

Report of the Actuary

CHART 'D'.
COMPARATIVE PERTINENT FINANCIAL
FACTS FOR

Fiscal Year Ended June 30	STATE EMPLOYEES AND TEACHER MEMBERS		EXCESS REVENUES OVER EXPENDITURES		INVESTMENT EARNINGS	
	State Emp. %	Teachers %	Teachers %	Teachers %	State Emp.	Teachers
1971	7,984,606	58	7,089,543	40	4,062,592	3,359,023
1972	8,782,514	56	7,479,578	39	4,463,637	3,708,529
1973	8,825,489	51	8,539,937	38	5,140,631	4,309,059
1974	10,237,173	52	9,264,517	37	6,159,198	5,215,129
1975	12,210,282	53	10,587,575	38	7,065,233	6,006,428
1976	13,679,596	52	11,404,410	39	8,361,655	7,102,844
1977	15,604,153	52	16,654,090	46	9,370,122	8,056,179
1978	18,913,113	54	20,608,794	49	10,596,621	9,364,238
1979	16,192,484	46	16,004,751	41	13,001,764	11,694,352
1980	26,252,892	57	23,016,169	47	16,866,504	15,206,410
1981	31,480,978	59	31,151,555	53	20,782,136	18,833,067
1982	40,162,709	61	39,532,861	57	25,290,552	23,195,936
1983	44,380,976	62	49,687,094	61	28,172,059	26,372,102
1984	50,424,302	60	56,165,279	63	34,600,836	33,230,640

MASTERS F. SEGAL COMPANY

100 Madison Street
Boston, Massachusetts 02116
617-552-1100

February 2, 1986

Board of Trustees
Retirement Bonds of Employees'
Benefit System
State of Rhode Island
100 State Street
Providence, RI 02906

Your members of the Board:

We are pleased to submit herewith our Actuarial Valuation of the Employees' Retirement System of the State of Rhode Island as of June 30, 1986.

Our report analyzes the actuarial status of the System, and projects the cost requirements for the Bonds to carry to the Legislature.

We received a great deal of help from State employees in obtaining the information which forms the basis of this report. Most important, Mr. Joseph D. Lannelli, Executive Director, Mr. John P. Sullivan, Assistant Director, and Mr. Carlo Mancuso, Principal Accountant, were available whenever needed to answer any questions and provide any information requested. Indeed, the material they provided on their own initiative anticipated many of our needs.

For convenience, this report is divided into the following sections:

- I. SUMMARY
 - II. EMPLOYEE DATA
 - III. RETIREE DATA
 - IV. RETIREMENT FUND
 - V. ACTUARIAL ASSUMPTIONS AND COST METHOD
 - VI. RESULTS OF VALUATION
- APPENDIX

MASTERS' RETIREMENT SYSTEM
OF THE STATE OF RHODE ISLAND

Actuarial Valuation as of
June 30, 1986

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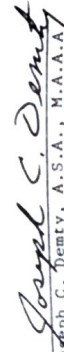
Appended to this report is our actuarial certificate detailing the cost factors, assumptions, and plan of benefits used for the valuation.

We will be pleased to meet with you to discuss this report at your convenience.

Sincerely,

MARTIN E. SEGAL COMPANY, INCORPORATED

By 
Sherman G. Sass
Senior Vice President

By 
Joseph C. Demty, A.S.A., M.A.A.A.
Vice President and Actuary

/rlj

I. SUMMARY

Benefit Provisions

The Employees' Retirement System of the State of Rhode Island covers most State employees. Legislators and elected officials may become members on an optional basis. State college teachers may elect coverage under the T.I.A.A. program. State employees contribute 6* per cent of their annual earnings and Teachers contribute 7* 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; and 2.4 per cent per year of service over 20 years up to a maximum of 80 per cent of earnings for all years of service. Such benefits are available to members at least age 60 with 10 years of service, or after 30 years at any age. Prior to May 11, 1984, the provision was available to members at least age 55 with 30 years of service or after 35 years at any age. On that date the age 55 requirement was eliminated. 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 requirement; 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.

Employee Data

We received data on 15,361 active State Employees and 19,002 Teachers as of June 30, 1984 who were participating in the System. On the average, the State Employees were age 43 1/2 and had 5 1/2 years of service; Teachers were age 42 1/2 with 15 years of service.

Retiree Data

We received data on 5,522 State Employee pensioners and 972 beneficiaries as of June 30, 1984. The pensioners' average monthly benefit was \$666. There were 2,995 retired Teachers and 113 beneficiaries; the average monthly benefit was \$458 for the pensioners. The benefit amounts include an adjustment for the cost-of-living provision. Of all the pensioners on the rolls, 14 per cent had retired in the year ended June 30, 1984.

