

**COMMONWEALTH OF PENNSYLVANIA  
STATE EMPLOYEES' RETIREMENT SYSTEM**

**1996 ACTUARIAL REPORT**

**Hay/Huggins  
Company**

**May 7, 1997**

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May 7, 1997

Hay/Huggins  
Company

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

Dear Mr. Brosius:

This report presents the results of our actuarial valuation of the Pennsylvania State Employees' Retirement System (SERS) as of December 31, 1996. Highlights of the valuation are presented on page 1, followed by a general discussion and comments on the various schedules included in the report. These schedules summarize the underlying calculations, asset information, participant data, plan benefits and actuarial assumptions.

The main purposes of this report are:

- to indicate the pension contribution rates for Fiscal Year 1997-98;
- to disclose the financial condition of the Plan;
- to provide information relating to the disclosure and reporting requirements of Statement No. 25 of the Governmental Accounting Standards Board.

To the best of our knowledge, this report is complete and accurate and all costs and liabilities have been determined in conformance with generally accepted actuarial principles and on the basis of actuarial assumptions and methods which are reasonable (taking into account past experience under the SERS and reasonable expectations) and which represent our best estimate of anticipated experience under the plan.

Respectfully submitted,  
HAY/HUGGINS COMPANY, INC.



By  
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HayGroup

**STATE EMPLOYEES' RETIREMENT SYSTEM**

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# STATE EMPLOYEES' RETIREMENT SYSTEM

## VALUATION HIGHLIGHTS

	December 31, 1996	December 31, 1995
	<u>Valuation</u>	<u>Valuation</u>
<b>Summary of Contributions as a Percent of Members' Compensation</b>		
Normal Cost	8.89%	8.49%
Amortization of Liabilities	(1.61)	(0.80)
Total Contribution	7.28%	7.69%

### Contribution Rates by Employee Group:

#### Class A Members:

Age 60 Superannuation	6.19%	6.60%
Age 50 Superannuation	8.12	8.47
Park Rangers	9.07	9.57
Capitol Police	9.07	9.57
State Police	22.27	23.48

#### Class C Members:

State Police	22.27	23.48
Enforcement Officers	8.12	8.47

#### Class D Members

	30.45	31.76
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#### Class E Members

	11.52	12.35
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### **Demographic Characteristics of the Population**

#### • Active Participants:

Number	110,922	112,637
Average annualized compensation	\$ 35,839	\$ 34,268
Total annualized compensation	\$ 3,975,373,256	\$ 3,859,844,716

#### • Annuitants and Beneficiaries:

Number	83,086	81,204
Total annual pension	\$ 749,274,115	\$ 703,568,068

#### • Inactive Participants:

Number	4,379	3,724
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#### **Assets**

• Market Value Assets	\$ 18,492,316,712	\$ 16,394,714,823
• Actuarial Value of Assets	\$ 16,841,069,047	\$ 15,510,309,420

# 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 1996 and funding procedures specified in the Pennsylvania 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.

In the December 31, 1995 actuarial valuation, 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 retirement system. Actuarial and accounting practice is to recognize a temporary feature of a retirement plan as permanent if it has been extended a number of years and there is no evidence that the feature will not be extended permanently. A variation of the current window was first opened in 1985 and has been extended since then through a series of plan changes. The window is currently scheduled to be closed on June 30, 1997 but the pattern of past extensions has made it prudent to fund for the window as though it were a permanent feature of the system. If the current 30 year retirement benefit is not extended, the long-term cost of the system will be reduced.

## **History of the Employer Contribution Rate**

The chart on page 4 shows the history of the employer contribution rate from 1980 through 1996. With some fluctuations, the general trend has been downward with the rate declining from 18.02 percent in 1980 to 7.28 percent in 1996.

The rate increased in 1980 due to the adoption of the 1976-1980 actuarial experience results but has been substantially lowered as a result of each of the three experience studies since 1980. The results of the 1981 to 1985 experience study, adopted in the December 31, 1985 valuation, decreased the employer contribution rate from 18.03 to 13.09 percent of payroll. Adoption of the results of the 1986 to 1990 study, in the December 1990 valuation, resulted in a drop in the employer contribution from 12.32 to 9.87 percent of salary. The adoption of the results of the 1991 through 1995 study resulted in a reduction in the rate from 10.27 percent of salary in 1995 to 7.69 percent of salary in 1996. The rate declined again in 1996, primarily due to the recognition of excess investment earnings during the past 5 years.

The table on page 3 shows the rate of inflation, the nominal and real investment return, and the nominal and real salary growth for the past sixteen years. The nominal rates are the actual investment rate and salary growth. The real rates are the nominal rates adjusted by removing inflation. The 1995 numbers have been adjusted to reflect the actual inflation rate as of December 31, 1995. The 1995 actuarial report estimated the inflation rate as 3.0 percent for 1995.

## STATE EMPLOYEES' RETIREMENT SYSTEM

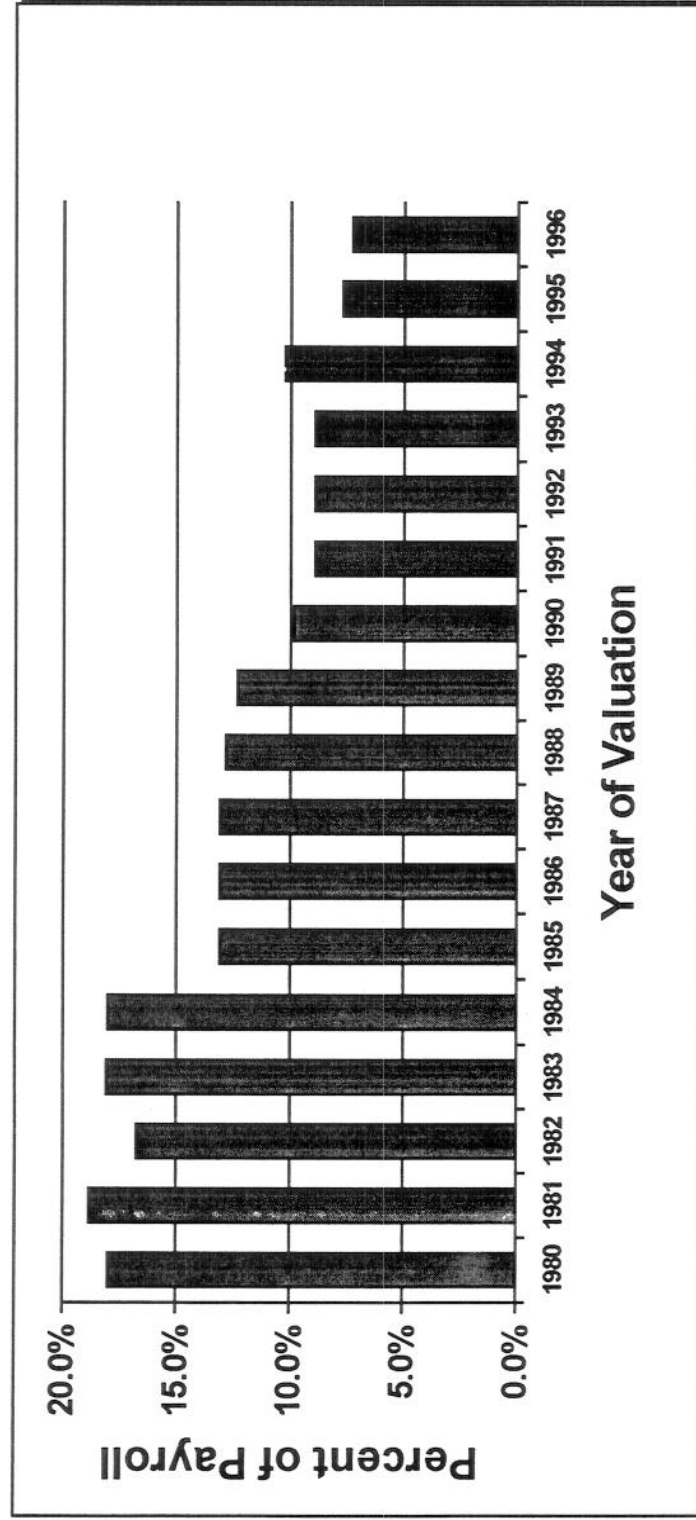
### Comparison of Annual Rates of Growth

