

Commonwealth of Pennsylvania

State Employees' Retirement System

1989 ACTUARIAL REPORT

Hay/Huggins Company, Inc.
May 1990

Hay/Huggins Company, Inc.
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May 16, 1990

Hay/Huggins
Company

Mr. John Brosius, Executive Director
State Employees' Retirement System
Boas School Building
909 Green Street
Harrisburg, PA 17102

Dear Mr. Brosius:

This report presents the results of our actuarial valuation of the Pennsylvania State Employees' Retirement System (SERS) as of December 31, 1989. 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.

Purpose

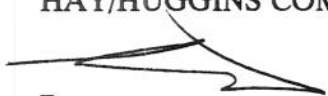
The main purposes of this report are:

- to indicate the pension contribution rates which will be the basis for the Fiscal Year 1990-91 appropriation request;
- to disclose the financial condition of the Plan;
- to provide information relating to the disclosure and reporting requirements of Statement No. 5 of the Governmental Accounting Standards Board;
- to provide information relating to the funding status of the accumulated plan benefits.

Certification

To the best of my 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, in the aggregate, are reasonable (taking into account past experience under the SERS and reasonable expectations) and which in combination represent my best estimate of anticipated experience under the plan.

Respectfully submitted,
HAY/HUGGINS COMPANY, INC.


By
EDWIN C. HUSTEAD, F.S.A.
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HayGroup

STATE EMPLOYES' RETIREMENT SYSTEM

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STATE EMPLOYES' RETIREMENT SYSTEM

VALUATION HIGHLIGHTS

	<u>December 31, 1989</u> <u>Valuation</u>	<u>December 31, 1988</u> <u>Valuation</u>
● Summary of Contributions: (Percent of Members' Compensation)		
Normal Cost	4.66%	4.68%
Amortization of Unfunded Actuarial Accrued Liability	5.62	6.11
Amortization of Supplemental Annuities	<u>2.04</u>	<u>2.24</u>
Total	12.32%	13.03%
Contribution Rate for:		
Class A Members: Age 60 Superannuation	11.86%	12.70%
Class A Members: Age 50 Superannuation	14.50	15.45
Class C: State Police	21.48	23.53
Enforcement Officers	14.50	15.45
Class D Members	54.38	57.94
Class E Members	21.57	19.05
● Market Value of Assets	\$9,784,574,157	\$8,311,830,320
● Projected Benefit Obligation	\$8,781,517,819	\$8,074,138,162
● Active Participants:		
Number	109,819	109,611
Average Projected 1990 Compensation ..	\$ 27,300	\$ 25,250
Total Projected 1990 Compensation	\$2,998,073,232	\$2,767,628,181
● Annuitants and Beneficiaries:		
Number	72,830	71,316
Total Annual Pension	\$ 435,544,979	\$ 415,526,918
● Inactive Participants:		
Number	3,336	3,243

STATE EMPLOYES' RETIREMENT SYSTEM

General Discussion

The liabilities and costs in this report were calculated using demographic assumptions based on plan experience, an interest rate of 5.5%, and a career salary growth that ranges from 4.45% a year at age 20 to 0.25% a year for employees after age 44. The actuarial assumptions are summarized in Schedule N.

The assumptions were selected to produce a realistic employer cost considering the legislative requirement that the valuation be based on an annual investment return of 5.5 percent. The assumptions are the same as those used for the December 31, 1988 valuation. For the 1989 valuation, the 5.5 percent interest rate and associated salary scale produced an aggregate employer cost approximately equal to the cost on the following rates of investment return and salary increases:

<u>Years</u>	<u>Salary Increases</u>			<u>Investment Return</u>
	<u>General</u>	<u>Average Career</u>	<u>Total</u>	
1990 to 1995	4.0%	2.0%	6.0%	9.8%
1996 to 2000	4.0	2.0	6.0	9.0
2001 to 2005	4.0	2.0	6.0	8.0
2006 to 2010	4.0	2.0	6.0	7.0
After 2010	4.0	2.0	6.0	6.0

Page 3 shows the history of the employer cost since 1984. There was a sharp drop in all components of the cost in 1985 as a result of findings from the five-year evaluation of experience under the State Employees' Retirement System. Rates from 1985 through 1989 have been based on that study. The regularly scheduled evaluation of experience will be used to review and adjust the current experience for the 1990 evaluation.

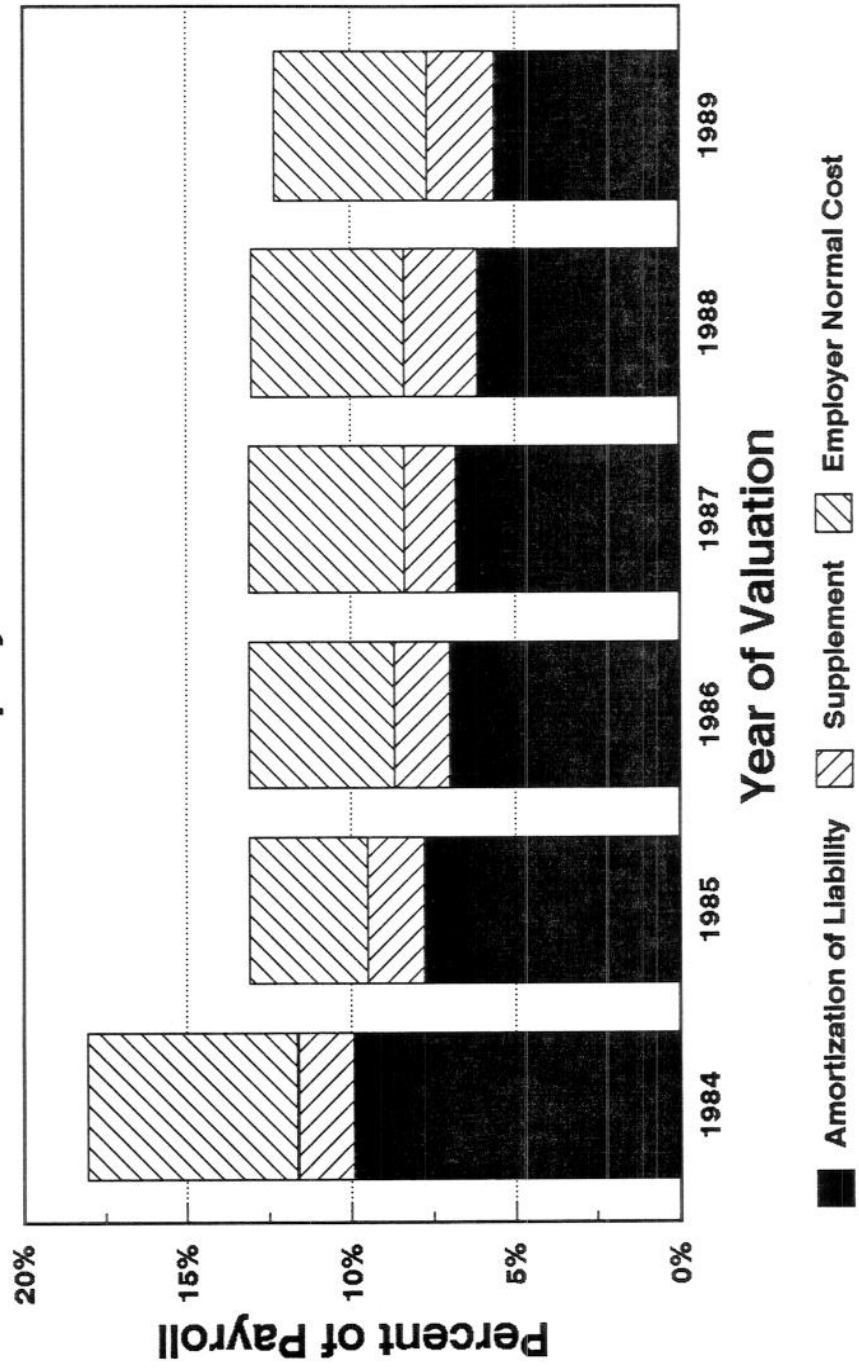
The normal cost has remained fairly constant since 1986 when there was an increase resulting from a change in the demographics of new hires. The payment for supplemental annuities normally reduces as the pay base increases. There was an increase in this payment in 1988 to fund the January 1, 1989 cost-of-living increase.