Retirement Fund

As of June 30, 1984, the assets of the Retirement Fund, including Teachers' Survivors Benefits, amounted to almost \$766 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, 1984. Our calculations were based on reasonable assumptions as to expected future experience and are the same as those used in our previous actuarial valuation except for the assumed age at retirement. We used the "entry age normal cost" method, which spreads the cost of each employee's projected pension as a level percentage of his earnings from date of hire to assumed retirement.

11. EMPLOYEE DATA

We received data on 15,361 State Employees and 19,002 Teachers participating in the System as of June 30, 1984. The data included age, service, sex, and salary for each participant. The average salary of the participants was \$17,000 for State Employees (base rate below), and \$26,000 for Teachers. The data included 205 conventional officers and 143 Legislators.

Tables 16 and 18 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 24 and 28 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 5.1 per cent while Teachers' average salary increased by 4.5 per cent (see Note below). Aggregate payroll increased by 3.4 per cent for State Employees and by 4.4 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, 1984 and for Teachers as of July 1, 1984. This is consistent with the salaries used in the last valuation.

The employer normal cost* for State Employees is \$12.5 million. This represents 4.7 per cent of the reported payroll of participating State Employees as of June 30, 1984. The employer normal cost for Teachers is \$10.9 million or 4.1 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, 1984) is \$833 million, of which \$362 million represents the liability to those already receiving pensions. The unfunded actuarial accrued liability at the end of the year is \$456 million. For Teachers, the actuarial accrued liability is \$1.076 billion, of which \$320 million is for those receiving pensions. The unfunded actuarial accrued liability stands at \$740 million.

The value of the System's vested benefits is \$1.47 billion. Thus, the assets are short of this amount by \$757 million (excluding assets of the Teachers Survivors program).

For the fiscal year 1985-86, 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 and 100 per cent of the interest on the unfunded actuarial accrued liability. This amounts to 14.5 per cent of the projected 1985-86 payroll of \$298 million for State Employees and 19.8 per cent of projected payroll of \$298.5 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 for fiscal 1985-86. In subsequent years the full normal cost and amortization of unfunded liabilities will be required.

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

Table 1A
Number and Average Salaries of Employees in Active Service
as of June 30, 1984
by Age and by Years of Service

Years of Service	STATE EMPLOYEES																					
	35 and over	30-34	25-29	20-24	15-19	10-14	5-9	0-4	Total	Under 20	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65 and over	Unknown	
	61	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$11,500	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	74	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$28,600	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	165	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$23,600	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	374	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$23,700	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	374	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$23,700	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	732	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$22,000	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	732	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$22,000	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	1,582	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$19,800	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	1,582	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$19,800	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	3,165	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,700	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	3,165	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,700	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800	\$15,800
	4,456	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$17,100	\$13,000	\$15,800	\$15,800	\$15,800																	

Table 2A
Statistical Data on Active State Employees
on June 30, 1984 and 1983

	June 30, 1984	June 30, 1983
Number of covered employees	15,361	15,748
Total annual salary	\$267,014,800	\$258,062,900
Average annual salary	\$17,400	\$16,400
Average age	43 1/2	44
Average years of service	9 1/2	9 1/2
Number eligible for service retirement	1,256	1,497
Number vested but not eligible to retire	5,036	4,684

See note in text on salary data.

