

*Report  
of the  
Actuary*

EMPLOYEES' RETIREMENT SYSTEM  
OF THE STATE OF RHODE ISLAND

Actuarial Valuation as of  
June 30, 1985

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February 10, 1966

Dear Mr. [Name]:  
I am writing to you regarding the [subject].  
I hope you are well.  
Sincerely,  
[Signature]

Very truly yours,  
[Signature]

I am writing to you regarding the [subject].  
I hope you are well.  
Sincerely,  
[Signature]

I am writing to you regarding the [subject].  
I hope you are well.  
Sincerely,  
[Signature]

I am writing to you regarding the [subject].  
I hope you are well.  
Sincerely,  
[Signature]

I am writing to you regarding the [subject].  
I hope you are well.  
Sincerely,  
[Signature]

Very truly yours,  
[Signature]

I am writing to you regarding the [subject].  
I hope you are well.  
Sincerely,  
[Signature]

Very truly yours,  
[Signature]

## 1. SUMMARY

### Benefit Provisions

The Employees' Retirement System of the State of Rhode Island covers Legislators and elected officials may become members most State employees. State college teachers may elect coverage under the on an optional basis. State employees contribute 7% per cent of their annual T.I.A.A. program. State employees contribute 8% per cent. earnings and Teachers contribute 8% per cent.

The System provides unreduced benefits of 1.7 per cent of earnings for the first ten years of service; 1.9 per cent for the next ten years; 2.4 per cent per year for the next 10 years; 6 per cent for the 31st year; 2.4 per cent for the 32nd year; 4 per cent for the 33rd year; 3 per cent for 5 per cent for the 35th year. The maximum benefit is 80 the 34th year; and 2 per cent for the 35th year. Prior to per cent of final average earnings after 35 years of service. June 2, 1985, the accrual rate for all service over 20 years was 2.4 per cent and the maximum benefit of 80 per cent of earnings was payable after 38 years of service. Such benefits are available to members at least age 60 with 10 years of service, or after 20 years at any age. State correctional officers may retire at age 50 if they have 20 years of service, at 2 per cent for each year of service. Benefits are based on the average of the highest three consecutive years' earnings. After the third anniversary of retirement, "cost-of-living increases" amounting to 3 per cent per year of the original award are provided, independent of actual changes in the Consumer Price Index. Beginning January 1, 1981, the cost-of-living increases are computed at the rate of 3 per cent compounded annually.

The Plan also provides non-service-connected disability and vested benefits after five and ten years of service, respectively; service-connected disability pensions with no minimum service requirements; widow's benefits for service-connected death; and certain lump sum death benefits.

More detail can be found in the actuarial certificate following this report.

These rates are scheduled to increase by 0.5 per cent on July 1, 1985. Prior to July 1, 1985 the rates were 5 per cent for State employees and 7 per cent for Teachers.

### Employee Data

We received data on 15,186 active State Employees and 19,514 Teachers as of June 30, 1985 who were participating in the System. In the average, the State Employees were age 43 1/2 and had 10 years of service; Teachers were age 43 with 15 1/2 years of service.

### Retiree Data

We received data on 5,695 State Employee pensioners and 609 beneficiaries as of June 30, 1985. The pensioners' average monthly benefit was \$486. There were 3,766 retired Teachers and 121 beneficiaries; the average monthly benefit was \$954 for the pensioners. The benefit amounts include an adjustment for the cost-of-living provision. Of all the pensioners on the rolls, 5 per cent had retired in the year ended June 30, 1985.

### Retirement Fund

As of June 30, 1985, the assets at book value of the Retirement Fund, including Teachers Survivors Reserves, amounted to approximately \$874 million. This year we initiated a write-up procedure adopted by the Board. On this basis, the assets amounted to \$896 million at actuarial value. At market value, assets totalled \$983 million. These assets are available as an offset to the actuarial liabilities for future benefits.

### Actuarial Valuation

Our valuation was prepared as of June 30, 1985. Our calculations were based on reasonable assumptions as to expected future experience. With this valuation we have revised the net investment return, salary scale, and assumed retirement age assumptions. In addition, we have incorporated the latest change in the cost method to the entry age normal cost with frozen initial liability method which is effective July 1, 1985. All of the assumptions and methods are detailed in the attached Certificate of Actuarial Valuation.

The employer normal cost\* for State Employees is \$7.6 million. This represents 2.7 per cent of the reported payroll of participating State Employees as of June 30, 1985. The employer normal cost for Teachers is \$6.6 million or 2.3 per cent of reported participating payroll.

For State Employees, the actuarial accrued liability\* (representing the cost of the benefits allocated to years before July 1, 1985) is \$841 million, of which \$356 million represents the liability to those already receiving pensions. The unfunded actuarial accrued liability at the end of the year is \$397 million. For Teachers, the actuarial accrued liability is \$1.131 billion, of which \$321 million is for those receiving pensions. The unfunded actuarial accrued liability stands at \$713 million. The unfunded actuarial accrued liabilities as of June 30, 1985 have been "frozen" and will be amortized over the next 30 years.

The combined value of the System's vested benefits is \$1.48 billion. Thus, the assets at actuarial value are short of this amount by \$613 million (excluding assets of the Teachers Survivors program).

For the fiscal year 1986-87, the State's statutory funding schedule, as amended effective July 1, 1979, calls for a contribution of 100 per cent of the State's normal cost, 100 per cent of the interest on the unfunded actuarial accrued liability and the first amortization payment on the frozen unfunded liability. This amounts to 12.5 per cent of the projected 1986-87 payroll of \$303 million for State Employees and 18.9 per cent of projected payroll of \$322.5 million for Teachers. (Half of the cost for Teachers is paid for by the municipalities.) In accordance with the statute as amended, the percentages of normal cost and interest on the unfunded liability required to be contributed have gradually increased to the 100 per cent level starting in fiscal 1985-86. This year the amortization of unfunded liabilities is also required.

\*Please refer to the "Actuarial Assumptions and Methods" section of the report for definitions of these terms.

## II. EMPLOYEE DATA

We received data on 15,186 State Employees and 10,914 Teachers participating in the System on June 30, 1985. The data included age, service, sex, and salary for each participant. The average salary of the participants was \$18,700 for State Employees (see Note below), and \$28,700 for Teachers. The data included 282 Correctional Officers and 140 Legislators.

Tables 1A and 1B give detailed age, service and average salary data on State Employees and Teachers, respectively. In preparing these tables, we assumed an annual salary of \$10,000 for the State Employees for whom earnings were missing, and a \$15,000 annual salary was imputed for Teachers with unknown compensation.

Tables 2A and 2B summarize certain basic statistics on active State Employees and Teachers and compare them to those of the previous year. During the year, average salary for State Employees increased by 7.5 per cent while Teachers' average salary increased by 7.1 per cent (see Note below). Aggregate payroll increased by 6.1 per cent for State Employees and by 7.2 per cent for Teachers.

Overall, the data was in good condition. We recommend that the Board continue its practice of storing all basic participant information on computer files.

Note: The salaries reported for State Employees were as of June 30, 1985 and for Teachers as of July 1, 1985. This is consistent with the salaries used in the last valuation.

