

Original - Signed Report

STATE EMPLOYES' RETIREMENT SYSTEM

1985 ACTUARIAL REPORT

Actuarial & Benefits Consultants

May 16, 1986

Mr. John Brosius, Secretary
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 State Employees' Retirement System as of December 31, 1985. 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 1986-87 appropriation request;
- to disclose the financial condition of the Plan;
- to provide information relating to the disclosure and reporting requirements of Statement No. 35 of the Financial Accounting Standards Board (with the addition of the calculation of a present value of benefits on a unit credit basis, data in the report would meet the reporting requirements of the exposure draft of the Governmental Accounting Standards Board (GASB). If this added item is still in the final GASB requirements, it can readily be calculated for the 1986 report); and,
- to summarize the required transfers among the various accounts in order to bring them into actuarial balance.

Certification

To the best of our knowledge, this report is complete and accurate and all costs and liabilities have been determined in conformance with generally accepted actuarial principles and on the basis of actuarial assumptions and

HAY/HUGGINS COMPANY, INC.

MEMBER OF THE HAY GROUP, INC.

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

Respectfully submitted,

HAY/HUGGINS COMPANY, INC.

By 

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STATE EMPLOYEES' RETIREMENT SYSTEM

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STATE EMPLOYES' RETIREMENT SYSTEM

VALUATION HIGHLIGHTS

	December 31, 1985	December 31, 1984
	<u>Valuation</u>	<u>Valuation</u>
. Summary of Contributions: (Percent of Participants' Compensation)		
Normal Cost	3.60%	6.42%
Amortization of Unfunded Actuarial Accrued Liability ...	7.75%	9.92%
Amortization of Supplemental Annuities	<u>1.74%</u>	<u>1.69%</u>
Total	13.09%	18.03%
Contribution Rate for:		
Class A Members: Age 60 Superannuation	12.78%	17.61%
Class A Members: Age 50 Superannuation	15.64%	21.85%
Class C: State Police (PSP)	22.85%	28.17%
Enforcement Officers (LCB-EO)	15.64%	21.85%
Class D Members	58.65%	74.42%
Class E Members	19.17%	25.32%
. Market Value of Assets		
	\$6,160,205,315	\$4,921,841,789
. Actuarial Present Value of Accumulated Plan Benefits:		
Vested benefits	\$5,273,434,986	\$4,549,746,418
Non-vested benefits	<u>124,737,290</u>	<u>94,878,301</u>
Total	\$5,398,172,276	\$4,644,624,719
. Active Participants:		
Number	111,480	113,831
Average Projected compensation. \$	21,769	\$ 21,644
Total Projected compensation ..	\$2,426,797,000	\$2,463,711,799
. Annuitants and Beneficiaries:		
Number	64,222	60,964
Total annual pension	\$ 324,097,257	\$ 297,990,372
. Inactive Participants:		
Number	3,080	2,726

STATE EMPLOYEES' RETIREMENT SYSTEM

General Discussion

The costs and liabilities presented in this report have been determined on the basis of the set of actuarial assumptions derived from an evaluation of SERS member and plan experience between 1981 and 1985. The results of this evaluation were presented to the SERS Board in January 1986 and were approved by the Board at their January and April, 1986 meetings.

An employer contribution was calculated using demographic assumptions based on the plan experience and the following set of recommended annual investment return and general salary increase trends:

<u>Years</u>	<u>General Salary Increase</u>	<u>Investment Return</u>
1986 to 1987	3.6%	9.8%
1988 to 1995	4.0%	9.8%
1996 to 2000	4.0%	9.0%
2001 to 2005	4.0%	8.0%
2006 to 2010	4.0%	7.0%
After 2010	4.0%	6.0%

Because of the legislative requirement that the valuation be based on an interest rate of not more than 5.5%, the interest and salary scale assumptions were combined to produce a final employer contribution equivalent to that determined by using the above schedule. This was achieved by assuming that there would be no general salary increases and that the internal salary growth would be limited to zero percent at the older ages. The salary increase rates are shown in Schedule N.

There were no significant changes in the benefit or contribution provisions of SERS or the method of determining the contribution rates from the 1984 valuation.

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, 1985 actuarial valuation is 13.09%. The 1984 valuation had produced an Employer Contribution Rate of 18.03%.

STATE EMPLOYES' RETIREMENT SYSTEM

	1985 <u>Valuation</u>	1984 <u>Valuation</u>
Normal Cost Rate	3.60%	6.42%
Unfunded Actuarial Accrued		
Liability Rate	7.75	9.92
Supplemental Annuities Rate	<u>1.74</u>	<u>1.69</u>
TOTAL	13.09%	18.03%

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 the 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 \$2,361,496,311 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, 1969; July 1, 1974; July 1, 1979; and July 1, 1984.

Employer Contribution Rates by Group

Schedule C summarizes the contribution rates for each group.

Schedules D and E develop the contribution rate for certain groups who are entitled to additional benefits. This contribution pays for the additional cost of full benefits payable at age 50 and the higher multiplier paid to Class D and Class E employees. The full age 50 benefit is available to all Class C and Class D members and some Class A members.

The contribution rates are determined by adding the cost of the basic benefit to the cost of the age 50 benefit for the groups who can receive the benefit and then multiplying the total cost by the increased multiplier, where appropriate, and adding the cost of Class C benefits.

The benefit multipliers used are 3.75 for Class D and 1.5 for Class E members. These are the effective current ratios of the credited accrual rate for Class D and Class E to the general 2% accrual rate.