RHODE ISLAND ERS

Age	Total		Under 20		20 - 24		25 - 29		30 - 34		35 - 39		40 - 44		45 - 49		50 - 54		55 - 59		60 - 64		65 and over		Unknown			
	10,003	\$26,800	4	\$27,800	41	\$14,500	210	\$17,600	175	\$20,400	122	\$21,300	82	\$17,900	42	\$22,600	18	\$28,700	13	\$28,700	339	\$28,300	73	\$28,400	120	\$28,400	15	\$24,500
0 - 4	708	\$20,000	--	--	26	\$14,500	210	\$17,600	175	\$20,400	122	\$21,300	82	\$17,900	42	\$22,600	18	\$28,700	13	\$28,700	339	\$28,300	73	\$28,400	120	\$28,400	15	\$24,500
5 - 9	1,545	\$24,900	--	--	1	\$27,300	182	\$18,200	680	\$26,000	815	\$27,000	434	\$27,800	229	\$27,700	190	\$28,000	126	\$27,600	48	\$26,900	2	\$27,700	15	\$27,400	12	\$26,500
10 - 14	3,514	\$27,500	--	--	4	\$26,000	4	\$26,000	815	\$27,000	1,648	\$27,600	563	\$27,100	745	\$28,200	261	\$29,500	195	\$27,600	184	\$27,800	74	\$27,300	16	\$28,000	2	\$27,300
15 - 19	2,041	\$28,000	--	--	--	--	--	--	1	\$27,100	2	\$28,600	228	\$29,000	327	\$27,000	327	\$29,400	174	\$28,700	127	\$28,000	76	\$27,800	15	\$27,800	1	\$26,700
20 - 24	950	\$28,900	--	--	--	--	--	--	--	--	--	--	2	\$28,600	1	\$27,000	130	\$29,400	237	\$30,100	132	\$28,900	47	\$28,500	17	\$28,700	1	\$25,300
25 - 29	565	\$29,400	--	--	--	--	--	--	--	--	--	--	--	--	1	\$27,000	130	\$29,400	237	\$30,100	132	\$28,900	47	\$28,500	17	\$28,700	1	\$25,300
30 - 34	263	\$31,200	--	--	--	--	--	--	--	--	--	--	--	--	3	\$29,300	78	\$30,900	134	\$31,800	134	\$30,600	39	\$30,600	8	\$28,900	1	\$27,400
35 and over	109	\$30,500	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9	\$29,500	54	\$29,200	54	\$30,600	39	\$30,800	6	\$29,500	1	\$21,800
Unknown	308	\$20,400	--	--	4	\$27,800	14	\$17,600	44	\$17,100	58	\$19,900	51	\$23,300	27	\$20,500	21	\$22,000	9	\$29,500	7	\$22,200	5	\$23,800	1	\$19,500	72	\$19,500

Table 1B
Number and Average Salaries of Employees in Active Service
as of June 30, 1984
by Age and by Years of Service

111. 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:

	June 30, 1984	June 30, 1983
Number of covered employees	10,003	9,971
Total annual salary	\$268,190,600	\$252,176,600
Average annual salary	\$26,800	\$25,300
Average age	42 1/2	41 1/2
Average years of service	15	14
Number eligible for service retirement	673	606
Number vested but not eligible to retire	6,769	6,441

See note in text on salary data.

RHODE ISLAND ERS

State Employees Teachers

Pensioners:		
Number	5,532	2,995
Average age	70	73
Average monthly benefit	\$466	\$458
Beneficiaries:		
Number	372	113
Average age	73 1/2	73 1/2
Average monthly benefit	\$415	\$413

Table 3A gives distributions of the 809 new State Employee pensions in the current year by type of pension and amount. Table 4A does the same for age retirement. Tables 3B and 4B are similar for the 134 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 2B
Statistical Data on Active Teachers
on June 30, 1984 and 1983

RHODE ISLAND ERS

Monthly amount	Total	Type of pension			
		Total	Service	Ordinary Disability	Accidental Disability
\$ 100 - 149	1	1	1	--	--
150 - 199	1	1	1	--	--
200 - 249	1	1	1	--	--
250 - 299	2	2	2	--	--
300 - 349	2	2	2	--	--
400 - 449	4	4	4	--	--
450 - 499	9	9	9	--	--
500 - 599	12	11	2	1	1
600 - 699	8	6	3	--	--
700 - 799	13	10	3	--	--
800 - 899	6	6	--	--	--
900 - 999	8	7	--	1	1
1,000 - 1,099	12	11	--	1	1
1,100 - 1,199	7	7	--	--	--
1,200 - 1,299	11	9	1	--	--
1,300 - 1,399	10	10	--	--	--
1,400 - 1,499	8	8	--	--	--
1,500 - 1,999	14	14	--	--	--
2,000 - 2,499	4	3	--	1	1
2,500 - 2,999	1	1	--	--	--
Total	134	122	6	1	5

TEACHERS

Pensions Awarded in the Year Ended June 30, 1984
by Type and by Monthly Amount

Table 3B

RHODE ISLAND ERS

Monthly amount	Total	Type of pension			
		Total	Service	Ordinary Disability	Accidental Disability
\$ Under \$50	2	2	--	--	--
50 - 99	16	14	1	1	--
100 - 149	29	28	1	1	--
150 - 199	69	59	10	9	--
200 - 249	63	51	10	9	--
250 - 299	46	42	1	2	--
300 - 349	51	49	1	2	--
350 - 399	30	26	2	2	--
400 - 449	34	30	2	2	--
450 - 499	49	45	2	2	--
500 - 599	60	56	1	3	1
600 - 699	53	51	1	2	1
700 - 799	51	48	2	1	1
800 - 899	52	51	--	--	1
900 - 999	44	44	--	--	--
1,000 - 1,099	32	31	--	--	1
1,100 - 1,199	22	22	--	--	--
1,200 - 1,299	22	22	--	--	1
1,300 - 1,399	15	15	--	--	--
1,400 - 1,499	14	14	--	--	--
1,500 - 1,999	47	46	--	--	--
2,000 - 2,499	10	10	--	--	1
2,500 - 2,999	4	4	--	--	1
3,000 - 3,499	4	3	--	--	1
Total	809	753	30	1	13

