

COMMONWEALTH OF PENNSYLVANIA

STATE EMPLOYEES' RETIREMENT SYSTEM

1997 Actuarial Report

Hay/Huggins Company
May 6, 1998

Hay Group, Inc.
430 North Front Street
Suite 500
Arlington, VA 22201
Tel: 703/941-3100
Fax: 703/941-3000

May 6, 1998

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

HayGroup

Dear Mr. Brosius:

This report presents the results of our actuarial valuation of the Pennsylvania State Employees' Retirement System (SERS) as of December 31, 1997. 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 1998-99;
- 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
Edwin C. Hustead, F.S.A.
Member American Academy of Actuaries
Enrolled Actuary No. 96-1499

STATE EMPLOYES' RETIREMENT SYSTEM

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STATE EMPLOYES' RETIREMENT SYSTEM

VALUATION HIGHLIGHTS

	<u>December 31, 1997</u> Valuation	<u>December 31, 1996</u> Valuation
Summary of Contributions as a Percent of Members' Compensation		
Normal Cost	8.99%	8.89%
Amortization of Liabilities	(2.29)	(1.61)
Total Contribution	6.70%	7.28%
 Contribution Rates by Employee Group:		
Class A Members:		
Age 60 Retirement	5.61%	6.19%
Age 50 Retirement	7.53	8.12
Park Rangers	8.37	9.07
Capitol Police	8.37	9.07
State Police	20.72	22.27
Class C Members:		
State Police	20.72	22.27
Enforcement Officers	7.53	8.12
Class D Members	28.24	30.45
Class E Members	10.54	11.52

Demographic Characteristics of the Population

• Active Participants:		
Number	108,684	110,922
Average annualized compensation	\$ 36,926	\$ 35,839
Total annualized compensation	\$ 4,013,265,384	\$ 3,975,373,256
• Annuitants and Beneficiaries:		
Number	85,457	83,086
Total annual pension	\$ 801,778,597	\$ 749,274,115
• Inactive Participants:		
Number	4,643	4,379
Assets		
• Market Value Assets	\$ 21,311,771,210	\$ 18,492,316,712
• Actuarial Value of Assets	\$ 18,565,135,501	\$ 16,841,069,047

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 1997 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.

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 was closed during the period of July 1, 1997 through June 30, 1998. Act 1998-41 provides for a new early retirement window with the same provisions, for the one-year period beginning July 1, 1998. Therefore, the Board actuary agreed that it would still be prudent to continue to recognize the 30 year retirement benefit as a permanent feature of the system.

The liabilities and costs in this report include the cost of the supplemental annuity provided for in Act 1998-88. The supplemental annuity will be effective July 1, 1998, and it will be given to members who were retired before July 1, 1997. The supplemental annuity will be provided to retirees who have reached superannuation age, disabled retirees, and early retirees when they reach superannuation. The supplemental annuity will not be provided to survivors. The estimated average increase of the supplemental annuity is 9.5 percent.

History of the Employer Contribution Rate

Chart 1 shows the history of the employer contribution rate from 1980 through 1997. With some fluctuations, the general trend has been downward with the rate declining from 18.02 percent in 1980 to 6.70 percent in 1997.

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 1997, primarily due to the recognition of excess investment earnings during the past 5 years.

STATE EMPLOYES' RETIREMENT SYSTEM

Chart 1
Pennsylvania State Employees' Retirement System
History of Employer Cost

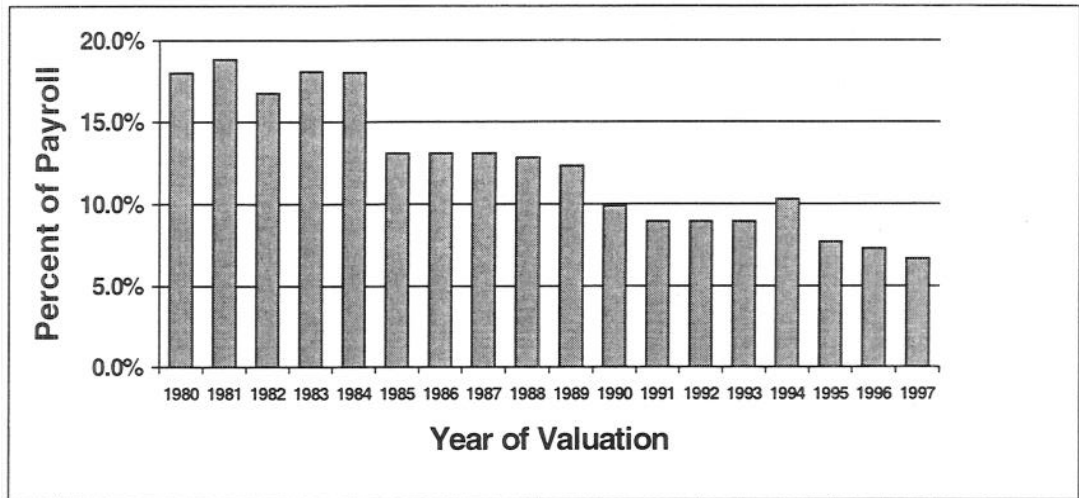


Table 1 shows the rate of inflation, the nominal and real investment return, and the nominal and real salary growth for the past seventeen years. The nominal rates are the actual investment rate and salary growth. The real rates are the nominal rates adjusted by removing inflation. The 1997 numbers reflect actual experience through December 31, 1997.

