COMMONWEALTH OF PENNSYLVANIA

STATE EMPLOYES' RETIREMENT SYSTEM

1998 Actuarial Report

Hay/Huggins Company
May 5, 1999

May 5, 1999

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

Dear Mr. Brosius:

The purpose of this letter is to certify the actuarial adequacy of the contributions being made by the State of Pennsylvania and other participating agencies to the Pennsylvania State Employes' Retirement System (SERS), and to discuss the approach currently being taken toward meeting the financing objectives of the plan.

The funding objective of the plan is set forth in the SERS code. 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.

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

The amortization payments increase five percent a year. The employer cost is determined as a percent of payroll, and the employer contributes that percent of the payroll of all covered members during each fiscal year. The employer cost is the total of (1) the employer normal cost percent and (2) the amortization payment on the outstanding liabilities. The employer contribution rate is based on the results of the actuarial valuation which is performed annually. The most recent valuation was performed as of December 31, 1997.

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.

The actuarial valuation is based on financial and participant data which is prepared by SERS staff. The data are reviewed by us for internal and year-to-year consistency as well as general reasonableness prior to its use in the actuarial valuation. The data are also summarized and tabulated for the purpose of analyzing trends.

The actuarial valuation uses assumptions regarding future rates of investment return and rates of retirement, withdrawal, death, and disability among SERS members and their beneficiaries. The current set of assumptions used in the December 31, 1998 actuarial valuation were adopted by the Board and were based on actual experience of SERS during the years 1991 thorough 1995. The rate of inflation is not a direct assumption because the SERS plan does not include automatic cost-of-living adjustments. The implicit inflation assumption is 3.0 percent a year.

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.

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

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

Respectfully submitted,
HAY/HUGGINS COMPANY, INC.

By
Edwin C. Hustead, F.S.A.
Member American Academy of Actuaries
Enrolled Actuary No. 99-1499

STATE EMPLOYES' RETIREMENT SYSTEM

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STATE EMPLOYES' RETIREMENT SYSTEM

VALUATION HIGHLIGHTS

	December 31, 1998 Valuation	December 31, 1997 Valuation
Summary of Contributions as a Percent of Members' Compensation		
Normal Cost	8.96%	8.99%
Amortization of Liabilities	(3.96)	(2.29)
Total Contribution	5.00%	6.70%
Contribution Rates by Employe Group:		
Class A Members:		
Age 60 Retirement	4.02%	5.61%
Age 50 Retirement	5.77	7.53
Park Rangers	6.62	8.37
Capitol Police	6.62	8.37
State Police	17.56	20.72
Class C Members:		
State Police	17.56	20.72
Enforcement Officers	5.77	7.53
Class D Members	21.64	28.24
Class E Members	7.83	10.54
Demographic Characteristics of the Population		
• Active Participants:		
Number	108,893	108,684
Average annualized compensation	$ 38,898	$ 36,926
Total annualized compensation	$ 4,235,719,914	$ 4,013,265,384
• Annuitants and Beneficiaries:		
Number	85,834	85,457
Total annual pension	$ 898,593,605	$ 801,778,597
• Inactive Participants:		
Number	3,785	4,643
Assets		
• Market Value Assets	$ 24,123,360,098	$ 21,311,771,210
• Actuarial Value of Assets	$ 20,670,711,370	$ 18,565,135,501

General Discussion

The liabilities and costs in this report were based on actuarial assumptions adopted by the State Employes' Retirement Board in 1996 and funding procedures specified in the State Employes' 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.

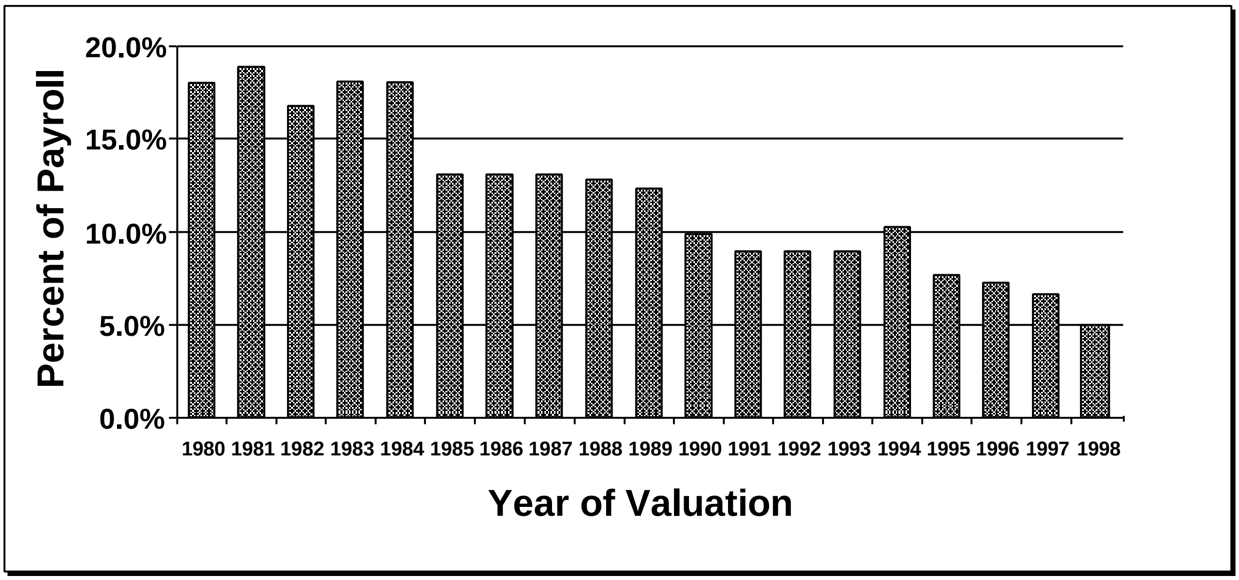
In the December 31, 1995 actuarial valuation, the Board agreed with the actuary that it would be prudent to fund for the 30 year retirement benefit as if it were a permanent feature of the retirement system. Actuarial and accounting practice is to recognize a temporary feature of a retirement plan as 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, 1999 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

Chart 1 shows the history of the employer contribution rate from 1980 through 1998. With some fluctuations, the general trend has been downward with the rate declining from 18.02 percent in 1980 to 5.00 percent in 1998.