By increasing the contribution for the groups with additional benefits, the employer contribution for members with basic benefits can be reduced. The

STATE EMPLOYEES' RETIREMENT SYSTEM

effect of the adjustments is to produce an aggregate contribution equal to the required 13.09% of the total payroll. The employer contribution by group is:

Class A with age 60 benefit	12.78%
Class A with age 50 benefit	15.64%
Class C - State Police	22.85%
Class C - Enforcement Officers	15.64%
Class D	58.65%
Class E	19.17%

Schedule F contains a detailed analysis of the change in the Employer Contribution Rate and Unfunded Actuarial Accrued Liability from the 1984 to the 1985 valuation. The significant items of change were due to the change in assumptions and excess investment earnings.

Contribution For Air and Army National Guard

A special contribution is developed for members of the Air and Army National Guard on Schedule G. 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.

Actuarial Balance Sheet

Schedule H contains an actuarial balance sheet. It illustrates 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, special contributions for State Police and Enforcement Officers and Member Contributions.

Reserve Transfers to Adjust Account Balances

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 from the Annuity Reserve Account of \$2,843,060 primarily attributed to the decrease in the present value of benefits resulting from the change in assumptions. The transfer to the State Police Account was made to reflect Class C contributions made during the year.

These transfers have been reflected in the account balances shown in Schedule H.

Schedule I shows the details of the required account transfers.

STATE EMPLOYEES' RETIREMENT SYSTEM

Funding Status

Schedule J provides information required under Statement No. 35 of the Financial Accounting Standards Board (FASB). This schedule provides information regarding the funding status of vested and non-vested accumulated plan benefits as of the current valuation date. The schedule will be revised in 1986 to provide data required by the Government Accounting Standards Board (GASB).

Plan Assets

Schedule K summarizes the development of the actuarial value of assets as of December 31, 1985. The assets are based on the unaudited financial statements prepared by SERS.

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 recognized 20% of the asset gain of \$846,693,525 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 N.

Participant Data

Section I of Schedule L provides a distribution of the active participants as of December 31, 1985 by sex, age, and length of service. It also shows the average projected salary by age group and sex. Section II of the schedule includes a breakdown of 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 provisions of the plan in effect as of December 31, 1985. There were no major changes in the provisions since the prior valuation.

STATE EMPLOYES' RETIREMENT SYSTEM

Actuarial Assumptions and Methods

Schedule N summarizes the actuarial assumptions, the asset valuation method and cost methods used for the valuation.

The actuarial assumptions were changed to reflect the experience of the SERS during 1981 through 1985. The difference between the investment return and the salary scale was increased to reflect higher investment earnings and lower salary increases than had been expected. The interest rate used in the determination of the Present Value of Accumulated Plan Benefits was changed from 9.5% in 1984 to 8.5% in 1985.

STATE EMPLOYEES' RETIREMENT SYSTEM

I. UNFUNDED ACTUARIAL ACCRUED LIABILITY DECEMBER 31, 1985

1) Present Value of Benefits:

(a) Active and Inactive Participants	
Superannuation and Withdrawal	\$ 6,007,862,395
Disability	321,618,707
Death	489,757,639
Refunds	43,825,490
Special Police and Enforcement	
Officer Benefits	83,502,052
(b) Annuitants and Beneficiaries	<u>3,168,485,367</u>
(d) Total	\$10,115,051,650

2) Present Value of Member and Employer Contributions:

(a) Normal Cost (Employer portion only)	\$ 775,365,395
(b) Supplemental Annuity Amortization	415,219,679
(c) Member Contributions	1,185,279,171
(d) Special Police and Enforcement	
Officer Contributions	<u>58,680,260</u>
(e) Total	\$ 2,434,544,505

3) Actuarial Accrued Liability: (1) - (2)	\$ 7,680,507,145
4) Actuarial Value of Assets	\$ 5,319,010,834
5) Unfunded Actuarial Accrued Liability: (3) - (4)	\$ 2,361,496,311

II. AMORTIZATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY

<u>Funding Period</u>	<u>Amount of Liability</u>	<u>Annual Payment to Fund</u>	
		<u>Amount</u>	<u>Percent*</u>
30 Years from July 1			
1969	\$1,636,122,044	\$137,201,010	5.65%
1974	<u>725,374,267</u>	<u>45,978,149</u>	<u>1.89</u>
	\$2,361,496,311	\$183,179,159	7.54%

*Payment for 1986 expressed as a percentage of the estimated total payroll for active members in 1986 of \$2,426,797,000. The estimate was obtained by multiplying the 1985 salary for each active employee by the salary growth assumption for one year.

STATE EMPLOYES' RETIREMENT SYSTEM

I. DEVELOPMENT OF EMPLOYER NORMAL COST RATE
(Fiscal Year 1986-87)

1) Normal Cost Rate for new active members to fund:	
(a) Superannuation and Withdrawal	7.80%
(b) Disability62
(c) Death53
(d) Refunds80
(e) Total	<u>9.75%</u>
2) Member Deductions	6.25%
3) Employer Normal Cost (1)(e) - (2)	3.50%

II. AMORTIZATION OF SUPPLEMENTAL ANNUITIES

<u>Funding Period:</u> 20 Years from July 1	<u>Amount of</u> <u>Liability</u>	<u>Annual Payment to Fund</u>	
		<u>Amount</u>	<u>Percent*</u>
1969	\$ 2,047,630	\$ 625,779	.02%
1974	50,912,496	7,264,113	.30
1979	181,042,945	18,346,840	.76
1984	<u>181,216,608</u>	<u>15,032,061</u>	<u>.62</u>
	\$415,219,679	\$41,268,793	1.70%

*Payment for 1986 expressed as a percentage of the estimated total payroll for active members in 1986 of \$2,426,797,000. The estimate was obtained by multiplying the 1985 salary for each active employee by the salary growth assumption for one year.