The total employer cost is the actual contribution rate during the succeeding fiscal year. For instance, the rate of 6.70 percent will be the employer contribution for fiscal year 1998/99. In some years the rate was adjusted for events occurring after the valuation.

STATE EMPLOYEES' RETIREMENT SYSTEM

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
Average 1981-1997	3.8%	13.3%	9.3%	4.0%	0.3%

* The inflation rates shown are based on the Consumer Price Index (CPI-U) data and are current through December 31, 1997.

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 8.89 percent in 1996 to 8.99 percent in 1997.

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 the schedule of liabilities that are being amortized over 20 year periods. There were two additions to the schedule in 1998. The first reflected all changes during 1997 and the second was the liability for the supplemental annuity effective July 1, 1998.

The changes during 1997 reduced the liabilities of the system by \$840.2 million. The primary reason for the reduction was the high rate of return on the fund in the last five years including the 18.0 percent return in 1997. The supplemental annuity added a \$478.0 million liability. The total change in liability was a reduction of \$362.2 million.

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 1.61 percent of payroll in 1996 to 2.29 percent of payroll in the 1997 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, 1997 actuarial valuation is 6.70 percent of payroll compared to a rate of 7.28 percent of payroll based on the 1996 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 5.61 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 6.70 percent of total payroll. The complete schedule of contributions by group is shown below:

Employer Contribution Rate by Group Fiscal Year 1998/99	
Class A	
Age 60 benefit	5.61%
Age 50 benefit	7.53
Park Rangers	8.37
Capitol Police	8.37
State Police	20.72
Class C	
State Police	20.72
Enforcement Officers	7.53
Class D	28.24
Class E	10.54
Total Overall Cost	6.70%

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.

The present value of benefits for annuitants and beneficiaries, shown on line 2 of Schedule D does not include the supplemental annuities effective July 1, 1998. The liability for supplemental annuities for these members is equal to the asset transferred from the Supplemental Annuity Account so the transaction will not affect the contribution rates for these additional annuities.

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Change in Employer Contribution Rate

Schedule E contains an analysis of the change in the employer contribution rate and unfunded liability from the 1996 to 1997 valuation. The liability for the supplemental annuities effective July 1, 1998 increased the liabilities by \$478 million, which translated into an increase in the cost of 0.82 percent of salary. Including step-rate bonuses in the calculation of retirement pay increased the contribution rate by 0.15 percent.. The employer cost increased 0.01 percent due to changes in demographics of new entrants.

The excess investment earnings of \$814 million brought into the assets in 1997 reduced the employer cost by 1.40 percent of salary. The actual pay increase was lower than the assumed pay increase, which lowered the contribution rate by 0.14 percent of salary. Other differences between actual experience and actuarial assumptions decreased the contribution by 0.02 percent of payroll.

The net result of all changes was to reduce the employer contribution rate from 7.28 percent to 6.70 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 \$24.0 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. An excess of \$40,751,858 in the Annuity Reserve Account was transferred to the State Accumulation Account.

Transfers were made from the Supplemental Annuity Account to the three benefit payment accounts for the supplemental annuity that was effective July 1, 1998. The transfers from the Supplemental Annuity Account total \$478.0 million. That is the amount established for the 20-year amortization on Schedule B. The transfer amounts are shown on Schedule G.

Accounting Disclosure Statements

Schedule H is a statement of disclosure to report the information required by the Governmental Accounting Standards Board (GASB) Statement No. 25. Page 1 of Schedule H shows the funding progress from December 31, 1992 through December 31, 1997. 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.

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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 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 1992, 1995, 1996, and 1997. 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.

Plan Assets

Schedule I summarizes the development of the actuarial value of assets as of December 31, 1997. 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 1997). This smoothing method recognizes 20 percent of the 1997 asset gain of \$1.9 billion this year, with the remainder to be recognized over the next four years.

Projection

Schedule J shows the number of members, contributions, and benefits from 1990 through 1997 with a projection through 2008. The first half of Schedule J was expanded from the December 31, 1996 report to show new retirements, deaths from former employees, new survivors, and deaths from survivors during the year. The second half of Schedule J shows the projection of employer and employee contributions and a projection of the benefits and expenses.

Participant Data

Section I of Schedule K provides a distribution of the active and inactive participants as of December 31, 1997 by benefit class, sex, age, and length of service. It also shows the average annualized salary in 1997 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.

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Plan Provisions

Schedule L contains a summary of the principal provisions of the plan. There were three benefit enhancements during 1997. Act 1998-41 provides for a temporary early retirement window for the period July 1, 1998 through June 30, 1999. Act 1998-88 provides for a supplemental annuity effective July 1, 1998 for eligible members who were retired before July 1, 1997.

In State Employees' Retirement Board Resolution 1997-52, the Board resolved that regularly scheduled lump sum payments made to employees be treated as retirement covered compensation. The resolution applies to all lump sum payments made on or after March 31, 1997.

The additional liabilities for the supplemental annuities and using the lump-sum bonuses in the calculation of retirement pay were included in the total liabilities and cost.

