

MARTIN E. SEGAL COMPANY
CONSULTANTS AND ACTUARIES

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December 20, 1991

Retirement Board of Employees'
Retirement System
State of Rhode Island
40 Fountain Street - 1st Floor
Providence, RI 02903

Dear 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, 1990.

This report was delayed as a result of the late receipt of the final financial information for the year ended June 30, 1990. We understand this was primarily attributable to a substantial increase in the number of transactions for fiscal 1991 when compared to earlier years.

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

In a letter dated December 13, 1990, we provided preliminary employer contribution rates based on preliminary financial information and census data. These preliminary rates were 11.2% for the State Employees' Retirement Plan and 16.0% for the Teachers' Retirement Plan. The final rates, as fully described in this report, are 11.7% for the State Employees' Retirement Plan and 15.1% for the Teachers' Retirement Plan. These changes result primarily from an overstatement in the preliminary value of assets with respect to the State Employees' Retirement Plan and an understatement in the preliminary value of assets with respect to the Teachers' Retirement Plan.

We received a great deal of help from State employees in obtaining the information which forms the basis of this report. Most important, Mr. James Reilly, Acting Director, and Mr. Louis Capizano, Supervisory 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:

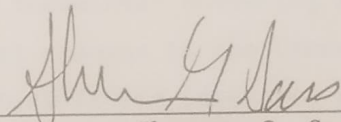
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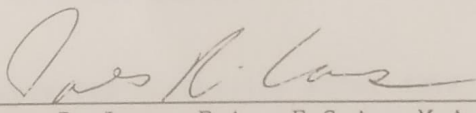
Appended to this report is our actuarial certificate detailing the cost factors, assumptions, and plan of benefits used for the valuation.

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  _____
James R. Laws, E.A., F.S.A., M.A.A.A.
Senior Vice President and Actuary

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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 7-3/4* percent of their annual earnings and Teachers contribute 8-1/2 percent.

The System provides unreduced benefits of 1.7 percent of earnings for each of the first ten years of service; 1.9 percent for each of the next ten years; 3.0 percent per year for each of the next fourteen years; and 2 percent for the 35th year. The maximum benefit is 80 percent of final average earnings after 35 years of service. Such benefits are available to members at least age 60 with 10 years of service, or after 28 years at any age. State correctional officers may retire at age 50 if they have 20 years of service, at 2 percent for each of the first 30 years of service; 6 percent for the 31st year; 5 percent for the 32nd year; 4 percent for the 33rd year; 3 percent for the 34th year; and 2 percent for the 35th year. 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 percent per year 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 percent compounded annually; prior to 1981, the cost-of-living benefits equalled 3 percent of the original award.

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

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

*Of the 7-3/4 percent contribution by State employees, 1/4 percent reflects the amount required to provide for post-retirement health benefits.

Early Retirement Window of 1989

During 1989, approximately 750 State employees took the early retirement incentive which was offered. The provision allowed employees with 25 or more years of service or, if over age 60, 10 or more years of service to retire and receive a 10% increase in their benefit service. Employees electing the incentive were required to retire before July 29, 1989. The cost for this window is 0.9% of payroll.

Early Retirement Window of 1990

During 1990, 727 State employees and 1,050 Teachers took the early retirement incentive which was offered. The provision allowed members with 23 or more years of service to retire and receive a 10% increase in their benefit service. In addition, their pension was based on the highest salary of their last three years rather than the average of their last three years of compensation. Since the window period for electing the incentive took place after the current valuation date (June 30, 1990), the cost impact is not reflected in this valuation. However, for informational purposes, please note that the cost is approximately 0.85% of payroll for State employees and 2.07% of payroll for Teachers. This will first be reflected in the June 30, 1991 actuarial valuation.

Employee Data

We received data on 15,158 active State Employees and 10,778 Teachers as of June 30, 1990 who were participating in the System. On the average, the State Employees were age 43 1/2 and had 10 1/2 years of service; Teachers were age 44 with 16 years of service.

Retiree Data

We received data on 7,217 State Employee pensioners and 612 beneficiaries as of June 30, 1990. The pensioners' average monthly benefit was \$773, which is approximately 16% greater than the average benefit on June 30, 1989. There were 3,699 retired Teachers and 170 beneficiaries; the average monthly benefit was \$1,422 for the pensioners, which is approximately 7% greater than the average benefit a year earlier. The benefit amounts include an adjustment for the cost-of-living provision. Of all the pensioners on the rolls, 11 percent had retired in the year ended June 30, 1990.

Retirement Fund

Effective June 30, 1985, the Board adopted an asset valuation method which recognizes the market value of assets but smoothes the fluctuations in the market value of assets. The asset value on this basis is referred to as the actuarial value of assets. On this basis, the assets amounted to \$1.963 billion as of June 30, 1990, including Teachers Survivors Reserves. These assets are available as an offset to the actuarial liabilities for future benefits. At market value, assets totalled \$2.222 billion on June 30, 1990. At book value, assets amount to \$1.880 billion.

Actuarial Valuation

The actuarial valuation was prepared as of June 30, 1990. Our calculations were based on reasonable assumptions as to expected future experience. This valuation reflects the increase in the interest rate assumption from 7 1/2% to 8% which became effective with the June 30, 1989 actuarial valuation (as revised in June, 1990). All of the assumptions and methods are detailed in the attached Certificate of Actuarial Valuation.

The employer normal cost* for State Employees is \$22.2 million. This represents 5.3 percent of the reported payroll of participating State Employees as of June 30, 1990. The employer normal cost for Teachers is \$23.4 million or 5.6 percent of reported participating payroll.

For State Employees, the unfunded actuarial accrued liability* as of June 30, 1990 is \$445 million. For Teachers, the unfunded actuarial accrued liability as of June 30, 1990 is \$712 million. The unfunded actuarial accrued liabilities as of June 30, 1985 have been "frozen" and are being amortized over 30 years. In addition, the change in liabilities due to the change in actuarial assumptions which became effective with the June 30, 1989 actuarial valuation and the change due to the 1989 early retirement window have also been "frozen" and are being amortized over separate 30-year schedules.

*Please refer to Section V, "Actuarial Assumptions and Cost Method," for definitions of these terms.

The combined value of the System's vested benefits is \$2.409 billion. The assets at actuarial value (excluding assets of the Teachers Survivors program) are short of this amount by approximately \$504 million.