STATE EMPLOYEES

Pensions Awarded in the Year Ended June 30, 1984
by Type and by Monthly Amount

Table 3A

Table 4A

Pensions Awarded in the Year Ended June 30, 1984
by Type and by Age on Effective Date

STATE EMPLOYEES

Age on effective date	Total	Type of pension				
		Service	Ordinary Disability	Accidental Disability	Legislator	Beneficiary
Total	809	753	30	1	12	13
25 - 29	1	--	--	--	--	1
30 - 34	1	--	1	--	--	--
35 - 39	2	--	2	--	--	--
45 - 49	7	--	5	--	1	1
50	3	--	3	--	--	--
51	2	1	1	--	--	--
52	4	3	--	--	--	--
53	9	7	1	--	--	1
54	16	12	4	--	--	1
55	15	13	--	--	2	--
56	22	19	--	--	2	1
57	10	8	1	--	1	--
58	24	18	4	--	1	2
59	21	18	2	--	1	--
60	99	97	--	--	--	2
61	69	67	--	--	2	--
62	103	100	2	--	--	1
63	74	72	1	1	--	--
64	72	70	--	--	--	2
65	88	86	2	--	--	--
66	49	48	1	--	--	--
67	35	34	--	--	1	--
68	36	35	--	--	1	--
69	35	34	--	--	1	--
70 and over	12	11	--	--	--	1

Table 4B

Pensions Awarded in the Year Ended June 30, 1984
by Type and by Age on Effective Date

TEACHERS

Age on effective date	Total	Type of pension			
		Service	Ordinary Disability	Accidental Disability	Beneficiary
Total	134	122	6	1	5
45 - 49	3	--	1	1	1
52	3	--	2	--	1
53	1	--	1	--	--
54	1	1	--	--	--
55	7	6	1	--	--
56	2	1	--	--	1
57	4	3	--	--	1
58	9	8	1	--	--
59	2	2	--	--	--
60	32	32	--	--	--
61	11	11	--	--	--
62	17	17	--	--	--
63	6	6	--	--	--
64	8	8	--	--	--
65	9	9	--	--	--
66	6	6	--	--	--
67	2	2	--	--	--
68	3	3	--	--	--
69	5	5	--	--	--
70 - 74	3	2	--	--	1

RHODE ISLANDERS

Table 5A

Pensions in Payment Status on June 30, 1984
by Type and by Monthly Amount

STATE EMPLOYEES

Monthly amount	Total	Type of pension				Beneficiary
		Service	Ordinary Disability	Accidental Disability	Legislator	
Total	5,904	4,883	418	95	136	372
Under \$50	37	29	--	4	--	4
\$ 50 - 99	278	221	22	13	--	22
100 - 149	634	561	32	8	--	33
150 - 199	734	598	98	5	--	33
200 - 249	639	484	91	8	14	42
250 - 299	508	383	52	4	31	38
300 - 349	406	327	26	4	21	28
350 - 399	298	237	24	4	10	23
400 - 449	264	222	15	4	2	21
450 - 499	284	231	11	6	16	20
500 - 599	392	287	15	12	42	36
600 - 699	292	250	12	10	--	20
700 - 799	223	197	10	5	--	11
800 - 899	184	160	5	4	--	15
900 - 999	135	128	1	1	--	5
1,000 - 1,099	110	104	1	--	--	5
1,100 - 1,199	90	87	--	--	--	3
1,200 - 1,299	71	65	2	--	--	3
1,300 - 1,399	73	66	1	--	--	4
1,400 - 1,499	48	47	--	2	--	4
1,500 - 1,999	144	140	--	--	--	1
2,000 - 2,499	37	37	--	1	--	3
2,500 - 2,999	16	16	--	--	--	--
3,000 - 3,499	7	6	--	--	--	1