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, 1997

I.	Present Value of Benefits:	
1)	Active and Inactive Participants	
a)	Superannuation and Withdrawal.....	\$ 15,370,431,700
b)	Disability.....	755,521,046
c)	Death.....	842,251,397
d)	Refunds.....	38,231,706
e)	Special Police and Enforcement Officer Benefits.....	25,280,456
2)	Annuity and Beneficiaries.....	<u>6,951,410,783</u>
3)	Total.....	\$ 23,983,127,088
II.	Present Value of Member and Employer Contributions:	
1)	Employer portion of Normal Cost.....	\$ 4,270,973,734
2)	Member Contributions.....	2,423,740,360
3)	Special Police and Enforcement Officer Contributions.....	<u>0</u>
4)	Total.....	\$ 6,694,714,094
III.	Actuarial Accrued Liability: (I) - (II).....	\$ 17,288,412,994
IV.	Actuarial Value of Assets.....	\$ 18,565,135,501
V.	Unfunded Liability (III) - (IV).....	\$ (1,276,722,507)
VI.	Employer Normal Cost Rate	
1)	Normal Cost Rate for new active members to fund:	
a)	Retirement and Withdrawal.....	12.14%
b)	Disability.....	0.86
c)	Death.....	0.66
d)	Refunds.....	<u>0.33</u>
e)	Total.....	13.99%
2)	Member Deductions.....	5.00%
3)	Employer Normal Cost (1)-(2).....	8.99%

STATE EMPLOYEES RETIREMENT SYSTEM

TOTAL EMPLOYER CONTRIBUTION RATE IN FISCAL YEAR 1998 - 99

I. Amortization of:	Funding Period 20 Years from July 1	Initial Amount of Liability	Outstanding Balance as of 12/31/97	Annual Payment to Fund	
				Amount	Percent *
1) Liability for Supplemental Annuities	1991	\$405,641,841	\$ 453,575,340	\$ 45,742,078	1.08%
2) Liability for Other Benefits	1991	461,468,532	515,998,916	52,037,358	1.23%
3) Liability (Asset) for Changes in 1991	1992	(735,926,889)	(826,195,361)	(78,552,618)	(1.86)%
4) Liability (Asset) for Changes in 1992	1993	(428,770,084)	(480,293,622)	(43,269,315)	(1.03)%
5) Liability (Asset) for Changes in 1993	1994	(556,924,445)	(618,971,730)	(53,068,347)	(1.26)%
6) Liability for Changes in 1994	1995	392,912,465	432,731,862	35,443,412	0.84%
7) Liability for Supplemental Annuities (1994 COLA)	1995	224,936,857	247,732,902	20,290,854	0.48%
8) Liability (Asset) for Changes in 1995	1996	(173,981,943)	(177,785,516)	(13,958,309)	(0.33)%
9) Liability (Asset) for Changes in 1996	1997	(455,733,960)	(461,307,764)	(34,821,762)	(0.83)%
10) Liability (Asset) for Changes in 1997	1998	(840,207,534)	(840,207,534)	(61,141,576)	(1.45)%
11) Liability for Supplemental Annuities (1998 COLA)	1998	478,000,000	478,000,000	34,783,874	0.82%
12) Total Liability Payment Sum of (1) through (9)			\$(1,276,722,507)	\$ (96,514,351)	(2.29)%
II. Employer Normal Cost					8.99%
III. Total Employer Cost (I) + (II)					6.70%

* The payment is expressed as a percentage of the projected total payroll for active members in fiscal year 1998-99 of \$4,219,034,000. Percentages may not add due to rounding.

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EMPLOYER CONTRIBUTION RATE BY GROUP

	<u>Class A (Age 60 Retirement)</u>	<u>Class A (Age 50 Retirement)</u>	<u>Class A Park Rangers & 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	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%	5.61%
2) Age 50 Retirement	-	1.92%	1.47%	1.92%	1.92%	1.92%	1.92%	-
3) Multiplier Adjustment	1.00	1.00	1.00	1.558	1.558	1.00	3.75	1.6582
4) Past Liability	-	-	1.29%	8.99%	8.99%	-	-	1.24%
5) Class C Additional Annuities	-	-	-	0.00	0.00	0.00	-	-
6) Adjusted Contribution Rates: [(1) + (2)] x 3 + 4 + 5	5.61%	7.53%	8.37%	20.72%	20.72%	7.53%	28.24%	10.54%
7) Projected 1998/99 Payroll (Dollars in thousands)	\$ 3,400,498	\$ 519,646	\$ 7,246	\$ 182,324	\$ 29,106	\$ 2,458	\$ 864	\$ 76,891
8) Employer Contribution Amount (Dollars in thousands)	\$ 190,768	\$ 39,129	\$ 606	\$ 37,778	\$ 6,031	\$ 185	\$ 244	\$ 8,104

Notes: The total employer contribution (\$282,845,000) is the average employer contribution rate from Schedule B (6.70 percent) times the total projected payroll (\$4,219,034,000). The Basic Contribution Rate (5.61 percent) was determined as the percentage needed to produce employer contribution amounts by class that sum to \$282,845,000. The resulting total contribution amount may differ slightly because of rounding.

STATE EMPLOYES' RETIREMENT SYSTEM

STATE POLICE AND ENFORCEMENT OFFICERS ADDITIONAL ANNUITY RATE
(Fiscal Year 1998-99)

	<u>State Police</u>	<u>Enforcement Officers</u>
1) Balance in Benefit Account as of December 31, 1997	\$1,095,767,688	\$20,993,759
2) Present Value of Benefits for Annuitants and Beneficiaries Excluding 1998 COLA ...	947,599,030	18,613,402
3) Assets available for additional annuities for Active Members: (1) - (2).....	148,168,658	2,380,357
4) Present Value of additional annuities for Active Members	22,931,227	2,173,496
5) Present Value of Future Contribution to fund additional annuities: (4) - (3); not less than zero.....	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.

