	\$ 250,594
35-39	60	578,608	64	563,959	124	1,142,567
40-44	109	1,008,423	183	1,647,242	292	2,655,665
45-49	275	2,920,857	381	3,829,556	656	6,750,413
50-54	529	5,922,818	477	5,151,201	1,006	11,074,019
55-59	500	5,501,145	455	4,507,681	955	10,008,826
60-64	407	3,997,332	428	3,792,782	835	7,790,114
65-69	357	3,006,456	357	2,659,021	714	5,665,477
70-74	274	2,360,961	240	1,573,298	514	3,934,259
75-79	151	1,091,615	200	1,152,398	351	2,244,013
80-84	86	538,948	102	516,744	188	1,055,692
85-89	21	126,843	43	204,846	64	331,689
90 & over	3	13,126	12	43,764	15	56,890
<b>Total</b>	<b>2,784</b>	<b>\$ 27,191,270</b>	<b>2,958</b>	<b>\$ 25,768,948</b>	<b>5,742</b>	<b>\$ 52,960,218</b>

Average Age 59.5  
Average Annual Pension \$9,223

**State Employees' Retirement System**

**II. Age and Benefit Profile of Annuitants and Beneficiaries as of December 31, 2000**

**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	7	\$ 13,953	8	\$ 75,586	15	\$ 89,539
25-29	4	53,040	6	27,378	10	80,418
30-34	5	38,965	14	172,875	19	211,840
35-39	10	67,464	22	145,954	32	213,418
40-44	24	81,252	33	279,362	57	360,614
45-49	31	119,512	106	615,528	137	735,040
50-54	48	289,211	180	1,507,733	228	1,796,944
55-59	44	208,963	284	2,694,589	328	2,903,552
60-64	62	323,356	414	3,361,819	476	3,685,175
65-69	67	410,432	594	5,062,403	661	5,472,835
70-74	125	906,444	1,111	7,985,236	1,236	8,891,680
75-79	86	470,529	1,400	7,983,465	1,486	8,453,994
80-84	88	598,127	1,527	7,505,727	1,615	8,103,854
85-89	42	144,793	1,127	4,994,278	1,169	5,139,071
90 & over	11	89,883	623	2,838,157	634	2,928,040
<b>Total</b>	<b>654</b>	<b>\$ 3,815,924</b>	<b>7,449</b>	<b>\$ 45,250,090</b>	<b>8,103</b>	<b>\$ 49,066,014</b>

Average Age 75.6  
Average Annual Pension \$6,055

**State Employees' Retirement System**  
**Benefit and Contribution Provisions as of December 31, 2000**  
**(as embodied in Act 31, approved March 1, 1974)**

The State Employees' Retirement System makes provision for retirement, disability, and death benefits for all State employees and certain other eligible groups. The major provisions may be summarized as follows:

**Eligible Employees**

- Class A - All regular State employees as well as employees of certain Commissions and Authorities and all employees of state-owned educational institutions and the State University (unless such employees have joined the Public School Employees' Retirement System or TIAA-CREF). All employees who become members (or who rejoin the Retirement System) on and after March 1, 1974 except Judges and District Justices.
- 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 - Members of the General Assembly who have been members and employees continuously since prior to March 1, 1974.
- Class E-1 - Judges.
- Class E-2 - District Justices.

**State Employees' Retirement System**  
**Benefit and Contribution Provisions as of December 31, 2000 (continued)**  
**(as embodied in Act 31, approved March 1, 1974)**

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

- Class A - Age 60, with three years of service, except for members of the General Assembly, enforcement officers, correction officers, psychiatric security aides, and officers of the Delaware River Port Authority; for whom the requirement is age 50 with three years of service. Members of Class A with 35 or more years of credited service are entitled to full formula benefits regardless of age. State Police Officers can retire on full benefits after age 50 or with 20 years of service. Capitol Police and Park Rangers can retire on full benefits at age 50 with 20 years of Capitol Police or Park Ranger service.
- Class C Age 50, with three years of service.
- Class D-3 Age 50, with three years of service.
- Class E-1 Age 60, with three years of service; or 35 or more years of credited service, regardless of age.
- Class E-2 Age 60, with three years of service; or 35 or more years of credited service, regardless of age.