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)
<b>Average 1981-1996</b>	<b>3.9%</b>	<b>13.0%</b>	<b>8.8%</b>	<b>4.1%</b>	<b>0.2%</b>

\* Changed from 1995 report to show actual inflation. The 1995 report estimated the inflation rate as 3.0 for 1995.

# Pennsylvania State Employees' Retirement System

## History of Employer Cost



The total employer cost is the actual contribution rate during the succeeding fiscal year. For instance, the 1996 rate of 7.28 percent will be the employer contribution for fiscal year 1997/98. In some years the contribution rate was adjusted for events occurring after the valuation date.

## 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 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 increased from 8.49 percent in 1995 to 8.89 percent in 1996.

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 \$456 million in 1996. The primary reason for the reduction was the high rate of return on the fund in 1996. There was also a decrease in the unfunded liability due to the increase in the normal cost. The decrease in the unfunded liability was partially offset by higher than expected salaries. The credit for the 1996 gain will be recognized as an offset against contributions otherwise needed over the 20 years beginning July 1, 1997.

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 0.80 percent of payroll in 1995 to 1.61 percent of payroll in the 1996 valuation.

The employer contribution rate is comprised of the normal cost and the amortization of the unfunded liabilities. The employer contribution rate calculated as a result of the December 31, 1996 actuarial valuation is 7.28 percent of payroll compared to a rate of 7.69 percent of payroll based on the 1995 valuation.



## STATE EMPLOYES' RETIREMENT SYSTEM

### 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 6.19 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 effect of the adjustments is to produce an aggregate employer contribution rate that is equal to the required rate of 7.28 percent of total payroll. The complete schedule of contributions by group is shown below:

Class A with age 60 benefit	6.19%
Class A with age 50 benefit	8.12
Class A Park Rangers	9.07
Class A Capitol Police	9.07
Class A State Police	22.27
Class C State Police	22.27
Class C Enforcement Officers	8.12
Class D	30.45
Class E	11.52
Total Overall Cost	<b>7.28%</b>

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.

During 1993, approximately \$12.5 million of surplus funds were transferred out of the Enforcement Officers' account. Since that time, the Board has adopted a policy of transferring money into the account as needed, to keep the account in balance. A transfer of \$173,855 is needed as of December 31, 1996, to keep the account in balance with the projected liabilities. Schedule G shows the required transfers as of December 31, 1996.

### Change in Employer Contribution Rate

Schedule E contains an analysis of the change in the employer contribution rate and unfunded liability from the 1995 to 1996 valuation. The excess investment earnings of \$397 million brought into the assets in 1996 reduced the employer cost by 0.69 percent of salary. The reduction in cost for excess investment return was offset by a 0.34 percent increase in the contribution as a result of salaries increasing one percent more than expected. The employer cost increased 0.07 percent due to changes in demographics of new entrants.

## STATE EMPLOYEES' RETIREMENT SYSTEM

Since July 1, 1996, most of the employer contributions have been paid on a bi-weekly basis. For periods before July 1, 1996, most employer contributions were paid on a quarterly basis. The main effect of that change was to increase the invested funds and investment income. Since the contributions have been accelerated, there is no need to adjust the assets for transactions prior to July 1 of the fiscal year. The effect of these changes is to reduce the contribution rate by 0.04 percent of payroll. Other differences between actual experience and actuarial assumptions decreased the contribution by 0.09 percent of payroll.

The net result of all changes was to reduce the employer contribution rate from 7.69 percent to 7.28 percent of payroll.

### Actuarial Balance Sheet and Account Balance Transfers

Schedule F contains the actuarial balance sheet that compares the total assets and liabilities of \$22.6 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 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 \$81.5 million from the State Accumulation Account to the Annuity Reserve Account is shown on Schedule G. A transfer was also necessary to keep the Enforcement Officers Benefit Account in balance.

### Accounting Disclosure Statements

Schedule H is a new 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, 1991 through December 31, 1996. The actuarial value of the assets has been greater than the actuarial accrued liability since December 31, 1992. This causes the unfunded actuarial accrued liability (UAAL) to be negative. The December 31, 1994 valuation showed an increase of about \$600 million in the UAAL from the December 31, 1993 valuation. That change in the UAAL was primarily due to the increase in benefits provided by legislation. Since the December 31, 1993 valuation, the UAAL has continued to decline.

Page 2 of the schedule 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

## STATE EMPLOYES' RETIREMENT SYSTEM

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 in 1991, 1992, 1995, and 1996. 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 annual required contribution (ARC) based on the information the Board used in setting the contribution rate is not available. 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.

### Plan Assets

Schedule I summarizes the development of the actuarial value of assets as of December 31, 1996. 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 1996). This smoothing method recognizes 20 percent of the 1996 asset gain of \$1.2 billion this year, with the remainder to be recognized over the next four years.

Since July 1, 1996, most of the employer contributions have been paid on a bi-weekly basis. For periods before July 1, 1996, most employer contributions were paid on a quarterly basis. Since the contributions have been accelerated, there is no need to adjust the assets for delayed receipt of employer contributions prior to July 1 of the fiscal year. Therefore the adjustment that had been made in Section V of Schedule I is no longer needed.

### Projection

Schedule J shows the number of members, contributions, and benefits from 1990 through 1996 with a projection through 2007. The projections were reviewed in light of the decrease in workforce and relatively high increase in retirees in 1996. The resulting revised projection shows significantly more future retirees and benefits than in the 1995 report primarily due to the increase in the number of new retirements in the 1996 valuation.

### Participant Data

Section I of Schedule K provides a distribution of the active and inactive participants as of December 31, 1996 by benefit class, sex, age, and length of service. It also shows the average annualized salary in

## STATE EMPLOYEES' RETIREMENT SYSTEM

1996 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.

For purposes of the demographic tables for the active employees, the definition of past service was changed since the December 31, 1995 valuation. The December 31, 1995 valuation used an estimate of past service based upon hire date for the demographic tables. For this valuation, actual past service was used. The change of definition of past service had no effect on the liabilities of the active employees. However, the demographic tables between the two reports are not comparable.