III. DEVELOPMENT OF TOTAL EMPLOYER CONTRIBUTION RATE
(Fiscal Year 1986-87)

	<u>Payable</u> <u>January 1</u>	<u>Payable</u> <u>Quarterly*</u>
1) Employer Normal Cost	3.50%	3.60%
2) Payment on Unfunded Actuarial Accrued Liability	7.54	7.75
3) Payment on Supplemental Annuities	<u>1.70</u>	<u>1.74</u>
4) Total	12.74%	13.09%

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

STATE EMPLOYES' RETIREMENT SYSTEM

TOTAL CONTRIBUTION RATE BY GROUP
(Fiscal Year 1986-87)

	<u>Basic</u>	<u>Additional</u>	<u>Service</u>	<u>Additional</u>	
	<u>Rate</u>	<u>for</u>	<u>Multiplier</u>	<u>for</u>	<u>Total</u>
		<u>Age 50</u>		<u>Class C</u>	
		<u>Retirement</u>		<u>Benefit</u>	
1) Class A (age 60 superannuation)	12.78%	-	-	-	12.78%
2) Class A (age 50 superannuation)	12.78	2.86%	-	-	15.64
3) Class C					
State Police (PSP)	12.78	2.86	-	7.21%	22.85
Enforcement Officers (LCB-EO)	12.78	2.86	-	0.00	15.64
4) Class D	12.78	2.86	43.01%	-	58.65
5) Class E	12.78	-	6.39	-	19.17

STATE EMPLOYEES' RETIREMENT SYSTEM

Development of Employer Contribution Rates by Group

	Class A (Age 60 Super- annuation)	Class A (Age 50 Super- annuation) and Class C	Class D	Class E	Total
1. Basic Contribution Rate	12.78%	12.78%	12.78%	12.78%	N/A
2. Additional Contribution Rate for Age 50 Superannuation	-	2.86%	2.86%	-	N/A
3. Service Multiplier Adjustment for Class D and Class E	1.0	1.0	3.75	1.5	N/A
4. Adjusted Contribution Rates: [(1) + (2)]x(3)	12.78%	15.64%	58.65%	19.17%	13.09%
5. Projected 1986 Payroll	\$2,210,817,818	\$199,934,243	\$2,128,017	\$13,916,922	\$2,426,797,000
6. Employer Contribution Amount	\$ 282,542,517	\$ 31,269,716	\$1,248,082	\$ 2,667,874	\$ 317,728,189

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 total employer contribution amount differs slightly from the total salary times the total rate as a result of rounding.

STATE EMPLOYEES' RETIREMENT SYSTEM

I. DEVELOPMENT OF CONTRIBUTION RATES FOR ADDITIONAL ANNUITY FOR
STATE POLICE AND ENFORCEMENT OFFICERS

(Fiscal Year 1986-87)

	<u>State Police (PSP)</u>	<u>Enforcement Officers (LCB-EO)</u>
1) Balance in Benefit Account as of December 31, 1985	\$ 217,706,678	\$18,781,014
2) Present Value of Benefits for Annuitants and Beneficiaries	196,224,416	12,355,321
3) Assets available for additional annuities for Active Members: (1) - (2)	21,482,262	6,425,693
4) Present Value of additional annuities for Active Members	80,162,522	3,339,530
5) Present Value of Future Contribution to fund additional annuities: (4) - (3)	58,680,260	0
6) Present Value of Future Compensation for eligible Active Members	836,071,322	N.A.
7) Contribution Rate as a percentage of payroll payable January 1: (5) / (6)	7.02%	0.00%
8) Contribution Rate as a percent of payroll payable quarterly:	<u>7.21%</u>	<u>0.00%</u>

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, 1984 Valuation	6.42%	9.92%	1.69%	18.03%
2. Changes - 12/31/85 Valuation:				
a) Excess investment earnings		-0.67%		-0.67%
b) Change in Demographic Assumptions ..	2.07%	-1.00%	0.01%	1.08%
c) Change in Salary Scale and Miscellaneous Changes	-4.89%	-0.50%	0.04%	-5.35%
d) Total change	-2.82%	-2.17%	0.05%	-4.94%
4. December 31, 1985 Valuation:				
(2c) + (3g)	3.60%	7.75%	1.74%	13.09%

II. ANALYSIS OF CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY

1. December 31, 1984 Unfunded Actuarial Accrued Liability	\$ 3,373,017,900
2. Expected amortization payment	237,923,329
3. Expected liability as of December 31, 1985 [((1) - (2)) x 1.055]	3,307,524,772
4. Change in liability due to	
a) Excess investment earnings	(226,332,653)
b) Change in Demographic Assumptions	(341,011,659)
c) Change in Salary Scale and Miscellaneous Changes	(378,684,149)
d) Total change	\$ (946,028,461)
5. December 31, 1985 Unfunded Actuarial Accrued Liability:	
(3) + (4d)	\$ 2,361,496,311

STATE EMPLOYES' RETIREMENT SYSTEM

DEVELOPMENT OF CONTRIBUTION RATE AND ACCOUNT BALANCE

FOR AIR AND ARMY NATIONAL GUARD ACCOUNT
(Fiscal Year 1986-87)

1. Estimated Account Balance @ July 1, 1986	\$5,025,818
2. Contribution Required to Amortize (1) over 20 years from July 1, 1980	510,064
3. Estimated Fiscal year 1986-87 payroll for Air and Army National Guard Members	1,975,000
4. Employer Contribution Rate	12.78%
5. Total Required Contribution: (2) + (3) x (4)	762,469