RHODE ISLAND ERS

Table 5B

Pensions in Payment Status On June 30, 1984
by Type and by Monthly Amount

TEACHERS

Monthly amount	Total	Type of pension				Beneficiary
		Service	Ordinary Disability	Accidental Disability	Beneficiary	
Total	3,108	2,879	102	14	113	113
Under \$50	1	1	--	--	--	--
\$ 50 - 99	6	6	--	--	--	1
100 - 149	14	13	--	--	--	5
150 - 199	41	35	1	--	--	4
200 - 249	53	46	3	--	--	2
250 - 299	70	64	4	--	--	13
300 - 349	86	64	9	--	--	7
350 - 399	96	83	6	--	--	6
400 - 449	103	86	11	--	--	10
450 - 499	113	94	9	--	--	19
500 - 599	233	202	11	1	1	11
600 - 699	256	227	18	--	--	8
700 - 799	385	366	11	--	--	7
800 - 899	320	306	6	1	1	5
900 - 999	323	310	8	--	--	6
1,000 - 1,099	293	279	3	5	1	1
1,100 - 1,199	232	227	1	3	3	3
1,200 - 1,299	142	135	1	3	3	1
1,300 - 1,399	131	128	--	--	--	1
1,400 - 1,499	77	76	--	--	--	1
1,500 - 1,999	114	113	--	--	--	1
2,000 - 2,499	13	12	--	1	--	--
2,500 - 2,999	5	5	--	--	--	--
3,000 - 3,499	1	1	--	--	--	--

RHODE ISLAND ERS

Table 6A
Pensions in Payment Status on June 30, 1984
by Type and by Age

STATE EMPLOYEES

Age on June 30, 1984	Total	Type of pension				Beneficiary
		Service	Ordinary Disability	Accidental Disability	Legislator	
Total	5,904	4,883	95	136	372	
25 - 29	1	--	--	--	1	
30 - 34	8	--	3	--	1	
35 - 39	12	1	2	--	2	
40 - 44	13	--	5	--	2	
45 - 49	32	--	3	4	4	
50 - 54	66	13	13	2	7	
55 - 59	264	125	18	24	17	
60 - 64	963	782	19	23	34	
65 - 69	1,665	1,472	11	30	61	
70 - 74	1,329	1,182	15	21	67	
75 - 79	853	736	5	16	71	
80 - 84	473	402	4	9	57	
85 - 89	162	--	--	5	29	
90 - 94	50	33	--	2	15	
95 - 99	11	8	--	--	3	
100 - 104	1	--	--	--	1	
105 - 109	1	1	--	--	--	

RHODE ISLAND ERS

Table 6B
Pensions in Payment Status on June 30, 1984
by Type and by Age

TEACHERS

Age on June 30, 1984	Total	Type of pension				Beneficiary
		Service	Ordinary Disability	Accidental Disability	Legislator	
Total	3,108	2,879	102	14	113	
35 - 39	1	--	--	--	1	
40 - 44	7	--	6	1	--	
45 - 49	11	1	6	1	3	
50 - 54	16	1	10	1	4	
55 - 59	105	67	20	5	13	
60 - 64	390	357	22	2	9	
65 - 69	604	574	16	4	10	
70 - 74	716	690	9	--	17	
75 - 79	652	629	4	--	19	
80 - 84	357	333	6	--	18	
85 - 89	168	156	2	--	10	
90 - 94	65	57	1	--	7	
95 - 99	12	11	--	--	1	
100 - 104	3	2	--	--	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, 1984.

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, 1984 and 1983.

At June 30, 1984 assets totaled approximately \$744 million. Table 8 shows the composition of the assets and compares them to those of the previous year. About 67 percent of the Fund was invested in fixed income securities such as bonds and notes.

The financial statements indicate that 51 per cent of the assets relate to State Employees, 45 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 1984 and 1983.

Table 7
SUMMARY STATEMENT OF INCOME AND EXPENSES
FOR THE YEARS ENDED JUNE 30, 1984 AND 1983

	1984	1983
Employer contributions	\$71,868,481	\$80,011,466
Member contributions	36,500,263	33,986,997
Total contributions	\$108,368,744	\$98,010,461
Less: Administration expenses		8
Net contribution income	\$108,368,744	\$98,010,453
Net investment income	291,071	206,390
Total income	\$108,659,815	\$98,216,843
Dividends	\$12,285,643	\$10,130,940
Interest	48,094,030	42,850,978
Capital gains and losses	5,321,783	1,553,250
Net investment income	\$65,681,456	\$54,535,168
Total income available for benefit payments	\$174,188,561	\$153,180,911
Benefit payments:		
Pension benefits	62,549,429	\$54,498,222
Death benefits	1,163,489	1,045,785
Contribution refunds	3,791,068	3,548,835
Total benefit payments	67,503,986	59,092,842
Less: Net income over expenses	\$106,589,581	\$68,068,070

THIS TABLE FIGURES MAY NOT ADD TO TOTALS SHOWN BECAUSE OF ROUNDING.