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, and in 1998 primarily due to the recognition of excess investment earnings during the past 5 years.

Chart 1
History of Employer Cost



The total employer cost is the actual contribution rate during the succeeding fiscal year. For instance, the rate of 5.00 percent will be the employer contribution for fiscal year 1999/2000. In some years the rate was adjusted for events occurring after the valuation.

History of Inflation, Investment Return and Salary Growth

Table 1 below shows the rate of inflation, the nominal and real investment return, and the nominal and real salary growth for the past eighteen years. The nominal rates are the actual investment rate and salary growth. The real rates are the nominal rates adjusted by removing inflation. The 1998 numbers reflect actual experience through December 31, 1998. The inflation rates shown are based on the Consumer Price Index (CPI-U) data and are current through December 31, 1998.

Table 1

Comparison of Annual Rates of Growth

		Investment Return		**Salary Growth**	
Year	**Inflation**	**Nominal**	**Real**	**Nominal**	**Real**
1981	8.9%	0.9%	(7.4%)	8.0%	(0.8%)
1982	3.8	27.8	23.1	8.0	4.0
1983	3.8	13.0	8.9	0.0	(3.7)
1984	3.9	9.4	5.2	5.1	1.1
1985	3.8	23.1	18.6	3.6	(0.2)
1986	1.1	15.2	13.9	3.5	2.4
1987	4.4	3.3	(1.1)	3.4	(1.0)
1988	4.4	12.8	8.0	5.0	0.6
1989	4.6	17.8	12.6	6.0	1.3
1990	6.1	1.0	(4.8)	5.0	(1.0)
1991	3.1	22.6	19.0	1.0	(2.0)
1992	2.9	7.4	4.4	2.1	(0.8)
1993	2.7	13.2	10.2	5.1	2.3
1994	2.7	(1.1)	(3.7)	3.9	1.2
1995	2.5	25.5	22.4	3.8	1.2
1996	3.3	15.9	12.2	2.0	(1.3)
1997	1.7	18.0	16.0	3.0	1.3
1998	1.6	16.3	14.5	3.0	1.4
Average 1981-1998	**3.6%**	**13.5%**	**9.6%**	**4.0%**	**0.3%**

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 decreased from 8.99 percent in 1997 to 8.96 percent in 1998.

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

Schedule B shows a reduction in the unfunded liability of $1.0 billion in 1998. The primary reason for the reduction was the high rate of return on the fund in the last four years. The credit for the 1998 gain will be recognized as an offset against contributions otherwise needed over the 20 years beginning in July 1, 1999.

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 2.29 percent of payroll in 1997 to 3.96 percent of payroll in the 1998 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, 1998 actuarial valuation is 5.00 percent of payroll compared to a rate of 6.70 percent of payroll based on the 1997 valuation.

Employer Contribution Rates by Group

Schedule C summarizes the development of the rate for the cost of additional benefits for each group of members with different benefits. The basic employer contribution rate for general benefits is 4.02 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 5.00 percent of total payroll. The complete schedule of contributions by group is shown on the following page:

Employer Contribution Rate by Group Fiscal Year 1999/2000	
Class A	
Age 60 benefit	4.02%
Age 50 benefit	5.77
Park Rangers	6.62
Capitol Police	6.62
State Police	17.56
Class C	
State Police	17.56
Enforcement Officers	5.77
Class D	21.64
Class E	7.83
Total Overall Cost	5.00%

Schedule D shows the development of the contribution rates for additional annuities for certain State Police and Enforcement Officers. These members receive an additional annuity that is equal to the accumulated member contributions and interest at retirement determined as if the members were at least age 60 at retirement. These benefits have been fully funded by past contributions so no future contribution is required.

Change in Employer Contribution Rate

Schedule E contains an analysis of the change in the employer contribution rate and unfunded liability from the 1997 to 1998 valuation. The excess investment earnings of $1.1 billion brought into the assets in 1998 reduced the employer cost by 1.80 percent of salary. The actual pay increase was higher than the assumed pay increase, and increased the contribution rate by 0.32 percent of salary. Other differences decreased the contribution by 0.22 percent of payroll.

The net result of all changes was to reduce the employer contribution rate from 6.70 percent to 5.00 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 $25.3 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 $2.0 million from the State Accumulation Account to the Annuity Reserve Account is 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, 1993 through December 31, 1998. The actuarial value of the assets has been greater than the actuarial accrued liability since before the December 31, 1993 actuarial valuation. This causes the unfunded actuarial accrued liability (UAAL) to be negative.

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 supported an adjustment to the valuation rate.

The Board adopted the valuation rate as the contribution rate in 1995, 1996, 1997, and 1998. 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, 1998. 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 1998 asset gain of $1.8 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 1998 with a projection through 2009. The first half of Schedule J shows 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 employe 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, 1998 by benefit class, sex, age, and length of service. It also shows the average annualized salary in 1998 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.

Plan Provisions

Schedule L contains a summary of the principal provisions of the plan. There was no change in the plan provisions during 1998.