For the 1991-92 fiscal year, the State's statutory funding schedule, as amended, calls for a contribution equal to the employer normal cost and a payment on the unfunded actuarial accrued liability calculated to remain level as a percent of payroll and to fully fund the liability over a period of 25 years from July 1, 1991. For State Employees, these total to \$50.7 million, or 11.7 percent of the projected 1991-92 payroll of \$433.0 million and, for Teachers, the total employer costs are \$69.5 million, or 15.1 percent of projected payroll of \$459.7 million. (Sixty-eight percent 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 percent level starting in fiscal 1985-86. Beginning in fiscal 1986-87, amortization of the frozen unfunded liabilities was also required and has been recognized in the recommendations made in this valuation and the preceding five valuations.

II. EMPLOYEE DATA

We received data on 15,158 State Employees and 10,778 Teachers participating in the System on June 30, 1990. The data included age, service, sex, and salary for each participant. The average salary as of June 30, 1990 of the participants was \$26,300 for State Employees and \$38,700 for Teachers. The data included 846 Correctional Officers and 144 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 \$20,000 for the State Employees for whom earnings were missing, and a \$25,000 annual salary for Teachers with unknown earnings.

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, the average salary for State Employees increased by 6.9 percent while Teachers' average salary also increased by 6.9 percent. Aggregate payroll increased by 6.5 percent for State Employees and by 4.8 percent for Teachers.

Table 1A

Number and Average Salaries of Employees in Active Service
as of June 30, 1990 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 - 39	40 and over	Unknown
Total	15,158 \$26,300	4,926 \$22,800	2,730 \$24,900	3,114 \$27,100	2,566 \$29,200	1,190 \$30,700	417 \$34,000	147 \$37,600	50 \$39,500	14 \$34,200	4 \$35,500
Under 20	25 \$19,300	25 \$19,300	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
20 - 24	571 20,000	551 20,000	20 \$19,200	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
25 - 29	1,428 22,300	1,013 21,900	359 23,000	56 \$23,800	-- --	-- --	-- --	-- --	-- --	-- --	-- --
30 - 34	1,946 24,500	843 23,800	529 25,200	485 24,700	89 \$25,700	-- --	-- --	-- --	-- --	-- --	-- --
35 - 39	2,295 26,800	667 24,700	395 26,300	633 28,500	543 27,800	55 \$26,400	-- --	-- --	-- --	-- --	2 \$28,900
40 - 44	2,426 28,900	607 23,500	385 26,700	528 29,600	606 33,100	279 33,100	21 \$28,800	-- --	-- --	-- --	-- --
45 - 49	1,876 28,000	455 23,200	348 24,900	365 28,700	332 30,500	262 34,600	100 32,200	13 \$29,200	-- --	-- --	1 20,000
50 - 54	1,544 27,600	329 23,700	270 24,600	330 27,400	302 28,800	173 30,600	103 37,300	33 37,100	4 \$36,600	-- --	-- --
55 - 59	1,483 26,800	218 22,400	209 24,500	319 24,900	354 27,900	216 27,500	102 34,100	50 41,200	14 34,400	1 \$30,400	-- --
60 - 64	1,085 26,900	123 25,200	165 22,900	278 25,800	247 26,600	149 27,700	63 32,900	35 39,100	19 41,800	6 26,700	-- --
65 - 69	338 25,900	42 19,400	37 23,800	89 25,500	69 23,300	47 26,500	23 32,300	12 30,300	12 43,300	6 39,100	1 64,100
70 and over	114 21,100	41 13,500	7 12,000	27 23,100	22 25,900	6 26,300	5 41,300	4 32,500	1 32,900	1 53,900	-- --
Unknown	27 9,500	12 18,500	6 3,400	4 300	2 300	3 4,400	-- --	-- --	-- --	-- --	-- --

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Table 1B

Number and Average Salaries of Employees in Active Service
as of June 30, 1990 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 - 39	40 and over
Total	10,778 \$38,700	2,120 \$29,700	697 \$36,300	1,427 \$38,700	2,741 \$41,000	2,249 \$42,100	963 \$43,000	467 \$43,800	95 \$45,000	19 \$43,800
20 - 24	114 \$22,100	114 \$22,100	--	--	--	--	--	--	--	--
25 - 29	476 25,400	429 24,800	47 \$30,800	--	--	--	--	--	--	--
30 - 34	698 32,900	346 29,100	177 35,000	174 \$38,300	1 \$38,700	--	--	--	--	--
35 - 39	1,836 37,200	482 29,800	171 36,500	550 39,700	631 40,900	2 \$39,900	--	--	--	--
40 - 44	3,449 39,400	430 32,700	164 37,400	409 36,100	1,520 40,900	925 41,900	1 \$39,900	--	--	--
45 - 49	1,921 41,100	206 34,400	70 35,900	150 39,600	300 41,700	833 42,600	360 42,600	2 \$42,600	--	--
50 - 54	1,114 42,700	72 37,500	42 40,500	76 41,200	130 41,900	226 42,400	380 44,000	187 43,800	1 \$39,600	--
55 - 59	644 42,200	26 35,900	17 41,300	32 41,500	81 41,300	129 40,900	122 41,800	184 44,100	53 45,400	--
60 - 64	412 42,100	12 34,000	7 38,200	29 42,000	59 41,000	110 42,100	81 42,100	65 43,600	35 44,100	14 \$43,100
65 - 69	97 41,900	3 32,900	2 54,600	6 37,300	17 41,600	22 40,400	16 41,100	22 43,000	4 51,000	5 45,800
70 and over	17 42,100	--	--	1 38,700	2 41,000	2 40,200	3 41,000	7 43,500	2 43,100	--

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Table 2A

Statistical Data on Active State Employees
on June 30, 1990 and 1989

	June 30, 1990	June 30, 1989
Number of covered employees	15,158	15,241
Total annual salary	\$ 398,492,200	\$ 374,238,300
Average annual salary	\$26,300	\$24,600
Average age	43 1/2	44
Average years of service	10 1/2	11
Number eligible for service retirement	1,367	1,658
Number vested but not eligible to retire	6,133	6,017

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Table 2B

Statistical Data on Active Teachers
on June 30, 1990 and 1989

	June 30, 1990	June 30, 1989
Number of covered employees	10,778	10,995
Total annual salary	\$ 417,404,700	\$ 398,363,600
Average annual salary	\$38,700	\$36,200
Average age	44	43 1/2
Average years of service	16	15 1/2
Number eligible for service retirement	1,274	1,209
Number vested but not eligible to retire	6,687	6,889

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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:

	<u>State Employees</u>	<u>Teachers</u>
Pensioners:		
Number	7,217	3,699
Average age	70 1/2	72
Average monthly benefit	\$773	\$1,422
Beneficiaries:		
Number	612	170
Average age	72	70
Average monthly benefit	\$617	\$827

Table 3A shows a distribution of the 909 State Employee pensions which became effective during the 1989-90 fiscal year by type and amount of pension. Table 4A shows a distribution of these same new awards by type of pension and age at retirement. Tables 3B and 4B are the corresponding distributions for the 277 Teacher pensions which became effective during the 1989-90 fiscal year.