MARTIN F. SEARL COMPANY

Table 8

Assets as of June 30, 1984 and 1983

	1984	1983
Cash (overdraft)	\$(400,434)	\$(2,844,161)
Accrued interest receivable	11,199,556	9,565,690
Investments		
Government bonds	\$302,039,326	\$245,255,816
Corporate bonds	97,375,000	117,403,000
Common and preferred stocks and united partnership	233,698,182	178,185,432
Certificates of deposit and repurchase agreements	62,800,000	46,335,203
Commercial paper	47,090,170	49,041,958
International bond	150,000	150,000
(Less) Unamortized premiums and discounts	(10,075,229)	(5,805,946)
Total assets	<u>\$743,876,573</u>	<u>\$637,286,992</u>

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

RHODE ISLAND ERS

MARTIN E. SEGAL COMPANY

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Table 9

Allocation of Assets by Plan
as of June 30, 1984 and 1983

	1984	1983
State Employees:		
Employer reserves	\$279,396,286	\$234,614,495
Member reserves	<u>97,967,720</u>	<u>92,361,077</u>
Total State Employees reserves	\$377,364,006	\$326,975,572
Teachers:		
Employer reserves	\$194,590,615	\$155,152,471
Member reserves	<u>141,209,145</u>	<u>127,472,311</u>
Total Teacher reserves	335,799,760	282,624,782
Teachers Survivors:		
Employer reserves	\$ 23,450,457	\$ 20,894,248
Member reserves	<u>7,101,740</u>	<u>6,886,410</u>
Total Teachers Survivors reserves	30,552,196	27,580,658
Unallocated:		
Unclaimed benefit reserve	<u>160,611</u>	<u>105,980</u>
Total assets	<u>\$743,876,573</u>	<u>\$637,286,992</u>

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

RHODE ISLAND ERS

MARTIN E. SEGAL COMPANY

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V. 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 services that give 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 since broad questions of fiscal policy are implicit in certain of the assumptions. These assumptions are the same as those used in the June 30, 1983 study with one exception. The assumed retirement age has been revised because of the new provision allowing retirement at any age with 30 years of service.

Mortality Rates

We assumed that mortality rates would conform with the 1971 Group Annuity Mortality Table. This is the most commonly used table of pension plan mortality, and we believe it is a reasonable basis for estimating experience 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 understate the System's cost. Accordingly, we use a salary projection to anticipate future increases in earnings.

Additionally, it is appropriate to compute pension normal 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 salary scale factors are:

Age	Present Salary as a % of Age 65 Salary	Annual Increases (Rate %)
20	17.45	4.84
25	22.07	4.75
30	27.76	4.59
35	34.62	4.39
40	42.68	4.08
45	51.76	3.72
50	61.77	3.45
55	72.98	3.13
60	86.08	3.16

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

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 %)

Age	Death*	Disability	Withdrawal	Total*
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	.38	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 %)

Age	Death*	Disability	Withdrawal	Total*
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 Ages

The System provides unreduced benefits upon completion of 30 years of service for general employees and age 50 for State Correctional Officers. In prior years we assumed State Employees would retire at age 64, or upon the completion of ten years of service if later. Teacher retirements were assumed to occur when the teacher has attained age 63 and had completed ten or more years of service. Because of the new provision allowing retirement at any age with 30 years of service, we have reduced these assumed ages to 63 1/2 for state employees and 62 for Teachers. For both groups the requirement of 10 years of service has been retained. In any case where the employee already meets these assumed conditions of age and service, it is assumed that he or she will retire immediately.

Post-Retirement Increases

Following the third anniversary of retirement, cost-of-living increases are regularly provided to pensioners. Our calculations assumed 3 per cent annual benefit increases as provided by Statute. Cost-of-living increases are now "compounded" from year to year. With this valuation we took into account the adjustment effective January 1, 1985.

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 select an investment return assumption of 6 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.

Actuarial Cost Method

We have used the "entry age normal" actuarial cost method. This method spreads the cost of the benefits to be provided to an individual as a level percentage of his pay from his date of employment to his assumed date of retirement. The normal cost for the entire system is equal to the sum of the normal costs for all participants. In a rough sense, it can be visualized as the cost of benefits earned during the current year.

The accrued actuarial liability represents the amount by which the future normal costs fall short of meeting the cost of future benefit payments. It can also be viewed, roughly, as the value of benefits accrued for service prior to the valuation date.

Overall Actuarial Basis

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

Missing Data

It was necessary to make certain "non-actuarial" assumptions where data was missing or incomplete. In all cases, we assumed such individuals had the same characteristics as other participants, taking into account the known characteristics (e.g. male members age 37 with unknown services were assumed to have the same service distribution as male members age 37 with known services).