In most years, there was a reduction in the payment for the amortization of unfunded liability. The main reason for the reduction has been the excess investment income over the expected investment return.

STATE EMPLOYEES' RETIREMENT SYSTEM

Pennsylvania State Employees' Retirement System

Total Employer Cost



STATE EMPLOYES' RETIREMENT SYSTEM

COMMENTS ON SCHEDULES

Contribution Rate

Schedules A and B summarize the development of the Employer Contribution Rate before allocation by group. The Employer Contribution Rate comprises three pieces: the Normal Cost; the amortization of the Unfunded Actuarial Accrued Liability; and, the amortization of the liability for the Supplemental Annuities.

The Employer Contribution Rate calculated as a result of the December 31, 1989 actuarial valuation is 12.32%. The 1988 valuation had produced an Employer Contribution Rate of 13.03%. The three pieces composing the rate are as shown in the following table:

	<u>1989</u> <u>Valuation</u>	<u>1988</u> <u>Valuation</u>
Normal Cost Rate	4.66%	4.68%
Unfunded Actuarial Accrued Liability Rate	5.62	6.11
Supplemental Annuity Amortization Rate	<u>2.04</u>	<u>2.24</u>
TOTAL	12.32%	13.03%

The normal cost rate is the level percentage of compensation which would be required for new active members over their period of active service to fund the liability for any prospective benefits earned by these members. In making this calculation we used data for all active members who had not yet completed one year of credited service.

The unfunded actuarial accrued liability of \$1,584,905,107 is composed of two parts: one part is to be funded over 30 years from July 1, 1969 and the other part over 30 years from July 1, 1974. To the extent the unfunded actuarial accrued liability increases (decreases) due to changes in assumptions or due to gains or losses because actual experience differs from the actuarial assumptions, those increases (decreases) are prorated between the two parts based on the expected outstanding balances.

The accrued liability for supplemental annuities is composed of four parts to be funded in level payments over 20 years from July 1, 1974; July 1, 1979; July 1, 1984; and January 1, 1989.

STATE EMPLOYES' RETIREMENT SYSTEM

Employer Contribution Rates by Group

Schedule C summarizes the employer contribution rates for each group of members with different benefits. The basic employer contribution rate for general benefits is 11.86% of salary. There is an additional employer contribution required to pay for the added liability for members entitled to full benefits at age 50; for those entitled to an annual benefit rate that is a multiple of the basic 2% rate; for additional annuities for Class C and E members; and for the added liability for Class E members. The complete schedule of contribution rates is as follows:

Class A with age 60 benefit	11.86%
Class A with age 50 benefit	14.50
Class C - State Police	21.48
Class C - Enforcement Officers	14.50
Class D	54.38
Class E	21.57

Schedule D shows the development of the contribution rate for the cost of additional benefits payable at age 50, the additional Class E benefits, and the higher multipliers paid to Class D and Class E members. Full benefits are available at age 50 for all Class C and Class D members and some Class A members. The effect of the adjustments is to produce an aggregate employer contribution rate that is equal to the required rate of 12.32% of total payroll.

The benefit multipliers used are 3.75 for Class D and 1.6582 for Class E members. These are the ratios of the next year's average credited accrual rate for Class D and Class E to the general 2% accrual rate.

Schedule E 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. The State Police benefit requires contributions equal to 6.98% of the payroll to fully fund the additional benefit over the working life of the members. The Enforcement Officer benefits have been fully funded by past contributions.

A special contribution is developed for members of the Air and Army National Guard on Schedule F. It consists of the Employer Contribution Rate plus a contribution sufficient to amortize the deficiency in the Air and Army National Guard Account over 20 years from July 1, 1980.

Schedule G shows the reasons for the changes in the employer contribution rate and the Unfunded Actuarial Accrued Liability since the 1988 valuation. The primary reason for both changes was the excess investment earnings over the 5.5% valuation interest rate. The excess investment income reduced the contribution rate by 2.10% of salary and the unfunded liability by \$594,000,000. This reduction was partially offset by salary increases in excess of the valuation assumptions. The effect of salary increases accounted for almost all of the 1.16% increase in employer cost and \$466,000,000 increase in actuarial liability shown as "salary and miscellaneous" changes.

STATE EMPLOYES' RETIREMENT SYSTEM

The liability for the extension of early retirement window was increased by a net of .09% of salary to allow for more retirees than expected under that provision. The new benefits for Judges entering after March 1, 1974 resulted in an increase in the average employer contribution rate of .14% of salary. All of the .14% was allocated to the Class E contribution so there was no effect on the contribution of other Classes.

The net result of all changes was to decrease the aggregate employer contribution from 13.03% of compensation to 12.32%.

The amortization payment on the Unfunded Actuarial Accrued Liability would have reduced the liability to \$1,647,991,421 as of December 31, 1989. The combined result of other changes resulted in a liability of \$1,584,905,107.

Actuarial Balance Sheet and Account Balance Transfers

Schedule H contains an actuarial balance sheet. It shows that the excess of actuarial present value of plan benefits (Total Liabilities) over the present assets is fully funded by future contributions. These future contributions consist of Normal Cost payments; amounts to fund the Unfunded Actuarial Accrued Liability and Supplemental Annuities; and, special contributions for State Police and Enforcement Officers and Member Contributions.

Each year it is necessary to compare the account balance in the Annuity Reserve Account with the actuarial liability of that account and make the necessary transfer to bring the account into balance with the liability. There was a transfer to the Annuity Reserve Account of \$18,242,320. This transfer and the transfer for the supplement have been reflected in the account balances shown in Schedule H. Schedule I shows the details of the required account transfer.

Accounting Disclosure Statements

Schedule J provides information required by the Governmental Accounting Standards Board (GASB) and information on the accumulated plan benefits as defined by the Financial Accounting Standards Board (FASB).

The GASB liability for credited projected benefits is a standardized disclosure measure of the present value of pension benefits estimated to be payable in the future as a result of employee service to December 31, 1989. The liability was determined to be \$8,781,517,819. The market value of assets was, therefore, 111.4% of the Projected Benefit Obligation.

The actuarial present value of accumulated plan benefits was determined to be \$8,268,429,657 and the ratio of market value of assets to accumulated plan benefits was 118.3%. The accumulated plan benefits increased from \$7,449,947,772 in 1988 to \$8,268,429,657 in 1989. The interest rate was reduced from 7.75% to 7.25% resulting in an increase in the liability of \$396,000,000. Additional benefits earned plus the change in plan provision resulted in the rest of the increase.

Plan Assets

Schedule K summarizes the development of the actuarial value of assets as of December 31, 1989. The assets are based on the unaudited financial statements prepared by SERS.

STATE EMPLOYES' RETIREMENT SYSTEM

The asset valuation method smooths out year-to-year fluctuations in the market value. The approach gradually recognizes, over a 5 year period, the differences between total investment returns and the assumed rate of 5-1/2%. This smoothing method includes 20% of the 1989 asset gain of \$1,051,384,490 this year, with the remainder to be recognized over the next four years.

A detailed description of the asset valuation method is contained in Schedule O.

Participant Data

Section I of Schedule L provides a distribution of the active participants as of December 31, 1989 by benefit class, sex, age, and length of service. It also shows the average projected salary by age group and sex. Section II of the schedule shows the retired participants, beneficiaries, and terminated vested participants 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 M contains a summary of the principal permanent provisions of the plan in effect as of December 31, 1989. Since the prior valuation, a benefit improvement was given to Judges and District Justices who became members on and after March 1, 1974. The benefits were increased to the same level as the Class E members who entered before March 1, 1974. A temporary early retirement benefit is available to members who retire before September 30, 1991.