Table 1A  
 Number and Average Salaries of Employees in Active Service  
 as of June 30, 1985 by Age and by Years of Service

STATE EMPLOYEES

Age	Total	Years of service								
		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 and over	Unknown
Total	15,186 \$18,700	4,200 \$16,200	4,195 \$18,800	3,589 \$19,200	1,755 \$20,900	769 \$23,200	433 \$25,500	168 \$24,900	53 \$28,600	24 \$17,000
Under 20	28 \$13,300	28 \$13,300	--	--	--	--	--	--	--	--
20 - 24	682 14,600	604 14,600	77 \$14,500	--	--	--	--	--	--	1 \$16,700
25 - 29	1,681 16,100	903 16,300	681 15,900	97 \$16,200	--	--	--	--	--	--
30 - 34	2,115 18,000	633 17,100	811 18,600	614 18,200	57 \$18,200	--	--	--	--	--
35 - 39	2,166 20,100	540 17,200	639 19,500	680 22,300	291 21,900	16 \$18,700	--	--	--	--
40 - 44	1,664 19,800	445 16,700	430 18,800	398 20,800	263 23,800	115 23,100	12 \$19,700	--	--	1 17,500
45 - 49	1,489 19,500	359 16,200	366 18,100	360 19,100	183 21,800	141 26,000	67 24,200	13 \$21,600	--	--
50 - 54	1,656 19,500	278 16,300	396 17,300	425 19,100	243 20,700	144 23,300	113 26,800	47 22,200	7 \$26,500	3 27,700
55 - 59	1,942 19,300	278 16,200	411 17,500	499 18,000	367 19,700	185 22,400	129 26,400	55 26,100	16 26,400	2 28,700
60 - 64	1,380 18,700	107 16,300	304 17,100	397 16,600	282 18,900	135 21,700	94 24,700	37 28,700	22 28,500	2 25,000
65 and over	335 19,600	6 11,800	66 17,600	118 16,900	68 20,400	33 24,500	18 24,700	16 22,500	8 35,300	2 26,200
Unknown	48 3,800	19 1,500	14 300	1 19,500	1 2,200	--	--	--	--	13 10,000

RIODE ISLAND ERS

Table 1B  
 Number and Average Salaries of Employees in Active Service  
 as of June 30, 1985 by Age and by Years of Service

TEACHERS

Age	Total	Years of service								
		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 and over	Unknown
Total	10,016 \$28,700	625 \$20,800	1,425 \$26,800	3,140 \$29,300	2,460 \$29,900	1,059 \$30,700	597 \$31,300	272 \$33,200	107 \$32,800	331 \$21,800
Under 20	3 \$29,400	--	--	--	--	--	--	--	--	3 \$29,400
20 - 24	40 16,200	29 \$14,200	--	--	--	--	--	--	--	11 21,500
25 - 29	343 20,300	171 18,600	135 \$23,100	3 \$28,100	--	--	--	--	--	34 18,400
30 - 34	1,326 26,800	138 21,200	570 26,300	378 \$28,900	--	--	--	--	--	46 23,800
35 - 39	2,854 28,800	125 22,300	302 \$27,800	1,821 \$29,800	733 \$29,800	3 \$30,300	--	--	--	50 24,900
40 - 44	1,822 29,200	74 21,800	188 \$27,600	188 \$29,800	882 30,000	284 30,500	2 \$29,300	--	--	26 20,800
45 - 49	1,175 30,200	40 \$23,800	99 \$28,700	220 \$29,700	288 30,100	378 31,500	131 \$31,400	2 \$33,100	--	16 23,200
50 - 54	931 30,800	15 \$27,600	53 \$28,500	143 30,100	183 \$29,700	189 30,800	243 31,800	97 32,600	7 \$29,100	9 30,000
55 - 59	820 30,700	10 \$22,900	39 30,000	100 \$29,700	211 \$29,700	134 \$29,800	142 30,800	126 34,000	54 34,000	4 23,400
60 - 64	364 30,100	3 24,900	11 \$27,300	23 \$28,800	22 \$28,300	58 30,200	57 30,100	38 32,400	36 32,400	6 21,800
65 and over	182 28,700	2 \$27,400	13 \$23,300	13 \$29,000	22 \$28,000	34 \$29,000	21 30,000	8 31,200	9 30,700	5 18,600
Unknown	176 24,800	48 24,300	15 \$23,000	12 \$29,000	3 \$29,000	1 30,500	1 28,800	1 29,500	1 24,300	121 20,200

RIODE ISLAND ERS

Table 2A  
 Statistical Data on Active State Employees  
 on June 30, 1985 and 1984

	June 30, 1985	June 30, 1984
Number of covered employees	15,186	15,361
Total annual salary	\$283,242,600	\$267,014,800
Average annual salary	\$18,700	\$17,400
Average age	43 1/2	43 1/2
Average years of service	10	9 1/2
Number eligible for service retirement	1,366	1,256
Number vested but not eligible to retire	5,401	5,036

See note in text on salary data.

RHODE ISLAND ERS

Table 2B  
 Statistical Data on Active Teachers  
 on June 30, 1985 and 1984

	June 30, 1985	June 30, 1984
Number of covered employees	10,016	10,003
Total annual salary	\$287,480,600	\$268,190,600
Average annual salary	\$28,700	\$26,800
Average age	43	42 1/2
Average years of service	15 1/2	15
Number eligible for service retirement	774	673
Number vested but not eligible to retire	6,861	6,769

See note in text on salary data.

RHODE ISLAND ERS

### III. RETIREE DATA

The data on retired members and beneficiaries included age, sex, monthly benefit, retirement date, option, and type of pension.

The following are significant statistics on the retired group:

	State Employees	Teachers
Pensioners:		
Number	5,635	3,046
Average age	70 1/2	73
Average monthly benefit	\$486	\$906
Beneficiaries:		
Number	403	121
Average age	73	73
Average monthly benefit	\$423	\$632

Table 3A gives distributions of the 318 new State Employee pensions in the current year by type of pension and amount. Table 4A does the same for age at retirement. Tables 3B and 4B are similar for the 176 new Teacher pensions.

Tables 5A and 5B give distributions for all pensions in force at the end of the fiscal year by type and amount. Tables 6A and 6B do the same by age.

Overall, the data on retirees was quite good. A minor problem, which has no impact on cost, is that some beneficiaries may not be classified as such and therefore they would be treated as pensioners.

The data on terminated employees with vested rights to a deferred benefit did not include enough information to calculate the total cost for them. We did, however, again this year, include a cost equal to their accumulated employee contributions. We again recommend that information regarding terminated vested employees be maintained by the System so that it can be incorporated in future valuations and reflected in the costs.