Tables 5A and 5B show distributions for all pensions in force as of June 30, 1990 by type and amount of pension. Tables 6A and 6B show distributions of these same retirees by type of pension and age as of June 30, 1990.

Table 3A

Pensions Awarded in the Year Ended June 30, 1990
by Type and by Monthly Amount

STATE EMPLOYEES

Monthly amount	Total	Type of pension				
		Service	Ordinary disability	Accidental disability	Legislator	Beneficiary
Total	909	859	16	6	1	27
\$ 50 - 99	2	2	--	--	--	--
100 - 149	9	5	--	--	--	4
150 - 199	18	12	2	1	--	3
200 - 249	13	9	3	--	--	1
250 - 299	29	24	3	1	--	1
300 - 349	19	18	1	--	--	--
350 - 399	25	21	1	1	--	2
400 - 449	30	26	2	--	--	2
450 - 499	25	25	--	--	--	--
500 - 599	58	53	2	--	--	3
600 - 699	28	24	1	--	--	3
700 - 799	25	23	--	--	--	2
800 - 899	38	33	1	1	1	2
900 - 999	38	36	--	1	--	1
1,000 - 1,099	30	28	--	1	--	1
1,100 - 1,199	37	37	--	--	--	--
1,200 - 1,299	22	22	--	--	--	--
1,300 - 1,399	38	38	--	--	--	--
1,400 - 1,499	31	31	--	--	--	--
1,500 - 1,999	188	187	--	--	--	1
2,000 - 2,499	101	100	--	--	--	1
2,500 - 2,999	54	54	--	--	--	--
3,000 - 3,499	28	28	--	--	--	--
3,500 - 3,999	12	12	--	--	--	--
4,000 - 4,499	6	6	--	--	--	--
4,500 - 4,999	3	3	--	--	--	--
5,500 - 5,999	2	2	--	--	--	--

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Table 3B

Pensions Awarded in the Year Ended June 30, 1990
by Type and by Monthly Amount

TEACHERS

Monthly amount	Total	Type of pension			
		Service	Ordinary disability	Accidental disability	Beneficiary
Total	277	269	4	2	2
\$ 150 - 199	1	1	--	--	--
200 - 249	2	2	--	--	--
250 - 299	1	1	--	--	--
300 - 349	1	1	--	--	--
400 - 449	1	1	--	--	--
450 - 499	2	1	1	--	--
500 - 599	4	3	--	--	1
600 - 699	1	1	--	--	--
700 - 799	2	2	--	--	--
800 - 899	4	3	1	--	--
900 - 999	4	4	--	--	--
1,000 - 1,099	3	3	--	--	--
1,100 - 1,199	5	5	--	--	--
1,200 - 1,299	7	7	--	--	--
1,300 - 1,399	4	3	1	--	--
1,400 - 1,499	10	10	--	--	--
1,500 - 1,599	45	43	1	--	1
2,000 - 2,499	88	86	--	2	--
2,500 - 2,999	75	75	--	--	--
3,000 - 3,499	11	11	--	--	--
3,500 - 3,999	4	4	--	--	--
4,000 - 4,499	1	1	--	--	--
4,500 - 4,999	1	1	--	--	--

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Table 4A

Pensions Awarded in the Year Ended June 30, 1990
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	909	859	16	6	1	27
20 - 24	1	--	--	1	--	--
30 - 34	1	--	--	1	--	--
35 - 39	2	--	1	--	--	1
40 - 44	10	3	4	1	--	2
45 - 49	50	46	2	--	--	2
50	20	18	1	--	--	1
51	24	24	--	--	--	--
52	34	31	2	--	--	1
53	20	20	--	--	--	--
54	25	25	--	--	--	--
55	36	31	--	--	1	4
56	24	20	--	1	--	3
57	33	28	3	--	--	2
58	29	28	--	--	--	1
59	32	31	1	--	--	--
60	96	95	--	--	--	1
61	107	102	--	1	--	4
62	79	77	1	--	--	1
63	70	69	--	--	--	1
64	62	61	--	1	--	--
65	41	41	--	--	--	--
66	27	26	--	--	--	1
67	31	30	--	--	--	1
68	22	21	--	--	--	1
69	12	11	1	--	--	--
70 - 74	21	21	--	--	--	--

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Table 4B

Pensions Awarded in the Year Ended June 30, 1990
by Type and by Age on Effective Date

TEACHERS

Age on effective date	Total	Type of pension			
		Service	Ordinary disability	Accidental disability	Beneficiary
Total	277	269	4	2	2
35 - 39	1	--	1	--	--
40 - 44	1	--	--	1	--
45 - 49	6	4	1	--	1
50	4	4	--	--	--
51	8	8	--	--	--
52	10	10	--	--	--
53	15	15	--	--	--
54	9	9	--	--	--
55	17	16	1	--	--
56	22	22	--	--	--
57	16	16	--	--	--
58	17	15	1	--	1
59	16	16	--	--	--
60	40	40	--	--	--
61	20	19	--	1	--
62	15	15	--	--	--
63	19	19	--	--	--
64	10	10	--	--	--
65	15	15	--	--	--
66	2	2	--	--	--
67	4	4	--	--	--
68	4	4	--	--	--
69	4	4	--	--	--
70 - 74	2	2	--	--	--

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Table 5A
Pensions in Payment Status on June 30, 1990
by Type and by Monthly Amount
STATE EMPLOYEES