STATE EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL BALANCE SHEET

A S S E T S

L I A B I L I T I E S

<u>Present Assets:</u>	<u>Present Value of Benefits Payable to Annuitants and Beneficiaries from:</u>
Members' Savings Account	<u>Annuity Reserve Account</u>
\$ 1,319,779,636	\$ 2,959,905,630
Annuity Reserve Account	State Police Benefit Account
2,959,905,629	196,224,416
State Police Benefit Account	<u>Enforcement Officers Benefit Account</u>
217,706,678	12,355,321
Enforcement Officers Benefit Account	Total for Annuitants and Beneficiaries
18,781,014	\$ 3,168,485,367
State Accumulation Account	
2,059,252,037	
Supplemental Annuity Account	
(415,219,679)	
Total Present Assets (Market Value).....	
\$ 6,160,205,315	

Present Value of Benefits to Active and Inactive Members from:

Adjustment to smooth market fluctuations (841,194,481)
 Total Present Assets (Actuarial Value) \$ 5,319,010,834

Member Savings Account and State Accumulation Account

<u>Present Value of Future Contributions</u>	<u>Superannuation and</u>
Members' Savings Account (Employee)	Withdrawal
\$ 1,185,279,171	\$6,007,862,395
Normal Cost Contributions (Employer)....	Disability
775,365,395	321,618,707
Accrued Liability Amortization	Death
(Employer)	489,757,639
2,361,496,311	Refunds
Supplemental Annuity Amortization	43,825,490
(Employer)	Sub Total.....
415,219,679	\$ 6,863,064,231
Special State Police Contributions	State Police Benefit Account
(Employer)	80,162,522
58,680,260	Enforcement Officers Benefit Account
Special Enforcement Officer Contributions (Employer)	3,339,530
0	Total
Total Future Contributions	\$ 6,946,566,283
\$ 4,796,040,816	

TOTAL ASSETS\$10,115,051,650

TOTAL LIABILITIES\$10,115,051,650

STATE EMPLOYES' RETIREMENT SYSTEM

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SUMMARY OF TRANSFERS WITHIN SERS ACCOUNTS

1. Annuity Reserve Account	
Balance as reported by SERS	\$ 2,962,748,689
Transfer from State Accumulation Account	<u>(2,843,060)</u>
December 31, 1985 balance after transfers	\$ 2,959,905,629
2. State Accumulation Account	
Balance as reported by SERS	\$ 2,059,239,302
Transfer from Annuity Reserve Account	2,843,060
Transfer to State Police Benefit Account	<u>(2,830,325)</u>
December 31, 1985 balance after transfers	\$ 2,059,252,037
3. State Police Benefit Account	
Balance as reported by SERS	\$ 214,876,353
Transfer from State Accumulation Account	<u>2,830,325</u>
December 31, 1985 balance after transfers	\$ 217,706,678

STATE EMPLOYES' RETIREMENT SYSTEM

I. FUNDING STATUS OF ACCUMULATED PLAN BENEFITS DECEMBER 31, 1985

1. Actuarial present value of accumulated plan benefits:

(a) Vested	
Active participants (63,842)	\$2,649,740,678
Inactive (3,080)	46,264,560
Superannuation Retirements (43,330)	1,928,576,446
Early Retirements (12,323)	414,276,946
Disabled (3,532)	122,165,205
Beneficiaries (5,037)	112,411,151
Total (131,144)	<u>\$5,273,434,986</u>

(b) Non-vested (47,638)	<u>124,737,290</u>
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(c) Total: (a) + (b)	\$5,398,172,276
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2. Market value of assets	6,160,205,315
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3. Ratio of Market value of assets to actuarial present value of accumulated plan benefits

	<u>1985</u>	<u>1984</u>
	<u>Valuation</u>	<u>Valuation</u>
(a) Vested benefits:	116.8%	108.2%
(b) Accumulated benefits:	114.1%	106.0%

II. CHANGE IN ACTUARIAL PRESENT VALUE OF ACCUMULATED PLAN BENEFITS*

1. Actuarial present value of accumulated plan benefits as of December 31, 1984	\$4,644,624,719
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2. Changes during the year:

(a) Due to passage of time	\$ 371,099,789
(b) Due to plan provision changes	0
(c) Due to actuarial assumption changes	382,447,768
(d) Total	<u>\$ 753,547,557</u>

3. Actuarial present value of accumulated plan benefits as of December 31, 1985: (1) + (2)	<u>\$5,398,172,276</u>
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* The assumed rate of return on investments is 8.5% in 1985 as compared to 9.5% in 1984. The assumptions relating to disability, termination and retirement were changed in accordance with the 1981-1985 experience study.

STATE EMPLOYES' RETIREMENT SYSTEM

ACTUARIAL VALUE OF ASSETS

I. Development of 12/31/85 Expected Actuarial Value:

1) Actuarial Value as of 12/31/84	\$4,701,008,180
2) Contributions in 1985	593,130,003
3) Benefits and Expenses in 1985	463,578,129
4) Interest @ 5.5% to 12/31/85 on (1)	258,555,450
5) Interest @ 5.5% to 12/31/85 on .5 x ((2) - (3)).	<u>3,562,677</u>
6) Expected Actuarial Value as of 12/31/85: (1) + (2) - (3) + (4) + (5)	\$5,092,678,181

II. Development of Amount of Difference to Be Amortized:

1) Unrecognized Amount of 12/31/82 Difference: .4 x (119,511,895)	\$ (47,804,758)
2) Unrecognized Amount of 12/31/83 Difference: .6 x \$274,734,721	164,840,833
3) Unrecognized Amount of 12/31/84 Difference: .8 x \$129,746,917	103,797,534
4) Market Value as of 12/31/85	<u>6,160,205,315</u>
5) Difference between Expected Actuarial and Market Value as of 12/31/85: (4) - (3) - (2) - (1) - I (6)	\$ 846,693,525