Table 3A  
Pensions Awarded in the Year Ended June 30, 1985  
by Type and by Monthly Amount

#### STATE EMPLOYEES

Monthly amount	Total	Type of pension					Beneficiary
		Service	Ordinary Disability	Accidental Disability	Legislator	12	
Total	318	260	29	4	13	12	
\$ 50 - 99	6	5	1				
100 - 149	11	10	1				
150 - 199	42	27	11				3
200 - 249	31	28	1				1
250 - 299	32	27	2	1	2		
300 - 349	30	25	3				2
350 - 399	21	17	1		1		2
400 - 449	22	19	2		1		1
450 - 499	18	15	1		1		
500 - 599	21	13	1		7		
600 - 699	15	11	3				1
700 - 799	9	7		1			1
800 - 899	10	8	1				1
900 - 999	10	9		1			
1,000 - 1,099	8	7	1				
1,100 - 1,199	2	2					
1,200 - 1,299	3	3					
1,300 - 1,399	4	4					
1,400 - 1,499	1	1					
1,500 - 1,999	11	11					
2,000 - 2,499	5	5					
2,500 - 2,999	3	3					
3,000 - 3,499	3	3					

TYPE OF POSITION	APR 30, 1983		EFFECTIVE DATE	
	NUMBER	AMOUNT	NUMBER	AMOUNT
TOTAL	118	1,180,000	118	1,180,000
TEACHER	100	1,000,000	100	1,000,000
NONTEACHER	18	180,000	18	180,000
Accidental	1	10,000	1	10,000
Disability	1	10,000	1	10,000
Retiree	16	160,000	16	160,000
Unfilled	1	10,000	1	10,000
Unassigned	1	10,000	1	10,000

Table 3A  
 Positions Awarded in the Year Ended June 30, 1983  
 by Type and by Age in Effective Date  
 STATE EMPLOYERS

TYPE OF POSITION	APR 30, 1983		EFFECTIVE DATE	
	NUMBER	AMOUNT	NUMBER	AMOUNT
TOTAL	118	1,180,000	118	1,180,000
TEACHER	100	1,000,000	100	1,000,000
NONTEACHER	18	180,000	18	180,000
Accidental	1	10,000	1	10,000
Disability	1	10,000	1	10,000
Retiree	16	160,000	16	160,000
Unfilled	1	10,000	1	10,000
Unassigned	1	10,000	1	10,000

Table 3B  
 Positions Awarded in the Year Ended June 30, 1983  
 by Type and by Monthly Amount  
 TEACHERS



Table 4B  
Pensions Awarded in the Year Ended June 30, 1985  
by Type and by Age on Effective Date

TEACHERS

Age on effective date	Total	Type of pension			
		Service	Ordinary Disability	Accidental Disability	Beneficiary
Total	176	168	5	1	2
40 - 44	1	--	1	--	--
45 - 49	2	--	1	1	--
50	1	--	--	--	1
51	2	2	--	--	--
52	1	1	--	--	--
53	2	2	--	--	--
54	7	6	1	--	--
55	8	7	--	--	1
56	7	7	--	--	--
57	7	7	--	--	--
58	7	6	1	--	--
59	10	9	1	--	--
60	33	33	--	--	--
61	15	15	--	--	--
62	23	23	--	--	--
63	12	12	--	--	--
64	11	11	--	--	--
65	10	10	--	--	--
66	9	9	--	--	--
67	1	1	--	--	--
68	3	3	--	--	--
69	1	1	--	--	--
70 and over	3	3	--	--	--

RHODE ISLANDERS

Table 5A  
Pensions in Payment Status on June 30, 1985  
by Type and by Monthly Amount

STATE EMPLOYEES

Monthly amount	Total	Type of pension				
		Service	Ordinary Disability	Accidental Disability	Legislator	Beneficiary
Total	6,038	4,955	441	98	141	403
Under \$50	29	22	--	4	--	3
\$ 50 - 99	258	200	22	12	--	24
100 - 149	588	524	28	7	--	29
150 - 199	754	593	111	6	--	44
200 - 249	642	492	86	7	13	44
250 - 299	514	385	53	5	32	39
300 - 349	420	326	35	6	20	33
350 - 399	323	255	26	2	11	29
400 - 449	262	224	13	4	6	15
450 - 499	285	231	9	7	13	25
500 - 599	424	312	20	11	46	35
600 - 699	303	258	13	9	--	23
700 - 799	212	180	11	7	--	14
800 - 899	210	182	8	4	--	16
900 - 999	139	131	--	4	--	4
1,000 - 1,099	128	117	3	--	--	8
1,100 - 1,199	97	93	--	--	--	4
1,200 - 1,299	74	70	1	--	--	3
1,300 - 1,399	73	67	1	--	--	5
1,400 - 1,499	64	59	1	2	--	2
1,500 - 1,999	163	159	--	1	--	3
2,000 - 2,499	46	46	--	--	--	--
2,500 - 2,999	19	19	--	--	--	--
3,000 - 3,499	10	9	--	--	--	1
3,500 - 3,999	1	1	--	--	--	--

Table 5B

Pensions in Payment Status On June 30, 1985  
by Type and by Monthly Amount

## TEACHERS

Monthly amount	Total	Type of pension			
		Service	Ordinary Disability	Accidental Disability	Beneficiary
Total	3,167	2,928	103	15	121
Under \$50	1	1	--	--	--
\$ 50 - 99	6	6	--	--	--
100 - 149	15	14	--	--	1
150 - 199	33	27	1	--	5
200 - 249	45	39	2	--	4
250 - 299	72	66	4	--	2
300 - 349	68	53	5	--	10
350 - 399	95	76	10	1	8
400 - 449	102	86	7	--	9
450 - 499	105	86	10	--	9
500 - 599	218	190	7	1	20
600 - 699	249	220	18	--	11
700 - 799	342	317	15	--	10
800 - 899	335	319	6	1	9
900 - 999	293	277	9	--	7
1,000 - 1,099	301	292	4	1	4
1,100 - 1,199	260	248	3	6	3
1,200 - 1,299	178	173	--	2	3
1,300 - 1,399	127	119	2	2	4
1,400 - 1,499	112	112	--	--	--
1,500 - 1,999	178	176	--	--	2
2,000 - 2,499	24	23	--	1	--
2,500 - 2,999	7	7	--	--	--
3,500 - 3,999	1	1	--	--	--

RHODE ISLAND ERS

Table 6A

Pensions in Payment Status on June 30, 1985  
by Type and by Age

## STATE EMPLOYEES

Age on June 30, 1985	Total	Type of pension				
		Service	Ordinary Disability	Accidental Disability	Legislator	Beneficiary
Total	6,038	4,955	441	98	141	403
20 - 24	1	1	--	--	--	--
25 - 29	1	--	1	--	--	--
30 - 34	9	1	5	2	--	1
35 - 39	11	--	5	2	--	4
40 - 44	18	1	9	5	--	3
45 - 49	25	--	16	4	2	3
50 - 54	73	14	32	13	5	9
55 - 59	246	103	78	18	27	20
60 - 64	946	752	107	17	25	45
65 - 69	1,619	1,410	104	14	28	63
70 - 74	1,445	1,272	53	16	26	78
75 - 79	919	806	26	4	11	72
80 - 84	481	411	5	3	8	54
85 - 89	179	147	--	--	6	26
90 - 94	52	30	--	--	3	19
95 - 99	11	7	--	--	--	4
100 - 104	2	--	--	--	--	2

RHODE ISLAND ERS

Table 6B  
Pensions in Payment Status on June 30, 1985  
by Type and by Age

TEACHERS

Age on June 30, 1985	Total	Type of pension			Beneficiary
		Service	Ordinary Disability	Accidental Disability	
Total	3,167	2,928	103	15	121
35 - 39	1	--	--	--	1
40 - 44	6	--	5	1	--
45 - 49	14	1	8	2	3
50 - 54	22	6	8	1	7
55 - 59	108	78	17	3	10
60 - 64	411	367	30	4	10
65 - 69	616	587	13	3	13
70 - 74	657	628	9	1	19
75 - 79	679	653	5	--	21
80 - 84	403	380	4	--	19
85 - 89	162	149	3	--	10
90 - 94	71	64	1	--	6
95 - 99	12	11	--	--	1
100 - 104	4	3	--	--	1
105 - 109	1	1	--	--	--

RHODE ISLAND ERS

#### IV. RETIREMENT FUND

The State maintains the Employees' Retirement Fund. The Retirement Board provided us with financial statements as of June 30, 1985.