Monthly amount	Total	Type of pension				Beneficiary
		Service	Ordinary disability	Accidental disability	Legislator	
Total	7,829	6,464	496	100	157	612
Under \$ 50	7	5	--	2	--	--
\$ 50 - 99	158	122	11	9	--	16
100 - 149	265	202	22	9	--	32
150 - 199	537	432	49	5	--	51
200 - 249	648	505	87	4	--	52
250 - 299	551	440	71	3	--	37
300 - 349	467	361	61	6	--	39
350 - 399	454	382	29	3	--	40
400 - 449	398	332	26	2	4	34
450 - 499	322	270	26	1	3	22
500 - 599	631	528	33	5	17	48
600 - 699	432	342	20	9	24	37
700 - 799	339	254	24	11	10	40
800 - 899	339	254	12	9	28	36
900 - 999	293	246	12	5	9	21
1,000 - 1,099	254	204	5	6	20	19
1,100 - 1,199	230	186	4	7	18	15
1,200 - 1,299	151	128	2	--	3	18
1,300 - 1,399	153	118	--	--	21	14
1,400 - 1,499	114	107	--	1	--	6
1,500 - 1,999	578	553	2	2	--	21
2,000 - 2,499	268	259	--	1	--	8
2,500 - 2,999	141	137	--	--	--	4
3,000 - 3,499	58	57	--	--	--	1
3,500 - 3,999	25	24	--	--	--	1
4,000 - 4,499	8	8	--	--	--	--
4,500 - 4,999	4	4	--	--	--	--
5,000 - 5,499	2	2	--	--	--	--
5,500 - 5,999	2	2	--	--	--	--

Table 5B

Pensions in Payment Status on June 30, 1990
by Type and by Monthly Amount

TEACHERS

Monthly amount	Total	Type of pension			
		Service	Ordinary disability	Accidental disability	Beneficiary
Total	3,869	3,550	127	22	170
\$ 50 - \$ 99	4	3	--	1	--
100 - 149	8	7	--	--	1
150 - 199	10	10	--	--	--
200 - 249	29	23	1	--	5
250 - 299	36	28	2	--	6
300 - 349	48	41	1	1	5
350 - 399	50	41	4	--	5
400 - 449	56	40	7	1	8
450 - 499	56	35	9	1	11
500 - 599	145	121	7	1	16
600 - 699	161	124	13	--	24
700 - 799	183	154	15	--	14
800 - 899	196	166	16	1	13
900 - 999	215	190	14	--	11
1,000 - 1,099	241	213	11	1	16
1,100 - 1,199	245	231	4	--	10
1,200 - 1,299	224	210	7	1	6
1,300 - 1,399	247	238	7	--	2
1,400 - 1,499	209	202	1	4	2
1,500 - 1,999	779	752	8	7	12
2,000 - 2,499	432	428	--	2	2
2,500 - 2,999	224	223	--	1	--
3,000 - 3,499	49	48	--	--	1
3,500 - 3,999	17	17	--	--	--
4,000 - 4,499	4	4	--	--	--
4,500 - 4,999	1	1	--	--	--

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Table 6A

Pensions in Payment Status on June 30, 1990
by Type and by Age

STATE EMPLOYEES

Age on June 30, 1990	Total	Type of pension				
		Service	Ordinary disability	Accidental disability	Legislator	Beneficiary
Total	7,829	6,464	496	100	157	612
20 - 29	1	--	--	1	--	--
30 - 34	4	--	1	1	--	2
35 - 39	20	--	11	4	--	5
40 - 44	30	3	17	2	--	8
45 - 49	71	34	20	6	3	8
50 - 54	180	129	27	4	5	15
55 - 59	368	235	68	12	22	31
60 - 64	1,205	974	111	22	30	68
65 - 69	1,956	1,710	93	22	27	104
70 - 74	1,736	1,484	94	10	32	116
75 - 79	1,203	1,031	39	11	21	101
80 - 84	693	580	14	3	10	86
85 - 89	262	214	1	2	3	42
90 - 94	80	58	--	--	4	18
95 - 99	17	10	--	--	--	7
100 - 104	2	2	--	--	--	--
105 - 109	1	--	--	--	--	1

RHODE ISLAND ERS

Table 6B

Pensions in Payment Status on June 30, 1990
by Type and by Age

TEACHERS

Age on June 30, 1990	Total	Type of pension			
		Service	Ordinary disability	Accidental disability	Beneficiary
Total	3,869	3,550	127	22	170
30 - 34	2	--	--	--	2
35 - 39	3	--	2	--	1
40 - 44	14	--	8	3	3
45 - 49	14	2	7	2	3
50 - 54	79	60	10	2	7
55 - 59	315	272	23	2	18
60 - 64	611	562	24	6	19
65 - 69	706	652	28	4	22
70 - 74	661	621	11	2	27
75 - 79	572	541	6	1	24
80 - 84	530	503	4	--	23
85 - 89	262	248	2	--	12
90 - 94	81	70	2	--	9
95 - 99	19	19	--	--	--

RHODE ISLAND ERS

IV. RETIREMENT FUND

The State maintains the Employees' Retirement Fund. The Retirement System provided us with financial statements as of June 30, 1990.

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 provides a summary of income and expenditures for the years ended June 30, 1990 and 1989.

On June 30, 1990, assets as reported by the State totalled approximately \$1.880 billion. Table 8 shows the composition of the assets and compares them to those of the previous year. About 51 percent of the Fund was invested in fixed income securities such as bonds and notes. A year earlier, on June 30, 1989, the corresponding fixed income percent was 54 percent.

The financial statements indicate that 44 percent of the assets relate to State Employees, 53 percent are for Teachers, and 3 percent relate to Teachers Survivors benefits. There is also a small unallocated reserve for unclaimed benefits. Table 9 shows the allocation of assets in detail as of June 30, 1990 and 1989.

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. Beginning with the June 30, 1985 actuarial valuation, the Board adopted an asset valuation method for actuarial 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 on June 30, 1990 amounted to \$1,962,802,645. The development of this amount is shown in the following chart:

Determination of Actuarial Value of Assets

1. Actuarial value of assets at beginning of year	\$1,732,248,515
2. Net new money (including dividends and interest)	165,713,086
3. Preliminary value of assets at end of year: (1) + (2)	1,897,961,661
4. Market value of assets at end of year	2,222,116,580
5. Minimum actuarial value: 80% of (4)	1,777,733,264
6. Maximum actuarial value: 120% of (4)	2,666,599,896
7. Trial write-up: 20% of [(4) - (3)]	64,840,984
8. Trial actuarial value: (3) + (7)	1,962,802,645
9. Final actuarial value of assets at end of year: (8), but not less than (5) or more than (6)	1,962,802,645
10. Final write-up: (9) - (3)	64,840,984

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 plan.