STATE EMPLOYEES' RETIREMENT SYSTEM

ANALYSIS OF CHANGE IN EMPLOYER CONTRIBUTION RATE

	Normal <u>Cost</u>	Unfunded <u>Liabilities</u>	<u>Total</u>
I. December 31, 1996 Valuation	8.89%	(1.61)%	7.28 %
II. Changes - 12/31/97 Valuation:			
1) Gain from investment earnings.....		(1.40)	(1.40)
2) Change in demographics of new entrants	0.05	(0.04)	0.01
3) Pay increase different than assumptions		(0.14)	(0.14)
4) Inclusion of step-rate bonuses in retirement pay	0.05	0.10	0.15
5) Supplemental annuities.....		0.82	0.82
6) Other differences between actual experience and actuarial assumptions.....		(0.02)	(0.02)
Total change	0.10%	(0.68)%	(0.58)%
III. December 31, 1997 Valuation:			
(I) + (II)	8.99%	(2.29)%	6.70%

ANALYSIS OF CHANGE IN UNFUNDED LIABILITY

I. December 31, 1996 Unfunded Liability	\$ (904,452,377)
II. Expected Amortization Payment	(66,815,856)
III. Expected Liability as of December 31, 1997 [(I) x 1.085] - (II)	\$ (914,514,973)
IV. Change in Liability Due to:	
1) Gain from investment earnings	\$ (814,467,624)
2) Change in demographics in new entrants.....	(23,754,025)
3) Pay increase different than assumptions	(83,252,525)
4) Inclusion of step-rate bonuses in retirement pay.....	58,596,837
5) Supplemental annuities.....	478,000,000
6) Other differences between actual experience and actuarial assumptions.....	<u>22,669,803</u>
Total change	\$ (362,207,534)
V. December 31, 1997 Unfunded Liability:	
(III) + (IV).....	\$ (1,276,722,507)

SCHEDULE E

**STATE EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL BALANCE SHEET AS OF DECEMBER 31, 1997**

ASSETS

LIABILITIES

<u>Present Assets:</u>		<u>Present Value of Benefits Payable to Annuitants and Beneficiaries from:</u>	
Members Savings Account	\$2,748,177,330	Annuity Reserve Account	\$5,985,198,351
Annuity Reserve Account	5,985,198,351	State Police Benefit Account	947,599,030
State Police Benefit Account	1,095,767,688	Enforcement Officers Benefit Account	<u>18,613,402</u>
Enforcement Officers Benefit Account	20,993,759	Total for Annuitants and Beneficiaries	\$ 6,951,410,783
State Accumulation Account *	12,640,942,324		
Supplemental Annuity Account	<u>(1,179,308,242)</u>		
Total Present Assets (Market Value)	\$21,311,771,210		
Adjustment to Smooth Market Fluctuations	(2,746,635,709)		
Total Present Assets (Actuarial Value)	\$18,565,135,501		
<u>Present Value of Future Contributions</u>		<u>Present Value of Benefits to Active and Inactive Members from:</u>	
Members Savings Account and State Accumulation Account		Members Savings Account and State Accumulation Account	
Members' Contributions (Employer)	\$2,423,740,360	Superannuation and withdrawal	\$15,370,431,700
Normal Cost Contributions (Employer)	4,270,973,734	Disability	755,521,046
Accrued Liability Amortization (Employer)	(2,456,030,749)	Death	842,251,397
Supplemental Annuity Amortization (Employer)	1,179,308,242	Refunds	<u>38,231,706</u>
Special State Police Contributions (Employer)	0	Subtotal	\$17,006,435,849
Special Enforcement Officer Contributions (Employer)	<u>0</u>	State Police Benefit Account	23,106,960
Total Future Contributions	\$ 5,417,991,587	Enforcement Officers Benefit Account	<u>2,173,496</u>
TOTAL ASSETS	<u>\$23,983,127,088</u>	Total Present Value of Benefits to Active and Inactive Members	\$17,031,716,305
		TOTAL LIABILITIES	<u>\$23,983,127,088</u>

* Includes \$1,163,264 in directed commissions.

STATE EMPLOYEES' RETIREMENT SYSTEM

REQUIRED TRANSFERS WITHIN SERS ACCOUNTS

I. Annuity Reserve Account

Balance as reported by SERS	\$5,614,389,894
Transfer to State Accumulation Account	(40,751,858)
Transfer from Supplemental Annuity Account.....	<u>411,560,315</u>
December 31, 1997 balance after transfers.....	\$5,985,198,351

II. State Accumulation Account *

Balance as reported by SERS.....	\$12,600,190,466
Transfer from Annuity Reserve Account.....	<u>40,751,858</u>
December 31, 1997 balance after transfers.....	\$12,640,942,324

III. Enforcement Officers' Benefit Account

Balance as reported by SERS.....	\$19,713,845
Transfer from Supplemental Annuity Account	<u>1,279,914</u>
December 31, 1997 balance after transfers.....	\$20,993,759

IV. State Police Benefit Account

Balance as reported by SERS.....	\$1,030,607,917
Transfer from Supplemental Annuity Account.....	<u>65,159,771</u>
December 31, 1997 balance after transfers.....	\$1,095,767,688

V. Supplemental Annuity Account

Balance as reported by SERS.....	\$(701,308,242)
Transfer to Annuity Reserve Account.....	(411,560,315)
Transfer to State Police Benefit Account.....	(65,159,771)
Transfer to Enforcement Officers' Benefit Account.....	<u>(1,279,914)</u>
December 31, 1997 balance after transfers.....	\$(1,179,308,242)

Note: The transfers from the Supplemental Annuity Account total \$478,000,000. That is the amount established for 20 year amortization on Schedule B.