### Plan Provisions

Schedule L contains a summary of the principal provisions of the plan. There was no change in the plan provisions during 1996.

### Actuarial Assumptions

Schedule M summarizes the actuarial assumptions used for the valuation. The actuarial assumptions are the same as those used in the December 31, 1995 actuarial valuation.

### Actuarial Methods

Schedule N 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 O defines certain technical terms used in the valuation.

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**UNFUNDED LIABILITY AND NORMAL COST AS OF DECEMBER 31, 1996**

I. Present Value of Benefits:

1) Active and Inactive Participants	
a) Superannuation and Withdrawal .....	\$ 14,929,766,349
b) Disability .....	755,906,531
c) Death .....	823,506,050
d) Refunds .....	40,623,145
e) Special Police and Enforcement Officer Benefits .....	27,504,299
2) Annuitants and Beneficiaries .....	<u>6,027,333,168</u>
3) Total .....	\$ 22,604,639,542

II. Present Value of Member and Employer Contributions:

1) Employer portion of Normal Cost .....	\$ 4,236,746,649
2) Member Contributions .....	2,431,276,223
3) Special Police and Enforcement Officer Contributions .....	<u>0</u>
4) Total .....	\$ 6,668,022,872

III. Actuarial Accrued Liability: (I) - (II)..... \$ 15,936,616,670

IV. Actuarial Value of Assets ..... \$16,841,069,047

V. Unfunded Liability (III) - (IV)..... \$ (904,452,377)

VI. Employer Normal Cost Rate

1) Normal Cost Rate for new active members to fund:	
a) Superannuation and Withdrawal .....	12.06%
b) Disability .....	0.85
c) Death .....	0.65
d) Refunds .....	<u>0.33</u>
e) Total .....	13.89%
2) Member Deductions .....	5.00%
3) Employer Normal Cost (1)-(2).....	8.89%

**SCHEDULE A**

STATE EMPLOYEES RETIREMENT SYSTEM

TOTAL EMPLOYER CONTRIBUTION RATE IN FISCAL YEAR 1997-98

I. Amortization of:	Funding Period 20 Years from July 1	Initial Amount of Liability	Outstanding Balance as of 12/31/96	Annual Payment to Fund Amount	Annual Payment to Fund Percent*
1) Liability for Supplemental Annuities	1991	\$405,641,841	\$ 458,192,833	\$ 43,563,884	1.05%
2) Liability for Other Benefits	1991	461,468,532	521,251,894	49,559,389	1.19%
3) Liability (Asset) for Changes in 1991	1992	(735,926,889)	(830,421,547)	(74,812,017)	(1.80)%
4) Liability (Asset) for Changes in 1992	1993	(428,770,084)	(480,647,459)	(41,208,871)	(0.99)%
5) Liability (Asset) for Changes in 1993	1994	(556,924,446)	(617,062,685)	(50,541,283)	(1.21)%
6) Liability for Changes in 1994	1995	392,912,465	429,942,389	33,755,630	0.81%
7) Liability for Supplemental Annuities (1994 COLA)	1995	224,936,857	246,135,968	19,324,623	0.46%
8) Liability (Asset) for Changes in 1995	1996	(173,981,943)	(176,109,810)	(13,293,628)	(0.32)%
9) Liability (Asset) for Changes in 1996	1997	(455,733,960)	(455,733,960)	(33,163,583)	(0.80)%
10) Total Liability Payment Sum of (I) through (9)			\$ (904,452,377)	\$ (66,815,856)	(1.61)%
II. Employer Normal Cost					8.89%
III. Total Employer Cost (I) + (II)					7.28%

\*The payment is expressed as a percentage of the projected total payroll for active members in fiscal year 1997-98 of \$4,163,683,000

STATE EMPLOYEES' RETIREMENT SYSTEM

EMPLOYER CONTRIBUTION RATE BY GROUP

	<u>Class A (Age 60 Super- annuation)</u>	<u>Class A (Age 50 Super- annuation)</u>	<u>Class A Park Rangers &amp; Capitol Police</u>	<u>Class A State Police</u>	<u>Class C State Police</u>	<u>Class C Enforcement Officers</u>	<u>Class D</u>	<u>Class E</u>
1) Basic Contribution Rate	6.19%	6.19%	6.19%	6.19%	6.19%	6.19%	6.19%	6.19%
2) Age 50 Superannuation	-	1.93%	1.60%	1.93%	1.93%	1.93%	1.93%	-
3) Multiplier Adjustment	1.00	1.00	1.00	1.558	1.558	1.00	3.75	1.6582
4) Past Liability	-	-	1.28%	9.62%	9.62%	-	-	1.26%
5) Class C Additional Annuities	-	-	-	0.00	0.00	0.00	-	-
6) Adjusted Contribution Rates: [(1) + (2)] x 3 + 4 + 5	6.19%	8.12%	9.07%	22.27%	22.27%	8.12%	30.45%	11.52%
7) Projected 1997/98 Payroll (Dollars in thousands)	\$ 3,397,211	\$ 482,472	\$ 7,302	\$ 164,793	\$ 32,662	\$ 2,529	\$ 828	\$ 75,886
8) Employer Contribution Amount (Dollars in thousands)	\$ 210,287	\$ 39,177	\$ 662	\$ 36,699	\$ 7,274	\$ 205	\$ 252	\$ 8,742

**Notes:** The total employer contribution (\$303,298,000) is the average employer contribution rate from Schedule B (7.28 percent) times the total projected payroll (\$4,163,683,000). The Basic Contribution Rate (6.19 percent) was determined as the percentage needed to produce employer contribution amounts by class that sum to \$303,298,000. The resulting total contribution amount may differ slightly because of rounding.

SCHEDULE C

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**STATE POLICE AND ENFORCEMENT OFFICERS ADDITIONAL ANNUITY RATE**  
**(Fiscal Year 1997-98)**

	<u>State Police</u>	<u>Enforcement Officers</u>
1) Balance in Benefit Account as of December 31, 1996.....	\$1,002,534,605	\$19,806,715
2) Present Value of Benefits for Annuitants and Beneficiaries .....	843,690,513	17,622,112
3) Assets available for additional annuities for Active Members: (1) - (2) .....	158,844,092	2,184,603
4) Present Value of additional annuities for Active Members .....	25,319,696	2,184,603
5) Present Value of Future Contribution to fund additional annuities: (4) - (3).....	0	0
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.