Table 7

Summary Statement of Income and Expenses
For the Years Ended June 30, 1990 and 1989

	1990	1989
Employer contributions	\$129,449,799	\$122,340,282
Member contributions	<u>67,155,955</u>	<u>59,840,261</u>
Total contributions	\$196,605,754	\$182,180,543
Net miscellaneous items	(4,384,981)	926,724
Investment income:		
Dividends	\$ 29,723,591	\$ 25,595,811
Interest	86,349,770	94,228,285
Capital gains (and losses)	16,043,927	119,551,790
Writedown	(6,771,650)	0
Other	370,765	0
Expenses	<u>3,579,240</u>	<u>2,326,606</u>
Net investment income	<u>122,137,163</u>	<u>237,049,280</u>
Total income available for benefit payments	\$314,357,935	\$420,156,548
Benefit payments:		
Pension benefits	\$133,053,253	\$111,231,382
Death benefits	2,569,443	2,609,098
Contribution refunds	<u>3,749,876</u>	<u>4,370,980</u>
Total benefit payments	<u>139,372,573</u>	<u>118,211,460</u>
Excess of income over expenses	\$174,985,363	<u>\$301,945,088</u>

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

RHODE ISLAND ERS

Table 8

Assets as of June 30, 1990 and 1989

	<u>1990</u>	<u>1989</u>
Cash	\$ 6,394,791	\$ (270,709)
Accrued interest receivable	14,515,075	18,727,418
Investments		
Fixed Income - Bonds	\$658,141,080	\$559,956,433
Stiff Account	107,269,000	141,054,000
Short-term paper	191,752,147	228,150,000
Equities	<u>901,819,442</u>	<u>757,289,030</u>
	<u>1,858,981,669</u>	<u>1,686,449,463</u>
Total assets	<u>\$1,879,891,535</u>	<u>\$1,704,906,172</u>

Note: For fiscal year 1989 bonds are shown at amortized book value and stocks are shown at cost. Investments are shown at average cost for fiscal year 1990.

RHODE ISLAND ERS

Table 9

Allocation of Assets by Plan
as of June 30, 1990 and 1989

	<u>1990</u>	<u>1989</u>
State Employees:		
Employer reserves	\$652,779,874	\$604,614,842
Member reserves	<u>178,270,045</u>	<u>169,100,631</u>
Total State Employees reserves	\$ 831,049,919	\$ 773,715,473
Teachers:		
Employer reserves	\$722,997,705	\$635,475,948
Member reserves	<u>270,899,404</u>	<u>243,955,066</u>
Total Teacher reserves	993,897,109	879,431,014
Teachers Survivors:		
Employer reserves	\$ 45,198,506	\$ 42,416,484
Member reserves	<u>9,520,071</u>	<u>9,122,818</u>
Total Teachers Survivors reserves	54,718,578	51,539,302
Unallocated:		
Unclaimed benefit reserve	<u>225,929</u>	<u>220,383</u>
Total assets	<u>\$1,879,891,535</u>	<u>\$1,704,906,172</u>

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

RHODE ISLAND ERS

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 service that gives rise to the pension obligation. The result is a series of employer contributions over a long period of years. A fund accumulates which earns investment income, thus reducing the ultimate cost. Beginning with the June 30, 1985 actuarial valuation, the actuarial cost method was changed as stipulated in Section 36-10-2 of the General Laws of Rhode Island. In addition, effective July 1, 1989, the method utilized to fund the unfunded frozen initial liability was changed. The actuarial cost method is reviewed at the end of this Section.

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. The assumptions applied in this valuation are the same as those used in the June 30, 1989 study (as revised in June, 1990). Each assumption is reviewed in the following sub-sections.

Mortality Rates

We continue to apply mortality rates taken from the Male and Female 1971 Group Annuity Mortality Tables. These are commonly used tables of pension plan mortality, and we believe they continue to be reasonable for estimating experience under the System. Table 10 gives some life expectancies determined from these tables.

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

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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 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 percent of his pay when he is young and a lower percent of his higher salary at a later age. Establishing pension costs which remain a level percentage of salary means that pension costs will be incurred at the same rate as salary is paid to an employee.

The projection of future salaries must anticipate, among other items, future general salary increases. Over the long term, it can be expected that these will parallel or slightly exceed the level of inflation. If the salary increase assumption exceeds actual future salary increases, then pension contributions will exceed the actual cost requirement and actuarial gains will develop. Alternatively, if future salary increases exceed the assumption, then pension contributions will be less than the actual cost requirement and actuarial losses will develop.

For purposes of our cost determination, we have made a reasonable allowance for general salary increases in the future. We also reflect salary increases as the result of merit, promotion, and longevity. The scale has relatively greater increases at the younger ages to correspond with the State's salary schedules. Salary scale factors at sample ages are shown on the following page:

<u>Age</u>	<u>Present Salary as a % of Age 65 Salary</u>	<u>Annual Increases (Rate %)</u>
20	9.11	6.36
25	12.38	6.27
30	16.73	6.11
35	22.43	5.91
40	29.73	5.59
45	38.76	5.23
50	49.73	4.96
55	63.15	4.84
60	80.07	4.67

As noted below, both projection of salary and an assumption as to future investment yield must consider future inflation, and the two are therefore related.

Investment Return

Investment return has a major effect on the ultimate cost of a retirement system. To demonstrate, consider an actuarially funded retirement system with investment earnings of 6-1/2% annually. If investment earnings were to increase from 6-1/2% to 8%, then the long term costs of the retirement system would be reduced by 15% to 20%.

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

Effective with the June 30, 1989 actuarial valuation, the investment return assumption was increased from 7 1/2% to 8%. This assumption allows for a moderate long term inflation rate and considers the higher rates on currently invested assets. It is also consistent with the salary scale factors discussed above.

During fiscal 1989-90, the actuarially determined investment yield was 10.1 percent, or 2.1 percent greater than the assumed yield of 8.0 percent.

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.

The following chart provides termination rates for each cause at illustrative ages:

Age	Death*	State Employees (Rate %)		
		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 assumed service-connected disabilities.

Age	Death*	Teachers (Rate %)		
		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 assumed service-connected disabilities.

*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 28 years of service for general employees and age 50 for State Correctional Officers. We assume State Employees will retire at age 62 1/2, or upon the completion of ten years of service if later. Teacher retirements are assumed to occur when the teacher has attained age 61 and completed ten or more years of service. 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 recognize the 3 percent annual benefit increase 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, 1991 and all subsequent 3% increases.