* Balance includes \$1,163,264 in directed commissions.

STATE EMPLOYEES' RETIREMENT SYSTEM

ACCOUNTING DISCLOSURE STATEMENTS

I. SCHEDULE OF FUNDING PROGRESS AS OF DECEMBER 31, 1997

(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	15,936,617	(904,452)	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%

* 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, 1997

(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%

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, 1997
Actuarial cost method	Variation of Entry-age Actuarial Cost Method
Amortization method	Increasing (5 percent annually)
Remaining amortization period	13 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

STATE EMPLOYEES' 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 1992, 1995, 1996, and 1997. 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.

STATE EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL VALUE OF ASSETS

I.	Development of 12/31/97 Expected Actuarial Value:	
1)	Actuarial Value as of 12/31/96	\$16,841,069,047
2)	Contributions in 1997	536,648,433
3)	Benefits and Expenses in 1997	(1,037,264,298)
4)	Investment return at 8.5% to 12/31/97 on (1).....	1,431,490,869
5)	Investment return at 8.5% to 12/31/97 on .5 x ((2) + (3))	<u>(21,276,174)</u>
6)	Expected Actuarial Value as of 12/31/97: (1) + (2) + (3) + (4) + (5)	\$17,750,667,877
II.	Previous Differences Not Yet Amortized:	
1)	Unrecognized amount of 12/31/93 Difference: .2 x \$381,972,531	\$ 76,394,506
2)	Unrecognized amount of 12/31/94 Difference: .4 x \$(1,375,742,682).....	(550,297,073)
3)	Unrecognized amount of 12/31/95 Difference: .6 x \$1,999,259,233	1,199,555,540
4)	Unrecognized amount of 12/31/96 Difference: .8 x \$1,156,993,365	<u>925,594,692</u>
5)	Total	\$ 1,651,247,665
III.	Gain or Loss from 1997	
1)	Market Value of Assets on 12/31/97	\$21,311,771,210
2)	Expected Market Value II(5) + I(6)	<u>19,401,915,542</u>
3)	Gain (loss) from 1997 Investments (1) - (2)	\$ 1,909,855,668
IV.	Development of Actuarial Value of Assets as of 12/31/97:	
1)	20% of \$381,972,531 (12/31/93 Difference):	\$ 76,394,506
2)	20% of \$(1,375,742,682) (12/31/94 Difference):	(275,148,536)
3)	20% of \$1,999,259,233 (12/31/95 Difference):	399,851,847
4)	20% of \$1,156,993,365 (12/31/96 Difference):	231,398,673
5)	20% of \$1,909,855,668 (12/31/97 Difference):	381,971,134
6)	Total Difference: (1) + (2) + (3) + (4) + (5)	<u>814,467,624</u>
7)	Actuarial Value at 12/31/97: I(6) + IV(6)	\$ 18,565,135,501

SCHEDULE I

STATE EMPLOYEES' RETIREMENT SYSTEM

PROJECTION OF POPULATION, BENEFITS, AND CONTRIBUTIONS

**Projection of Annuitants and Employees
(Actual Data Through 1997)**

	<u>New Retirements During the Year</u>	<u>Deaths During the Year</u>	<u>Former Employees (EOY)</u>	<u>New Survivors During the Year</u>	<u>Survivor Deaths During the Year</u>	<u>Survivors (EOY)</u>	<u>Total Retired and Survivor Lives</u>	<u>Active Employees</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			77,667			7,790	85,457	108,684
1998	3,734	3,041	78,360	655	386	8,059	86,419	108,684
1999	3,664	3,087	78,937	663	413	8,309	87,246	108,684
2000	3,701	3,125	79,513	670	438	8,541	88,054	108,684
2001	3,737	3,159	80,091	676	461	8,756	88,847	108,684
2002	3,783	3,190	80,684	682	486	8,952	89,636	108,684
2003	3,888	3,217	81,355	686	510	9,128	90,483	108,684
2004	3,893	3,235	82,013	689	534	9,283	91,296	108,684
2005	3,947	3,250	82,710	691	557	9,417	92,127	108,684
2006	3,890	3,263	83,337	693	580	9,530	92,867	108,684
2007	3,987	3,274	84,050	694	605	9,619	93,669	108,684
2008	4,011	3,285	84,776	694	625	9,688	94,464	108,684

STATE EMPLOYEES' RETIREMENT SYSTEM

PROJECTION OF POPULATION, BENEFITS, AND CONTRIBUTIONS (continued)

**Projection of Expected Contributions and Benefits
(Actual Data Through 1997)**

(Millions of Dollars)

<u>Calendar Year</u>	<u>Contributions</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	943
1997	213	324	1,037
1998	219	315	1,110
1999	226	298	1,218
2000	234	252	1,291
2001	241	191	1,368
2002	249	150	1,449
2003	258	150	1,595
2004	266	171	1,752
2005	275	176	1,856
2006	284	181	1,960
2007	293	187	2,077
2008	303	217	2,281

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 EMPLOYES' RETIREMENT SYSTEM