Actuarial Assumptions

Schedule N summarizes the actuarial assumptions used for the valuation. There was no change in assumptions in 1989.

Funding Methods

Schedule O explains the funding methods used in the valuation. The asset valuation method smooths investment gains and losses over five years. The funding and contribution policy provides for reasonable levels of contribution that will amortize all existing liabilities by June 30, 2004. The section explains the calculation of the Projected Benefit Obligation and calculation of the accumulated plan benefits used for the audit reports.

Definitions

Schedule P defines certain technical terms used in the valuation.

STATE EMPLOYES' RETIREMENT SYSTEM

I. UNFUNDED ACTUARIAL ACCRUED LIABILITY DECEMBER 31, 1989

1) Present Value of Benefits:		
a) Active and Inactive Participants		
Superannuation and Withdrawal		\$ 7,977,575,363
Disability		419,105,850
Death		674,478,638
Refunds		59,915,532
Special Police and Enforcement		
Officer Benefits		100,468,636
b) Annuitants and Beneficiaries		<u>4,258,648,433</u>
c) Total		\$13,490,192,452
2) Present Value of Member and Employer Contributions:		
a) Employer portion of Normal Cost		\$ 1,252,086,142
b) Supplemental Annuity Amortization		561,814,700
c) Member Contributions		1,505,549,380
d) Special Police and Enforcement		
Officer Contributions		<u>59,627,749</u>
e) Total		\$ 3,379,077,971
3) Actuarial Accrued Liability: (1) - (2)		\$10,111,114,481
4) Actuarial Value of Assets		\$ 8,526,209,374
5) Unfunded Actuarial Accrued Liability: (3) - (4)		\$ 1,584,905,107

II. AMORTIZATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY

<u>Funding Period</u> 30 Years from July 1	<u>Amount of</u> <u>Liability</u>	<u>Annual Payment to Fund</u>	
		<u>Amount</u>	<u>Percent*</u>
1969	\$1,059,712,727	\$122,673,233	4.09%
1974	<u>525,192,380</u>	<u>41,296,826</u>	<u>1.38</u>
	\$1,584,905,107	\$163,970,059	5.47%

*Payment for 1990 expressed as a percentage of the estimated total payroll for active members in 1990 of \$2,998,073,232. The estimate was obtained by multiplying the 1989 salary for each active employe by the salary growth assumption for one year.

STATE EMPLOYES' RETIREMENT SYSTEM

I. DEVELOPMENT OF EMPLOYER NORMAL COST RATE
(Fiscal Year 1990-91)

1) Normal Cost Rate for New Active Members:		
a) Superannuation and Withdrawal		8.65%
b) Disability68
c) Death57
d) Refunds		<u>.89</u>
e) Total		10.79%
2) Member Deductions		6.25%
3) Employer Normal Cost (1) - (2)		4.54%

II. AMORTIZATION OF SUPPLEMENTAL ANNUITIES

<u>Funding Period</u> <u>20 Years from</u>	<u>Amount of</u> <u>Liability</u>	<u>Annual Payment to Fund</u> <u>Amount</u>	<u>Percent*</u>
July 1, 1974	\$ 29,130,299	\$ 7,102,353	.24
July 1, 1979	137,109,448	17,938,280	.60
July 1, 1984	152,167,322	14,697,329	.49
January 1, 1989	<u>243,407,631</u>	<u>19,876,339</u>	<u>.66</u>
	\$ 561,814,700	\$ 59,614,301	1.99%

* Payment for 1990 expressed as a percentage of the estimated total payroll for active members in 1990 of \$2,998,073,232. The estimate was obtained by multiplying the 1989 salary for each active employe by the salary growth assumption for one year.

III. DEVELOPMENT OF TOTAL EMPLOYER CONTRIBUTION RATE
(Fiscal Year 1990-91)

	<u>Payable</u> <u>January 1</u>	<u>Payable</u> <u>Quarterly**</u>
1) Employer Normal Cost	4.54%	4.66%
2) Payment on Unfunded Actuarial Accrued Liability	5.47	5.62
3) Payment on Supplemental Annuities	<u>1.99</u>	<u>2.04</u>
4) Total	12.00%	12.32%

** Equals the Employer contribution payable January 1 plus 2.75% interest.

STATE EMPLOYES' RETIREMENT SYSTEM

TOTAL CONTRIBUTION RATE BY GROUP

(Fiscal Year 1990-91)

	<u>Basic Rate</u>	<u>Additional for Age 50 Retirement</u>	<u>Service Multiplier</u>	<u>Additional Benefit</u>	<u>Total</u>
Class A (age 60 superannuation)	11.86%	-	-	-	11.86%
Class A (age 50 superannuation)	11.86	2.64	-	-	14.50%
Class C					
State Police	11.86	2.64	-	6.98	21.48%
Enforcement Officers	11.86	2.64	-	0.00	14.50%
Class D	11.86	2.64	39.88	-	54.38%
Class E	11.86	-	7.81	1.90	21.57%

STATE EMPLOYEES' RETIREMENT SYSTEM

EMPLOYER CONTRIBUTION RATE BY GROUP

	<u>Class A (Age 60 Super- annuation)</u>	<u>Class A (Age 50 Super- annuation) and Class C*</u>	<u>Class D</u>	<u>Class E</u>	<u>Total</u>
1) Basic Contribution Rate	11.86%	11.86%	11.86%	11.86%	N/A
2) Additional Contribution Rate for Age 50 Superannuation	-	2.64%	2.64%	-	N/A
3) Service Multiplier Adjustment for Class D and Class E	1.0	1.0	3.75	1.6582	N/A
4) Added for Past Liability	-	-	-	1.90%	N/A
5) Adjusted Contribution Rates: [(1) + (2)] x (3) + (4)	11.86%	14.50%	54.38%	21.57%	12.32%
6) Projected 1990 Payroll	\$2,639,197,000	\$306,713,000	\$1,916,000	\$50,247,000	\$2,998,073,000
7) Employer Contribution Amount **	\$ 313,009,000	\$ 44,473,000	\$1,042,000	\$10,838,000	\$ 369,362,000

* Before adding the cost of the additional Class C benefits.

**The basic contribution rate is determined algebraically such that the sum of the adjusted contribution rate for each class times the payroll for each class equals the product of the total contribution rate and total payroll. The sum of the employer contribution amount by class may differ slightly from the total salary times the total rate as a result of rounding.

STATE EMPLOYEES' RETIREMENT SYSTEM

STATE POLICE AND ENFORCEMENT OFFICERS - ADDITIONAL ANNUITY RATE
(Fiscal Year 1990-91)

	<u>State Police</u>	<u>Enforcement Officers</u>
1) Balance in Benefit Account as of December 31, 1989	\$289,007,964	\$24,121,844
2) Present Value of Benefits for Annuitants and Beneficiaries	251,551,303	16,022,286
3) Assets available for additional annuities for Active Members: (1) - (2)	37,456,661	8,099,558
4) Present Value of additional annuities for Active Members	97,084,410	3,384,226
5) Present Value of Future Contribution to fund additional annuities: (4) - (3)	59,627,749	0
6) Present Value of Future Compensation for eligible Active Members	878,372,284	*
7) Contribution Rate as a percentage of payroll payable January 1: (5) / (6)	6.79%	0.00%
8) Contribution Rate as a percent of payroll payable quarterly:	<u>6.98%</u>	<u>0.00%</u>

* Not calculated because additional annuity is fully funded.