III. Development of Actuarial Value of Assets as of 12/31/85:

1) 20% of (119,511,895) (12/31/82 Difference):	\$ (23,902,379)
2) 20% of \$274,734,721 (12/31/83 Difference):	54,946,944
3) 20% of \$129,746,917 (12/31/84 Difference):	25,949,383
4) 20% of \$846,693,525 (12/31/85 Difference):	<u>169,338,705</u>
5) Actuarial Value at 12/31/85: I(6) + (1) + (2) + (3) + (4)	<u>\$5,319,010,834</u>

STATE EMPLOYEES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1985

GENERAL EMPLOYEES

Age	Males - Full Years of Service to December 31, 1985								Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	
Under 20	32	-	-	-	-	-	-	32	\$11,041
20-24	892	220	-	-	-	-	-	1,112	15,428
25-29	1,970	1,818	174	-	-	-	-	3,962	17,795
30-34	1,712	2,657	2,133	381	-	-	-	6,883	20,378
35-39	1,454	2,244	3,513	2,627	179	-	-	10,017	22,899
40-44	874	1,220	1,759	2,637	1,165	93	-	7,748	24,838
45-49	617	856	1,208	1,718	1,371	691	73	6,534	25,775
50-54	563	730	1,013	1,382	1,159	1,005	579	6,431	26,079
55-59	508	739	1,119	1,409	1,140	876	807	6,598	25,481
60-64	292	558	724	1,000	737	487	508	4,306	25,020
65 & over	77	153	234	264	141	67	124	1,060	26,408
Total	8,991	11,195	11,877	11,418	5,892	3,219	2,091	54,683	\$23,592

Average age 44.0

Average service 13.1

Age	Females - Full Years of Service to December 31, 1985								Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	
Under 20	101	-	-	-	-	-	-	101	\$11,846
20-24	1,616	613	-	-	-	-	-	2,229	14,603
25-29	1,956	2,489	558	1	-	-	-	5,004	16,851
30-34	1,642	2,465	3,089	828	-	-	-	8,024	18,201
35-39	1,453	1,776	2,319	2,112	308	-	-	7,968	19,144
40-44	983	1,362	1,243	1,234	708	88	-	5,618	19,366
45-49	825	1,240	1,211	927	551	396	50	5,200	19,502
50-54	512	1,105	1,229	1,107	534	318	220	5,025	19,454
55-59	411	827	1,146	1,424	683	405	276	5,172	19,360
60-64	155	457	761	880	470	236	177	3,136	19,084
65 & over	39	80	197	209	132	50	85	792	19,417
Total	9,693	12,414	11,753	8,722	3,386	1,493	808	48,269	\$18,465

Average age 41.9

Average service 11.1

STATE EMPLOYES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1985

STATE POLICE, CORRECTION OFFICERS,
ENFORCEMENT OFFICERS, AND PSYCHIATRIC SECURITY AIDES

<u>Age</u>	<u>Males - Full Years of Service to December 31, 1985</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>		
Under 20	-	-	-	-	-	-	-	-	\$ -
20-24	140	1	-	-	-	-	-	141	17,215
25-29	542	266	4	-	-	-	-	812	21,165
30-34	283	411	118	2	-	-	-	814	23,614
35-39	263	231	483	619	21	-	-	1,617	26,653
40-44	155	92	175	969	286	25	-	1,702	27,954
45-49	102	70	55	165	322	244	29	987	28,128
50-54	56	42	47	38	82	135	124	524	27,764
55-59	21	13	29	23	48	71	162	367	28,592
60-64	4	12	10	12	19	33	30	120	26,494
65 & over	-	2	1	1	3	1	3	11	22,603
Total	<u>1,566</u>	<u>1,140</u>	<u>922</u>	<u>1,829</u>	<u>781</u>	<u>509</u>	<u>348</u>	<u>7,095</u>	<u>\$26,179</u>

Average age 40.2

Average service 13.6

<u>Age</u>	<u>Females - Full Years of Service to December 31, 1985</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>		
Under 20	-	-	-	-	-	-	-	-	\$ -
20-24	27	1	-	-	-	-	-	28	18,168
25-29	70	32	2	-	-	-	-	104	19,806
30-34	44	25	13	-	-	-	-	82	20,631
35-39	24	10	24	3	-	-	-	61	21,908
40-44	13	10	5	4	1	-	-	33	21,498
45-49	7	5	1	4	1	1	1	20	22,319
50-54	1	9	1	2	1	2	-	16	24,732
55-59	2	2	3	2	-	-	2	11	19,891
60-64	1	1	-	4	-	1	-	7	23,546
65 & over	-	-	-	-	1	-	1	2	18,875
Total	<u>189</u>	<u>95</u>	<u>49</u>	<u>19</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>364</u>	<u>\$20,796</u>

Average age 34.8

Average service 6.3

STATE EMPLOYEES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1985

LEGISLATORS

<u>Age</u>	<u>Males - Full Years of Service to December 31, 1985</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>		
Under 20	-	-	-	-	-	-	-	-	\$ -
20-24	-	-	-	-	-	-	-	-	-
25-29	4	1	-	-	-	-	-	5	35,000
30-34	11	11	3	-	-	-	-	25	35,000
35-39	10	14	7	2	-	-	-	33	35,000
40-44	8	18	9	4	-	-	-	39	36,344
45-49	6	6	7	3	4	-	-	26	36,945
50-54	5	4	7	8	3	2	1	30	37,539
55-59	5	6	10	5	3	2	1	32	35,748
60-64	1	7	2	2	7	3	4	26	36,849
65 & over	-	2	1	2	3	5	1	14	37,644
Total	<u>50</u>	<u>69</u>	<u>46</u>	<u>26</u>	<u>20</u>	<u>12</u>	<u>7</u>	<u>230</u>	<u>\$36,253</u>