**I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS
AS OF DECEMBER 31, 1997**

ACTIVE EMPLOYEES*

Males - Full Years of Service to December 31, 1997

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	10	0	0	0	0	0	0	10	\$20,000
20-24	424	5	0	0	0	0	0	429	22,284
25-29	1,521	540	14	0	0	0	0	2,075	27,007
30-34	1,419	1,482	548	30	0	0	0	3,479	30,851
35-39	1,313	1,535	1,524	988	40	0	0	5,400	33,619
40-44	1,352	1,476	1,531	1,760	1,166	103	0	7,388	36,041
45-49	1,210	1,353	1,309	1,648	2,307	1,942	60	9,829	39,566
50-54	976	1,009	943	1,002	1,623	2,757	785	9,095	42,752
55-59	641	658	652	607	735	1,369	1,204	5,866	44,686
60-64	333	412	405	337	327	497	658	2,969	45,687
65+	<u>170</u>	<u>210</u>	<u>168</u>	<u>127</u>	<u>106</u>	<u>122</u>	<u>251</u>	<u>1,154</u>	<u>47,259</u>
Total:	9,369	8,680	7,094	6,499	6,304	6,790	2,958	47,694	\$38,809

Average age 46.52

Average service 14.47

Females - Full Years of Service to December 31, 1997

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	38	0	0	0	0	0	0	38	\$20,059
20-24	606	48	0	0	0	0	0	654	21,409
25-29	1,474	843	80	0	0	0	0	2,397	24,765
30-34	1,217	1,370	834	78	0	0	0	3,499	27,593
35-39	1,274	1,388	1,244	1,297	118	0	0	5,321	30,409
40-44	1,294	1,519	1,297	1,590	1,727	353	0	7,780	32,555
45-49	1,011	1,373	1,238	1,358	1,724	2,105	120	8,929	34,393
50-54	749	1,025	1,041	1,058	1,117	1,316	542	6,848	34,602
55-59	413	651	708	822	869	740	433	4,636	34,780
60-64	172	328	378	371	372	310	231	2,162	35,092
65+	<u>72</u>	<u>126</u>	<u>117</u>	<u>109</u>	<u>82</u>	<u>96</u>	<u>101</u>	<u>703</u>	<u>33,666</u>
Total:	8,320	8,671	6,937	6,683	6,009	4,920	1,427	42,967	\$32,364

Average age 45.07

Average service 13.55

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.

SCHEDULE K
(Page 1 of 10)

STATE EMPLOYES' RETIREMENT SYSTEM

**I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS
AS OF DECEMBER 31, 1997**

SELECTED HAZARDOUS DUTY*

Males - Full Years of Service to December 31, 1997

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	116	0	0	0	0	0	0	116	24,713
25-29	1,670	410	1	0	0	0	0	2,081	33,981
30-34	1,277	1,490	204	1	0	0	0	2,972	38,885
35-39	591	713	771	198	1	0	0	2,274	41,667
40-44	433	420	519	491	117	5	0	1,985	42,845
45-49	461	395	418	332	418	166	3	2,193	43,462
50-54	308	287	345	175	223	456	72	1,866	45,687
55-59	122	144	168	88	78	119	89	808	44,190
60-64	55	65	91	34	26	32	18	321	41,269
65+	5	16	21	7	4	4	8	65	43,070
Total:	5,038	3,940	2,538	1,326	867	782	190	14,681	\$40,955

Average age..... 40.29

Average service 9.35

Females - Full Years of Service to December 31, 1997

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	34	0	0	0	0	0	0	34	24,556
25-29	200	23	0	0	0	0	0	223	31,498
30-34	158	100	18	0	0	0	0	276	34,568
35-39	138	108	96	30	0	0	0	372	37,630
40-44	136	125	82	78	25	2	0	448	38,625
45-49	103	91	62	52	46	18	0	372	40,761
50-54	54	58	49	30	25	17	4	237	41,164
55-59	27	31	25	30	17	10	4	144	42,295
60-64	5	17	12	9	3	5	1	52	46,057
65+	1	0	4	1	0	1	0	7	35,447
Total:	856	553	348	230	116	53	9	2,165	\$38,039

Average age..... 41.50

Average service 8.33

* 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 DECEMBER 31, 1997

LEGISLATORS

Males - Full Years of Service to December 31, 1997

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>	<u>Average Salary</u>
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	58,341
30-34	5	2	0	0	0	0	0	7	58,341
35-39	7	12	1	3	0	0	0	23	58,153
40-44	6	13	7	5	0	0	0	31	59,175
45-49	7	8	1	19	5	1	0	41	60,462
50-54	3	8	8	12	4	2	3	40	59,968
55-59	2	6	1	6	2	4	3	24	61,705
60-64	2	3	2	5	2	3	2	19	61,569
65+	<u>2</u>	<u>2</u>	<u>3</u>	<u>5</u>	<u>7</u>	<u>3</u>	<u>10</u>	<u>32</u>	<u>62,045</u>
Total:	35	54	23	55	20	13	18	218	\$60,332

Average age..... 51.22

Average service 14.11

Females - Full Years of Service to December 31, 1997

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>	<u>Average Salary</u>
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	3	2	0	0	0	0	0	5	58,341
40-44	1	0	1	1	0	0	0	3	58,341
45-49	1	1	1	0	0	0	0	3	58,341
50-54	3	5	0	0	0	0	0	8	58,341
55-59	1	4	2	0	0	0	0	7	58,341
60-64	0	1	0	0	0	0	0	1	58,341
65+	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>4</u>	<u>60,132</u>
Total:	9	16	4	1	0	0	1	31	\$58,572

Average age..... 51.97

Average service 7.77

SCHEDULE K

(Page 3 of 10)