**SCHEDULE D**



**STATE EMPLOYES' RETIREMENT SYSTEM**

**ANALYSIS OF CHANGE IN EMPLOYER CONTRIBUTION RATE**

	Normal Cost	Unfunded Liabilities	Total
I. December 31, 1995 Valuation .....	8.49%	(0.80)%	7.69%
II. Changes - 12/31/96 Valuation:			
1) Gain from investment earnings .....		(0.69)	(0.69)
2) Change for accelerated contributions .....		(0.04)	(0.04)
3) Change in demographics of new entrants .....	0.40	(0.33)	0.07
4) Higher than expected salaries .....		0.34	0.34
5) Other differences between actual experience and actuarial assumptions .....		(0.09)	(0.09)
6) Total change .....	0.40%	(0.81)%	(0.41)%
III. December 31, 1996 Valuation:			
(I) + (II) .....	8.89%	(1.61)%	7.28%

**ANALYSIS OF CHANGE IN UNFUNDED LIABILITY**

I. December 31, 1995 Unfunded Liability .....	\$ (443,104,333)
II. Expected Amortization Payment .....	(32,049,784)
III. Expected Liability as of December 31, 1996 [((I) x 1.085) - (II)] .....	(448,718,417)
IV. Change in Liability Due to:	
1) Gain from investment earnings .....	(396,986,211)
2) Change for accelerated contributions .....	(23,675,612)
3) Change in demographics in new entrants .....	(190,629,770)
4) Higher than expected salaries .....	196,567,933
5) Other differences between actual experience and actuarial assumptions .....	(41,010,300)
6) Total change .....	\$ (455,733,960)
V. December 31, 1996 Unfunded Liability: (III) + (IV) .....	\$ (904,452,377)

**SCHEDULE E**

**STATE EMPLOYEES' RETIREMENT SYSTEM  
ACTUARIAL BALANCE SHEET AS OF DECEMBER 31, 1996**

**ASSETS**

**LIABILITIES**

Present Assets:

Members Savings Account .....	2,646,630,224
Annuity Reserve Account .....	5,166,020,543
State Police Benefit Account .....	1,002,534,605
Enforcement Officers Benefit Account .....	19,806,715
State Accumulation Account .....	10,361,653,426
Supplemental Annuity Account .....	<u>(704,328,801)</u>
Total Present Assets (Market Value).....	\$18,492,316,712
Adjustment to Smooth Market Fluctuations .....	(1,651,247,665)
Total Present Assets (Actuarial Value) .....	\$16,841,069,047

Present Value of Future Contributions

Members' Contributions (Employee) .....	\$ 2,431,276,223
Normal Cost Contributions (Employer) .....	4,236,746,649
Accrued Liability Amortization (Employer) .....	(1,608,781,178)
Supplemental Annuity Amortization (Employer) .....	704,328,801
Special State Police Contributions (Employer) .....	0
Special Enforcement Officer Contributions (Employer) .....	<u>0</u>
Total Future Contributions .....	\$ 5,763,570,495
<b>TOTAL ASSETS</b> .....	<b>\$22,604,639,542</b>

Present Value of Benefits Payable to Annuitants  
and Beneficiaries from:

Annuity Reserve Account .....	\$ 5,166,020,543
State Police Benefit Account .....	843,690,513
Enforcement Officers Benefit Account .....	<u>17,622,112</u>
Total for Annuitants and Beneficiaries.....	\$ 6,027,333,168

Present Value of Benefits to Active  
and Inactive Members from:

Members Savings Account and State Accumulation Account

Superannuation and withdrawal.....	\$ 14,929,766,349
Disability .....	755,906,531
Death .....	823,506,050
Refunds .....	<u>40,623,145</u>
Subtotal .....	\$16,549,802,075

State Police Benefit Account .....	25,319,696
Enforcement Officers Benefit Account .....	<u>2,184,603</u>

Total Present Value of Benefits to  
Active and Inactive Members .....

.....	<u>\$16,577,306,374</u>
<b>TOTAL LIABILITIES</b> .....	<b>\$22,604,639,542</b>

**STATE EMPLOYES' RETIREMENT SYSTEM**

**REQUIRED TRANSFERS WITHIN SERS ACCOUNTS**

I. Annuity Reserve Account

Balance as reported by SERS .....	\$ 5,084,480,823
Transfer from State Accumulation Account.....	<u>81,539,720</u>
December 31, 1996 balance after transfers.....	\$ 5,166,020,543

II. State Accumulation Account

Balance as reported by SERS .....	\$10,443,367,001
Transfer to Annuity Reserve Account.....	(81,539,720)
Transfer to Enforcement Officer Account.....	<u>(173,855)</u>
December 31, 1996 balance after transfers.....	\$10,361,653,426

III. Enforcement Officers' Benefit Account

Balance as reported by SERS .....	\$ 19,632,860
Transfer from State Accumulation Account.....	<u>173,855</u>
December 31, 1996 balance after transfers.....	\$ 19,806,715

**SCHEDULE G**

STATE EMPLOYEES' RETIREMENT SYSTEM

ACCOUNTING DISCLOSURE STATEMENTS

I. SCHEDULE OF FUNDING PROGRESS AS OF DECEMBER 31, 1996

(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)
12/31/91	\$10,790,246	\$10,937,783	\$147,537	98.7%	\$3,427,866	4.3%
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	15,936,617	(904,452)	105.7%	4,163,683	-21.7%

\* 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, 1996**

(Dollars in Thousands)

Calendar Year	Annual Required Contribution	Actual Contribution	Percentage Contributed
1991	\$381,347	\$381,347	100.0%
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%

**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.

Valuation Date	December 31, 1996
Actuarial cost method	Variation of Entry-age Actuarial Cost Method
Amortization method	Increasing (5 percent annually)
Remaining amortization period	14 to 19 years
Asset valuation method	5 - year smooth market
Actuarial Assumptions:	
Investment rate of return *	8.5%
Projected salary increases *	6.8% - average increase (range: 5.16% to 8.98%)
* Includes inflation at	3.0%
Cost-of-living adjustments	None

**SCHEDULE H**  
**(Page 2 of 3)**

## STATE EMPLOYES' RETIREMENT SYSTEM

### ACCOUNTING DISCLOSURE STATEMENTS (continued)

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 in 1991, 1992, 1995, and 1996. 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.

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.

**SCHEDULE H**  
**(Page 3 of 3)**

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**ACTUARIAL VALUE OF ASSETS**

I.	Development of 12/31/96 Expected Actuarial Value:	
	1) Actuarial Value as of 12/31/95.....	\$15,503,474,312
	2) Contributions in 1996.....	583,573,679
	3) Benefits and Expenses in 1996 .....	(945,383,552)
	4) Investment return at 8.5% to 12/31/96 on (1).....	1,317,795,317
	5) Investment return at 8.5% to 12/31/96 on .5 x ((2) + (3)) .....	<u>(15,376,920)</u>
	6) Expected Actuarial Value as of 12/31/96: (1) + (2) + (3) + (4) + (5).....	\$16,444,082,836
II.	Previous Differences Not Yet Amortized:	
	1) Unrecognized amount of 12/31/92 Difference: .2 x \$(177,551,390) .....	\$ (35,510,278)
	2) Unrecognized amount of 12/31/93 Difference: .4 x \$381,972,531 .....	152,789,012
	3) Unrecognized amount of 12/31/94 Difference: .6 x \$(1,375,742,682) .....	(825,445,609)
	4) Unrecognized amount of 12/31/95 Difference: .8 x \$1,999,259,233 .....	<u>1,599,407,386</u>
	5) Total .....	\$ 891,240,511
III.	Gain or Loss from 1996	
	1) Market Value of Assets on 12/31/96.....	\$18,492,316,712
	2) Expected Market Value II(5) + I(6) .....	<u>17,335,323,347</u>
	3) Gain (loss) from 1996 Investments (1) - (2) .....	\$ 1,156,993,365
IV.	Development of Actuarial Value of Assets as of 12/31/96:	
	1) 20% of \$(177,551,390) (12/31/92 Difference):.....	\$ (35,510,279)
	2) 20% of \$381,972,531 (12/31/93 Difference):.....	76,394,506
	3) 20% of \$(1,375,742,682) (12/31/94 Difference):.....	(275,148,536)
	4) 20% of \$1,999,259,233 (12/31/95 Difference):.....	399,851,847
	5) 20% of \$1,156,993,365 (12/31/96 Difference):.....	231,398,673
	6) Total Difference: (1) + (2) + (3) + (4) + (5) .....	<u>\$ 396,986,211</u>
	7) Actuarial Value at 12/31/96: I(6) + IV(6) .....	\$16,841,069,047