STATE EMPLOYES' RETIREMENT SYSTEM

AIR AND ARMY NATIONAL GUARD ACCOUNT CONTRIBUTION RATE
(Fiscal Year 1990-91)

1)	Estimated Account Balance @ July 1, 1990	\$3,950,364
2)	Contribution Required to Amortize (1) over 20 years from July 1, 1980	510,064
3)	Estimated Fiscal year 1990-91 payroll for Air and Army National Guard Members	1,200,000
4)	Employer Contribution Rate	11.86%
5)	Total Required Contribution: (2) + ((3) x (4))	652,384

STATE EMPLOYES' RETIREMENT SYSTEM

I. ANALYSIS OF CHANGE IN EMPLOYER CONTRIBUTION RATE

	<u>Normal Cost</u>	<u>Accrued Liability</u>	<u>Supplemental Annuities</u>	<u>Total</u>
1) December 31, 1988 Valuation	4.68%	6.11%	2.24%	13.03%
2) Changes - 12/31/89 Valuation:				
a) Excess Investment Earnings		(2.10)		(2.10)
b) Extension of the early retirement window		0.09		0.09
c) New benefits for Judges entering after March 1, 1974		0.14		0.14
d) Salary Increase Over Assumed Rates and Miscellaneous Changes	<u>(0.02)</u>	<u>1.38</u>	<u>(0.20)</u>	<u>1.16</u>
e) Total Change	(0.02%)	(0.49%)	(0.20%)	(0.71%)
3) December 31, 1989 Valuation:				
(1) + (2)	4.66%	5.62%	2.04%	12.32%

II. ANALYSIS OF CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY

1) December 31, 1988 Unfunded Actuarial Accrued Liability	\$ 1,726,685,966
2) Expected amortization payment	164,608,790
3) Expected liability as of December 31, 1989 [((1) - (2)) x 1.055]	1,647,991,421
4) Change in Liability due to:	
a) Excess Investment Earnings	(593,916,653)
b) Extension of the early retirement window	24,000,000
c) New benefits for Judges hired after March 1, 1974	40,479,670
d) Salary Increases Over Assumed Rates and Miscellaneous Changes	<u>466,350,669</u>
e) Total Change	\$ (63,086,314)
5) December 31, 1989 Unfunded Actuarial Accrued Liability:	
(3) + (4)	\$ 1,584,905,107

STATE EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL BALANCE SHEET

ASSETS

Present Assets:

Members' Savings Account	\$ 1,725,723,794
Annuity Reserve Account	3,991,074,844
State Police Benefit Account	289,007,964
Enforcement Officers Benefit Account	24,121,844
State Accumulation Account	4,316,460,411
Supplemental Annuity Account	(561,814,700)
Total Present Assets (Market Value)	\$ 9,784,574,157

Adjustment to smooth market

fluctuations	(1,258,364,783)
Total Present Assets (Actuarial Value)	\$ 8,526,209,374

Present Value of Future Contributions

Members' Contributions (Employee)	\$ 1,505,549,380
Normal Cost Contributions (Employer)	1,252,086,142
Accrued Liability Amortization (Employer)	1,584,905,107
Supplemental Annuity Amortization (Employer)	561,814,700
Special State Police Contributions (Employer)	59,627,749
Special Enforcement Officer Contributions (Employer)	0
Total Future Contributions	\$ 4,963,983,078

TOTAL ASSETS

\$13,490,192,452

LIABILITIES

Present Value of Benefits Payable to Annuitants

and Beneficiaries from:	
Annuity Reserve Account	\$ 3,991,074,844
State Police Benefit Account	251,551,303
Enforcement Officers Benefit Account	16,022,286
Total for Annuitants and Beneficiaries	\$ 4,258,648,433

Present Value of Benefits to Active

and Inactive Members from:

Member Savings Account and State Accumulation Account

Superannuation and	
Withdrawal	\$ 7,977,575,363
Disability	419,105,850
Death	674,478,638
Refunds	59,915,532
Subtotal	\$ 9,131,075,383
State Police Benefit Account	97,084,410
Enforcement Officers Benefit Account	3,384,226
Total	\$ 9,231,544,019

TOTAL LIABILITIES

\$13,490,192,452

STATE EMPLOYES' RETIREMENT SYSTEM

REQUIRED TRANSFERS WITHIN SERS ACCOUNTS

1.	Annuity Reserve Account	
	Balance as reported by SERS	\$ 3,972,832,524
	Transfer from State Accumulation Account	<u>18,242,320</u>
	December 31, 1989 balance after transfers	\$ 3,991,074,844
2.	State Accumulation Account	
	Balance as reported by SERS	\$ 4,334,702,731
	Transfer to Annuity Reserve Account	<u>(18,242,320)</u>
	December 31, 1989 Balance after transfers	\$ 4,316,460,411

STATE EMPLOYES' RETIREMENT SYSTEM

ACCOUNTING DISCLOSURE STATEMENTS

I. FUNDING STATUS OF PROJECTED BENEFIT OBLIGATION AS OF DECEMBER 31, 1989

	<u>Number of</u> <u>Members</u>	
1) Projected benefit obligation		
a) Retirees and beneficiaries		
1. Superannuation retirements	45,471	\$2,366,288,479
2. Early retirements	17,413	723,050,219
3. Disabled	4,067	170,459,858
4. Beneficiaries	<u>5,879</u>	<u>145,460,360</u>
5. Total	72,830	\$3,405,258,916
b) Inactive participants	3,336	\$ 69,009,959
c) Active members		
1. Employee contributions and interest		\$1,725,723,794
2. Employer-financed liability - vested	67,485	3,277,540,621
3. Employer-financed liability - nonvested	<u>42,334</u>	<u>303,984,529</u>
4. Total	109,819	\$5,307,248,944
d) Total obligation for all members	185,985	\$8,781,517,819
2) Market value of assets available for benefits		\$9,784,574,157
3) Unfunded projected benefit obligation		\$(1,003,056,338)
4) Assets as a percent of projected benefit obligation		111.4%

The amount shown above as the projected benefit obligation (PBO) is a standardized disclosure measure of the present value of pension benefits estimated to be payable in the future as a result of employee service to December 31, 1989. The PBO was calculated in conformance with the requirements of Statement No. 5 of the Governmental Accounting Standards Board (GASB) - "Disclosure of Pension Information by Public Employees' Retirement Systems and State and Local Governmental Employers." The calculation assumes salaries will increase as stated in Schedule N. No postretirement increases are assumed.

STATE EMPLOYES' RETIREMENT SYSTEM

ACCOUNTING DISCLOSURE STATEMENTS

II. FUNDING STATUS OF ACCUMULATED PLAN BENEFITS AS OF DECEMBER 31, 1989

1)	Actuarial Present Value of Accumulated Plan Benefits	
	a) Vested	
	1. Active participants	\$4,322,357,266
	2. Inactive	53,508,580
	3. Superannuation Retirements	2,592,714,607
	4. Early Retirements	812,587,849
	5. Disabled	187,363,578
	6. Beneficiaries	<u>158,976,546</u>
	7. Total Vested	\$8,127,508,426
	b) Non-vested	\$140,921,231
	c) Total	\$8,268,429,657
2)	Market Value of Assets	\$9,784,574,157
3)	Ratio of market value of assets to actuarial present value of accumulated benefits	
	a) Vested benefits	120.4%
	b) Accumulated benefits	118.3%
4)	Changes in Accumulated Plan Benefits	
	a) Value as of December 31, 1988	\$7,449,947,772
	b) Changes during year	
	1. Due to passage of time and other causes	\$402,481,885
	2. Due to change in plan provision	20,000,000
	3. Due to change in interest rate	<u>396,000,000</u>
	4. Total change	\$818,481,885
	c) Value as of December 31, 1989	\$8,268,429,657