STATE EMPLOYES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1997

JUDGES AND DISTRICT JUSTICES

Males - Full Years of Service to December 31, 1997

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	54,160
30-34	6	2	0	0	0	0	0	8	54,160
35-39	14	2	6	0	0	0	0	22	56,670
40-44	26	22	19	5	1	0	0	73	69,226
45-49	31	29	38	20	11	2	1	132	70,901
50-54	28	45	45	27	13	6	1	165	83,102
55-59	22	22	38	22	17	9	6	136	81,141
60-64	8	18	15	21	18	12	4	96	85,799
65+	4	12	10	16	26	17	10	95	92,307
Total:	140	152	171	111	86	46	22	728	\$79,532

Average age..... 53.57

Average service 12.52

Females - Full Years of Service to December 31, 1997

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	6	2	0	0	0	0	0	8	54,160
35-39	6	5	2	1	0	0	0	14	54,067
40-44	13	10	10	1	0	0	0	34	84,658
45-49	11	15	15	4	2	0	0	47	81,619
50-54	9	8	14	4	0	1	0	36	91,228
55-59	2	7	10	5	3	1	0	28	64,245
60-64	4	5	2	5	3	0	0	19	72,979
65+	1	0	7	3	0	3	0	14	61,954
Total:	52	52	60	23	8	5	0	200	\$76,209

Average age..... 49.95

Average service 9.35

SCHEDULE K

(Page 4 of 10)

STATE EMPLOYES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1997

ALL ACTIVE EMPLOYEES

Males - Full Years of Service to December 31, 1997

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	Average Salary
less than 20	10	0	0	0	0	0	0	10	\$20,000
20-24	540	5	0	0	0	0	0	545	22,801
25-29	3,193	950	15	0	0	0	0	4,158	30,511
30-34	2,707	2,976	752	31	0	0	0	6,466	34,602
35-39	1,925	2,262	2,302	1,189	41	0	0	7,719	36,129
40-44	1,817	1,931	2,076	2,261	1,284	108	0	9,477	37,797
45-49	1,709	1,785	1,766	2,019	2,741	2,111	64	12,195	40,676
50-54	1,315	1,349	1,341	1,216	1,863	3,221	861	11,166	43,900
55-59	787	830	859	723	832	1,501	1,302	6,834	45,413
60-64	398	498	513	397	373	544	682	3,405	46,490
65+	181	240	202	155	143	146	279	1,346	50,588
Total:	14,582	12,826	9,826	7,991	7,277	7,631	3,188	63,321	\$39,849

Average age..... 45.17

Average service 13.26

Females - Full Years of Service to December 31, 1997

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	Average Salary
less than 20	38	0	0	0	0	0	0	38	\$20,059
20-24	640	48	0	0	0	0	0	688	21,565
25-29	1,674	866	80	0	0	0	0	2,620	25,338
30-34	1,381	1,472	852	78	0	0	0	3,783	28,158
35-39	1,421	1,503	1,342	1,328	118	0	0	5,712	30,962
40-44	1,444	1,654	1,390	1,670	1,752	355	0	8,265	33,107
45-49	1,126	1,480	1,316	1,414	1,772	2,123	120	9,351	34,891
50-54	815	1,096	1,104	1,092	1,142	1,334	546	7,129	35,133
55-59	443	693	745	857	889	751	437	4,815	35,210
60-64	181	351	392	385	378	315	232	2,234	35,680
65+	74	129	128	113	82	100	102	728	34,372
Total:	9,237	9,292	7,349	6,937	6,133	4,978	1,437	45,363	\$32,846

Average age..... 44.93

Average service 13.28

STATE EMPLOYEES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1997

ACTIVE AND INACTIVE EMPLOYEES

Males - Full Years of Service to December 31, 1997

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
less than 20	10	0	0	0	0	0	0	10
20-24	540	5	0	0	0	0	0	545
25-29	3,199	952	15	0	0	0	0	4,166
30-34	2,725	2,986	766	32	0	0	0	6,509
35-39	1,947	2,273	2,351	1,201	42	0	0	7,814
40-44	1,930	1,957	2,153	2,299	1,297	110	0	9,746
45-49	1,783	1,802	1,850	2,085	2,787	2,141	64	12,512
50-54	1,418	1,372	1,405	1,268	1,898	3,280	883	11,524
55-59	900	851	919	764	852	1,536	1,370	7,192
60-64	501	520	554	434	403	579	748	3,739
65+	292	270	226	174	153	163	327	1,605
Total:	15,245	12,988	10,239	8,257	7,432	7,809	3,392	65,362

Average age45.44

Average service13.24

Females - Full Years of Service to December 31, 1997

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
less than 20	38	0	0	0	0	0	0	38
20-24	641	48	0	0	0	0	0	689
25-29	1,688	873	81	0	0	0	0	2,642
30-34	1,396	1,485	884	78	0	0	0	3,843
35-39	1,454	1,527	1,428	1,353	119	0	0	5,881
40-44	1,565	1,712	1,531	1,746	1,780	357	0	8,691
45-49	1,285	1,561	1,434	1,499	1,810	2,142	122	9,853
50-54	980	1,168	1,189	1,151	1,179	1,360	553	7,580
55-59	581	736	830	914	913	775	482	5,231
60-64	279	391	416	426	418	365	258	2,553
65+	182	159	148	128	98	131	118	964
Total:	10,089	9,660	7,941	7,295	6,317	5,130	1,533	47,965

Average age45.28

Average service13.14

STATE EMPLOYEES' RETIREMENT SYSTEM

II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES as of DECEMBER 31, 1997