**SCHEDULE I**

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**PROJECTION OF POPULATION, BENEFITS, AND CONTRIBUTIONS**

**Projection of Annuitants and Employees  
Actual Data Through 1996**

<u>Year Ending December 31</u>	<u>Annuitants</u>			<u>Active Employees</u>
	<u>Former Employees</u>	<u>Survivors</u>	<u>Total</u>	
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	110,872
1997	76,959	7,801	84,760	109,614
1998	77,302	8,086	85,388	109,614
1999	77,589	8,333	85,922	109,614
2000	77,943	8,542	86,485	109,614
2001	78,254	8,715	86,969	109,614
2002	78,624	8,853	87,477	109,614
2003	79,108	8,960	88,068	109,614
2004	79,602	9,036	88,638	109,614
2005	80,149	9,084	89,233	109,614
2006	80,637	9,109	89,746	109,614
2007	81,217	9,113	90,330	109,614



# STATE EMPLOYES' RETIREMENT SYSTEM

## PROJECTION OF POPULATION, BENEFITS, AND CONTRIBUTIONS

### Projection of Expected Contributions and Benefits

#### Actual Data Through 1996

(Millions of Dollars)

<u>Calendar Year</u>	<u>Contribution</u>		<u>Benefits/Expenses</u>
	<u>Employee</u>	<u>Employer</u>	
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	945
1997	215	321	1,038
1998	220	301	1,098
1999	227	276	1,189
2000	235	253	1,259
2001	243	234	1,329
2002	251	229	1,405
2003	259	237	1,488
2004	267	244	1,612
2005	276	264	1,748
2006	285	284	1,890
2007	295	293	2,051

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 1999 and 2004.

**SCHEDULE J**  
**(Page 2 of 2)**

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1996**

**ACTIVE EMPLOYEES\***

Males - Full Years of Service to December 31, 1996

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	Average Salary
less than 20	6	0	0	0	0	0	0	6	\$20,071
20-24	422	10	0	0	0	0	0	432	22,012
25-29	1,739	508	14	0	0	0	0	2,261	26,437
30-34	1,637	1,485	590	45	0	0	0	3,757	30,332
35-39	1,466	1,549	1,511	1,114	52	0	0	5,692	33,028
40-44	1,489	1,538	1,489	1,950	1,342	155	0	7,963	35,509
45-49	1,349	1,275	1,266	1,711	2,837	1,810	52	10,300	39,010
50-54	1,005	864	857	994	1,669	2,552	761	8,702	42,228
55-59	651	612	597	620	823	1,278	1,068	5,649	43,922
60-64	407	369	400	323	332	475	563	2,869	44,339
65+	<u>178</u>	<u>193</u>	<u>159</u>	<u>129</u>	<u>118</u>	<u>136</u>	<u>221</u>	<u>1,134</u>	<u>46,893</u>
Total:	10,349	8,403	6,883	6,886	7,173	6,406	2,665	48,765	\$37,976

Average age .....46.15

Average service .....14.25

Females - Full Years of Service to December 31, 1996

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	Average Salary
less than 20	33	0	0	0	0	0	0	33	\$20,024
20-24	660	46	0	0	0	0	0	706	21,304
25-29	1,709	907	81	0	0	0	0	2,697	24,323
30-34	1,359	1,408	893	146	0	0	0	3,806	27,508
35-39	1,443	1,500	1,279	1,468	136	0	0	5,826	29,800
40-44	1,411	1,564	1,243	1,764	2,098	334	0	8,414	32,008
45-49	1,177	1,416	1,202	1,379	1,944	1,771	122	9,011	33,180
50-54	764	1,038	1,006	1,102	1,180	1,113	487	6,690	33,610
55-59	438	613	654	821	847	658	411	4,442	33,856
60-64	186	335	351	386	382	316	178	2,134	33,764
65+	<u>76</u>	<u>103</u>	<u>113</u>	<u>115</u>	<u>107</u>	<u>97</u>	<u>93</u>	<u>704</u>	<u>33,287</u>
Total:	9,256	8,930	6,822	7,181	6,694	4,289	1,291	44,463	\$31,456

Average age .....44.64

Average service .....13.24

- The following three pages contain information on members in special categories. These include selected hazardous duty members, legislators, judges and district judges. The above information is for all other active members. Page five of Schedule K is the total of all active categories. Page six is the total of all active and inactive employees.
- For purposes of the demographic tables for active employees, the definition of past service has been changed. Therefore, the demographic tables in the December 31, 1995 report are not comparable.

**STATE EMPLOYES' RETIREMENT SYSTEM**

**I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1996**

**SELECTED HAZARDOUS DUTY\***

Males - Full Years of Service to December 31, 1996

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	\$ 0
20-24	202	0	0	0	0	0	0	202	23,751
25-29	1,915	472	1	0	0	0	0	2,388	32,049
30-34	1,227	1,347	207	2	0	0	0	2,783	36,760
35-39	542	706	681	184	2	0	0	2,115	40,279
40-44	442	457	445	449	105	2	0	1,900	40,932
45-49	471	438	379	315	510	200	4	2,317	42,663
50-54	268	293	259	133	245	384	61	1,643	44,116
55-59	121	149	143	68	69	92	60	702	41,719
60-64	41	75	77	28	28	21	21	291	41,270
65+	<u>6</u>	<u>14</u>	<u>17</u>	<u>4</u>	<u>6</u>	<u>2</u>	<u>6</u>	<u>55</u>	<u>41,143</u>
Total:	5,235	3,951	2,209	1,183	965	701	152	14,396	\$39,003

Average age .....39.76

Average service .....8.88

Females - Full Years of Service to December 31, 1996

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	\$ 0
20-24	43	0	0	0	0	0	0	43	24,597
25-29	208	24	0	0	0	0	0	232	29,895
30-34	157	100	15	0	0	0	0	272	33,471
35-39	146	95	101	23	3	0	0	368	36,695
40-44	152	108	84	71	22	2	0	439	37,057
45-49	93	91	55	46	41	18	0	344	39,380
50-54	53	51	34	32	16	18	2	206	39,238
55-59	29	25	30	28	12	13	4	141	41,626
60-64	7	15	14	7	5	4	1	53	42,715
65+	<u>0</u>	<u>1</u>	<u>5</u>	<u>2</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>9</u>	<u>40,442</u>
Total:	888	510	338	209	99	56	7	2,107	\$36,543

Average age .....41.16

Average service .....7.83

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

\* For purposes of the demographic tables for active employes, the definition of past service has been changed. Therefore, the demographic tables in the December 31, 1995 report are not comparable.