The Fund receives all member and employer contributions. The assets are invested by the State Investment Commission, with the income being added to the Fund and available for reinvestment.

Payments from the Fund are primarily for refunds of employee contributions, lump sum death benefits, and pension payments. Contribution refunds occur when an employee terminates employment and elects to take a refund, or when he dies after retirement without having received payments from the Fund equal to his total contributions.

Table 7 gives a summary of income and expenditures for the years ended June 30, 1985 and 1984.

At June 30, 1985 assets as reported by the State totalled approximately \$874 million. Table 8 shows the composition of the assets and compares them to those of the previous year. About 67 per cent of the Fund was invested in fixed income securities such as bonds and notes.

The financial statements indicate that 49 1/2 per cent of the assets relate to State Employees, 46 1/2 per cent are for Teachers, and 4 per cent relate to Teachers Survivors benefits. There is also a small unallocated reserve for unclaimed benefits. Table 9 shows the allocation of assets in detail for 1985 and 1984.

Assets prior to June 30, 1985 were carried at values as reported by the State. Bonds were carried at amortized cost value and stocks were carried at cost value. This year the Board adopted an asset valuation method for cost purposes which takes fair market value into account without subjecting the system to abnormal cost fluctuations from year to year as a result of short term changes in market value.

On the "actuarial value" basis, the assets at June 30, 1985 amounted to \$896,496,211 as calculated below:

Determination of Actuarial Value of Assets

1. Value of assets at beginning of year as reported by the State	\$743,876,573
2. Net new money (including dividends and interest)	130,837,089
3. Preliminary value of assets at end of year: (1) + (2)	874,713,662
4. Market value of assets at end of year	983,491,408
5. Minimum actuarial value: 80% of (4)	786,793,126
6. Maximum actuarial value: 120% of (4)	1,180,189,690
7. Trial write-up: 20% of [(4) - (3)]	21,755,549
8. Trial actuarial value: (3) + (7)	896,469,211
9. Final actuarial value of assets at end of year: (8), but not less than (5) or more than (6)	896,469,211
10. Final write-up: (9) - (3)	21,755,549

This determination is used for two purposes:

First, the actuarial value is applied in determining the value of assets used in the actuarial calculations to determine the annual costs.

Second, the amount of write-up or write-down is considered part of the investment yield for the year. This procedure treats realized and unrealized capital gains equally. In other words, the sale of a security - either at a gain or loss - will have no effect on the actuarial value. This should remove from the area of investment decisions any consideration of the impact of security sales on the actuarial cost of the debt.

1. 1985年6月30日現在の資産の actuarial value は、市場価値に基づき、80%から120%の範囲で調整されたものである。

<p>1. 1985年6月30日現在の資産の actuarial value は、市場価値に基づき、80%から120%の範囲で調整されたものである。</p>	<p>2. 1985年6月30日現在の資産の actuarial value は、市場価値に基づき、80%から120%の範囲で調整されたものである。</p>	<p>3. 1985年6月30日現在の資産の actuarial value は、市場価値に基づき、80%から120%の範囲で調整されたものである。</p>	<p>4. 1985年6月30日現在の資産の actuarial value は、市場価値に基づき、80%から120%の範囲で調整されたものである。</p>	<p>5. 1985年6月30日現在の資産の actuarial value は、市場価値に基づき、80%から120%の範囲で調整されたものである。</p>	<p>6. 1985年6月30日現在の資産の actuarial value は、市場価値に基づき、80%から120%の範囲で調整されたものである。</p>	<p>7. 1985年6月30日現在の資産の actuarial value は、市場価値に基づき、80%から120%の範囲で調整されたものである。</p>	<p>8. 1985年6月30日現在の資産の actuarial value は、市場価値に基づき、80%から120%の範囲で調整されたものである。</p>	<p>9. 1985年6月30日現在の資産の actuarial value は、市場価値に基づき、80%から120%の範囲で調整されたものである。</p>	<p>10. 1985年6月30日現在の資産の actuarial value は、市場価値に基づき、80%から120%の範囲で調整されたものである。</p>
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Table 8  
Assets as of June 30, 1985 and 1984

	1985	1984
Cash (securities)	\$ 2,458,131	\$( 400,436)
Accrued interest receivable	12,375,752	11,199,556
Investments		
government bonds	\$352,317,168	\$302,039,326
corporate bonds	90,978,000	97,375,000
common and preferred stocks and mutual partnership	270,927,135	233,698,182
Certificate of deposit and repurchase agreements	71,850,000	62,800,000
Commercial paper	81,529,121	47,090,170
Federal trust bond	600,000	150,000
(Term) Insurance premium and discount	(10,116,507)	( 10,075,229)
Total assets	\$874,232,819	\$743,876,573

Note: Detail figures may not add to totals shown because of rounding.  
RHODE ISLAND EMS

Table 9  
Allocation of Assets by Plan  
as of June 30, 1985 and 1984

	1985	1984
State Employees		
Employer turnover	\$324,399,806	\$279,396,286
Member turnover	108,717,976	97,967,720
Total State Employees turnover	\$433,117,782	\$377,364,006
Teachers		
Employer turnover	\$250,677,248	\$194,590,615
Member turnover	156,937,296	141,209,145
Total Teacher turnover	\$407,614,544	\$335,799,760
Teachers Retirement		
Employer turnover	\$ 23,283,432	\$ 23,430,432
Member turnover	2,512,073	7,101,240
Total Teachers Retirement turnover	\$ 25,795,505	\$ 30,532,188
Unallocated		
Unallocated benefit turnover	204,532	160,611
Total assets	\$874,232,819	\$743,876,573

Note: Detail figures may not add to totals shown because of rounding.  
RHODE ISLAND EMS

7. ACTUARIAL ASSUMPTIONS AND COST METHOD

The actual cost of a pension plan consists of the benefit payments and administrative expenses less any investment earnings. An actuarial cost method aims to budget this cost so as to establish a reasonable relationship between employer pension contributions and the employee service that gives rise to the pension obligation. The result is an employer contribution which anticipates future payments. A fund accumulates which earns investment income, thus reducing the ultimate cost.

Calculating the appropriate contribution requires that projections, and therefore assumptions, be made as to future experience. Some items, such as mortality rates, can be predicted fairly accurately. Others, such as future salary increases are, of course, subject to considerable variation. It will be useful to identify the assumptions used, particularly those broad questions of fiscal policy are implicit in certain of the assumptions. These assumptions are the same as those used in the June 30, 1966 study with three exceptions. The assumed retirement age has been lowered to anticipate the earlier retirements resulting from the new higher actuarial rates for service after 39 years. The net investment return and salary scale assumptions have been increased to better reflect past experience and future expectations. The cost method has also been changed as stipulated in Section 36-30-2 of the General Laws of Rhode Island.