STATE EMPLOYES' RETIREMENT SYSTEM

ACTUARIAL VALUE OF ASSETS

I. Development of 12/31/89 Expected Actuarial Value:	
1) Actuarial Value as of 12/31/88	\$7,510,933,374
2) Contributions in 1989	581,166,201
3) Benefits and Expenses in 1989	573,129,207
4) Interest @ 5.5% to 12/31/89 on (1)	413,101,336
5) Interest @ 5.5% to 12/31/89 on .5 x ((2) - (3))	<u>221,017</u>
6) Expected Actuarial Value as of 12/31/89: (1) + (2) - (3) + (4) + (5)	\$7,932,292,721
II. Previous Differences Not Yet Amortized:	
1) Unrecognized Amount of 12/31/85 Difference: .2 x \$846,693,525	\$ 169,338,705
2) Unrecognized Amount of 12/31/86 Difference: .4 x \$616,681,305	246,672,522
3) Unrecognized Amount of 12/31/87 Difference: .6 x \$(105,132,816)	(63,079,690)
4) Unrecognized amount of 12/31/88 Difference: .8 x \$ 559,956,761	<u>447,965,409</u>
5) Total	\$ 800,896,946
III. Gain or Loss from 1989	
1) Market Value of Assets on 12/31/89	\$9,784,574,157
2) Expected Market Value II(5) + I(6)	<u>8,733,189,667</u>
3) Gain (loss) from 1989 Investments (1) - (2)	\$1,051,384,490
IV. Development of Actuarial Value of Assets as of 12/31/89:	
1) 20% of \$846,693,525 (12/31/85 Difference):	\$169,338,705
2) 20% of \$616,681,305 (12/31/86 Difference):	123,336,261
3) 20% of \$(105,132,816) (12/31/87 Difference):	(21,026,563)
4) 20% of \$559,956,761 (12/31/88 Difference):	111,991,352
5) 20% of \$1,051,384,490 (12/31/89 Difference):	<u>210,276,898</u>
6) Total Difference: (1) + (2) + (3) + (4) + (5)	<u>\$ 593,916,653</u>
7) Actuarial Value at 12/31/89: I(6) + IV(6)	<u>\$8,526,209,374</u>

STATE EMPLOYES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1989

ACTIVE EMPLOYES*

<u>Age</u>	<u>Males - Full Years of Service to December 31, 1989</u>							<u>Total</u>	<u>Average Salary</u>
	<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>		
Less than 20	19	0	0	0	0	0	0	19	\$16,961
20-24	726	62	0	0	0	0	0	788	19,007
25-29	1,863	1,085	183	0	0	0	0	3,131	22,524
30-34	1,828	1,899	1,431	210	0	0	0	5,368	24,611
35-39	1,663	1,730	2,316	2,210	256	0	0	8,175	26,909
40-44	1,320	1,347	1,864	3,590	2,142	119	0	10,382	29,403
45-49	800	763	944	1,736	2,215	1,073	67	7,598	31,443
50-54	598	676	680	1,026	1,411	1,225	664	6,280	32,798
55-59	511	532	682	1,019	989	1,032	1,058	5,823	32,566
60-64	315	384	550	676	659	592	627	3,803	31,899
65+	<u>100</u>	<u>123</u>	<u>230</u>	<u>202</u>	<u>184</u>	<u>147</u>	<u>210</u>	<u>1,196</u>	35,028
Total	<u>9,743</u>	<u>8,601</u>	<u>8,880</u>	<u>10,669</u>	<u>7,856</u>	<u>4,188</u>	<u>2,626</u>	<u>52,563</u>	<u>\$29,315</u>

Average age 44.4
Average service 13.8

<u>Age</u>	<u>Females - Full Years of Service to December 31, 1989</u>							<u>Total</u>	<u>Average Salary</u>
	<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>		
Less than 20	96	0	0	0	0	0	0	96	\$16,803
20-24	1,308	218	0	0	0	0	0	1,526	18,199
25-29	1,874	1,503	458	0	0	0	0	3,835	20,521
30-34	1,726	1,733	1,930	504	0	0	0	5,893	22,383
35-39	1,722	1,489	1,974	2,779	606	0	0	8,570	23,370
40-44	1,158	1,534	1,456	1,949	1,698	195	0	7,990	24,225
45-49	912	1,034	1,193	1,159	954	556	81	5,889	24,374
50-54	582	699	1,052	1,123	767	467	331	5,021	24,669
55-59	355	563	876	1,143	866	416	294	4,513	24,386
60-64	132	364	547	720	537	293	212	2,805	24,224
65+	<u>31</u>	<u>81</u>	<u>157</u>	<u>213</u>	<u>187</u>	<u>85</u>	<u>106</u>	<u>860</u>	24,696
Total	<u>9,896</u>	<u>9,218</u>	<u>9,643</u>	<u>9,590</u>	<u>5,615</u>	<u>2,012</u>	<u>1,024</u>	<u>46,998</u>	<u>\$23,415</u>

Average age 42.9
Average service 12.0

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

STATE EMPLOYES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1989

SELECTED HAZARDOUS DUTY*

Age	Males - Full Years of Service to December 31, 1989							Total	Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30+		
Less than 20	0	0	0	0	0	0	0	0	\$ 0
20-24	175	0	0	0	0	0	0	175	21,752
25-29	741	291	4	0	0	0	0	1,036	26,786
30-34	391	622	202	3	0	0	0	1,218	30,418
35-39	246	292	349	134	4	0	0	1,025	31,635
40-44	298	285	172	666	596	16	0	2,033	34,086
45-49	118	139	76	201	758	317	31	1,640	36,002
50-54	96	102	49	48	135	219	181	830	34,798
55-59	60	61	35	37	33	60	182	468	34,645
60-64	19	14	13	16	5	26	33	126	31,911
65+	3	3	3	1	4	1	4	19	27,088
Total	2,147	1,809	903	1,106	1,535	639	431	8,570	\$32,556

Average age 40.9

Average service 13.1

Age	Females - Full Years of Service to December 31, 1989							Total	Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30+		
Less than 20	0	0	0	0	0	0	0	0	\$ 0
20-24	12	0	0	0	0	0	0	12	23,386
25-29	63	35	3	0	0	0	0	101	25,551
30-34	43	68	22	3	0	0	0	136	28,534
35-39	43	44	22	13	1	0	0	123	27,770
40-44	24	18	11	16	8	1	0	78	28,013
45-49	12	21	6	2	6	1	0	48	26,144
50-54	7	7	4	5	5	1	1	30	27,295
55-59	0	5	5	1	2	0	2	15	30,426
60-64	1	3	1	2	1	0	0	8	26,464
65+	0	1	0	0	0	0	0	1	26,961
Total	205	202	74	42	23	3	3	552	\$27,376

Average age 36.9

Average service 7.3

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

STATE EMPLOYES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1989

LEGISLATORS

<u>Age</u>	<u>Males - Full Years of Service to December 31, 1989</u>							<u>Total</u>	<u>Average Salary</u>
	<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>		
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	2	0	0	0	0	0	0	2	47,000
30-34	5	5	5	0	0	0	0	15	50,655
35-39	5	15	13	2	0	0	0	35	47,000
40-44	10	8	17	5	3	0	0	43	47,911
45-49	5	7	14	7	4	0	0	37	52,114
50-54	4	6	6	6	5	3	1	31	50,147
55-59	2	4	6	1	4	2	6	25	50,048
60-64	1	4	8	7	4	2	1	27	48,325
65+	<u>1</u>	<u>0</u>	<u>4</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>20</u>	48,459
Total	<u>35</u>	<u>49</u>	<u>73</u>	<u>30</u>	<u>23</u>	<u>11</u>	<u>14</u>	<u>235</u>	<u>\$49,221</u>

Average age 48.8
Average service 13.1

<u>Age</u>	<u>Females - Full Years of Service to December 31, 1989</u>							<u>Total</u>	<u>Average Salary</u>
	<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>		
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	1	0	1	1	0	0	0	3	47,000
40-44	0	0	1	0	0	0	0	1	47,000
45-49	1	1	0	0	0	0	0	2	47,000
50-54	1	1	0	0	0	0	0	2	47,000
55-59	3	1	0	0	0	0	0	4	47,000
60-64	1	1	1	0	0	0	0	3	47,000
65+	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>2</u>	47,000
Total	<u>7</u>	<u>4</u>	<u>3</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>17</u>	<u>\$47,000</u>