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1996**

**LEGISLATORS**

Males - Full Years of Service to December 31, 1996

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	\$ 0
20-24	0	0	0	0	0	0	0	0	0
25-29	1	0	0	0	0	0	0	1	54,015
30-34	9	1	0	0	0	0	0	10	55,111
35-39	9	7	2	3	0	0	0	21	55,696
40-44	15	5	7	4	1	0	0	32	56,561
45-49	8	7	7	14	8	0	0	44	57,538
50-54	1	8	12	12	2	3	3	41	58,303
55-59	6	2	4	3	1	2	3	21	56,371
60-64	4	0	3	2	3	2	3	17	61,175
65+	1	3	2	4	9	0	9	28	58,908
<b>Total:</b>	<b>54</b>	<b>33</b>	<b>37</b>	<b>42</b>	<b>24</b>	<b>7</b>	<b>18</b>	<b>215</b>	<b>\$57,581</b>

Average age .....50.47

Average service .....13.36

Females - Full Years of Service to December 31, 1996

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	\$ 0
20-24	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	2	1	0	0	0	0	0	3	55,885
40-44	1	0	2	0	0	0	0	3	55,842
45-49	1	2	1	0	0	0	0	4	55,863
50-54	5	1	1	0	0	0	0	7	55,599
55-59	3	1	1	0	0	0	0	5	55,494
60-64	0	2	0	0	0	0	0	2	55,863
65+	0	2	0	0	0	0	1	3	58,543
<b>Total:</b>	<b>12</b>	<b>9</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>27</b>	<b>\$56,024</b>

Average age .....51.93

Average service .....7.56

\* For purposes of the demographic tables for active employees, the definition of past service has been changed. Therefore, the demographic tables in the December 31, 1995 report are not comparable.

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1996**

**JUDGES AND DISTRICT JUSTICES**

Males - Full Years of Service to December 31, 1996

Age Group	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	<u>Total</u>	Average Salary
less than 20	0	0	0	0	0	0	0	0	\$ 0
20-24	0	0	0	0	0	0	0	0	0
25-29	1	0	0	0	0	0	0	1	52,839
30-34	6	2	0	0	0	0	0	8	52,674
35-39	15	10	2	0	0	0	0	27	57,464
40-44	31	31	14	10	3	0	0	89	66,495
45-49	36	49	22	25	11	2	0	145	72,985
50-54	31	54	29	24	14	6	1	159	80,812
55-59	20	30	19	25	15	16	7	132	79,025
60-64	7	18	9	27	12	12	4	89	85,690
65+	<u>4</u>	<u>16</u>	<u>10</u>	<u>24</u>	<u>21</u>	<u>17</u>	<u>8</u>	<u>100</u>	<u>87,917</u>
Total:	151	210	105	135	76	53	20	750	\$77,634

Average age .....53.29

Average service .....12.08

Females - Full Years of Service to December 31, 1996

Age Group	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	<u>Total</u>	Average Salary
less than 20	0	0	0	0	0	0	0	0	\$ 0
20-24	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	7	1	0	0	0	0	0	8	52,839
35-39	12	4	2	1	0	0	0	19	54,543
40-44	18	15	3	2	0	0	0	38	79,088
45-49	11	19	10	4	1	0	0	45	81,348
50-54	6	14	9	4	0	1	0	34	77,244
55-59	3	8	4	5	3	2	0	25	62,411
60-64	3	4	3	5	3	1	0	19	61,126
65+	<u>1</u>	<u>1</u>	<u>5</u>	<u>3</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>11</u>	<u>68,649</u>
Total:	61	66	36	24	7	5	0	199	\$71,498

Average age .....49.28

Average service .....8.58

\* For purposes of the demographic tables for active employees, the definition of past service has been changed. Therefore, the demographic tables in the December 31, 1995 report are not comparable.

**STATE EMPLOYES' RETIREMENT SYSTEM**

**I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1996**

**ALL ACTIVE EMPLOYES**

Males - Full Years of Service to December 31, 1996

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	Average Salary
less than 20	6	0	0	0	0	0	0	6	\$20,071
20-24	624	10	0	0	0	0	0	634	22,566
25-29	3,656	980	15	0	0	0	0	4,651	29,330
30-34	2,879	2,835	797	47	0	0	0	6,558	33,125
35-39	2,032	2,272	2,196	1,301	54	0	0	7,855	35,125
40-44	1,977	2,031	1,955	2,413	1,451	157	0	9,984	36,885
45-49	1,864	1,769	1,674	2,065	3,366	2,012	56	12,806	40,119
50-54	1,305	1,219	1,157	1,163	1,930	2,945	826	10,545	43,166
55-59	798	793	763	716	908	1,388	1,138	6,504	44,437
60-64	459	462	489	380	375	510	591	3,266	45,280
65+	189	226	188	161	154	155	244	1,317	50,023
Total:	15,789	12,597	9,234	8,246	8,238	7,167	2,855	64,126	\$38,736

Average age ..... 44.81

Average service ..... 13.01

Females - Full Years of Service to December 31, 1996

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	Average Salary
less than 20	33	0	0	0	0	0	0	33	\$20,024
20-24	703	46	0	0	0	0	0	749	21,493
25-29	1,917	931	81	0	0	0	0	2,929	24,765
30-34	1,523	1,509	908	146	0	0	0	4,086	27,955
35-39	1,603	1,600	1,382	1,492	139	0	0	6,216	30,296
40-44	1,582	1,687	1,332	1,837	2,120	336	0	8,894	32,466
45-49	1,282	1,528	1,268	1,429	1,986	1,789	122	9,404	33,647
50-54	828	1,104	1,050	1,138	1,196	1,132	489	6,937	34,013
55-59	473	647	689	854	862	673	415	4,613	34,272
60-64	196	356	368	398	390	321	179	2,208	34,234
65+	77	107	123	120	107	99	94	727	34,015
Total:	10,217	9,515	7,201	7,414	6,800	4,350	1,299	46,796	\$31,870

Average age ..... 44.51

Average service ..... 12.98

\* For purposes of the demographic tables for active employees, the definition of past service has been changed. Therefore, the demographic tables in the December 31, 1995 report are not comparable.

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1996**

**ACTIVE AND INACTIVE EMPLOYEES**

Males - Full Years of Service to December 31, 1996

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
less than 20	6	0	0	0	0	0		6
20-24	625	10	0	0	0	0	0	635
25-29	3,665	980	15	0	0	0	0	4,660
30-34	2,893	2,840	816	47	0	0	0	6,596
35-39	2,054	2,280	2,240	1,311	54	0	0	7,939
40-44	2,155	2,046	2,032	2,446	1,465	159	0	10,303
45-49	1,931	1,785	1,754	2,132	3,399	2,034	61	13,096
50-54	1,426	1,240	1,210	1,207	1,962	2,988	858	10,891
55-59	910	807	828	754	925	1,422	1,216	6,862
60-64	551	488	535	430	421	554	657	3,636
65+	<u>275</u>	<u>242</u>	<u>228</u>	<u>183</u>	<u>164</u>	<u>170</u>	<u>278</u>	<u>1,540</u>
Total:	16,491	12,718	9,658	8,510	8,390	7,327	3,070	66,164