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 EMPLOYES' RETIREMENT SYSTEM
UNFUNDED LIABILITY AND NORMAL COST AS OF DECEMBER 31, 1998

I.	Present Value of Benefits:	
	1) Active and Inactive Participants	
	a) Superannuation and Withdrawal	$ 16,341,241,033
	b) Disability	783,825,457
	c) Death	896,570,235
	d) Refunds	37,845,857
	e) Special Police and Enforcement Officer Benefits	19,581,902
	2) Annuitants and Beneficiaries	7,200,000,348
	3) Total	$ 25,279,064,832
II.	Present Value of Member and Employer Contributions:	
	1) Employer portion of Normal Cost	$ 4,405,837,470
	2) Member Contributions	2,515,328,074
	3) Special Police and Enforcement Officer Contributions	0
	4) Total	$ 6,921,165,544
III.	Actuarial Accrued Liability: (I) - (II)	$ 18,357,899,288
IV.	Actuarial Value of Assets	$ 20,670,711,370
V.	Unfunded Liability (III) - (IV)	$ (2,312,812,082)
VI.	Employer Normal Cost Rate	
	1) Normal Cost Rate for new active members to fund:	
	a) Superannuation and Withdrawal	12.12%
	b) Disability	0.86
	c) Death	0.65
	d) Refunds	0.33
	e) Total	13.96%
	2) Member Deductions	5.00%
	3) Employer Normal Cost (1)-(2)	8.96%

SCHEDULE A

STATE EMPLOYES' RETIREMENT SYSTEM
TOTAL EMPLOYER CONTRIBUTION RATE IN FISCAL YEAR 1999-0

	Funding Period 20 Years from July 1	Initial Amount of Liability	Outstanding Balance as of 12/31/98
I. Amortization of:			
1) Liability for Supplemental Annuities	1991	$405,641,841	$ 446,387,166
2) Liability for Other Benefits	1991	461,468,532	507,821,466
3) Liability (Asset) for Changes in 1991	1992	(735,926,889)	(817,869,349)
4) Liability (Asset) for Changes in 1992	1993	(428,770,084)	(477,849,265)
5) Liability (Asset) for Changes in 1993	1994	(556,924,446)	(618,515,980)
6) Liability for Changes in 1994	1995	392,912,465	434,070,658
7) Liability for Supplemental Annuities (1994 COLA)	1995	224,936,857	248,499,345
8) Liability (Asset) for Changes in 1995	1996	(173,981,943)	(178,938,976)
9) Liability (Asset) for Changes in 1996	1997	(455,733,960)	(465,697,162)
10) Liability (Asset) for Changes in 1997	1998	(840,207,534)	(850,483,598)
11) Liability for Supplemental Annuitants (1998 COLA)	1998	478,000,000	483,846,126
12) Liability (Asset) for Changes in 1998	1999	(1,024,082,513)	(1,024,082,513)
13) Total Liability Payment Sum of (1) through (12)			$(2,312,812,082)
II. Employer Normal Cost			
III. Total Employer Cost (I) + (II)			

* The payment is expressed as a percentage of the projected total payroll for active members in fiscal year 1999-2000 of $4,446,147,000. Percenta

STATE EMPLOYES' RETIREMENT SYSTEM
<u>EMPLOYER CONTRIBUTION RATE BY GROUP</u>

	Class A (Age 60 Retirement)	Class A (Age 50 Retirement)	Class A Park Rangers & Capitol Police	Class A State Police	Class C State Police	Clas Enforc t Offic
1) Basic Contribution Rate	4.02%	4.02%	4.02%	4.02%	4.02%	4.0
2) Age 50 Retirement	-	1.75%	1.42%	1.75%	1.75%	1.7
3) Multiplier Adjustment	1.00	1.00	1.00	1.558	1.558	1.0
4) Past Liability	-	-	1.18%	8.57%	8.57%	-
5) Class C Additional Annuities	-	-	-	-	0.00	0.0
6) Adjusted Contribution Rates: [(1) + (2)] x 3 + 4 + 5	4.02%	5.77%	6.62%	17.56%	17.56%	5.7
7) Projected 1999/00 Payroll (Dollars in thousands)	$3,565,060	$565,650	$7,941	$199,150	$22,578	$2,3
8) Employer Contribution Amount (Dollars in thousands)	$143,315	$32,638	$526	$34,971	$3,965	$1

Notes: The total employer contribution ($222,307,000) is the average employer contribution rate from Schedule B (5.00 perce ($4,446,147,000). The Basic Contribution Rate (4.02 percent) was determined as the percentage needed to produce employer co to $222,307,000. 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 1999/00)

		State Police	Enforcement Officers
1)	Balance in Benefit Account as of December 31, 1998	$1,129,342,293	$21,682,419
2)	Present Value of Benefits for Annuitants and Beneficiaries	991,905,917	19,501,544
3)	Assets available for additional annuities for Active Members: (1) - (2)	137,436,376	2,180,875
4)	Present Value of additional annuities for Active Members	17,340,188	2,138,477
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.