Average age 47.6

Average service 11.5

<u>Age</u>	<u>Females - Full Years of Service to December 31, 1985</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>		
Under 20	-	-	-	-	-	-	-	-	\$ -
20-24	-	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-	-
30-34	-	1	1	-	-	-	-	2	35,000
35-39	-	1	-	-	-	-	-	1	35,000
40-44	-	-	-	-	-	-	-	-	-
45-49	2	-	-	-	-	-	-	2	35,000
50-54	1	-	-	-	-	-	-	1	35,000
55-59	1	1	-	-	-	-	-	2	35,000
60-64	-	-	1	-	-	-	1	2	35,000
65 & over	-	-	-	-	1	1	1	3	35,000
Total	<u>4</u>	<u>3</u>	<u>2</u>	<u>-</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>13</u>	<u>\$35,000</u>

Average age 53.3

Average service 14.3

STATE EMPLOYEES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1985

JUDGES AND DISTRICT JUSTICES

Age	Males - Full Years of Service to December 31, 1985							Total	Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30+		
Under 20	-	-	-	-	-	-	-	-	\$ -
20-24	-	-	-	-	-	-	-	-	-
25-29	2	-	-	-	-	-	-	2	28,361
30-34	7	13	3	-	-	-	-	23	31,421
35-39	13	29	12	3	-	-	-	57	33,614
40-44	13	33	13	6	1	-	-	66	43,894
45-49	8	34	20	13	3	1	-	79	47,244
50-54	6	38	26	19	4	12	1	106	48,963
55-59	8	28	34	49	11	4	8	142	48,397
60-64	5	25	29	49	17	6	5	136	44,097
65 & over	0	12	17	34	8	10	9	90	50,123
Total	<u>62</u>	<u>212</u>	<u>154</u>	<u>173</u>	<u>44</u>	<u>33</u>	<u>23</u>	<u>701</u>	<u>\$45,500</u>

Average age 53.3

Average service 12.7

Age	Females - Full Years of Service to December 31, 1985							Total	Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30+		
Under 20	-	-	-	-	-	-	-	-	\$ -
20-24	-	-	-	-	-	-	-	-	-
25-29	-	1	-	-	-	-	-	1	29,959
30-34	1	5	-	-	-	-	-	6	30,639
35-39	4	3	1	1	-	-	-	9	36,605
40-44	1	4	-	-	-	-	-	5	42,536
45-49	2	6	6	4	-	-	-	18	30,868
50-54	2	8	5	4	-	-	-	19	32,554
55-59	5	7	3	16	-	-	-	31	32,875
60-64	2	4	4	13	2	-	1	26	32,662
65 & over	-	1	4	3	1	-	1	10	39,578
Total	<u>17</u>	<u>39</u>	<u>23</u>	<u>41</u>	<u>3</u>	<u>-</u>	<u>2</u>	<u>125</u>	<u>\$33,554</u>

Average age 53.0

Average service 11.0

STATE EMPLOYEES' RETIREMENT SYSTEM

I. AGE, SERVICE AND SALARY PROFILE OF ACTIVE PARTICIPANTS DECEMBER 31, 1985

ALL EMPLOYEES*

Age	Males - Full Years of Service to December 31, 1985								Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	
Under 20	32	-	-	-	-	-	-	32	\$11,041
20-24	1,056	224	-	-	-	-	-	1,280	15,730
25-29	2,559	2,108	179	-	-	-	-	4,846	18,416
30-34	2,068	3,112	2,287	383	-	-	-	7,850	20,787
35-39	1,806	2,548	4,050	3,273	201	-	-	11,878	23,465
40-44	1,124	1,382	1,985	3,642	1,455	119	-	9,707	25,495
45-49	817	984	1,325	1,922	1,707	938	102	7,795	26,217
50-54	725	855	1,142	1,472	1,265	1,164	712	7,335	26,400
55-59	647	837	1,239	1,526	1,224	964	999	7,436	25,944
60-64	366	642	804	1,093	807	541	578	4,831	25,445
65 & over	99	184	281	315	163	96	144	1,282	28,066
Total	11,299	12,876	13,292	13,626	6,822	3,822	2,535	64,272	\$24,100

Average age 43.9

Average service 13.1

Age	Females - Full Years of Service to December 31, 1985								Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total	
Under 20	102	-	-	-	-	-	-	102	\$11,918
20-24	1,674	618	-	-	-	-	-	2,292	14,734
25-29	2,065	2,544	564	1	-	-	-	5,174	16,957
30-34	1,738	2,520	3,137	829	-	-	-	8,224	18,268
35-39	1,566	1,811	2,394	2,130	308	-	-	8,209	19,214
40-44	1,054	1,407	1,279	1,252	711	88	-	5,791	19,437
45-49	926	1,284	1,248	951	561	398	51	5,419	19,597
50-54	601	1,158	1,278	1,131	550	327	223	5,268	19,566
55-59	553	904	1,197	1,472	694	409	283	5,512	19,525
60-64	254	514	799	930	481	246	188	3,412	19,318
65 & over	67	103	207	225	138	52	93	885	19,787
Total	10,600	12,863	12,103	8,921	3,443	1,520	838	50,288	\$18,763

Average age 42.1

Average service 11.0

* Includes Active and Inactive (Departments 710, 712, 714 and 758) Employees.