Mortality Rates

We assumed that mortality rates would conform with the 1971 Group Family Mortality Table. This is the most commonly used table of pension plan mortality, and we believe it is a reasonable basis for actuarial projections under the system. Table 10 gives some life expectancies determined from this table.

Salary Projections

The system provides benefits that are based on the three highest consecutive years' salary for each employee. To assume that each employee's salary will be the same in the three years before retirement as

it is today would seriously underestimate the System's cost. Accordingly, we use a salary projection to anticipate future increases in earnings.

Additionally, it is appropriate to compute pension costs which are level as a percentage of payroll rather than level as a dollar amount, and a salary projection is also used for this purpose. If the cost were calculated as a level dollar amount for an individual, the cost might be a high per cent of his pay when he is young and a lower per cent of his higher salary at a later age. By the use of a salary projection, the contribution for an individual, all other things remaining the same, tends to stay at the same percentage over the years.

How to project future salaries is a major policy question. To what extent should one seek to anticipate, through present contributions, the full impact on pension costs of future salary changes?

For purposes of our cost determination, we have made a moderate allowance for general salary increases in the future. We also reflect salary increases as the result of longevity and promotions. The scale has relatively greater increases at the younger ages to correspond with the state's salary schedules. The revised salary scale factors are:

Age	Present Salary as a % of Age 65 Salary	Annual Increase (Rate %)
20	11.30	5.85
25	15.00	5.77
30	19.79	5.61
35	25.91	5.61
40	33.52	5.09
45	42.66	6.73
50	53.63	6.53
55	66.26	6.38
60	82.02	6.17

As will appear, the problem of salary projection has a parallel to the question of choosing an assumption as to future investment yield and the two are somewhat interrelated.

### Investment Return

Investment return has a major effect on the ultimate cost of a retirement system. In general, if a system is actuarially funded so that it has a reserve which is earning substantial investment income, a yield of 6 per cent - in contrast to a 5 per cent yield - could reduce annual costs by 16 - 20 per cent.

An assumption must be made concerning future yields. It must be a rate that will be valid for the long-run, that is, not only for money invested today or next year, but also for money invested 40 or more years from now.

We increased the investment return assumption to 7 1/2 per cent per year for our calculation. This assumption takes account of probable moderate long-term inflation but is not tied directly to the higher rates currently available. It is also consistent with the increased salary scale factors discussed above.

### Termination Rates

In any employee group, many employees will terminate and receive less than full benefits. Employees terminating with less than ten years of active service, for example, receive only a refund of their contributions. The termination assumption anticipates the release of State and Town funds that may have been accumulated for such people, thus resulting in a reduced ongoing cost.

We assumed that terminations each year from all causes would be as follows:

### State Employees (Rate %)

<u>Age</u>	<u>Death*</u>	<u>Disability</u>	<u>Withdrawal</u>	<u>Total*</u>
20	.05	.06	21.20	21.31
25	.06	.09	15.80	15.95
30	.08	.11	11.60	11.79
35	.11	.15	8.40	8.66
40	.16	.22	6.20	6.58
45	.29	.36	4.20	4.85
50	.53	.61	2.60	3.73
55	.85	1.01	--	1.86
60	1.31	--	--	1.31

15% of the above disability rates are service-connected.

### Teachers (Rate %)

<u>Age</u>	<u>Death*</u>	<u>Disability</u>	<u>Withdrawal</u>	<u>Total*</u>
20	.05	.06	12.39	12.50
25	.06	.09	9.70	9.85
30	.08	.11	7.50	7.69
35	.11	.15	5.66	5.92
40	.16	.22	4.14	4.52
45	.29	.36	2.75	3.41
50	.53	.61	1.35	2.49
55	.85	1.01	--	1.86
60	1.31	--	--	1.31

15% of the above disability rates are service-connected.

\*Rates shown are for men; rates for women are slightly lower.

Note: Detail figures may not add to totals shown because of rounding.

Retirement 1986

The system provides automatic benefits upon completion of 25 years of service for general employees and age 55 for some contractual employees. Last year an amount of \$100,000 was set aside for 1986. The amount set aside was the completion of 25 years of service age 55 and had completed the amount to read that the amount was \$100,000 age 55 and had completed the 25 years of service. Because of the way things worked there for service over 25 years, an amount of \$100,000 was set aside for 1986 for the employees and 1/10 for retirees. In any case where retirement of 25 years of service has been completed, in any case where the employee already meets these automatic conditions of age and service, it is assumed that he or she will retire immediately.

Retirement Increases

Following the total annuity of retirement, cost-of-living increases are regularly provided to retirees. For employees who received 3 per cent annual benefit increases as provided by law, the cost-of-living increases are the "comparable" from year to year. With this retirement we take into account the adjustment effective January 1, 1986.

Retiree Cost Method

This method is performed using the Early Age Normal Cost Method with Normal Annuity Liability. The change from Early Age Normal Cost Method was implemented effective July 1, 1985.

Under this new method, the Normal Annuity Value is based on the age of the retiree. The change from the old method was implemented effective July 1, 1985. The change from the old method was implemented effective July 1, 1985.

(8) Retiree in 1986 (1985) benefits (1985) (1986)

(4) Included from actuarial liability, starting with an Early Age Normal Annuity Value as of June 30, 1985, but then changing it and adjusting it each year only for expected changes, due to mortality, and new assumptions, and

(5) Actuarial Present Value of Future Normal Costs, which is the balance, and which obviously includes all liabilities from expected experience.

The annual cost requirement consists of these items -- (1) the amount which will amortize the Included from actuarial liability over 30 years from July 1, 1986 using the level-of-payment method plus (2) the amount on the Included from actuarial liability plus (3) the Normal Cost, which is the present of payroll which will fund the actuarial Present Value of Future Normal Costs over the working lifetime of the active participants. The Normal Cost is calculated as a level percent of pay and the contribution payment is calculated as an increasing dollar amount.

Overall Actuarial Issues

We believe that our assumptions, taken as a whole, are reasonable. In the present total actuarial experience is better or worse than assumed, actuarial gains or losses will result, with corresponding increases or decreases in future costs.

Retiree Note

It was necessary to make certain "not-accounted" assumptions which were made in 1985. In all cases, we assumed such individuals had the same characteristics as other participants, taking into account the current characteristics, e.g. the mortality rate and expected return on assets. It was the same basic assumption as with normal cost method.