SCHEDULE D

STATE EMPLOYES' RETIREMENT SYSTEM
ANALYSIS OF THE CHANGE IN EMPLOYER CONTRIBUTION RATE

	Normal Cost	Unfunded Liabilities	Total
I. December 31, 1997 Valuation	8.99%	(2.29)%	6.70%
II. Changes - 12/31/98 Valuation:			
1) Gain from investment earnings		(1.80)	(1.80)
2) Change in demographics of new entrants	(0.03)	0.02	(0.01)
3) Pay increase different than assumptions		0.32	0.32
4) Other differences between actual experience and actuarial assumptions		(0.21)	(0.21)
Total change	(0.03)%	(1.67)%	(1.70)%
III. December 31, 1998 Valuation: (I) + (II)	8.96%	(3.96)%	5.00%

ANALYSIS OF THE CHANGE IN UNFUNDED LIABILITY

I. December 31, 1997 Unfunded Liability	$ (1,276,722,507)
II. Expected Amortization Payment	(96,514,351)
III. Expected Liability as of December 31, 1998 [((I) x 1.085) - (II)]	$ (1,288,729,569)
IV. Change in Liability Due to:	
1) Gain from investment earnings	$ (1,099,094,652)
2) Change in demographics in new entrants	14,751,688
3) Pay increase different than assumptions	193,944,936
4) Other differences between actual experience and actuarial assumptions	(133,684,485)
Total change	$ (1,024,082,513)
V. December 31, 1998 Unfunded Liability: (III) + (IV)	$ (2,312,812,082)

SCHEDULE E

STATE EMPLOYES' RETIREMENT SYSTEM
ACTUARIAL BALANCE SHEET AS OF DECEMBER 31, 1998

A S S E T S

Present Assets:	
Members Savings Account	$2,904,232,449
Annuity Reserve Account	6,188,592,887
State Police Benefit Account	1,129,342,293
Enforcement Officers Benefit Account	21,682,419
State Accumulation Account *	15,058,242,687
Supplemental Annuity Account	(1,178,732,637)
Total Present Assets (Market Value)	$24,123,360,098
Adjustment to Smooth Market Fluctuations	(3,452,648,728)
Total Present Assets (Actuarial Value)	$20,670,711,370
Present Value of Future Contributions	
Members' Contributions (Employe)	$2,515,328,074
Normal Cost Contributions (Employer)	4,405,837,470
Accrued Liability Amortization (Employer)	(3,491,544,719)
Supplemental Annuity Amortization (Employer)	1,178,732,637
Special State Police Contributions (Employer)	0
Special Enforcement Officer Contributions (Employer)	0
Total Future Contributions	$ 4,608,353,462
TOTAL ASSETS	$25,279,064,832

* Includes $2,722,654 in directed commissions.

L I A B I L I T I E S

Present Value of Benefits Payable to Annuitants and Beneficiaries from:	
Annuity Reserve Account	
State Police Benefit Account	
Enforcement Officers Benefit Account	
Total for Annuitants and Beneficiaries	
Present Value of Benefits to Active and Inactive Members from:	
Members Savings Account and State Accumu	
Superannuation and withdrawal	
Disability	
Death	
Refunds	
Subtotal	
State Police Benefit Account	
Enforcement Officers Benefit Account	
Total Present Value of Benefits to Active and Inactive Members	
TOTAL LIABILITIES	

STATE EMPLOYES' RETIREMENT SYSTEM
REQUIRED TRANSFERS WITHIN SERS ACCOUNTS

I. Annuity Reserve Account

Balance as reported by SERS	$6,186,641,424
Transfer from State Accumulation Account..	1,951,463
December 31, 1998 balance after transfers...	$6,188,592,887

II. State Accumulation Account *

Balance as reported by SERS...	$15,060,194,150
Transfer to Annuity Reserve Account..	(1,951,463)
December 31, 1998 balance after transfers	$15,058,242,687

* Balance includes $2,722,654 in directed commissions.

SCHEDULE G

STATE EMPLOYES' RETIREMENT SYSTEM
ACCOUNTING DISCLOSURE STATEMENTS

I. SCHEDULE OF FUNDING PROGRESS AS OF DECEMBER 31, 1998

(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)	Cover
12/31/93	13,060,613	12,213,736	(846,877)	106.9%	
12/31/94	13,991,485	13,742,056	(249,429)	101.8%	
12/31/95 *	15,510,309	15,067,205	(443,104)	102.9%	
12/31/96	16,841,069	15,936,617	(904,452)	105.7%	
12/31/97	18,565,136	17,288,413	(1,276,723)	107.4%	
12/31/98	20,670,711	18,357,899	(2,312,812)	112.6%	

* Revised economic and demographic assumptions due to experience review.

II. SCHEDULE OF EMPLOYER CONTRIBUTIONS AS OF DECEMBER 31, 1998

(Dollars in Thousands)

Calendar Year	Annual Required Contribution	Actual Contribution	Percentage Contributed
1992	$319,093	$319,093	100.0%
1993	310,089	304,122	98.1%
1994	342,158	342,927	100.2%
1995	376,692	384,506	102.1%
1996	373,903	373,903	100.0%
1997	324,093	324,093	100.0%
1998	310,501	310,501	100.0%

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 employe service under the Public School Employes 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, 1998
Actuarial cost method	Variation of Entry-age Actuarial Cost Method
Amortization method	Increasing (5 percent annually)
Remaining amortization period	12 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

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 1995, 1996, 1997, and 1998. 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 EMPLOYES' RETIREMENT SYSTEM
ACTUARIAL VALUE OF ASSETS