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, 1984, taking into account all the recent legislation and the increase in the employee contribution rate to 6 1/2 per cent effective July 1, 1985, developed as follows:

Item	Amount	% of Payroll
(1) Participating payroll	\$267,014,800	--
(2) Employer normal cost	12,506,800	4.7%
(3) Unfunded actuarial liability	455,738,400	--
(4) Interest on unfunded actuarial liability	27,815,100	10.4
(5) Total annual cost payable July 1, 1984--Interest only = (2) + (4)	40,321,900	15.1
(6) Total annual cost payable monthly = (5) plus 1/2 year interest--Interest only	41,632,400	15.6

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, 1984) for the 1985-86 fiscal year. Based on this requirement and a projected participating payroll of \$298,000,000, the 1985-86 employer contribution "rate per cent" for State Employees is 14.5 per cent of payroll, developed below.

Item	Amount	% of Projected Payroll
(7) Projected 1985-86 participating payroll	\$298,000,000	--
(8) 1985-86 employer normal cost = 4.6839% x (7)	13,958,000	4.7%
(9) Required contribution payable July 1, 1985 = 1.00 x (8) + 1.00 x (4)	41,773,100	14.0
(10) Required contribution payable monthly = (9) plus interest adjustment	43,130,700	14.5

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. Lines 6 and 10, on the previous page include this adjustment.

The "full cost" of the System's benefits (Line 6) is 15.6 per cent of payroll is slightly higher than for the previous year reflecting the new legislation and revision in the actuarial assumptions.

Teachers

The cost for Teachers as of June 30, 1984, taking into account all the recent legislation and the increase in the employee contribution rate to 7 1/2 per cent effective July 1, 1985, developed as follows:

Item	Amount	% of Payroll
(1) Participating payroll	\$268,190,600	--
(2) Employer normal cost	10,876,500	4.1%
(3) Unfunded actuarial liability	739,871,600	--
(4) Interest on unfunded actuarial liability	45,156,600	16.8
(5) Total annual cost payable July 1, 1984--Interest only = (2) + (4)	56,033,100	20.9
(6) Total annual cost payable monthly = (5) plus 1/2 year interest--Interest only	57,854,200	21.6

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

Applying the funding statute to the Teachers' costs and a projected participating payroll of \$298,500,000 gives a contribution "rate per cent" requirement for fiscal 1985-86 of 19.8 per cent. Half of this rate (9.9%), is payable by the State and half by the municipalities. The "rate per cent" is developed as follows:

Item	Amount	% of Participating Payroll
(7) Projected 1985-86 participating payroll	\$298,500,000	--
(8) 1985-86 employer normal cost = $4.9559\% \times (7)$	12,105,750	4.12
(9) Required contribution payable July 1, 1985 = $1.00 \times (8) + 1.00 \times (4)$	17,262,300	19.2
(10) Required contribution payable monthly = (9) plus interest adjustment	59,123,300	19.8

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. Lines 8 and 10, above, include this adjustment.

The "full cost", measured by line 6 above, is 21.6 per cent of payroll. This compares to 20.9 per cent for the previous year.

We believe that the funding program as 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.

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 \$30.4 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 \$6,600 for a maximum contribution of \$92 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, 1984 is as follows:

	<u>State Employees</u>	<u>Teachers</u>
Active members	\$335,811,300	\$442,790,300
Inactive members	4,031,800	5,573,600
Retired members	<u>361,719,000</u>	<u>319,838,100</u>
Total value of vested benefits	\$701,562,100	\$768,202,000
Assets	<u>377,364,000</u>	<u>335,799,800</u>
Unfunded value of vested benefits	<u>\$324,198,100</u>	<u>\$432,402,200</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.)

Under the funding law as amended, the Employers will not begin to pay the full normal cost and an amortization payment until the fiscal year beginning July 1, 1986. Thus, for fiscal 1985-86, as reported earlier, the employer cost is 100 per cent of the normal cost and 100 per cent of the interest payment on the unfunded actuarial accrued liability.

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.

* * * * *

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 7 per cent of pay increasing to 7 1/2 per cent July 1, 1985. 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. For the year beginning July 1, 1985, 100 per cent of the normal cost and 100 per cent of the interest on the unfunded liability are the required levels of actuarial funding.