**Formula for Superannuation Annuity**

The standard single-life annuity applicable to members of Class A and Class C is equal to 2 percent of the high 3-year average salary ("F.A.S.") 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 a minimum of 50 percent of 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 a minimum of 75 percent of highest annual salary.

The annuity paid to a member shall not exceed the member's highest salary during any period of twelve consecutive months of creditable service. For members of Class D-3, the annuity paid to a member on account of Class D-3 service, reduced for any optional benefits, can not exceed the greatest of \$12,000, or the D-3 member's highest annual compensation as a member of the General Assembly.

**State Employees' Retirement System**  
**Benefit and Contribution Provisions as of December 31, 2000 (continued)**  
**(as embodied in Act 31, approved March 1, 1974)**

The annuity for other classes of members is obtained by multiplying the standard single-life annuity by a class multiplier as follows:

<u>Class</u>	<u>Multiplier</u>	
D-3	3.75	
E-1	2.0	for each of the first 10 years of judicial service dropping to 1.5 for each subsequent year of judicial service.
E-2	1.5	for each year of judicial service.

**NOTE:** There are conditions under which long-service members or members retiring at advanced ages may receive somewhat larger benefits than those described above. Further, benefit limitations exist for most members of Class D-3.

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 member's "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.

**State Employees' Retirement System**  
**Benefit and Contribution Provisions as of December 31, 2000 (continued)**  
**(as embodied in Act 31, approved March 1, 1974)**

**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.

**Eligibility for Vested Benefit**

A member is eligible for a vested benefit after 10 years of service, except for members of Class D-3 who are eligible after 6 years of Class D-3 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.

**Eligibility for Death Benefit Prior to Retirement**

A member is eligible if the member is (1) under retirement age with 10 years of credited service, except for a member of Class D-3 who is eligible after 6 years of Class D-3 service, or (2) upon attainment of retirement age with 3 years of credited service.

**State Employees' Retirement System**  
**Benefit and Contribution Provisions as of December 31, 2000 (continued)**  
**(as embodied in Act 31, approved March 1, 1974)**

**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.

**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 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.

**Supplemental Allowances**

Any retirement or disability annuitant is entitled to a supplemental allowance sufficient to build the amount of the total single-life allowance, including any cost-of-living supplements, up to the rate of \$84.50 for each year of credited service. An annuitant that retired early is entitled to the supplemental allowance upon attaining retirement age.

**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 most recent of these became effective as of July 1, 1998.

**State Employees' Retirement System**  
**Benefit and Contribution Provisions as of December 31, 2000 (continued)**  
**(as embodied in Act 31, approved March 1, 1974)**

**Rate of Member Contribution**

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

Class A - 5.00% of total salary

For other classes of members, the class of service multiplier is applied to the 5.00% rate to produce the following:

Class C - 5.00%

Class D-3 - 18.75%

Class E-1 - 10.00% during the first 10 years of judicial service and 7.50% thereafter.

Class E-2 - 7.50%

(ii) Additional contribution for Social Security Integration Credit

Any member who elects 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.

**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, 2000 (continued)**  
**(as embodied in Act 31, approved March 1, 1974)**

**Refund of Accumulated Member Contributions**

On the death of a member not qualifying for death benefits, the accumulated member contributions and interest are paid to the beneficiary; also, any member terminating service when not eligible for another form of benefit is paid a refund of the accumulated contributions and interest; any other terminating member may elect the refund of accumulated contributions and interest in lieu of a retirement allowance.

**Employer Contributions**

The employer pays the balance of the cost in excess of the members' contributions with payment schedules determined by law. The employer contribution is the employer share of the normal cost plus the amount needed to amortize the December 31, 1990 accrued and supplemental liabilities over a twenty-year period ending with June 30, 2011. Changes in cost after 1990 are typically amortized over new twenty-year periods beginning with the July first following the effective date of the change.