STATE EMPLOYEES' RETIREMENT SYSTEM

II. AGE AND BENEFIT PROFILE OF INACTIVE PARTICIPANTS DECEMBER 31, 1985

SUPERANNUATION ANNUITANTS

Age	Male		Female		Total	
	Number	Annual Pension	Number	Annual Pension	Number	Annual Pension
Under 50	-	\$ -	-	\$ -	-	\$ -
50-54	110	1,566,530	6	57,244	116	1,673,774
55-59	497	6,760,391	101	1,216,560	598	7,975,951
60-64	3,502	32,229,672	2,435	14,465,853	5,937	46,695,525
65-69	6,563	41,147,894	4,919	23,985,252	11,482	65,133,146
70-74	6,603	37,308,021	4,916	22,602,712	11,519	59,910,733
75-79	4,737	24,906,306	3,217	14,384,603	7,954	39,290,909
80-84	2,206	11,345,605	1,610	6,516,183	3,816	17,861,788
85-89	780	4,115,713	633	2,692,047	1,413	6,807,760
90 &	231	1,301,207	264	1,004,042	495	2,305,249
Total	25,229	\$160,681,339	18,101	\$86,924,496	43,330	\$247,605,835

Average age 71.5
Average annual pension ...\$5,714

EARLY RETIREMENT ANNUITANTS

Age	Male		Female		Total	
	Number	Annual Pension	Number	Annual Pension	Number	Annual Pension
Under 30	2	\$ 1,058	13	\$ 8,367	15	\$ 9,425
30-34	115	82,223	505	370,429	620	452,652
35-39	782	722,024	784	672,537	1,566	1,394,561
40-44	874	1,072,567	479	562,316	1,353	1,634,883
45-49	712	1,560,108	418	737,118	1,130	2,297,226
50-54	747	2,777,742	532	1,514,948	1,279	4,292,690
55-59	1,081	6,348,222	959	4,141,486	2,040	10,489,708
60-64	1,044	6,976,437	1,011	4,450,720	2,055	11,427,157
65 & Over	1,206	6,022,533	1,059	4,894,172	2,265	10,916,705
Total	6,563	\$ 25,562,914	5,760	\$17,352,093	12,323	\$ 42,915,007

Average age 53.6
Average annual pension....\$3,482

STATE EMPLOYEES' RETIREMENT SYSTEM

II. AGE AND BENEFIT PROFILE OF INACTIVE PARTICIPANTS DECEMBER 31, 1985

DISABLED ANNUITANTS

Age	Male		Female		Total	
	Number	Annual Pension	Number	Annual Pension	Number	Annual Pension
Under 30	2	\$ 7,880	4	\$ 19,114	6	\$ 26,994
30-34	15	69,491	27	124,863	42	194,354
35-39	76	376,952	45	204,717	121	581,669
40-44	103	556,063	69	331,154	172	887,217
45-49	129	705,523	85	408,718	214	1,114,241
50-54	218	1,322,064	140	713,506	358	2,035,570
55-59	431	2,625,624	274	1,280,488	705	3,906,112
60-64	521	2,749,301	394	1,726,626	915	4,475,927
65 & over	516	2,142,550	483	1,609,757	999	3,752,307
Total	2,011	\$ 10,555,448	1,521	\$ 6,418,943	3,532	\$16,974,391

Average age 59.0
Average annual pension ...\$4,806

BENEFICIARIES

Age	Male		Female		Total	
	Number	Annual Pension	Number	Annual Pension	Number	Annual Pension
Under 25	6	\$ 12,302	4	\$ 8,543	10	\$ 20,845
25-29	6	17,451	9	41,763	15	59,214
30-34	8	32,624	11	36,788	19	69,412
35-39	9	26,202	29	83,087	38	109,289
40-44	17	69,307	21	76,488	38	145,795
45-49	25	71,119	44	126,745	69	197,864
50-54	12	25,475	81	276,088	93	301,563
55-59	12	57,663	234	948,775	246	1,006,438
60-64	26	88,786	427	1,752,236	453	1,841,022
65-69	52	152,163	809	2,891,969	861	3,044,132
70-74	40	126,732	1,037	3,596,337	1,077	3,723,069
75-79	33	110,759	935	3,058,118	968	3,168,877
80-84	14	35,989	618	1,757,484	632	1,793,473
85-89	6	13,436	346	834,651	352	848,087
90 & Over	4	10,643	162	262,301	166	272,944
Total	270	\$ 850,651	4,767	\$15,751,373	5,037	\$16,602,024

Average age 71.8
Average annual pension ..\$3,296

STATE EMPLOYES' RETIREMENT SYSTEM
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BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1985

(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.
- Class C - Enforcement officers of the Pennsylvania Liquor Control Board and officers and certain employees of the Pennsylvania State Police who were members prior to March 1, 1974.
- Class D-3 - Members of the General Assembly who were members prior to March 1, 1974.
- Class E-1 - Members of the Judiciary who were members prior to March 1, 1974.
- Class E-2 - District Justices paid by the Commonwealth who were members prior to March 1, 1974.

STATE EMPLOYES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1985

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

Age Requirements for Superannuation Retirement (with 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 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.

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.

STATE EMPLOYEES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1985
(as embodied in Act 31, approved March 1, 1974)

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, prior to March 1, 1974, has elected "Social Security Integration Credits" is entitled to a single-life annuity of 2% of his "Average Non-Covered Salary" for each year of Social Security Integration credit. "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. In effect, the years of Social Security Integration Credit are the same as total credited service unless the member did not elect coverage when first eligible.

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.