Actuarial valuations prepared by Martin E. Segal Company, applying the entry age normal cost method, assuming 6 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,		
	1982	1983	1984
Active participants	10,133	9,971	10,003
Pensioners and beneficiaries	3,000	3,071	3,108
Inactive participants	1,270	1,435	1,454
Liability for accrued vested benefits	\$624,178,500	\$705,035,300	\$768,202,000
Net assets	235,774,700	282,624,800	335,799,800

	Year Ended June 30,		
	1982	1983	1984
Employer contributions	\$30,810,280	\$35,758,376	\$37,514,713
Member contributions	14,419,664	18,028,964	17,519,110
Total contributions	\$45,229,944	\$53,787,339	\$55,033,823
Net miscellaneous income	37,569	48,284	125,094
Investment income	20,941,314	23,955,795	30,374,935
Total income available for benefit payments	\$66,208,827	\$77,791,419	\$85,533,852
Benefit payments	29,355,267	30,941,303	32,358,874
Excess of income over expenses	\$36,853,560	\$46,850,116	\$53,174,978

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 9.9 per cent) are as follows:

	Year Ending June 30,		
	1981	1982	1983 (est.)
Participating payroll			
Employer contributions			

With respect to the Teachers Retirement System, Martin E. Segal Company, independent actuaries advising the Retirement Board have stated on February 5, 1985:

"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) (town) of _____ and the State, will increase as the System moves toward the funding of the full annual cost. Ultimately, 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 on a pay-as-you-go basis.

MARTIN E. SEGAL COMPANY

607 BOYLSTON STREET
BOSTON, MASSACHUSETTS 02116
(617) 262-0550

February 5, 1985

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, 1984.

This certificate contains the following attached exhibits:

- EXHIBIT I - Actuarial Cost Development of Fiscal Year 1985-86 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 reasonably related to the experience of the plan and to reasonable expectations and (b) represent my best estimate of anticipated experience under the plan.

MARTIN E. SEGAL COMPANY, INCORPORATED

By: Joseph C. Denty
Joseph C. Denty, A.S.A., M.A.A.F.
Vice President and Actuary

EXHIBIT I

ACTUARIAL COST FOR DEVELOPMENT OF
FISCAL YEAR 1985-86 CONTRIBUTION PERCENTAGE

A. STATE EMPLOYEES

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

- a. 15,361 active participants (including 6,292 fully vested) with total annual salaries of \$267,014,800
- b. 1,798 inactive participants
- c. 5,904 pensioners (including 372 beneficiaries of deceased pensioners and active employees)

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

1. Total normal cost	\$ 29,862,800
2. Projected employee contributions	17,356,000
3. Employer normal cost	12,506,800
4. Actuarial liability - total	831,102,400
Active employees	\$467,351,600
Inactive employees	4,031,800
Pensioners (including beneficiaries of deceased pensioners and active employees)	361,719,000
5. Assets	377,364,000
6. Unfunded actuarial liability	455,738,400
Liability for accrued vested benefits:	\$701,562,100

Note: Included are 103 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 1985-86 CONTRIBUTION PERCENTAGE

B. TEACHERS

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

- a. 10,003 active participants (including 7,442 fully vested) with total annual salaries of \$268,190,600
- b. 1,454 inactive participants
- c. 3,108 pensioners (including 113 beneficiaries of deceased pensioners and active employees)

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

1. Total normal cost	\$ 30,990,800
2. Projected employee contributions	20,114,300
3. Employer normal cost	10,876,500
4. Actuarial liability - total	1,075,671,400
Active employees	\$750,259,700
Inactive employees	5,573,600
Pensioners (including beneficiaries of deceased pensioners and active employees)	319,838,100
5. Assets	335,799,800
6. Unfunded actuarial liability	739,871,600
Liability for accrued vested benefits:	\$768,202,000

Note: Included are 356 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:

State Employees (Rate %)

Age	Death	Disability	Withdrawal	Total
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 %)

Age	Death	Disability	Withdrawal	Total
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 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 %)
	17.45	4.84
20	22.07	4.75
25	27.76	4.59
30	34.62	4.39
35	42.68	4.08
40	51.76	3.72
45	61.77	3.45
50	72.98	3.33
55	86.08	3.16
60		

Includes allowance for inflation of 3% per year.

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 1/2 (previously 64), or completion of service requirement, if later. Teachers: 62 (previously 63), or or completion of service requirement if later.

Post-retirement increases -- 3% compounded annually

Percent married -- Social Security awards during 1972

Net investment return -- 6 1/2%

Valuation of assets -- At amortized book value for bonds and at cost for stocks

Actuarial cost method -- Entry age normal cost

EXHIBIT III

SUMMARY OF PLAN PROVISIONS

Service pension

	<u>General Employees</u>		<u>Correctional Officers</u>	<u>Legislators</u>	
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 each additional year of service to a maximum of 80%. 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 contribution

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

Age requirement: 60 50 Legislators: None
or
Service requirement: 10 yrs. 20 yrs. 8 yrs.

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 25% 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%	30%
7/1/79 - 6/30/82	5 1/2	6 1/2	30
7/1/82 - 6/30/85	6	7	30
7/1/85 and later	6 1/2	7 1/2	30

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.

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.