Act 2001-9, enacted May 17, 2001, changed the funding basis to amortization of gains and losses over ten years in equal dollar payments beginning July 1, 2002. That change will be reflected in the December 31, 2001 valuation.

**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 (1983 GAM) 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 (1971 GAM) 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 1996 through 2000. Schedule N contains an extract of the full set of rates used in the valuation. The full set of rates is in the Fifteenth Investigation of Actuarial Experience of The State Employees' Retirement System of the Commonwealth of Pennsylvania, which can be obtained from SERS. The rates are the probabilities that an event will occur in the year after the valuation. For instance, the male retirement rate of .220 at age 60 means that 220 of every 1,000 employees age 60 and eligible for full benefits are expected to retire before they reach age 61.

Interest Rate: 8.5 percent compounded annually

Mortality after Retirement:

Non-disabled Retirees, Beneficiaries and Survivors: The 1983 Group Annuity Mortality table for males and females.

Disability Retirees: The Federal Civil Service Retirement System disabled annuitant mortality table adjusted to equal the overall SERS disabled annuitant mortality with a margin for future improvement in mortality.

Assumptions for General Employees while Active Members

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

<u>Age</u>	<u>Male</u>	<u>Female</u>
51-61	.220	.220
62	.330	.330
63-64	.220	.220
65	.340	.340
66	.270	.270
67-79	.200	.200
80	1.000	1.000

**State Employees' Retirement System**  
**Actuarial Assumptions (continued)**

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

<u>Age</u>	<u>10-14 years of service</u>		<u>Age</u>	<u>15 or more years of service</u>	
	<u>Male</u>	<u>Female</u>		<u>Male</u>	<u>Female</u>
30	.030	.040	30	.030	.040
35	.020	.030	35	.020	.020
40	.020	.010	40	.020	.020
45	.010	.010	45	.020	.020
50	.010	.010	50	.020	.020
55	.030	.030	55	.030	.030

Rates of Separation Due to Withdrawal (Only apply to members not eligible for full retirement.)

<u>Age</u>	<u>Male</u> <u>Years of Service</u>				<u>Age</u>	<u>Female</u> <u>Years of Service</u>			
	<u>0</u>	<u>5</u>	<u>9</u>	<u>14+</u>		<u>0</u>	<u>5</u>	<u>9</u>	<u>14+</u>
20	.0960	.0450	.0250	.0013	20	.0950	.0620	.0450	.0030
25	.0940	.0400	.0200	.0013	25	.0870	.0570	.0450	.0030
30	.0900	.0400	.0200	.0013	30	.0870	.0570	.0300	.0030
35	.0880	.0370	.0170	.0013	35	.0870	.0470	.0200	.0030
40	.0880	.0260	.0060	.0013	40	.0850	.0470	.0180	.0030
45	.0850	.0260	.0060	.0013	45	.0830	.0420	.0180	.0030
50	.0830	.0230	.0030	.0013	50	.0830	.0420	.0100	.0030
55	.0830	.0230	.0030	.0013	55	.0830	.0350	.0100	.0030

Rates of Separation Due to Death and Disability (Disability rates only apply to members not eligible for full retirement.)

<u>Age</u>	<u>Death</u>		<u>Age</u>	<u>Disability</u>	
	<u>Male</u>	<u>Female</u>		<u>Male</u>	<u>Female</u>
25	.0003	.0002	25	.0003	.0006
30	.0004	.0003	30	.0008	.0015
35	.0006	.0004	35	.0015	.0025
40	.0008	.0006	40	.0023	.0033
45	.0015	.0009	45	.0041	.0052
50	.0027	.0014	50	.0057	.0078
55	.0042	.0022	55	.0075	.0099
60	.0062	.0036			

**State Employees' Retirement System**  
**Actuarial Assumptions (continued)**

For Special Benefit Classes if Different from General Employee Rates:

Rates of Separation Due to Withdrawal.