I.	Development of 12/31/98 Expected Actuarial Value:	
	1) Actuarial Value as of 12/31/97	$18,565,135,501
	2) Contributions in 1998	532,118,880
	3) Benefits and Expenses in 1998	(1,080,373,365)
	4) Investment return at 8.5% to 12/31/98 on (1)	1,578,036,518
	5) Investment return at 8.5% to 12/31/98 on .5 x ((2) + (3))	(23,300,816)
	6) Expected Actuarial Value as of 12/31/98: (1) + (2) + (3) + (4) + (5)	$19,571,616,718
II.	Previous Differences Not Yet Amortized:	
	1) Unrecognized amount of 12/31/94 Difference: .2 x $(1,375,742,682)	(275,148,536)
	2) Unrecognized amount of 12/31/95 Difference: .4 x $1,999,259,233	799,703,693
	3) Unrecognized amount of 12/31/96 Difference: .6 x $1,156,993,365	694,196,019
	4) Unrecognized amount of 12/31/97 Difference: .8 x $1,909,855,668	1,527,884,534
	5) Total	$ 2,746,635,710
III.	Gain or Loss from 1998	
	1) Market Value of Assets on 12/31/98	$24,123,360,098
	2) Expected Market Value II(5) + I(6)	22,318,252,428
	3) Gain (loss) from 1998 Investments (1) - (2)	$ 1,805,107,670
IV.	Development of Actuarial Value of Assets as of 12/31/97:	
	1) 20% of $(1,375,742,682) (12/31/94 Difference):	(275,148,536)
	2) 20% of $1,999,259,233 (12/31/95 Difference):	399,851,847
	3) 20% of $1,156,993,365 (12/31/96 Difference):	231,398,673
	4) 20% of $1,909,855,668 (12/31/97 Difference):	381,971,134
	5) 20% of $1,805,107,670 (12/31/98 Difference):	361,021,534
	6) Total Difference: (1) + (2) + (3) + (4) + (5)	1,099,094,652
	7) Actuarial Value at 12/31/97: I(6) + IV(6)	$ 20,670,711,370

SCHEDULE I

STATE EMPLOYES' RETIREMENT SYSTEM
PROJECTION OF POPULATION, BENEFITS, AND CONTRIBUTIONS

Projection of Annuitants and Employes
Actual Data Through 1998

	New Retirements During the Year	Deaths During the Year	Former Employes (EOY)	New Survivors During the Year	Survivor Deaths During the Year	Survivors (EOY)	Total Retired and Survivor Lives	Active Employes
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			78,017			7,817	85,834	108,893
1999	3,870	3,051	78,836	658	398	8,077	86,913	108,893
2000	3,830	3,100	79,566	667	425	8,319	87,885	108,893
2001	3,810	3,139	80,237	674	449	8,544	88,781	108,893
2002	3,912	3,175	80,974	680	471	8,753	89,727	108,893
2003	3,987	3,209	81,752	686	495	8,944	90,696	108,893
2004	3,973	3,238	82,487	691	518	9,117	91,604	108,893
2005	4,017	3,258	83,246	694	542	9,269	92,515	108,893
2006	3,962	3,276	83,932	697	564	9,402	93,334	108,893
2007	4,058	3,291	84,699	698	586	9,514	94,213	108,893
2008	4,082	3,304	85,477	700	610	9,604	95,081	108,893
2009	4,191	3,317	86,351	701	630	9,675	96,026	108,893

SCHEDULE J
(Page 1 of 2)

STATE EMPLOYES' RETIREMENT SYSTEM
PROJECTION OF POPULATION, BENEFITS, AND CONTRIBUTIONS (CONTINUED)

Projection of Expected Contributions and Benefits
Actual Data Through 1998

(Millions of Dollars)

	Contributions		
Calendar Year	Employe	Employer	Benefits/Expenses
1990	175	418	607
1991	183	381	664
1992	187	319	851
1993	190	304	781
1994	193	343	812
1995	202	385	894
1996	210	374	943
1997	213	324	1,037
1998	222	311	1,080
1999	229	271	1,201
2000	236	189	1,273
2001	244	104	1,348
2002	252	37	1,433
2003	261	9	1,578
2004	269	12	1,734
2005	278	11	1,838
2006	287	11	1,943
2007	297	11	2,060
2008	307	35	2,264
2009	317	60	2,495

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, 1998

ACTIVE EMPLOYES*

Males - Full Years of Service to December 31, 1998

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	Average Salary
Less than 20	11	0	0	0	0	0	0	11	$20,078
20-24	438	4	0	0	0	0	0	442	22,811
25-29	1,458	519	10	0	0	0	0	1,987	27,496
30-34	1,337	1,430	511	16	0	0	0	3,294	32,160
35-39	1,244	1,489	1,533	810	45	0	0	5,121	35,315
40-44	1,274	1,409	1,591	1,645	1,004	86	0	7,009	37,692
45-49	1,143	1,352	1,452	1,533	2,093	1,852	55	9,480	41,404
50-54	958	1,090	1,034	1,029	1,592	2,924	1,009	9,636	45,192
55-59	628	709	698	615	701	1,382	1,465	6,198	47,107
60-64	319	445	411	357	300	437	720	2,989	48,038
65+	175	235	161	116	122	118	270	1,197	49,078
Total:	8,985	8,682	7,401	6,121	5,857	6,799	3,519	47,364	$40,921

Average age	46.86
Average service	14.71

Females - Full Years of Service to December 31, 1998

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	$20,268
20-24	634	42	0	0	0	0	0	676	21,789
25-29	1,370	773	60	0	0	0	0	2,203	25,638
30-34	1,153	1,311	809	62	0	0	0	3,335	28,699
35-39	1,233	1,340	1,267	1,147	117	0	0	5,104	31,645
40-44	1,197	1,464	1,298	1,489	1,517	272	0	7,237	34,182
45-49	1,030	1,348	1,326	1,299	1,683	2,245	155	9,086	36,477
50-54	745	1,066	1,135	1,038	1,140	1,485	759	7,368	36,980
55-59	400	613	758	811	850	796	521	4,749	37,100
60-64	156	306	400	389	377	317	269	2,214	37,138
65+	74	123	140	118	89	91	117	752	35,652
Total:	8,030	8,386	7,193	6,353	5,773	5,206	1,821	42,762	$34,276

Average age	45.45
Average service	13.86

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.