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	268	\$ 8,137,634	27	\$ 365,428	295	\$ 8,503,062
55-59	850	24,865,547	137	2,783,181	987	27,648,728
60-64	2,563	53,336,233	1,598	20,090,000	4,161	73,426,233
65-69	4,941	73,662,369	3,505	34,143,210	8,446	107,805,578
70-74	6,130	77,026,951	4,664	38,153,445	10,794	115,180,396
75-79	5,143	49,871,901	4,582	30,151,102	9,725	80,023,004
80-84	3,554	27,574,435	3,431	19,582,086	6,985	47,156,521
85-89	1,843	13,301,673	1,997	11,225,384	3,840	24,527,057
90 & over	708	5,054,597	890	4,962,341	1,598	10,016,938
Total	26,000	\$332,831,340	20,831	\$161,456,177	46,831	\$494,287,517

Average Age74.3
Average Annual Pension \$10,555

STATE EMPLOYES' RETIREMENT SYSTEM

II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES as of DECEMBER 31, 1997

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	28	\$ 33,084	81	\$ 84,679	109	\$ 117,763
35-39	181	271,349	396	584,878	577	856,227
40-44	501	963,468	1,185	2,139,245	1,686	3,102,713
45-49	1,379	7,071,423	1,994	5,518,956	3,373	12,590,380
50-54	2,970	42,627,511	1,711	9,817,905	4,681	52,445,415
55-59	2,671	37,232,713	1,674	15,307,218	4,345	52,539,930
60-64	2,145	29,615,754	1,670	14,584,621	3,815	44,200,375
65-69	1,926	22,152,025	1,496	11,200,082	3,422	33,352,107
70-74	959	8,980,001	1,048	6,303,751	2,007	15,283,752
75-79	439	3,580,034	544	3,025,329	983	6,605,363
80-84	195	1,405,641	221	1,358,371	416	2,764,012
85-89	84	522,477	80	484,076	164	1,006,553
90 & over	38	164,752	38	174,689	76	339,442
Total	13,516	\$154,620,232	12,138	\$70,583,800	25,654	\$225,204,032

Average Age 57.9

Average Annual Pension\$8,779

STATE EMPLOYES' RETIREMENT SYSTEM

II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES as of DECEMBER 31, 1997

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	13	\$ 99,923	15	\$ 124,721	28	\$ 224,644
35-39	55	438,792	72	572,807	127	1,011,599
40-44	126	1,064,949	210	1,741,011	336	2,805,960
45-49	302	2,780,732	337	3,031,613	639	5,812,345
50-54	405	3,950,801	334	3,027,540	739	6,978,341
55-59	431	4,257,618	368	3,105,529	799	7,363,147
60-64	397	3,303,453	385	2,969,869	782	6,273,322
65-69	355	2,766,655	316	1,972,301	671	4,738,956
70-74	263	1,811,664	262	1,364,679	525	3,176,343
75-79	154	868,526	185	810,275	339	1,678,801
80-84	64	331,593	80	337,848	144	669,441
85-89	9	32,041	30	97,940	39	129,981
90 & over	5	19,102	9	28,432	14	47,534
Total	2,579	\$21,725,849	2,603	\$19,184,565	5,182	\$40,910,414

Average Age 59.3

Average Annual Pension \$7,895

STATE EMPLOYES' RETIREMENT SYSTEM

II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES as of DECEMBER 31, 1997

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	11	\$ 146,567	17	\$ 175,393
25-29	2	9,956	9	169,221	11	179,177
30-34	10	128,695	13	135,384	23	264,079
35-39	17	356,071	19	168,833	36	524,904
40-44	26	221,834	44	267,165	70	488,999
45-49	35	91,440	86	564,396	121	655,836
50-54	33	136,700	136	943,639	169	1,080,339
55-59	39	149,060	252	2,103,615	291	2,252,675
60-64	50	242,326	390	2,845,345	440	3,087,671
65-69	47	277,562	644	4,734,858	691	5,012,420
70-74	135	1,128,202	1,201	6,865,480	1,336	7,993,682
75-79	77	355,221	1,440	6,800,442	1,517	7,155,663
80-84	83	319,853	1,462	5,956,545	1,545	6,276,398
85-89	28	119,655	997	4,127,173	1,025	4,246,828
90 & Over	10	34,001	488	1,948,569	498	1,982,570
Total	598	\$3,599,402	7,192	\$37,777,232	7,790	\$41,376,634

Average Age 75.1
 Average Annual Pension\$5,312

STATE EMPLOYEES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1997 (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, 1997 (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.
- 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 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.

STATE EMPLOYES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1997 (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, 1997 (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.

STATE EMPLOYEES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1997 (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 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.

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 is provided for under Act 1998-41. The early retirement incentive is available to eligible employees during the one year period beginning July 1, 1998 and ending June 30, 1999. 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 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 who retired early is entitled to the supplemental allowance upon attaining retirement age.

STATE EMPLOYEES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1997 (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, 1997 (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 retirement 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 (full retirement 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 EMPLOYEES:

**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 EMPLOYES:

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

FOR ALL ACTIVE EMPLOYES:

Rates of Separation Due to Death and Disability:

			<u>Death</u>				<u>Disability*</u>
<u>Age</u>	<u>Male</u>	<u>Female</u>		<u>Age</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 full 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 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 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 State Employees' Retirement System funding policy provides for employer contributions at actuarially determined rates that will amortize the liabilities by June 30, 2018. 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 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.

STATE EMPLOYEES' 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.