Average age 54.0
Average service 10.5

STATE EMPLOYES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1989

JUDGES AND DISTRICT JUSTICES

<u>Age</u>	<u>Males - Full Years of Service to December 31, 1989</u>							<u>Total</u>	<u>Average Salary</u>
	<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>		
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	2	0	0	0	0	0	0	2	38,030
30-34	7	4	0	0	0	0	0	11	37,440
35-39	28	26	6	5	0	0	0	65	47,238
40-44	36	41	10	13	4	0	0	104	56,175
45-49	27	39	10	10	4	3	0	93	56,981
50-54	13	28	22	20	17	4	3	107	61,857
55-59	14	23	26	27	25	4	2	121	63,931
60-64	5	29	13	29	33	14	12	135	60,853
65+	<u>3</u>	<u>10</u>	<u>15</u>	<u>24</u>	<u>33</u>	<u>9</u>	<u>12</u>	<u>106</u>	60,223
Total	<u>135</u>	<u>200</u>	<u>102</u>	<u>128</u>	<u>116</u>	<u>34</u>	<u>29</u>	<u>744</u>	<u>\$58,673</u>

Average age 53.1
Average service 12.8

<u>Age</u>	<u>Females - Full Years of Service to December 31, 1989</u>							<u>Total</u>	<u>Average Salary</u>
	<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>		
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	35,928
30-34	4	2	0	0	0	0	0	6	37,094
35-39	14	5	3	0	0	0	0	22	54,638
40-44	8	10	1	0	1	0	0	20	54,714
45-49	4	4	2	1	0	0	0	11	48,200
50-54	5	6	7	3	3	0	0	24	40,430
55-59	1	4	4	4	5	0	0	18	41,900
60-64	2	9	2	1	9	0	0	23	43,587
65+	<u>1</u>	<u>4</u>	<u>2</u>	<u>5</u>	<u>2</u>	<u>1</u>	<u>0</u>	<u>15</u>	52,056
Total	<u>40</u>	<u>44</u>	<u>21</u>	<u>14</u>	<u>20</u>	<u>1</u>	<u>0</u>	<u>140</u>	<u>\$47,092</u>

Average age 50.5
Average service 9.6

STATE EMPLOYEES' RETIREMENT SYSTEM

I. AGE, AND SERVICE PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1989

ALL ACTIVE EMPLOYEES

<u>Age</u>	<u>Males - Full Years of Service to December 31, 1989</u>							<u>Total</u>	<u>Average Salary</u>
	<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>		
Less than 20	19	0	0	0	0	0	0	19	\$ 16,961
20-24	901	62	0	0	0	0	0	963	19,506
25-29	2,608	1,376	187	0	0	0	0	4,171	23,601
30-34	2,231	2,530	1,638	213	0	0	0	6,612	25,761
35-39	1,942	2,063	2,684	2,351	260	0	0	9,300	27,648
40-44	1,664	1,681	2,063	4,274	2,745	135	0	12,562	30,446
45-49	950	948	1,044	1,954	2,981	1,393	98	9,368	32,577
50-54	711	812	757	1,100	1,568	1,451	849	7,248	33,530
55-59	587	620	749	1,084	1,051	1,098	1,248	6,437	33,374
60-64	340	431	584	728	701	634	673	4,091	32,963
65+	<u>107</u>	<u>136</u>	<u>252</u>	<u>229</u>	<u>224</u>	<u>161</u>	<u>232</u>	<u>1,341</u>	<u>37,107</u>
Total	<u>12,060</u>	<u>10,659</u>	<u>9,958</u>	<u>11,933</u>	<u>9,530</u>	<u>4,872</u>	<u>3,100</u>	<u>62,112</u>	<u>\$30,189</u>

Average age 44.0
Average service 13.7

<u>Age</u>	<u>Females - Full Years of Service to December 31, 1989</u>							<u>Total</u>	<u>Average Salary</u>
	<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>		
Less than 20	96	0	0	0	0	0	0	96	\$ 16,803
20-24	1,320	218	0	0	0	0	0	1,538	18,239
25-29	1,938	1,538	461	0	0	0	0	3,937	20,654
30-34	1,773	1,803	1,952	507	0	0	0	6,035	22,536
35-39	1,780	1,538	2,000	2,793	607	0	0	8,718	23,519
40-44	1,190	1,562	1,469	1,965	1,707	196	0	8,089	24,339
45-49	929	1,060	1,201	1,162	960	557	81	5,950	24,440
50-54	595	713	1,063	1,131	775	468	332	5,077	24,768
55-59	359	573	885	1,148	873	416	296	4,550	24,495
60-64	136	377	551	723	547	293	212	2,839	24,411
65+	<u>32</u>	<u>86</u>	<u>159</u>	<u>218</u>	<u>189</u>	<u>86</u>	<u>108</u>	<u>878</u>	<u>25,217</u>
Total	<u>10,148</u>	<u>9,468</u>	<u>9,741</u>	<u>9,647</u>	<u>5,658</u>	<u>2,016</u>	<u>1,029</u>	<u>47,707</u>	<u>\$23,539</u>

Average age 42.9
Average service 11.9

STATE EMPLOYEES' RETIREMENT SYSTEM

I. AGE, AND SERVICE PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1989

ACTIVE AND INACTIVE EMPLOYEES

Age	Males - Full Years of Service to December 31, 1989							Total
	<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>	
Less than 20	20	0	0	0	0	0	0	20
20-24	940	62	0	0	0	0	0	1,002
25-29	2,681	1,379	187	0	0	0	0	4,247
30-34	2,300	2,549	1,649	213	0	0	0	6,711
35-39	1,993	2,084	2,719	2,357	261	0	0	9,414
40-44	1,745	1,709	2,110	4,317	2,755	136	0	12,772
45-49	1,028	978	1,078	1,983	2,993	1,398	100	9,558
50-54	811	836	796	1,133	1,581	1,459	856	7,472
55-59	699	655	792	1,113	1,066	1,104	1,259	6,688
60-64	438	473	607	756	721	650	693	4,338
65+	<u>144</u>	<u>153</u>	<u>267</u>	<u>245</u>	<u>236</u>	<u>167</u>	<u>240</u>	<u>1,452</u>
Total	<u>12,799</u>	<u>10,878</u>	<u>10,205</u>	<u>12,117</u>	<u>9,613</u>	<u>4,914</u>	<u>3,148</u>	<u>63,674</u>

Average age 44.4
Average service 13.8

Age	Females - Full Years of Service to December 31, 1989							Total
	<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>	
Less than 20	100	0	0	0	0	0	0	100
20-24	1,347	220	0	0	0	0	0	1,567
25-29	2,001	1,550	462	0	0	0	0	4,013
30-34	1,829	1,824	1,985	509	0	0	0	6,147
35-39	1,867	1,581	2,055	2,825	607	0	0	8,935
40-44	1,315	1,619	1,522	2,001	1,714	196	0	8,367
45-49	1,039	1,110	1,238	1,182	966	557	81	6,173
50-54	720	758	1,104	1,152	786	472	336	5,328
55-59	459	621	925	1,166	888	416	300	4,775
60-64	265	430	574	750	565	303	217	3,104
65+	<u>75</u>	<u>105</u>	<u>171</u>	<u>228</u>	<u>196</u>	<u>87</u>	<u>110</u>	<u>972</u>
Total	<u>11,017</u>	<u>9,818</u>	<u>10,036</u>	<u>9,813</u>	<u>5,722</u>	<u>2,031</u>	<u>1,044</u>	<u>49,481</u>