Table 10  
Expected Number of Years of Life  
Remaining at Specified Ages

Age	Male	Female
55	22.7	28.0
56	21.9	27.1
57	21.1	26.2
58	20.3	25.3
59	19.5	24.4
60	18.8	23.5
61	18.0	22.6
62	17.3	21.8
63	16.5	20.9
64	15.8	20.1
65	15.1	19.2
66	14.4	18.4
67	13.8	17.6
68	13.1	16.8
69	12.5	16.0
70	11.9	15.3
71	11.3	14.5
72	10.8	13.8
73	10.3	13.1
74	9.7	12.4
75	9.2	11.7

1971 Group Annuity Mortality Table.

RHODE ISLAND ERS

VI. RESULTS OF VALUATION

State Employees

The costs for State Employees as of June 30, 1985, taking into account all the recent legislation and the increase in the employee contribution rate to 7 1/2 per cent effective July 1, 1986, developed as follows:

Item	Amount	% of Payroll
(1) Participating payroll	\$283,242,600	--
(2) Employer normal cost	7,557,400	2.6681% ✓
(3) Frozen unfunded actuarial liability	396,837,100	--
(4) Interest on unfunded actuarial liability	27,686,100	9.8 ✓
(5) Amortization payment	853,200	0.3

Note: Detail figures may not add to totals shown because of rounding.

The funding statute calls for the State to contribute 100 per cent of the projected normal cost plus 100 per cent of the interest on the unfunded actuarial accrued liability (as of June 30, 1985) plus an amortization payment equal to one times 0.215% of the frozen unfunded liability as of June 30, 1985 for the 1986-87 fiscal year. Based on this requirement and a projected participating payroll of \$303,000,000, the 1986-87 employer contribution "rate per cent" for State Employees is 12.5 per cent of payroll as developed below.

Item	Amount	% of Projected Payroll
(5) Projected 1986-87 participating payroll	\$303,000,000	--
(7) 1986-87 employer normal cost = 2.6681% x (6)	8,084,600	2.7%
(8) Required contribution payable July 1, 1986 = 1.00 x (7) + 1.00 x (4) + 1.00 x (5)	36,623,900	12.1
(9) Required contribution payable monthly = (8) plus interest adjustment	37,997,300	12.5

The calculations as completed determine the employer contribution to be paid into the retirement fund at the beginning of each year with interest earnings starting from that date. In fact, the money is deposited monthly. Thus, about half a year's interest is lost, and the contribution must be increased to reflect this. Line 9 on the previous page includes this adjustment.

The "rate per cent" shown on line 9 of 12.5 per cent of payroll is lower than for the previous year reflecting the new composite results of: the new legislation, revision in the actuarial assumptions and the change in the cost method.

#### Teachers

The cost for Teachers as of June 30, 1985, taking into account all the recent legislation and the increase in the employee contribution rate to 8 1/2 per cent effective July 1, 1986, developed as follows:

<u>Item</u>	<u>Amount</u>	<u>% of Payroll</u>
(1) Participating payroll	\$287,480,600	--
(2) Employer normal cost	6,556,500	2.2807%
(3) Frozen unfunded actuarial liability	712,666,400	--
(4) Interest on unfunded actuarial liability	49,720,600	17.3
(5) Amortization payment	1,532,200	0.5

Applying the funding statute to the Teachers' costs and a projected participating payroll of \$322,500,000 gives a contribution "rate per cent" requirement for fiscal 1986-87 of 18.9 per cent. Half of this rate (9.45%), is payable by the State and half by the municipalities. The "rate per cent" is developed as follows:

<u>Item</u>	<u>Amount</u>	<u>% of Participating Payroll</u>
(6) Projected 1986-87 participating payroll	\$322,500,000	--
(7) 1986-87 employer normal cost = 2.2807% x (6)	7,355,300	2.3%
(8) Required contribution payable July 1, 1986 = 1.00 x (7) + 1.00 x (4) + 1.00 x (5)	58,608,100	18.2
(9) Required contribution payable monthly = (8) plus interest adjustment	60,805,900	18.9

The calculations as completed assume that the employer contributions will be paid into the retirement fund at the beginning of each fiscal year and will start to earn interest from that date. In fact, the money will be deposited monthly. Thus, about a half a year's interest is lost, and the contribution must be increased to reflect this. Line 9 above, includes this adjustment.

The "rate per cent", measured by line 9 above, is 18.9 per cent of payroll. This compares to 19.8 per cent for the previous year.

Teacher Survivors

Because data on dependents of teachers is not available, it is not possible to do a thorough analysis of the Teachers Survivor program. However, through the use of assumed ages for members and their spouses and children, we were able to determine that the current assets of \$33.3 million together with the future income should be sufficient to cover the actuarial liabilities of this program. Currently the employee and the employer each contribute one per cent of salary up to \$9,600 for a maximum contribution of \$192 annually. Each year, the contributions on behalf of the approximate 5,500 members are approximately \$1 million while the benefit payments are usually somewhat less.

Value of Vested Benefits

In private pension plans, it is customary for the actuary to provide the "value of vested benefits". This figure is used by accountants in preparing financial statements, both as a disclosure item and as a factor in determining the provision for pension expense, in accordance with Opinion No. 8 of the Accounting Principles Board of the American Institute of Certified Public Accountants, "Accounting for the Cost of Pension Plans". While we recognize that the State may not be covered by this Opinion, a brief discussion of this subject may be helpful.

The "value of vested benefits" represents the single sum value under the plan's investment income and mortality assumptions of all benefits to present and former employees which do not have future employment by the employee as a required condition for their receipt. Thus, it includes the present value of an immediate or deferred pension for all pensioners, beneficiaries, and active participants with at least ten years of service. For active employees with less than ten years of service and inactive vested employees, only the accumulated employee contributions are included.

For the Employees' Retirement System, the value of vested benefits as of June 30, 1985 is as follows:

	<u>State Employees</u>	<u>Teachers</u>
Active members	\$337,888,400	\$449,196,300
Inactive members	5,805,700	6,360,400
Retired members	<u>355,726,700</u>	<u>320,621,600</u>
Total value of vested benefits	\$699,420,800	\$776,178,300
Assets at actuarial value	<u>444,136,900</u>	<u>417,985,200</u>
Unfunded value of vested benefits	<u>\$255,283,900</u>	<u>\$358,193,100</u>

Overall Status of System

Legislation in January, 1979 effectively returned the System to its former statutory funding schedule beginning with the 1979-80 fiscal year. (Actually, the accelerated funding provided for by the General Assembly in 1978 was never used as the basis for determining contributions as its effective date was deferred for one year to July 1, 1979, by which date the further revision of the law superseded it.)

As the funding law currently exists, beginning with the fiscal year starting July 1, 1986, the statutory contribution will comprise the normal cost, amortization of the June 30, 1985 unfunded liability based on the sum-of-the-digits method over 30 years, and interest on the unfunded actuarial accrued liability.

We believe that the funding program as set forth in the state statute is a reasonable basis for funding the Rhode Island Retirement System. If the statutory funding program is followed without change, the System will be fully funded--that is, the assets will equal the actuarial liability on June 30, 2016. In the interim, the assets are projected to be sufficient at all times to meet the cash requirements for projected benefit payments.

\* \* \* \* \*

APPENDIX

MODEL FORM SUMMARY STATEMENT RE CITY AND TOWN PARTICIPATION  
IN TEACHERS' RETIREMENT SYSTEM FOR PURPOSES OF  
FINANCIAL STATEMENTS AND REPORTS,  
MUNICIPAL BOND REGISTRATION STATEMENTS, ETC.