STATE EMPLOYES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1985
(as embodied in Act 31, approved March 1, 1974)

Age and Service Requirements for Disability Retirement

A member is eligible for disability retirement if he is unable to perform his current job prior to superannuation retirement age and has at least 5 years of service, except an officer of the State Police or an enforcement officer for whom there is no service requirement.

Formula for Disability Benefit

The disability benefit is equal to the benefit calculated as for superannuation retirement, based on years of credited service at disability, if the result is greater than or equal to 33-1/3% 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.

STATE EMPLOYES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1985
(as embodied in Act 31, approved March 1, 1974)

Eligibility for Death Benefit Prior to Retirement

A member is eligible if he has 10 years of credited service, except for a member of Class D-3 who is eligible after 6 years of credited service, or attainment of superannuation age with 3 year 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 he retired the day before he died, assuming he had elected Option 1 if no other option had been elected.

Death Benefits After Retirement

A member may elect one of several typical optional reduced pensions in lieu of his maximum single-life annuity provided by the formula. However, if he 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.

Supplemental Allowances

Any superannuation or disability annuitant is entitled to a supplemental allowance sufficient to build the amount of his total single-life allowance including any cost of living supplements up to not less than at the rate of \$84.50 for each year of credited service. An annuitant who retired early is entitled to the supplemental allowance upon attaining superannuation age.

STATE EMPLOYES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1985
(as embodied in Act 31, approved March 1, 1974)

Supplemental annuities applying cost-of-living increases to the benefits of annuitants have been instituted from time to time. The most recent of these became effective as of July 1, 1984 for annuitants who had retired on or prior to July 1, 1982. The increases varied according to year of retirement and years of service and were determined as the total of (a) 2% of the annuity in effect on July 1, 1984 plus (b) \$1 times full years of credited service, plus (c) \$2 times full years of retirement through July 1, 1983 with certain maximums. Other supplemental annuities have become effective as of July 1, 1968, July 1, 1974, and July 1, 1979.

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 are in continuous membership, and employment since July 22, 1983.
6.25% of total salary for those who became members and employees July 22, 1983 or thereafter.

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 - Assumed to be 18.75%

Class E-1 - Assumed to be 10.00% during the first 10 years of judicial service and 7.5% thereafter.

Class E-2 - Assumed to be 7.50%

(ii) Additional contribution for Social Security Integration Credit

A member of any class who elected before March 1, 1974 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.

STATE EMPLOYES' RETIREMENT SYSTEM

BENEFIT AND CONTRIBUTION PROVISIONS as of DECEMBER 31, 1985
(as embodied in Act 31, approved March 1, 1974)

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.

Refund of Accumulated Member Contributions

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

Employer Contributions

The Employer pays the balance of the required contributions in excess of the members contributions in accordance with the law. Basically, the employer contribution is 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

I. 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 five separate classes as follows:

CLASS*	AGE	Rates of Separation Due To							Salary Scale
		Withdrawal after Years of Service			Death	Dis-ability	Early Retirement**	Super-annuation Retirement**	
		1	5	11					
A (MALE)	25	.125	.038	.003	.0008	.0006	-	-	2.6%
	35	.105	.036	.002	.0009	.0012	.019	-	1.3
	45	.072	.024	.002	.0026	.0025	.015	-	0
	55	.064	.016	.002	.0074	.0081	.022	.143	0
	65	-	-	-	.0131	-	-	.537	0
A (FEMALE)	25	.148	.061	.005	.0003	.0004	-	-	2.6%
	35	.094	.043	.004	.0004	.0014	.029	-	1.3
	45	.067	.030	.003	.0014	.0030	.019	-	0
	55	.051	.024	.003	.0028	.0071	.035	.117	0
	65	-	-	-	.0042	-	-	.481	0
C (MALE and FEMALE)	25	.025	.025	.003			.010	-	2.6%
	35	.025	.025	.003	***	***	.010	-	1.3
	45	.025	.025	.003			.010	-	0
	55	-	-	-			-	.080	0
	65	-	-	-			-	.350	0
D (MALE and FEMALE)	25	.030	.030	.002			.045	-	0
	35	.030	.030	.002	***	***	.045	-	0
	45	.030	.030	.002			.045	-	0
	55	-	-	-			-	.030	0
	65	-	-	-			-	.150	0
E (MALE and FEMALE)	25	.040	.020	.002			.020	-	0
	35	.040	.020	.002	***	***	.020	-	0
	45	.040	.020	.002			.020	-	0
	55	.040	.020	.002			.020	-	0
	65	-	-	-			-	.250	0

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

Disability Allowances: The mortality tables used for those receiving disability allowances are modifications based on sex of 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

II. 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.

III. ACTUARIAL COST METHOD

A variation of the Entry Age Actuarial Cost Method was used to determine liabilities and costs related to superannuation, withdrawal, death and disability benefits. The normal cost for new entrants is calculated as a level percentage of compensation. Then the present value of future benefits for active and inactive participants and annuitants is reduced by the present value of future normal costs, the present value of future member contributions, the value of the supplemental annuities, and the actuarial value of assets. The remaining amount is the unfunded actuarial accrued liability.

The annual contribution rate is equal to the sum of the normal cost, plus amounts necessary to amortize the unfunded actuarial accrued liability, and the supplemental annuity liability. Actuarial gains and losses are included in the unfunded actuarial accrued liability and are amortized accordingly.

The Unit Credit Actuarial Cost Method was used to determine the actuarial present value of accumulated plan benefits (both vested and nonvested) as of the valuation date.

STATE EMPLOYES' RETIREMENT SYSTEM

DEFINITIONS OF TECHNICAL TERMS

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.

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

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.

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.

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