Average age .....45.07

Average service .....13.00

Females - Full Years of Service to December 31, 1996

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
less than 20	33	0	0	0	0	0	0	33
20-24	704	46	0	0	0	0	0	750
25-29	1,929	931	82	0	0	0	0	2,942
30-34	1,534	1,515	944	146	0	0	0	4,139
35-39	1,637	1,609	1,450	1,511	140	0	0	6,347
40-44	1,751	1,730	1,462	1,912	2,135	340	0	9,330
45-49	1,440	1,580	1,369	1,500	2,018	1,803	129	9,839
50-54	993	1,148	1,116	1,187	1,217	1,147	515	7,323
55-59	615	684	765	892	882	706	447	4,991
60-64	292	386	398	443	440	367	201	2,527
65+	<u>171</u>	<u>138</u>	<u>134</u>	<u>140</u>	<u>121</u>	<u>113</u>	<u>99</u>	<u>916</u>
Total:	11,099	9,767	7,720	7,731	6,953	4,476	1,391	49,137

Average age .....44.83

Average service .....12.84

\* For purposes of the demographic tables for active employes, the definition of past service has been changed. Therefore, the demographic tables in the December 31, 1995 report are not comparable.

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES DECEMBER 31, 1996**

**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	284	\$ 8,704,142	18	\$ 213,336	302	\$ 8,917,478
55-59	813	23,551,119	112	2,132,557	925	25,683,676
60-64	2,404	48,919,853	1,504	17,889,781	3,908	66,809,634
65-69	5,262	74,377,768	3,754	34,895,501	9,016	109,273,269
70-74	6,261	75,409,947	4,774	37,510,919	11,035	112,920,866
75-79	5,016	44,826,115	4,571	28,611,245	9,587	73,437,360
80-84	3,616	27,302,822	3,419	19,529,876	7,035	46,832,698
85-89	1,726	12,384,739	1,879	10,375,079	3,605	22,759,818
90 & over	642	4,481,698	780	4,257,164	1,422	8,738,862
<b>Total</b>	<b>26,024</b>	<b>\$319,958,203</b>	<b>20,811</b>	<b>\$155,415,458</b>	<b>46,835</b>	<b>\$475,373,661</b>

Average Age ..... 74.1  
Average Pension ..... \$10,150



**STATE EMPLOYEES' RETIREMENT SYSTEM**

**II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES DECEMBER 31, 1996**

**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	21	\$ 17,657	59	\$ 62,066	80	\$ 79,723
35-39	161	201,955	388	514,547	549	716,502
40-44	561	1,032,026	1,299	2,072,919	1,860	3,104,945
45-49	1,544	9,462,287	1,717	3,986,439	3,261	13,448,726
50-54	2,740	38,369,673	1,394	6,860,753	4,134	45,230,426
55-59	2,160	27,419,912	1,449	11,723,330	3,609	39,143,242
60-64	2,199	29,952,855	1,699	14,499,404	3,898	44,452,259
65-69	1,762	19,613,169	1,384	9,957,677	3,146	29,570,846
70-74	845	7,397,370	994	5,846,430	1,839	13,243,800
75-79	396	3,045,891	483	2,656,544	879	5,702,435
80-84	176	1,234,985	189	1,213,956	365	2,448,942
85-89	69	411,412	75	473,865	144	885,277
90 & over	34	148,441	35	152,470	69	300,911
<b>Total</b>	<b>12,668</b>	<b>\$138,307,633</b>	<b>11,165</b>	<b>\$60,020,401</b>	<b>23,833</b>	<b>\$198,328,034</b>

Average Age ..... 57.7  
Average Pension .....\$8,322

**STATE EMPLOYEES' RETIREMENT SYSTEM**

**II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES DECEMBER 31, 1996**

**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	16	\$ 114,923	14	\$ 100,025	30	\$ 214,948
35-39	47	382,989	73	556,137	120	939,126
40-44	135	1,076,274	205	1,620,260	340	2,696,534
45-49	303	2,683,962	291	2,460,287	594	5,144,249
50-54	404	3,792,663	290	2,456,209	694	6,248,872
55-59	357	3,394,947	361	3,008,515	718	6,403,462
60-64	418	3,404,223	358	2,627,637	776	6,031,860
65-69	338	2,616,348	324	1,954,052	662	4,570,400
70-74	250	1,611,519	255	1,323,589	505	2,935,108
75-79	151	841,388	171	727,564	322	1,568,952
80-84	54	249,207	79	329,063	133	578,270
85-89	5	21,457	27	83,739	32	105,196
90 & over	5	16,630	10	31,519	15	48,449
<b>Total</b>	<b>2,483</b>	<b>\$20,206,830</b>	<b>2,458</b>	<b>\$17,278,596</b>	<b>4,941</b>	<b>\$37,485,426</b>

Average Age..... 59.4

Average Pension ..... \$7,587

**STATE EMPLOYES' RETIREMENT SYSTEM**

**II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES DECEMBER 31, 1996**

**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	6	\$ 28,826	10	\$ 114,045	16	\$ 142,871
25-29	4	61,546	8	144,274	12	205,820
30-34	8	73,799	14	118,178	22	191,977
35-39	21	362,582	19	193,800	40	556,382
40-44	18	175,165	36	198,756	54	373,921
45-49	28	106,795	83	494,493	111	601,288
50-54	29	102,880	126	810,270	155	913,150
55-59	38	126,100	240	2,000,903	278	2,127,003
60-64	40	187,630	361	2,729,045	401	2,916,675
65-69	51	316,322	679	4,544,672	730	4,860,994
70-74	123	835,047	1,155	6,089,177	1,278	6,924,224
75-79	79	360,760	1,452	6,569,969	1,531	6,930,729
80-84	64	281,135	1,404	5,583,795	1,468	5,864,930
85-89	22	91,226	916	3,691,195	938	3,782,421
90 & Over	4	16,570	439	1,678,039	443	1,694,609
<b>Total</b>	<b>535</b>	<b>\$3,126,383</b>	<b>6,942</b>	<b>\$34,960,611</b>	<b>7,477</b>	<b>\$38,086,994</b>

Average Age ..... 75.0

Average Pension ..... \$5,094

## STATE EMPLOYES' RETIREMENT SYSTEM

### BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1996 (as embodied in Act 31, approved March 1, 1974)

The State Employees' Retirement System of Pennsylvania 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 Pennsylvania State University (unless such employees have joined the Public School Employees' Retirement System of Pennsylvania 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 Pennsylvania State Police who have been members and employes continuously since prior to March 1, 1974.
- Class D-3 - Members of the General Assembly who have been members and employes continuously since prior to March 1, 1974.
- Class E-1 - Judges.
- Class E-2 - District Justices.

**STATE EMPLOYES' RETIREMENT SYSTEM**

**BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1996 (continued)**  
**(as embodied in Act 31, approved March 1, 1974)**

**Age and Service Requirements for Superannuation Retirement (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.
- Classes 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 Retirement 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.

**SCHEDULE L**  
**(Page 2 of 7)**

**STATE EMPLOYES' RETIREMENT SYSTEM**

**BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1996 (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 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.

## STATE EMPLOYES' RETIREMENT SYSTEM

### BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1996 (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 superannuation 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 superannuation retirement based on service projected to superannuation 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 superannuation, based on years of credited service at the time of leaving the plan. The former member can receive the full benefit beginning at superannuation age, or an actuarially reduced early retirement benefit beginning at any date after separation but before superannuation.