The (city) (town) of \_\_\_\_\_ provides retirement benefits to its public school teachers through its participation in the Rhode Island Retirement System, a statutory, mandatory, state-wide, multi-employer retirement system, which first covered Rhode Island teachers on July 1, 1949. This System is administered as a unified state-wide system by the State Retirement Board, the composition of which is set forth in the pertinent state statute. The assets are held in the custody of the State Treasurer as an undivided single fund.

The actuarial costs of the retirement benefits are partially funded by employee contributions of 8 per cent of pay increasing to 8 1/2 per cent July 1, 1986. The net employer actuarial costs are determined annually by the actuary and as provided by statute are certified by the Retirement Board to the Department of Administration as a rate per cent of payroll, payable one half by the State of Rhode Island and one half by the (city) (town). The statute provides for increasing graduated percentages of the annual normal cost and interest on the unfunded liability until the year beginning July 1, 1986 when the full normal cost and amortization payments on a 30-year schedule are required.

Actuarial valuations prepared by Martin E. Segal Company, applying the entry age normal cost method with the frozen initial liability, assuming 7 1/2 per cent interest return on invested assets and applying assumed rates of salary progression, allowance for post-retirement increases and other actuarial assumptions--all as set forth in the published annual reports of the Retirement Board--reveal the following comparative highlights of the last three years for the Teachers' System as a whole:

	Year Beginning July 1,		
	1983	1984	1985
Active participants	9,971	10,003	10,016
Pensioners and beneficiaries	3,071	3,108	3,167
Inactive participants	1,435	1,454	1,946
Liability for accrued vested benefits	\$705,035,300	\$768,202,000	\$776,178,300
Net assets at actuarial value for 1985, as reported by State for 1984 and 1983	282,624,800	335,799,800	417,985,200

	Year Ended June 30,		
	1983	1984	1985
<u>As shown in State's financial statements:</u>			
Employer contributions	\$35,758,376	\$37,514,713	\$52,886,808
Member contributions	<u>18,028,964</u>	<u>17,519,110</u>	<u>20,584,746</u>
Total contributions	\$53,787,339	\$55,033,823	\$73,471,555
Net miscellaneous income	48,284	125,094	121,384
Investment income	<u>23,955,795</u>	<u>30,374,935</u>	<u>32,639,521</u>
Total income available for benefit payments	\$77,791,419	\$85,533,852	\$106,232,459
Benefit payments	<u>30,941,303</u>	<u>32,358,874</u>	<u>34,417,225</u>
Excess of income over expenses	<u>\$46,850,116</u>	<u>\$53,174,978</u>	<u>\$71,815,234</u>

Note: Detail figures may not add to totals shown because of rounding.

Actuarial costs and liabilities, as shown in the summary presentation, are determined in the aggregate for the Teachers System. Accordingly, employer contributions are first determined in the aggregate for all participating employers in this multi-employer system; are then expressed as a rate per cent of the aggregate participating payroll; and one half this rate per cent is then promulgated to each participating employer as the actuarial cost factor to be applied to its participating payroll (the remaining one half of the employer cost is contributed by the State). Employer contributions by (city) (town) of \_\_\_\_\_ for each of the last three years (together with the amount for the current year, based on the promulgated rate per cent of 9.45 per cent) are as follows:

Year Ending June 30,

1983      1984      1985 (est.)

Participating payroll  
Employer contributions

With respect to the Teachers Retirement System, Martin E. Segal Company, Independent Actuarial Board have stated on February 11, 1986.

We believe that the funding program set forth in the state statute is a reasonable basis for funding the Rhode Island Teachers Retirement System. If the statutory funding program is followed without change, the system will be fully funded—that is, the assets will equal the actuarial liability on June 30, 2016. In the interim the assets are projected to be sufficient at all times to meet the cash requirements for projected benefit payments."

According to the statutory funding schedule, the contributions required each year of the City (less) of \_\_\_\_\_ and the State, will increase as the system moves toward the funding of the full annual cost. Obviously, however, because the actuarial funding results in the accumulation of reserves that are invested, the required appropriation will be significantly less than would be required if this system were to pay as you go basis.

February 11, 1986

EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF RHODE ISLAND  
CERTIFICATE OF ACTUARIAL VALUATION

This is to certify that we have prepared an actuarial valuation of the plan as of June 30, 1985.

This certificate contains the following attached exhibits:

- EXHIBIT I - Actuarial Cost Development of Fiscal Year 1986-87 Contribution Percentage
- A. State Employees
- B. Teachers

EXHIBIT II - Actuarial Assumptions and Cost Method

EXHIBIT III - Summary of Plan Provisions

To the best of my knowledge, the information supplied in this actuarial valuation is complete and accurate (except as noted in Exhibit I) and in my opinion the assumptions used in the aggregate (a) are reasonable and (b) represent the experience of the plan and to reasonable expectations and (c) represent my best estimate of anticipated experience under the plan.

MARTIN E. SEGAL COMPANY, INCORPORATED

By: *Joseph C. Dent*  
Joseph C. Dent, A.C.T., M.A.A.A.  
Vice President and Actuary

EXHIBIT I

ACTUARIAL COST FOR DEVELOPMENT OF  
FISCAL YEAR 1986-87 CONTRIBUTION PERCENTAGE

A. STATE EMPLOYEES

The valuation was made with respect to the following data supplied to us by the Retirement Board:

- a. 15,186 active participants (including 6,167 fully vested) with total annual salaries of \$283,242,600
- b. 1,666 inactive participants
- c. 6,038 pensioners (including 403 beneficiaries of deceased pensioners and active employees)

The actuarial factors as of the valuation date are as follows:

1. Actuarial present value of benefits = total	\$1,086,185,100
Active employees	\$723,469,500
Inactive employees	5,805,100
Pensioners and beneficiaries	357,116,100
2. Actuarial value of assets	146,846,100
3. Present value of future employee contributions	\$11,697,100
4. Unfunded frozen actuarial liability	\$88,800,000
5. Actuarial present value of future interest (Year 1 - Year 2 - Year 3 - Year 4)	66,585,100
6. Actuarial present value of future compensation cost	5,995,400,000
7. Actual cost percentage (Year 5 / Year 6)	2.2%
8. Total compensation of employees below the assumed retirement age	\$246,805,200
9. Actual cost (Year 7 x Year 8)	1,527,100
10. Interest on unfunded frozen actuarial liability	\$2,866,200
11. Payment required to amortize unfunded frozen actuarial liability over 30 years (30 years remaining from July 1, 1986) in installments which increase in multiples of 0.215% per year	822,200
12. Total annual cost if paid on July 1, 1985 (item 9 plus item 10 plus item 11)	36,698,200
13. Total annual cost if paid in uniform installments throughout the year (item 12 plus one-half year's interest)	37,450,300

Present value of accrued vested benefits: \$699,420,800

Note: Included are 59 active employees unknown as to age, service, or both. Status of beneficiaries was unclear. The liability included for inactive employees is the sum of their accumulated contributions.