Actuarial Cost Method

This valuation is performed using the Entry Age Normal Cost Method with Frozen Initial Liability, hereafter referred to as the Frozen Initial Liability Method. The change from Entry Age Normal Cost Method was legislated effective with the July 1, 1985 actuarial valuation.

Under the Frozen Initial Liability Method, the Actuarial Present Value of Benefits for all participants (including both past and future benefit accruals) is divided into three components, as follows:

- (a) Assets on hand (i.e., benefits already funded);
- (b) Unfunded Frozen Initial Liability, which equals the unfunded actuarial accrued liability as of June 30, 1985 based on the Entry Age Normal Cost Method, adjusted each year for expected reductions, the effect of plan amendments, and the effect of changes in actuarial assumptions; and

- (c) Actuarial Present Value of Future Normal Costs, which is the balance, and which effectively includes all variations from expected experience.

The annual cost requirement consists of two items -- (1) the amount (including interest) which will amortize the remaining Unfunded Frozen Initial Liability as of June 30, 1990 over 25 years from July 1, 1991 plus (2) the Normal Cost, which is the current annual amount which will fund that portion of future benefit obligations not met by future unfunded liability payments or current assets over the future working lifetime of the active employees. Both the Normal Cost and the payment on the unfunded liability are calculated as a level percent of pay.

Overall Actuarial Basis

We believe that the individual actuarial assumptions 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 with respect to some individual participants. In all cases, we assumed such individuals had the same average characteristics as other participants within the same category (e.g. male members age 37 with unknown service were assumed to have the same service distribution as male members age 37 with known service).

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, 1990, including all benefit changes through that date, is developed in this sub-section. The funding statute calls for the State to contribute 100 percent of the projected normal cost plus a total amortization payment (interest plus principal) which will amortize the remaining unfunded liability over 26 years from July 1, 1990 on a basis where each successive year's amortization payment increases at the assumed rate of inflation over the prior year's payment. Based on this requirement and a projected participating payroll of \$433,000,000, the 1991-92 employer contribution "rate percent" for State Employees is 11.7 percent of payroll as developed below.

<u>Item</u>	<u>Amount</u>	<u>% of Payroll</u>
(1) Participating payroll	\$416,224,600	--
(2) Employer normal cost	22,216,000	5.3375%
(3) Frozen unfunded actuarial liability as of July 1, 1990	445,473,100	--
(4) Amortization payment (based on level percent of payroll)	25,678,600	6.2

<u>Item</u>	<u>Amount</u>	<u>% of Projected Payroll</u>
(5) Projected 1991-92 participating payroll	\$433,000,000	--
(6) 1991-92 employer normal cost = 5.3375% x (5)	23,111,400	5.3%
(7) Required contribution payable July 1, 1991 = 1.00 x (6) + 1.00 x (4)	48,790,000	11.3
(8) Required contribution payable monthly = (7) plus interest adjustment	50,741,600	11.7

The calculations, as completed through line 7 on the previous page, determine the employer contribution to be paid into the retirement fund at the beginning of each year with interest earnings starting from that date. However, contributions to the Fund are made monthly. Thus, about half a year's interest is lost, and the contribution must be increased to reflect this. Line 8 on the previous page reflects this adjustment.

The preceding chart includes the effect of a quarter of one percent increase in the employee contribution (for post-retirement health benefits) to the State Employees' Retirement System. The effect of this was to reduce the State's rate percent by 0.23 percent, reflecting the additional contribution by employees (0.25 percent) but reduced by the additional cost associated with paying contribution refunds with respect to the additional contributions (.02 percent). Consistent with this, it has been assumed that the State's contribution to the separate retiree health fund is 0.23 percent.

As shown on line (8) of the preceding chart, the rate percent on behalf of the State Employees' Retirement Plan is 11.7 percent. In addition, as reviewed in the preceding paragraph, the State's assumed cost to the retiree health fund is 0.23 percent. The total State rate percent is therefore 11.93 percent.

The June 30, 1989 actuarial valuation report showed a percent of payroll cost of 11.83 percent. This rate percent was reduced to 10.63 percent as a result of the revised actuarial valuation in June, 1990 when the interest rate assumption was increased from 7 1/2% to 8%. The following chart shows the effect of the various items which caused the rate percent to increase from 10.63 percent to 11.93 percent between the June 30, 1989 and June 30, 1990 actuarial valuations:

Employer "rate percent" from June 30, 1989 actuarial valuation	10.63%
Investment gain during fiscal 1989-90	(0.36)
Effect of 1989 early retirement window	0.90
Effect of buyback of service	0.14
Effect of salary increases greater than assumed	.33
Miscellaneous net loss	<u>0.29</u>
Employer "rate percent" from June 30, 1990 actuarial valuation	11.93%

Teachers

The costs for Teachers as of June 30, 1990, including all benefit changes through that date, is developed in this sub-section. Applying the funding statute to the Teachers' costs and a projected participating payroll of \$459,700,000 results in a contribution "rate percent" requirement for fiscal 1991-92 of 15.1 percent. Thirty-two percent of this rate (4.83% of payroll) is payable by the State and sixty-eight percent (10.27% of payroll) by the municipalities. The "rate percent" is developed as follows:

<u>Item</u>	<u>Amount</u>	<u>% of Payroll</u>
(1) Participating payroll	\$417,404,700	--
(2) Employer normal cost	23,390,900	5.6039%
(3) Frozen unfunded actuarial liability as of June 30, 1990	711,780,500	--
(4) Amortization payment	41,109,400	9.9
<u>Item</u>	<u>Amount</u>	<u>% of Projected Payroll</u>
(5) Projected 1991-92 participating payroll	\$459,700,000	--
(6) 1991-92 employer normal cost = 5.6039% x (5)	25,761,100	5.6%

(Continued...)