Average age 42.9
Average service 12.0

STATE EMPLOYES' RETIREMENT SYSTEM

II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES DECEMBER 31, 1989

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	115	\$1,909,055	3	\$42,998	118	\$1,952,053
55-59	377	6,120,326	40	567,139	417	6,687,465
60-64	3,020	34,439,338	2,064	15,226,023	5,084	49,665,361
65-69	6,574	60,266,106	4,864	30,211,667	11,438	90,477,773
70-74	6,129	41,917,537	4,891	25,708,474	11,020	67,626,011
75-79	5,205	31,962,541	4,137	21,269,712	9,342	53,232,253
80-84	2,944	17,499,462	2,331	11,623,898	5,275	29,123,360
85-89	1,082	6,568,866	1,018	4,710,893	2,100	11,279,759
90 & Over	322	1,910,606	355	1,724,301	677	3,634,907
Total	25,768	\$202,593,837	19,703	\$111,085,105	45,471	\$313,678,942

Average age 72.6
 Average annual pension \$6,898

EARLY RETIREMENT ANNUITANTS

<u>Age</u>	<u>Male</u>		<u>Female</u>		<u>Total</u>	
	<u>Number</u>	<u>Annual Pension</u>	<u>Number</u>	<u>Annual Pension</u>	<u>Number</u>	<u>Annual Pension</u>
Under 30	0	\$ 0	8	\$ 6,476	8	\$ 6,476
30-34	91	77,049	306	257,395	397	334,444
35-39	533	548,341	1,298	1,292,440	1,831	1,840,781
40-44	1,345	1,809,276	1,160	1,422,403	2,505	3,231,679
45-49	1,212	2,526,997	726	1,283,535	1,938	3,810,532
50-54	1,039	4,662,048	750	2,281,452	1,789	6,943,500
55-59	1,565	12,840,858	1,146	6,072,160	2,711	18,913,018
60-64	1,552	14,335,092	1,338	8,032,195	2,890	22,367,287
65 & Over	1,673	10,857,233	1,671	8,522,077	3,344	19,379,310
Total	9,010	\$ 47,656,894	8,403	\$29,170,133	17,413	\$76,827,027

Average age 54.1
 Average annual pension \$4,412

STATE EMPLOYES' RETIREMENT SYSTEM

**II. AGE AND BENEFIT PROFILE OF ANNUITANTS AND BENEFICIARIES
AND SURVIVOR ANNUITANTS DECEMBER 31, 1989**

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>
Under 30	0	\$ 0	2	\$ 10,756	2	\$ 10,756
30-34	19	124,564	24	132,593	43	257,157
35-39	62	373,684	94	534,964	156	908,648
40-44	151	921,327	110	636,319	261	1,557,646
45-49	204	1,401,482	144	828,260	348	2,229,742
50-54	264	1,879,725	177	1,126,677	441	3,006,402
55-59	358	2,583,564	290	1,744,010	648	4,327,574
60-64	487	3,115,785	335	1,755,956	822	4,871,741
65 & over	<u>667</u>	<u>3,375,867</u>	<u>679</u>	<u>2,804,414</u>	<u>1,346</u>	<u>6,180,281</u>
Total	<u>2,212</u>	<u>\$13,775,998</u>	<u>1,855</u>	<u>\$9,573,949</u>	<u>4,067</u>	<u>\$23,349,947</u>

Average age 59.1
Average annual pension \$5,741

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	0	\$ 0	2	\$ 6,136	2	\$ 6,136
25-29	4	10,649	4	6,037	8	16,686
30-34	9	31,023	4	9,616	13	40,639
35-39	11	57,458	16	84,684	27	142,142
40-44	21	88,615	25	69,790	46	158,405
45-49	26	68,651	53	168,500	79	237,151
50-54	22	57,555	98	337,267	120	394,822
55-59	28	129,519	158	748,146	186	877,665
60-64	26	128,357	439	2,084,503	456	2,212,860
65-69	47	188,692	739	3,064,651	786	3,253,343
70-74	69	233,718	1,172	4,280,614	1,241	4,514,332
75-79	48	158,772	1,192	4,331,583	1,240	4,490,355
80-84	30	100,847	919	3,339,965	949	3,440,812
85-89	9	23,935	482	1,380,951	491	1,404,886
90 & Over	<u>6</u>	<u>16,647</u>	<u>220</u>	<u>482,182</u>	<u>226</u>	<u>498,829</u>
Total	<u>356</u>	<u>\$ 1,294,438</u>	<u>5,523</u>	<u>\$20,394,625</u>	<u>5,879</u>	<u>\$21,689,063</u>

Average age 73.5
Average annual pension \$3,689

STATE EMPLOYES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1989
(as embodied in Act 31, approved March 1, 1974)

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

Eligibility Employees

- Class A - All regular State employees as well as employees of certain Commissions and Authorities and all employees of state-owned educational institutions and the Pennsylvania State University (unless such employees have joined the Public School Employees' Retirement System of Pennsylvania or TIAA-CREF). All employees who become members (or who rejoin the Retirement System) on and after March 1, 1974 except Judges and District Justices.
- Class C - Enforcement officers and other officers and certain employees of the Pennsylvania State Police who have been members and employees continuously since March 1, 1974.
- Class D-3 - Members of the General Assembly who have been members and employees continuously since March 1, 1974.
- Class E-1 - Judges.
- Class E-2 - District Justices.

Age Requirements for Superannuation Retirement (full formula benefits)

- Class A - Age 60, except for members of the General Assembly, enforcement officers, correction officers, psychiatric security aides; and officers of the Pennsylvania State Police and Delaware River Port Authority; for whom the requirement is age 50. Members of Class A with 35 or more years of credited service are entitled to at least full formula benefits regardless of age.
- Classes C and D-3 - Age 50.
- Class E-1 - Age 60.
- Class E-2 - Age 60.

STATE EMPLOYES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1989
(as embodied in Act 31, approved March 1, 1974)

Formula for Superannuation Retirement Annuity

The standard single-life annuity applicable to members of Class A, is equal to 2% of the high 3-year average salary ("F.A.S.") of the member multiplied by the years and fractions of credited service.

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>	
C	1.0	
D-3	3.75	
E-1	2.0	for each of the first 10 years of judicial service plus 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.

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 were 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% of his "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 1, 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 Early Retirement

In the case of withdrawal, a member of Class D-3 is eligible for early retirement after 6 years of legislative service and members of other classes are eligible after 10 years of service.

Adjustment for Early Retirement Benefit

A member receives the actuarial equivalent of the annuity payable at superannuation retirement age earned to the date of early retirement.

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 prior to superannuation retirement age and has at least 5 years of service. An officer of the State Police or an enforcement officer does not have a service requirement.

STATE EMPLOYES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1989
(as embodied in Act 31, approved March 1, 1974)

Formula for Disability Benefit

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

- (a) the benefit calculated as for superannuation retirement based on service projected to superannuation date, or
- (b) 33-1/3% 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 credited service.

Vested Benefit

The vested benefit is calculated as for superannuation retirement but deferred until superannuation retirement age.

Eligibility for Death Benefit Prior to Retirement

A member is eligible if the member has 10 years of credited service, except for a member of Class D-3 who is eligible after 6 years of credited service, or upon attainment of superannuation age with 3 years of credited service.

Amount of Death Benefit Prior to Retirement

An eligible beneficiary receives the full reserve 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.

Temporary Early Retirement Benefit

A special early retirement benefit is available to members who have attained age 50 and have at least 30 years of credited service. The benefit is available until September 1991.

Death Benefits After Retirement

A member may elect one of several optional reduced pensions in lieu of the single-life annuity provided by the formula. However, if the member elects the single-life annuity, there is a provision for a modified cash refund without actuarial reduction of the unpaid balance of the member accumulated contributions and interest at time of retirement.

STATE EMPLOYES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1988
(as embodied in Act 31, approved March 1, 1974)

Supplemental Allowances

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

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 January 1, 1989.

Rate of Member Contribution

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

Class A - 5.00% of total salary for those who became members prior to July 22, 1983 and have been in continuous membership since July 22, 1983.

6.25% of total salary for other members.

For other classes of members, the class of service multiplier is applied to the 5% 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 7.5% thereafter.