<u>Years of Service</u>	<u>State Police/ Hazardous Duty</u>	<u>Legislators</u>	<u>Judicial Officers</u>
0	.0600	.0000	.0010
1	.0550	.0300	.0080
2	.0400	.0300	.0080
3-4	.0300	.0300	.0080
5	.0200	.0300	.0080
6	.0190	.0300	.0080
7-9	.0100	.0300	.0080
10+	.0100	.0300	.0110

Rates of Separation Due to Early Retirement.

	<u>State Police/ Hazardous Duty</u>	<u>Legislators</u>	<u>Judicial Officers</u>
Any Age	.0100	.0300	.0100

Rates of Separation Due to Retirement other than State Police with 20 or more years of Service.

<u>Age</u>	<u>Hazardous Duty</u>	<u>Legislators</u>	<u>Judicial Officers</u>
50	.050	.020	N/A
55	.050	.030	N/A
60	.050	.040	.020
65	.500	.060	.020
70	.240	.080	1.000
75	.240	.100	N/A
80	1.000	1.000	N/A

**State Employees' Retirement System**  
**Actuarial Assumptions (continued)**

For Special Benefit Classes:

Rates of Separation due to Retirement for State Police with 20 or More Years of Service:

Service

20	.040
21	.010
22	.010
23	.010
24	.010
25	.300
26	.170
27	.160
28	.160
29	.160
30	.160
31	.160
32	.160
33	.160
34	.300
35	.410

**State Employees' Retirement System**  
**Actuarial Assumptions (continued)**

**Career Salary Increases**

The salary scale shown below includes average increases in the employee salary due to promotions and longevity growth. The average career salary growth is 3.5 percent per year. In addition, it is assumed that the salary schedules will increase by 3.3 percent a year. The scale below does not include the assumed 3.3 percent general salary increase.

This table 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.

**Career Salary Scale for Members**

<u>Age</u>	<u>Annual Increase</u>	<u>Age</u>	<u>Annual Increase</u>
20	5.5%	41	3.9%
21	5.5	42	3.8
22	5.5	43	3.7
23	5.5	44	3.6
24	5.5	45	3.5
25	5.5	46	3.4
26	5.5	47	3.2
27	5.5	48	3.1
28	5.5	49	3.0
29	5.5	50	2.8
30	5.3	51	2.6
31	5.2	52	2.5
32	5.0	53	2.4
33	4.9	54	2.2
34	4.8	55	2.1
35	4.6	56	2.0
36	4.5	57	1.9
37	4.4	58	1.9
38	4.2	59	1.8
39	4.1	60	1.8
40	4.0		

**State Employees' Retirement System**  
**Asset Valuation, Funding Method, and**  
**Determination of the Annual Contribution**

**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 the liabilities by June 30, 2021. 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 unfunded liabilities as of December 31, 1990 over a twenty-year period ending on June 30, 2011.

**State Employees' Retirement System**  
**Asset Valuation, Funding Method, and**  
**Determination of the Annual Contribution (continued)**

- (3) The amortization of changes in liability after 1990 over twenty-year periods typically beginning with the July first following the effective date of the change. Changes include actuarial gains and losses and plan amendments.

All of the amortizing payments are based on a schedule of contributions that increase five percent a year. 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 is the total of (1) the employer normal cost percent and (2) the amortization payment for fiscal year 2001/2002 divided by the projected payroll for the fiscal year.

Act 2001-9, enacted May 17, 2001, changed the funding basis to amortization of gains and losses over ten years in equal dollar payments beginning July 1, 2002. That change will be reflected in the December 31, 2001 valuation.

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 adopted after a review of the evaluation of experience under SERS from 1996 through 2000.

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 assumed that the total payroll will increase at 3.3 percent a year. The employee career salary growth (promotion and longevity growth) will average 3.5 percent a year. Therefore, the average total salary growth for an individual will be 6.8 (3.3 plus 3.5) percent a year. The investment return and the salary rate increase assumptions are based on 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 the SERS and reasonable expectations) and which in combination represent the best estimate of anticipated experience under the plan.

**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 Liabilities. The difference between actuarial accrued liabilities and valuation assets.