Employer "rate percent" from June 30, 1989 actuarial valuation	10.63%
Investment gain during fiscal 1989-90	(0.36)
Effect of 1989 early retirement window	0.90
Effect of buyback of service	0.14
Effect of salary increases greater than assumed	.33
Miscellaneous net loss	<u>0.29</u>
Employer "rate percent" from June 30, 1990 actuarial valuation	11.93%

Teachers

The costs for Teachers as of June 30, 1990, including all benefit changes through that date, is developed in this sub-section. Applying the funding statute to the Teachers' costs and a projected participating payroll of \$459,700,000 results in a contribution "rate percent" requirement for fiscal 1991-92 of 15.1 percent. Thirty-two percent of this rate (4.83% of payroll) is payable by the State and sixty-eight percent (10.27% of payroll) by the municipalities. The "rate percent" is developed as follows:

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(1) Participating payroll	\$417,404,700	--
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(3) Frozen unfunded actuarial liability as of June 30, 1990	711,780,500	--
(4) Amortization payment	41,109,400	9.9
<u>Item</u>	<u>Amount</u>	<u>% of Projected Payroll</u>
(5) Projected 1991-92 participating payroll	\$459,700,000	--
(6) 1991-92 employer normal cost = 5.6039% x (5)	25,761,100	5.6%

(Continued...)

<u>Item</u>	<u>Amount</u>	<u>% of Projected Payroll</u>
(7) Required contribution payable July 1, 1991 = 1.00 x (6) + 1.00 x (4)	\$ 66,870,500	14.6%
(8) Required contribution payable monthly = (7) plus interest adjustment	69,545,300	15.1

The calculations, as completed through line 7 above, 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. However, contributions will be deposited monthly so that approximately half a year's interest is lost, and the contribution must be increased to reflect this. Line 8 above reflects this adjustment.

The June 30, 1989 actuarial valuation report showed a percent of payroll cost of 17.1 percent. As a result of the revised actuarial valuation in June, 1990 when the interest rate assumption was increased from 7 1/2% to 8%, this rate percent was reduced to 15.4 percent. The following chart shows the effect of the various items which affected the Teachers' rate percent between the June 30, 1989 and June 30, 1990 actuarial valuations:

Employer "rate percent" from June 30, 1989 actuarial valuation	15.4%
Effect of buyback of service	0.2
Effect of salary increases greater than assumed	0.3
Investment gain during fiscal 1989-90	(0.4)
Miscellaneous net gain	<u>(0.4)</u>
Employer "rate percent" from June 30, 1990 actuarial valuation	15.1%

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 \$54.7 million together with

the future income will be sufficient to cover the actuarial liabilities of this program. Currently the employee and the employer each contribute one percent of salary up to \$9,600 for a maximum contribution of \$192 annually. Contributions in recent years on behalf of the approximate 5,500 members and benefit payments have both been approximately \$1 million. For the 1989-90 year, contributions totalled \$1,071,600 and benefit payments were \$1,301,200.

Value of Vested Benefits

The "value of vested benefits" represents the single sum value, based on the Plan's investment return, mortality, and retirement age 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, 1990 is as follows:

	<u>State Employees</u>	<u>Teachers</u>
Active members	\$ 409,846,700	\$ 641,517,600
Inactive members	14,373,000	35,887,300
Retired members	<u>699,870,000</u>	<u>607,505,700</u>
Total value of vested benefits	\$1,124,089,700	\$1,284,910,600
Assets at actuarial value	<u>867,707,100</u>	<u>1,037,737,400</u>
Unfunded value of vested benefits	<u>\$ 256,382,600</u>	<u>\$ 247,173,200</u>

Disclosure Information Required by G.A.S.B. Statement #5

For plan years beginning after December 15, 1986, the Plan is subject to the disclosure requirements of Statement No. 5 of the Governmental Accounting Standards Board (G.A.S.B.).

The Statement requires the calculation of a standardized measure called the "pension benefit obligation" which is independent of the actuarial funding method. This amount is the actuarial present value of credited projected benefits prorated on service. It differs from the previously reported "value of vested benefits" because the value of non-vested benefits is included, future salary increases are taken into account and because of the proration of benefits uniformly over an employee's total projected service.

The pension benefit obligation as of June 30, 1990 for State Employees has been determined to be \$1,326,893,200. Approximately 46% of this amount is attributable to benefits on behalf of active employees with the balance (54%) attributable to the benefits of retirees and inactive employees. For Teachers the pension benefit obligation as of June 30, 1990 is \$1,695,942,200. Of this amount approximately 62% is attributable to active employees and the remaining 38% is attributable to benefits on behalf of pensioners, beneficiaries and inactive employees.

Exhibit II of the attached actuarial valuation certificate provides additional detail regarding this new disclosure amount.

Overall Status of System

As the funding law existed prior to its amendment in 1989, beginning with the fiscal year starting July 1, 1986, the statutory contribution comprises the normal cost, amortization of the June 30, 1985 unfunded liability and certain changes in that liability based on the sum-of-the-digits method over 30 years, and interest on the outstanding balance of the unfunded liability.

Currently, the statutory contribution comprises the normal cost and amortization of the remaining unfunded liability and certain changes in that liability over 27 years from July 1, 1989. In addition, for the State employees a new 30-year schedule was set up as of July 1, 1989 for the adopted change of assumptions and benefit improvements (28-year service pension). Furthermore, a new 30-year schedule was established as of July 1, 1990 for the 1989 early retirement window. These amortization payments are calculated to remain level as a percent of salary.

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 accrued liability on June 30, 2020. 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 1/2 percent of pay effective 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 percent of payroll, payable in part by the State of Rhode Island and in part by the (city) (town). The split between State and Municipality is specified in the statute. For fiscal year 1991-92, the State will pay 32% and the Municipality will pay 68%. The statute provided 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 8 percent interest return (7 1/2 percent for 1988) 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:

	<u>Year Beginning July 1,</u>		
	<u>1988</u>	<u>1989</u>	<u>1990</u>
Active participants	10,753	10,995	10,778
Pensioners and beneficiaries	3,577	3,744	3,869
Inactive participants	2,121	2,380	3,069
Liability for accrued vested benefits	\$1,070,703,600	\$1,233,408,700	\$1,284,910,600
Net assets at actuarial value	759,982,500	893,536,700	1,037,737,400

As shown in State's financial statements:

	<u>Year Ended June 30,</u>		
	<u>1988</u>	<u>1989</u>	<u>1990</u>
Employer contributions	\$ 58,958,711	\$ 72,217,030	\$ 82,435,940
Member contributions	<u>34,895,982</u>	<u>31,348,826</u>	<u>37,159,860</u>
Total contributions	\$ 93,854,693	\$103,565,856	\$119,595,800
Net miscellaneous income	1,331,824	766,545	(4,440,352)
Investment income	<u>69,646,982</u>	<u>121,392,937</u>	<u>63,912,874</u>
Total income available for benefit payments	\$164,833,499	\$225,725,338	\$179,068,323
Benefit payments	<u>51,883,396</u>	<u>58,199,115</u>	<u>64,603,816</u>
Excess of income over expenses	<u>\$112,950,103</u>	<u>\$167,526,222</u>	<u>\$114,464,507</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 percent of the aggregate participating payroll; and for fiscal year 1991-92, sixty-eight percent of this rate percent is then promulgated to each

participating employer as the actuarial cost factor to be applied to its participating payroll (the remaining thirty-two percent of the employer cost is contributed by the State).