STATE EMPLOYES' RETIREMENT SYSTEM
I. AGE, SERVICE, AND SALARY PROFILE OF ACTIVE PARTICIPANTS AS OF DECEMBER 31, 1998

SELECTED HAZARDOUS DUTY*

Males - Full Years of Service to December 31, 1998

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	158	0	0	0	0	0	0	158	23,044
25-29	1,400	470	0	0	0	0	0	1,870	33,977
30-34	1,179	1,818	201	2	0	0	0	3,200	40,565
35-39	582	917	852	164	3	0	0	2,518	43,067
40-44	400	466	553	512	156	2	0	2,089	44,898
45-49	364	435	389	308	440	116	5	2,057	45,611
50-54	332	367	399	189	262	447	88	2,084	46,825
55-59	121	149	180	97	75	139	97	858	46,064
60-64	38	72	95	39	33	20	25	322	43,422
65+	8	15	21	7	5	5	8	69	46,369
Total:	4,582	4,709	2,690	1,318	974	729	223	15,225	$42,518

Average age	40.45
Average service	9.45

Females - Full Years of Service to December 31, 1998

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	36	1	0	0	0	0	0	37	23,806
25-29	214	27	0	0	0	0	0	241	31,068
30-34	176	120	15	0	0	0	0	311	34,154
35-39	140	119	86	32	1	0	0	378	38,463
40-44	127	154	76	97	32	3	0	489	40,097
45-49	93	92	74	53	52	25	0	389	42,566
50-54	43	76	53	32	32	22	4	262	43,613
55-59	23	48	30	23	19	9	7	159	44,059
60-64	2	21	17	8	10	5	2	65	46,733
65+	2	0	3	4	1	1	1	12	52,738
Total:	856	658	354	249	147	65	14	2,343	$39,179

Average age	41.68
Average service	8.54

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

SCHEDULE K
(Page 2 of 10)

STATE EMPLOYES' RETIREMENT SYSTEM
I. AGE, SERVICE, AND SALARY PROFILE OF ACTIVE PARTICIPANTS AS OF DECEMBER 31, 1998

LEGISLATORS

Males - Full Years of Service to December 31, 1998

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	58,417
30-34	2	1	0	0	0	0	0	3	58,417
35-39	7	7	2	0	1	0	0	17	58,158
40-44	7	11	8	6	0	0	0	32	58,566
45-49	9	4	6	12	10	1	0	42	60,824
50-54	3	4	10	9	7	1	1	35	60,577
55-59	2	4	4	3	7	4	2	26	62,063
60-64	2	2	4	4	3	2	1	18	60,965
65+	2	1	2	3	6	3	12	29	62,358
Total:	35	34	36	37	34	11	16	203	$60,545

Average age	52.08
Average service	14.80

Females - Full Years of Service to December 31, 1998

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	0	2	0	0	0	0	0	2	58,417
40-44	2	1	1	0	0	0	0	4	58,398
45-49	0	0	0	2	0	0	0	2	58,417
50-54	3	6	0	0	0	0	0	9	58,417
55-59	2	3	0	1	0	0	0	6	58,417
60-64	0	2	0	0	0	0	0	2	58,417
65+	0	0	3	0	0	0	1	4	60,465
Total:	7	14	4	3	0	0	1	29	$58,697

Average age	53.41
Average service	8.69

SCHEDULE K
(Page 3 of 10)

STATE EMPLOYES' RETIREMENT SYSTEM
I. AGE, SERVICE, AND SALARY PROFILE OF ACTIVE PARTICIPANTS AS OF DECEMBER 31, 1998

JUDGES AND DISTRICT JUDGES

Males - Full Years of Service to December 31, 1998

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	55,027
30-34	3	4	0	0	0	0	0	7	55,027
35-39	6	6	2	0	0	0	0	14	55,027
40-44	26	24	17	2	1	0	0	70	72,602
45-49	23	53	34	22	10	3	0	145	73,185
50-54	28	52	45	28	10	7	2	172	85,426
55-59	19	40	36	23	17	9	7	151	83,200
60-64	10	18	18	24	17	17	5	109	85,262
65+	4	8	11	15	19	21	6	84	98,331
Total:	120	205	163	114	74	57	20	753	$81,958

Average age	53.66
Average service	12.28

Females - Full Years of Service to December 31, 1998

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	55,027
30-34	2	6	0	0	0	0	0	8	55,027
35-39	4	9	1	0	0	0	0	14	55,027
40-44	12	8	10	2	0	0	0	32	82,079
45-49	12	19	16	4	2	0	0	53	88,965
50-54	11	14	13	5	1	2	0	46	92,184
55-59	4	7	7	6	1	2	0	27	69,699
60-64	2	8	5	7	3	1	0	26	71,157
65+	0	1	1	3	0	2	0	7	63,041
Total:	48	72	53	27	7	7	0	214	$79,538

Average age	49.76
Average service	9.14

SCHEDULE K
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STATE EMPLOYES' RETIREMENT SYSTEM

I. AGE, SERVICE, AND SALARY PROFILE OF ACTIVE PARTICIPANTS AS OF DECEMBER 31, 1998

ALL ACTIVE EMPLOYES

Males - Full Years of Service to December 31, 1998

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	Average Salary
Less than 20	11	0	0	0	0	0	0	11	$20,078
20-24	596	4	0	0	0	0	0	600	22,872
25-29	2,860	989	10	0	0	0	0	3,859	30,652
30-34	2,521	3,253	712	18	0	0	0	6,504	36,332
35-39	1,839	2,419	2,389	974	49	0	0	7,670	37,947
40-44	1,707	1,910	2,169	2,165	1,161	88	0	9,200	39,666
45-49	1,539	1,844	1,881	1,875	2,553	1,972	60	11,724	42,605
50-54	1,321	1,513	1,488	1,255	1,871	3,379	1,100	11,927	46,103
55-59	770	902	918	738	800	1,534	1,571	7,233	47,790
60-64	369	537	528	424	353	476	751	3,438	48,854
65+	189	259	195	141	152	147	296	1,379	52,222
Total:	13,722	13,630	10,290	7,590	6,939	7,596	3,778	63,545	$41,853