## STATE EMPLOYES' RETIREMENT SYSTEM

### BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1996 (continued) (as embodied in Act 31, approved March 1, 1974)

#### Eligibility for Death Benefit Prior to Retirement

A member is eligible if the member is (1) under superannuation 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 superannuation age with 3 years of credited service.

#### 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.

#### Temporary Early Retirement Benefit

A temporary early retirement incentive was provided for under Act 1994 - 29. The early retirement incentive was retroactive to July 1, 1993, and will continue on until June 30, 1997. During this period of time, a member who has 30 or more years of service may retire at any age and receive full unreduced benefits. Beginning with the December 31, 1995 valuation, 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 retirement system. If the current 30 year retirement benefit is not extended the long-term cost of the system will be reduced.

#### Supplemental Allowances

Any superannuation 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 who retired early is entitled to the supplemental allowance upon attaining superannuation age.



**STATE EMPLOYES' RETIREMENT SYSTEM**

**BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1996 (continued)**  
**(as embodied in Act 31, approved March 1, 1974)**

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, 1994.

**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.

## STATE EMPLOYES' RETIREMENT SYSTEM

### BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1996 (continued) (as embodied in Act 31, approved March 1, 1974)

#### 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.

#### 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.

## STATE EMPLOYES' RETIREMENT SYSTEM

### ACTUARIAL ASSUMPTIONS

Schedule M shows the actuarial assumptions used for the valuation. The assumptions were based on a review of experience under SERS from 1991 through 1995. Schedule M contains an extract of the full set of rates used in the valuation. The full set of rates is in the evaluation report 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 superannuation rate of .170 at age 60 means that 170 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:

Current Retirees, Beneficiaries and Survivors: The mortality table used for current male retirees is the 1971 Group Annuity Mortality Table for males. The mortality table used for current female retirees is the 1971 Group Annuity Mortality Table for males setback 6 years. The same tables are used for current beneficiaries and survivors.

Current Active Employees: The table used for current active employees to project mortality after retirement (superannuation or early retirement) is the 1983 Group Annuity Mortality Table for males and females.

Disability Allowances: The disability mortality table is based on the Federal Civil Service Retirement System disability mortality table. The Federal table was modified to produce mortality rates that are appropriate for the expected future mortality of disabled SERS members.

**STATE EMPLOYES' RETIREMENT SYSTEM**

**ACTUARIAL ASSUMPTIONS (continued)**

**FOR ACTIVE GENERAL EMPLOYES:**

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

<u>Age</u>	<u>Male</u>	<u>Female</u>
50-58	.130	.030
59	.130	.130
60	.170	.260
61	.190	.210
62	.510	.430
63	.260	.280
64	.260	.280
65	.510	.500
66	.340	.350
67	.260	.330
68-79	.240	.240
80	1.000	1.000

**Rates of Separation for Eligibility for Reduced Benefits:\***

<u>Age</u>	<u>Male</u>	<u>Female</u>
30	.010	.010
35	.010	.010
40	.010	.010
45	.010	.010
50	.011	.010
55	.016	.010

\* Early retirement rates only apply to members not eligible for full unreduced benefits.

**STATE EMPLOYES' RETIREMENT SYSTEM**

**ACTUARIAL ASSUMPTIONS (continued)**

**FOR ACTIVE GENERAL EMPLOYEES:**

**Rates of Separation Due to Withdrawal:\***

<u>Male</u>					<u>Female</u>				
<u>Years of Service</u>					<u>Years of Service</u>				
<u>Age</u>	<u>0</u>	<u>1</u>	<u>5</u>	<u>9+</u>	<u>Age</u>	<u>0</u>	<u>1</u>	<u>5</u>	<u>9+</u>
20	.1204	.0840	.0350	.0048	20	.0951	.0507	.0588	.0098
25	.1204	.0840	.0378	.0048	25	.1057	.0910	.0588	.0098
30	.0905	.0748	.0375	.0048	30	.1059	.1012	.0575	.0098
35	.0870	.0523	.0315	.0048	30	.0890	.0731	.0449	.0078
40	.0767	.0449	.0263	.0037	40	.0752	.0490	.0341	.0061
45	.0725	.0557	.0205	.0034	45	.0640	.0441	.0306	.0051
50	.0707	.0358	.0152	.0032	50	.0775	.0435	.0273	.0060
55	.0599	.0301	.0133	.0030	55	.0645	.0565	.0256	.0056

**FOR ALL ACTIVE EMPLOYEES:**

**Rates of Separation Due to Death and Disability:**

<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	.0005	.0004	25	.0003	.0005
30	.0006	.0004	30	.0007	.0013
35	.0007	.0005	35	.0014	.0020
40	.0010	.0008	40	.0021	.0029
45	.0017	.0009	45	.0038	.0046
50	.0026	.0017	50	.0053	.0069
55	.0044	.0028	55	.0070	.0087
60	.0068	.0032	60	.0080	.0102

\* Separation due to withdrawal and disability retirement rates only apply to members not eligible for superannuation retirement.

**STATE EMPLOYES' RETIREMENT SYSTEM**

**ACTUARIAL ASSUMPTIONS (continued)**

**FOR SPECIAL BENEFIT CLASSES:**

**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	.0400	.0000	.0400
1	.0300	.0300	.0300
2-3	.0200	.0300	.0200
4-6	.0100	.0300	.0100
7-8	.0050	.0300	.0100
9+	.0006	.0020	.0020

**Rates of Separation Due to Early Retirement:**

	<u>State Police/ Hazardous Duty</u>	<u>Legislators</u>	<u>Judicial Officers</u>
Any Age	.0050	.0260	.0220

**Rates of Separation Due to Superannuation 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	.075	.050	N/A
55	.130	.050	N/A
60	.350	.060	.010
65	.650	.100	.060
70	.300	.100	.900
75	.300	.100	.900
80	1.000	1.000	1.000

**STATE EMPLOYES' RETIREMENT SYSTEM**

**ACTUARIAL ASSUMPTIONS (continued)**

**FOR SPECIAL BENEFIT CLASSES:**

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

<u>Service</u>	
20	.040
21	.060
22	.080
23	.100
24	.200
25	.200
26	.210
27	.220
28	.230
29	.240
30	.250
31	.260
32	.270
33	.280
34	.290
35	.300

**STATE EMPLOYES' RETIREMENT SYSTEM**

**ACTUARIAL ASSUMPTIONS (continued)**

**Career Salary Increases**

The salary scale shown below includes average increases in the employe 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 EMPLOYES' 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 Pennsylvania State Employees' Retirement System funding policy provides for employer contributions at actuarially determined rates that will amortize the liabilities by June 30, 2017. 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 superannuation, 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 EMPLOYES' 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 amortization 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 1997/98 divided by the projected payroll for the fiscal year.

The assumptions used in determining the actuarial cost are stated in Schedule M, 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 1991 through 1995.

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. 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.

**SCHEDULE N**  
**(Page 2 of 2)**

## STATE EMPLOYES' RETIREMENT SYSTEM

### DEFINITIONS 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 principle -- 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.