Class E-2 - 7.50%

(ii) Additional contribution for Social Security Integration Credit

Any member who elects Social Security Integration Credit pays 5% 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 Contribution

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

STATE EMPLOYES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1989
(as embodied in Act 31, approved March 1, 1974)

Refund of Accumulated Member Contributions

On the death of a member not qualifying for death benefits, the accumulated member contributions are paid 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 required contributions in excess of the members' contributions in accordance with the law. The employer contribution is the employer share of the normal cost plus an accrued liability contribution funded over 30 years, assuming the accrued liability contribution increases at least 4% each year. In addition, contributions are required to fund each of the Supplemental Allowances over a 20-year period in level dollars.

STATE EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL ASSUMPTIONS

Interest Rate: 5-1/2% per annum, compounded annually.

Service Tables: Service tables for active members based on the experience of the Retirement System in 1981-85, with values at specimen ages in four separate classes* as follows:

		Rates of Separation Due To						
		Withdrawal after Years of Service			Death	Dis- ability	Early Retire- ment**	Super Annuation Retire- ment**
Age		1	5	11				
A (Male)	25	.125	.038	.003	.0008	.0006	-	-
	35	.105	.036	.002	.0009	.0012	.019	-
	45	.072	.024	.002	.0026	.0025	.015	-
	55	.064	.016	.002	.0074	.0081	.022	.143
	65	-	-	-	.0131	-	-	.537
A (FEMALE)	25	.148	.061	.005	.0003	.0004	-	-
	35	.094	.043	.004	.0004	.0014	.029	-
	45	.067	.030	.003	.0014	.0030	.019	-
	55	.051	.024	.003	.0028	.0071	.035	.117
	65	-	-	-	.0042	-	-	.481
C (MALE and FEMALE)	45	.025	.025	.003	***	***	.010	-
	55	-	-	-	-	-	-	.080
	65	-	-	-	-	-	-	.350
D (MALE and FEMALE)	45	.030	.030	.002	***	***	.045	-
	55	-	-	-	-	-	-	.030
	65	-	-	-	-	-	-	.150
E (MALE and FEMALE)	45	.040	.020	.002	***	***	.020	-
	55	.040	.020	.002	-	-	.020	-
	65	-	-	-	-	-	-	.250

Superannuation and Early Retirement Allowances: The mortality table used for those receiving superannuation and early retirement allowances is the 1971 Group Annuity Mortality Table.

Disability Allowances: The mortality tables used for those receiving disability allowances are modifications based on sex of the 1965 Railroad Retirement Board Mortality among Totally Disabled Annuitants.

* As defined in Retirement Law prior to March 1, 1974 amendment (Act 31).

** Retirement Rates are assumed to decrease and withdrawal rates to increase by 20% after 1990.

*** Same as Class A.

STATE EMPLOYES' RETIREMENT SYSTEM

ACTUARIAL ASSUMPTIONS (continued)

Career Salary Scale for SERS Members in Classes A and C

<u>Age</u>	<u>Realistic Salary Scale</u>	<u>Valuation Salary Scale</u>
20	5.7%	4.45%
21	5.2	3.95
22	5.0	3.75
23	4.6	3.35
24	4.4	3.15
25	4.1	2.85
26	3.8	2.55
27	3.6	2.35
28	3.4	2.15
29	3.2	1.95
30	3.2	1.95
31	3.0	1.75
32	3.0	1.75
33	2.8	1.55
34	2.8	1.55
35	2.8	1.55
26	2.6	1.35
37	2.4	1.15
38	2.2	0.95
39	2.1	0.85
44	2.0	0.75
41	1.8	0.55
42	1.8	0.55
43	1.6	0.35
44	1.6	0.35
Over 44	1.5	0.25

No career salary scale is used for members in Classes D and E.

STATE EMPLOYES' RETIREMENT SYSTEM

I. ASSET VALUATION METHOD

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 (@ 5.5%). Each year twenty (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 eighty (80) percent to be recognized over the next four years. This asset valuation method began with the December 31, 1982 valuation. To begin this process, the actuarial value of assets was set equal to the book value of assets as of December 31, 1981 and carried forward.

II. FUNDING AND CONTRIBUTION POLICY

The Pennsylvania State Employees' Retirement System funding policy provides for periodic employer contributions at actuarially determined rates that will amortize the Unfunded Actuarial Accrued Liability by June 30, 2004. This policy assures that the SERS is appropriately funded and also that the fund will accumulate sufficient assets to pay benefits when they are due. The policy is set by the State Employees' Retirement Board in conformance with specific legal requirements as to the method of funding.

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

The annual contribution is equal to the sum of:

The employer share of the normal cost.

The amortization of the unfunded liability attributable to the plan as in effect on July 1, 1969 over a period ending on June 30, 1999.

The amortization of the unfunded liability attributable to the 1974 amendments over a period ending on June 30, 2004.

The amortization of liabilities for supplemental annuities over 20 year periods following their effective dates. There are currently four such liabilities being amortized over 20 year periods beginning July 1, 1974, 1979, 1984 and January 1, 1989.

The total 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 beginning year costs, as determined in the valuation, are adjusted by a half-year's interest to reflect the fact that the payments are made by the employer each quarter.

STATE EMPLOYES' RETIREMENT SYSTEM

The assumptions used in determining the actuarial cost are stated in Schedule N, and the employer cost, as a percent of payroll, is determined in Schedules A and B.

The SERS pension legislation limits the assumed interest rate to 5.5 percent a year. However, the policy of the Pennsylvania State Employees' Retirement Board is that the employer contribution rate will be reasonable based on realistic assumptions. This goal is achieved by conducting periodic valuations based on realistic assumptions and then adopting a set of assumptions that will, when combined with a 5.5 percent interest assumption, result in the same employer contribution rate.

The realistic assumptions used to set the basis for the current valuation were adopted after a review of all assumptions for the 1985 valuation. In 1988, the salary growth assumption was increased by .25 percent per year to provide a safety margin in the assumptions. The assumptions shown in Schedule N were selected to reproduce the employer contribution rate determined using these realistic assumptions. The current set of realistic assumptions is:

<u>Years</u>	<u>Salary Increases</u>			<u>Investment Return</u>
	<u>General</u>	<u>Average Career</u>	<u>Total</u>	
1990 to 1995	4.0%	2.0%	6.0%	9.8%
1996 to 2000	4.0	2.0	6.0	9.0
2001 to 2005	4.0	2.0	6.0	8.0
2006 to 2010	4.0	2.0	6.0	7.0
After 2010	4.0	2.0	6.0	6.0

The salary growth was then revised downward so that, in combination with the 5.5 percent interest rate, the employer contribution would be approximately the same as for the realistic valuation.

III. PROJECTED BENEFIT OBLIGATION

The Projected Benefit Obligation (PBO) and the present value of accumulated plan benefits were calculated using the withdrawal, death and retirement assumptions set forth in Schedule N.

The career salary growth was set equal to the realistic salary scale shown in Schedule N. In addition, it was assumed that the salary schedules would increase by 4 percent per year, compounded annually. The present value of accumulated plan benefits does not include any salary projection.

The rate of interest was 8.75 percent per year, compounded annually, for the PBO. The rate of 8.75 percent is approximately equal to the realistic investment return rates averaged over the period during which obligations to current employees and annuitants will be paid. The rate of interest used for the calculation of the present value of accumulated plan benefits was 7.25% which is the PBGC immediate rate as of January 1, 1990.

The result of the use of the above salary scales and interest rate is to determine a PBO that is the best estimate of the actual obligations of the fund using the procedures established by the Governmental Accounting Standards Board. These assumptions are the same as those used to establish the PBO in 1988.

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.

Projected Benefit Obligation. The present value of pension benefits estimated to be payable in the future as a result of employee service to the date of the valuation. The projection includes expected increases in salary.

Unfunded Actuarial Accrued Liabilities. The difference between actuarial accrued liabilities and valuation assets.