Average age	45.42
Average service	13.42

Females - Full Years of Service to December 31, 1998

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	$20,268
20-24	670	43	0	0	0	0	0	713	21,893
25-29	1,585	800	60	0	0	0	0	2,445	26,170
30-34	1,331	1,437	824	62	0	0	0	3,654	29,221
35-39	1,377	1,470	1,354	1,179	118	0	0	5,498	32,183
40-44	1,338	1,627	1,385	1,588	1,549	275	0	7,762	34,764
45-49	1,135	1,459	1,416	1,358	1,737	2,270	155	9,530	37,022
50-54	802	1,162	1,201	1,075	1,173	1,509	763	7,685	37,562
55-59	429	671	795	841	870	807	528	4,941	37,528
60-64	160	337	422	404	390	323	271	2,307	37,810
65+	76	124	147	125	90	94	119	775	36,292
Total:	8,941	9,130	7,604	6,632	5,927	5,278	1,836	45,348	$34,757

Average age	45.28
Average service	13.56

SCHEDULE K
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STATE EMPLOYES' RETIREMENT SYSTEM
I. AGE, SERVICE, AND SALARY PROFILE OF ACTIVE PARTICIPANTS AS OF DECEMBER 31, 1998

ACTIVE AND INACTIVE EMPLOYES

Males - Full Years of Service to December 31, 1998

Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
less than 20	11	0	0	0	0	0	0	11
20-24	596	4	0	0	0	0	0	600
25-29	2,865	991	10	0	0	0	0	3,866
30-34	2,539	3,260	727	18	0	0	0	6,544
35-39	1,860	2,431	2,444	987	50	0	0	7,772
40-44	1,736	1,938	2,250	2,190	1,168	88	0	9,370
45-49	1,593	1,863	1,965	1,937	2,589	1,993	61	12,001
50-54	1,449	1,543	1,563	1,313	1,915	3,426	1,128	12,337
55-59	871	924	976	781	821	1,557	1,620	7,550
60-64	425	555	562	446	373	495	789	3,645
65+	205	267	212	151	167	154	316	1,472
Total:	14,150	13,776	10,709	7,823	7,083	7,713	3,914	65,168

Average age	45.58
Average service	13.41

Females - Full Years of Service to December 31, 1998

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	670	43	0	0	0	0	0	713
25-29	1,600	805	61	0	0	0	0	2,466
30-34	1,349	1,450	856	63	0	0	0	3,718
35-39	1,413	1,490	1,428	1,193	119	0	0	5,643
40-44	1,402	1,678	1,531	1,647	1,561	277	0	8,096
45-49	1,283	1,537	1,527	1,442	1,766	2,285	157	9,997
50-54	993	1,242	1,294	1,138	1,213	1,530	779	8,189
55-59	570	713	880	890	888	817	540	5,298
60-64	229	372	443	430	405	337	278	2,494
65+	115	131	159	135	93	99	126	858
Total:	9,662	9,461	8,179	6,938	6,045	5,345	1,880	47,510

Average age	45.49
Average service	13.39

SCHEDULE K
(Page 6 of 10)

STATE EMPLOYES' RETIREMENT SYSTEM

II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES AS OF DECEMBER 31, 1998

SUPERANNUATION ANNUITANTS

	Male		Female		Total	
Age	Number	Annual Pension	Number	Annual Pension	Number	Annual Pension
50-54	264	$ 8,230,610	29	$ 412,632	293	$ 8,643,242
55-59	877	27,804,689	152	3,033,109	1,029	30,837,798
60-64	2,714	60,097,389	1,661	22,539,774	4,375	82,637,163
65-69	4,823	82,080,288	3,333	36,503,042	8,156	118,583,330
70-74	5,881	84,840,620	4,408	41,302,551	10,289	126,143,171
75-79	5,240	60,404,662	4,607	34,997,238	9,847	95,401,900
80-84	3,368	30,255,575	3,451	22,459,917	6,819	52,715,492
85-89	1,888	16,752,886	2,057	14,011,519	3,945	30,764,405
90 & over	677	5,587,916	954	6,538,266	1,631	12,126,182
Total	25,732	$376,054,635	20,652	$181,798,048	46,384	$557,852,683

Average Age	74.3
Average Annual Pension	$12,027

STATE EMPLOYES' RETIREMENT SYSTEM

II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES AS OF DECEMBER 31, 1998

EARLY RETIREMENT ANNUITANTS

	Male		Female		Total	
Age	Number	Annual Pension	Number	Annual Pension	Number	Annual Pension
30-34	32	$ 32,365	79	$ 81,673	111	$ 114,038
35-39	185	296,869	347	532,065	532	828,934
40-44	451	954,528	1,027	2,005,137	1,478	2,959,665
45-49	1,212	5,428,405	2,042	5,501,465	3,254	10,929,870
50-54	2,910	42,098,071	1,913	11,489,380	4,823	53,587,451
55-59	2,873	44,286,386	1,754	16,441,630	4,627	60,728,016
60-64	2,217	33,499,522	1,741	17,213,241	3,958	50,712,763
65 69	2,034	25,867,138	1,523	12,725,458	3,557	38,592,596
70-74	1,084	11,902,021	1,086	7,532,849	2,170	19,434,870
75-79	495	4,702,166	645	4,069,624	1,140	8,771,790
80-84	181	1,620,713	251	1,821,446	432	3,442,159
85-89	73	560,495	81	611,976	154	1,172,471
90 & over	36	188,992	40	253,709	76	442,701
Total	13,783	$171,437,671	12,529	$80,279,653	26,312	$251,717,324