EXHIBIT I

ACTUARIAL COST FOR DEVELOPMENT OF  
FISCAL YEAR 1986-87 CONTRIBUTION PERCENTAGE

B. TEACHERS

The valuation was made with respect to the following data supplied to us by the Retirement Board:

- a. 10,074 active participants (including 7,455 fully vested) with total annual salaries of \$287,450,600
- b. 1,966 inactive participants
- c. 3,147 pensioners (including 173 beneficiaries of deceased pensioners and active employees)

The actuarial factors as of the valuation date are as follows:

1. Actuarial present value of benefits = total	\$1,473,615,000
Active employees	\$1,119,699,000
Inactive employees	4,400,000
Pensioners and beneficiaries	349,516,000
2. Actuarial value of assets	141,000,000
3. Present value of future employee contributions	251,780,000
4. Unfunded frozen actuarial liability	112,400,000
5. Actuarial present value of future interest (Year 1 - Year 2 - Year 3 - Year 4)	70,311,100
6. Actual cost percentage (Year 5 / Year 6)	2.2%
7. Total compensation of employees below the assumed retirement age	\$276,160,000
8. Actual cost (Year 7 x Year 8)	1,556,000
9. Interest on unfunded frozen actuarial liability	49,720,000
10. Payment required to amortize unfunded frozen actuarial liability over 30 years (30 years remaining from July 1, 1986) in installments which increase in multiples of 0.215% per year	1,532,200
11. Total annual cost if paid on July 1, 1985 (item 9 plus item 10 plus item 11)	57,808,300
12. Total annual cost if paid in uniform installments throughout the year (item 12 plus one-half year's interest)	59,977,000

Present value of accrued vested benefits: \$776,178,300

Note: Included are 386 active employees unknown as to age, service, or both. Status of beneficiaries was unclear. The liability included for inactive employees is the sum of their accumulated contributions.

EXHIBIT II

ACTUARIAL ASSUMPTIONS AND COST METHOD

Mortality rates -- 1971 Group Annuity Mortality Table

Disability mortality before age 65 -- Age 65 mortality under stipulated table

Termination rates before retirement:

Age	Death*	State Employees (Rate %)			Total*
		Disability	Withdrawal		
20	.05	.06	21.20		
25	.06	.09	15.80	21.31	
30	.08	.11	11.60	15.95	
35	.11	.15	8.40	11.79	
40	.16	.22	6.20	8.66	
45	.29	.36	4.20	6.58	
50	.53	.61	2.60	4.85	
55	.85	1.01	--	3.73	
60	1.31	--	--	1.86	
				1.31	

15% of the above disability rates are service-connected.

Age	Death*	Teachers (Rate %)			Total*
		Disability	Withdrawal		
20	.05	.06	12.39		
25	.06	.09	9.70	12.50	
30	.08	.11	7.50	9.85	
35	.11	.15	5.66	7.69	
40	.16	.22	4.14	5.92	
45	.29	.36	2.75	4.52	
50	.53	.61	1.35	3.41	
55	.85	1.01	--	2.49	
60	1.31	--	--	1.86	
				1.31	

15% of the above disability rates are service-connected.

\*Rates shown for men; rates for women are slightly lower.

Note: Detail rates may not add to totals shown due to rounding.

Salary scale:

Age	Present salary as a % of salary at 65	Annual increase (Rate %)
20	11.30	
25	15.00	5.85
30	19.79	5.77
35	25.91	5.61
40	33.52	5.41
45	42.66	5.09
50	53.43	4.73
55	66.26	4.45
60	82.02	4.34
		4.17

Includes allowance for inflation of 4% per year (previously 3%).

Unknown characteristics of employees: Same as those exhibited by employees with known characteristics. Unknown salary is assumed to be \$10,000 for State Employees and \$15,000 for Teachers.

Retirement age -- State Employees: 63 (previously 63 1/2), or completion of service requirement, if later. Teachers: 61 1/2 (previously 62), or completion of service requirement if later.

Post-retirement increases -- 3% compounded annually

Percent married -- Social Security awards during 1972

Net investment return -- 7 1/2% (previously 6 1/2%)

Actuarial value of assets --

Sum of Preliminary Value and write-up, but not more than 20% greater nor 20% lower than market value. Preliminary value is actuarial value of assets at beginning of the year plus increase in cost value during the year, excluding realized capital gains or losses. Write-up is 20% of market value at end of year in excess of preliminary value (previously amortized cost value for bonds and cost value for stocks).

Actuarial cost method -- Frozen entry age actuarial cost method (previously entry age normal cost)

Entry age is the employee's age at the time he or she would have commenced employment if the plan had always been in existence.

Frozen actuarial liability calculated on an individual basis and based on expected value regardless of actual contributions.

EXHIBIT III  
SUMMARY OF PLAN PROVISIONS

Service pension

	General Employees		Correctional Officers	Legislators	
Age requirement:	60	None	50	55	None
	or			or	
Service requirement:	10 yrs.	30 yrs.	20 yrs.	8 yrs.	20 yrs.

Amount: 1.7% of final average salary up to 10 years of service plus 1.9% per year for the next 10 years of service plus 2.4% for the next 10 years on service plus 6% for the 31st year plus 5% for the 32nd year plus 4% for the 33rd year plus 3% for the 34th year plus 2% for the 35th year. The maximum benefit is 80% of final average salary after 35 years of service. Final average salary is defined as the average of compensation earned during the highest 3 consecutive years prior to termination. Correctional officers receive 2% of final average salary per year of service. Legislators receive \$300 per year of service to a maximum of \$6,000. Retirement is mandatory at age 70 except for elected officials. For correctional officers, mandatory retirement is the later of age 55 and the completion of 20 years of service.

Disability

Non-occupational:

Age requirement: None  
Service requirement: 5 years  
Amount: Regular pension based on service accrued and final average salary at disability, payable immediately. The minimum retirement percentage is 17%, regardless of service.

Occupational:

Age requirement: None  
Service requirement: None  
Amount: 66 2/3% of final salary, payable immediately.

Vesting

Age requirement: None  
Service requirement: 10 years  
Amount: Regular pension accrued, payable at age 60.

Pre-retirement death benefits

Lump sum benefit:

Age requirement: None  
Service requirement: None  
Amount: (a) \$400 per year of service to a maximum of \$8,000 and with a minimum of \$2,000.  
(b) Refund of employee contributions.

Joint and Survivor benefit (applicable only if elected by employee):

Age requirement: 60 or 55  
Service requirement: 10 yrs. or 20 yrs.  
Legislators: None  
Combined age and service requirement: Age and service add to at least 70

Amount: Benefit employee would have received had he retired the day before he died and elected the joint and survivor option.

Occupational death benefit:

Age requirement: None  
Service requirement: None  
Amount: (a) 50% of salary to spouse or children under age 18, less workmen's compensation.  
(b) Refund of employee contributions.

Post-retirement death benefit

Lump sum benefit:

(a) 100% of employee contributions, less benefits paid.  
(b) Pre-retirement death benefit, reduced 2% per year of retirement, but not less than \$2,000.

Employee contribution rate:

Date	State Employees	Teachers	Legislators
Prior to 7/1/79	5%	6%	3%
7/1/79 - 6/30/82	5 1/2	6 1/2	3
7/1/82 - 6/30/85	6	7	3
7/1/85 - 6/30/86	7	8	3
7/1/86 and later	7 1/2	8 1/2	3

Available options:

Joint and survivor with 50% or 100% continued to the beneficiary after the death of the employee.

Post-retirement cost-of-living increases:

3% of current amount, compounded, to pensioners and beneficiaries following the third anniversary of retirement.