Average Age	58.4
Average Annual Pension	$9,567

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STATE EMPLOYES' RETIREMENT SYSTEM

II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES AS OF DECEMBER 31, 1998

DISABLED ANNUITANTS

	Male		Female		Total	
Age	Number	Annual Pension	Number	Annual Pension	Number	Annual Pension
30-34	10	$ 77,082	18	$ 153,474	28	$ 230,556
35-39	54	486,819	63	535,144	117	1,021,963
40-44	130	1,202,498	200	1,817,262	330	3,019,760
45-49	298	3,107,557	341	3,281,549	639	6,389,106
50-54	442	4,566,832	380	3,787,803	822	8,354,635
55-59	445	4,763,928	404	3,693,187	849	8,457,115
60-64	392	3,644,687	408	3,464,627	800	7,109,314
65-69	347	3,032,026	315	2,195,633	662	5,227,659
70-74	255	1,995,009	251	1,555,139	506	3,550,148
75-79	151	997,735	201	1,056,827	352	2,054,562
80-84	68	450,268	85	443,311	153	893,579
85-89	17	77,863	34	149,337	51	227,200
90 & over	3	10,786	9	35,097	12	45,883
Total	2,612	$24,413,090	2,709	$22,168,390	5,321	$46,581,480

Average Age 59.3
Average Annual Pension $8,754

SCHEDULE K
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STATE EMPLOYES' RETIREMENT SYSTEM
II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES AS OF DECEMBER 31, 1998

BENEFICIARIES AND SURVIVOR ANNUITANTS

	Male		Female		Total	
Age	Number	Annual Pension	Number	Annual Pension	Number	Annual Pension
Under 25	4	$ 5,898	7	$ 65,530	11	$ 71,428
25-29	4	51,563	8	159,016	12	210,579
30-34	5	16,513	7	36,784	12	53,297
35-39	11	61,260	19	291,520	30	352,780
40-44	28	150,031	40	277,592	68	427,623
45-49	27	66,099	81	475,006	108	541,105
50-54	41	149,184	143	975,056	184	1,124,240
55-59	36	156,576	254	2,197,523	290	2,354,099
60-64	48	236,010	391	2,820,660	439	3,056,670
65-69	47	245,002	631	4,941,624	678	5,186,626
70-74	127	898,295	1,160	7,108,019	1,287	8,006,314
75-79	78	388,324	1,440	7,323,883	1,518	7,712,207
80-84	80	322,751	1,468	6,249,246	1,548	6,571,997
85-89	34	135,849	1,053	4,387,492	1,087	4,523,341
90 & Over	7	26,052	538	2,223,758	545	2,249,810
Total	577	$2,909,407	7,240	$39,532,709	7,817	$42,442,116

Average Age	75.5
Average Annual Pension	$5,429

SCHEDULE K
(Page 10 of 10)

STATE EMPLOYES' RETIREMENT SYSTEM
BENEFIT AND CONTRIBUTION PROVISIONS AS OF DECEMBER 31, 1998
(as embodied in Act 31, approved March 1, 1974)

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

Eligible Employes

Class A - All regular State employes as well as employes of certain Commissions and Authorities and all employes of state-owned educational institutions and the State University (unless such employes have joined the Public School Employes' Retirement System or TIAA-CREF). All employes 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 employes of the 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.

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.

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

Class	Multiplier	
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.

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.

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. The optional forms of benefit are actuarially equivalent to the single life benefit using 4.0 percent interest per annum, and the actuarial equivalence factors described below.

Temporary Early Retirement Benefit

A temporary early retirement incentive is provided for under Act 1998-41. The early retirement incentive is available to eligible employes 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.

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.

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.

Actuarial Equivalence

There are three sets of actuarial equivalent factors that are used to calculate member retirement benefits. The determination of the specific factor to use for the member is dependent on when the member entered and earned service. The specific mortality tables are describe below.

- For members who entered service before August, 1983, for benefits attributable to service before August, 1983, for members and survivors:
  - Males – 1971 Group Annuity Mortality Table for Men
  - Females – 1971 Group Annuity Mortality Table for Men, setback 6 years
- For members who entered service before August, 1983, for benefit attributable to service after August, 1983:
  - Members – 1971 Group Annuity Mortality Table for Men, setback 6 years
  - Survivors – the 1971 Group Annuity Mortality table for Men
- For members who enter service after August, 1983:
  - Members – 1971 Group Annuity Mortality Table for Men, setback 2 years
  - Survivors – 1971 Group Annuity Mortality Table for Men, setback 4 years.

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 employes 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 Employes: The table used for current active employes 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.

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)

Age	Male	Female
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:*

Age	Male	Female
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.

FOR ACTIVE GENERAL EMPLOYES:

Rates of Separation Due to Withdrawal:*

	Male					Female			
	Years of Service					Years of Service			
Age	0	1	5	9+	Age	0	1	5	9+
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 EMPLOYES:

Rates of Separation Due to Death and Disability:

	Death			Disability*	
Age	Male	Female	Age	Male	Female
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.

FOR SPECIAL BENEFIT CLASSES:

Rates of Separation Due to Withdrawal:

Years of Service	State Police/ Hazardous Duty	Legislators	Judicial Officers
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:

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

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

Age	Hazardous Duty	Legislators	Judicial Officers
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

FOR SPECIAL BENEFIT CLASSES:

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

Service	
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

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

Age	Annual Increase	Age	Annual Increase
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 Employes' 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 Employes' 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 employes rather than for all current employes 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.

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(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 1999/2000 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 employe 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 EMPLOYES' RETIREMENT SYSTEM
DEFINITION OF TECHNICAL TERMS

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

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

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

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

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

Amortization. Paying off an amount with periodic payments of interest and 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.