Employer contributions by the (city) (town) of _____ for each of the last two years (together with the amount for the current year, based on the promulgated rate percent of 10.80 percent) are as follows:

	<u>1988</u>	<u>Year Ending June 30,</u>	
		<u>1989</u>	<u>1990 (est.)</u>
Participating payroll			
Employer contributions			

With respect to the Teachers Retirement System, Martin E. Segal Company, independent actuaries advising the Retirement Board, have stated on December 20, 1991:

"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 combined contributions required each year of the (city) (town) of _____ and the State will remain relatively level as a percent of payroll as the System moves toward funding the full actuarial liability. 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
CONSULTANTS AND ACTUARIES

116 HUNTINGTON AVENUE
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December 20, 1991

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, 1990.

This certificate contains the following attached exhibits:

EXHIBIT I - Actuarial Cost Development of Fiscal Year
1991-92 Contribution Percentage

A. State Employees

B. Teachers

EXHIBIT II - Pension Benefit Obligation

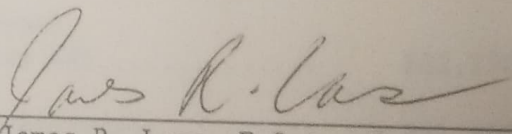
EXHIBIT III - Actuarial Assumptions and Cost Method

EXHIBIT IV - 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 each individual assumption used (a) is reasonably related to the experience of the plan and to reasonable expectations and (b) represents my best estimate of anticipated experience under the plan.

MARTIN E. SEGAL COMPANY, INCORPORATED

By:


James R. Laws, F.S.A., M.A.A.A.
Senior Vice President and Actuary

JRL/hva
R17

EXHIBIT I

ACTUARIAL COST FOR DEVELOPMENT OF
FISCAL YEAR 1991-92 CONTRIBUTION PERCENTAGE

A. STATE EMPLOYEES

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

- a. 15,158 active participants (including 7,500 fully vested) with total annual salaries of \$416,224,600
- b. 1,916 inactive participants
- c. 7,829 pensioners (including 612 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	\$1,793,834,900
Active employees	\$1,079,591,900
Inactive employees	14,373,000
Pensioners and beneficiaries	699,870,000
2. Actuarial value of assets	867,707,100
3. Present value of future employee contributions	278,364,600
4a. Initial unfunded frozen actuarial liability	445,731,800 -
4b. Change in unfunded frozen actuarial liability due to plan amendment and change in assumption	(49,393,400)
4c. Change in unfunded frozen actuarial liability due to 1989 early retirement window	49,134,700
4d. Total unfunded frozen actuarial liability (item 4a plus item 4b plus item 4c)	445,473,100
5. Actuarial present value of future normal costs (item 1 - item 2 - item 3 - item 4d).....	202,290,100
6. Actuarial present value of future compensation	3,591,800,800
7. Normal cost percentage (item 5 ÷ item 6)	5.63%

(Continued...)

EXHIBIT I

A. STATE EMPLOYEES (Continued)

8.	Total compensation of employees below the assumed retirement age	\$394,599,900
9.	Normal cost (item 7 x item 8)	22,216,000
10.	Payment required to amortize unfunded frozen actuarial liability over 30 years with 25 years remaining from July 1, 1991 for the initial unfunded frozen actuarial liability, 29 years remaining on the change in unfunded frozen actuarial liability due to plan amendment and change in assumptions and 30 years remaining on the change due to the 1989 early retirement window) calculated as a level percent of pay	25,678,600
11.	Total annual cost if paid on July 1, 1990 (item 9 plus item 10)	47,894,600
12.	Total annual cost if paid in uniform installments throughout the year (item 11 plus one-half year's interest)	\$49,810,400
13.	Total annual cost based on 1991-92 projected participating payroll of \$433,000,000 if paid in uniform installments throughout the year	50,741,600
14.	Item 13 amount as a percent of payroll	11.7%
	Ratio of actuarial value of assets (line 2) to actuarial accrued liability (\$1,438,809,100):	60.31%

Note: Included are 31 active employees unknown as to age, service, or both.

EXHIBIT I

ACTUARIAL COST FOR DEVELOPMENT OF
FISCAL YEAR 1991-92 CONTRIBUTION PERCENTAGE

B. TEACHERS

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

- a. 10,778 active participants (including 7,961 fully vested) with total annual salaries of \$417,404,700
- b. 3,069 inactive participants
- c. 3,869 pensioners (including 170 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	\$2,347,878,400
	Active employees	\$1,704,485,400
	Inactive employees	35,887,300
	Pensioners and beneficiaries	607,505,700
2.	Actuarial value of assets.....	1,037,737,400
3.	Present value of future employee contributions	353,860,500
4.	Unfunded frozen actuarial liability	<u>711,780,500</u>
5.	Actuarial present value of future normal costs (item 1 - item 2 - item 3 - item 4)	244,500,000
6.	Actuarial present value of future compensation	4,163,064,300
7.	Normal cost percentage (item 5 ÷ item 6)	5.87%
8.	Total compensation of employees below the assumed retirement age	\$398,481,510
9.	Normal cost (item 7 x item 8)	23,390,900
10.	Payment required to amortize unfunded frozen actuarial liability over 30 years (25 years remaining from July 1, 1991) calculated as a level percent of pay	41,109,400

(Continued...)

EXHIBIT I

B. TEACHERS (Continued)

11. Total annual cost if paid on July 1, 1990 (item 9 plus item 10)	\$64,500,300
12. Total annual cost if paid in uniform installments throughout the year (item 11 plus one-half year's interest)	67,080,300
13. Total annual cost based on 1991-92 projected partici- pating payroll of \$459,700,000 if paid in uniform installments throughout the year	69,545,300
14. Item 13 as a percent of payroll	15.1%

Ratio of actuarial value of assets (line 2)
to actuarial accrued liability (\$1,904,148,200): 54.50%

EXHIBIT II

PENSION BENEFIT OBLIGATION

The value of the pension benefit obligation required for disclosure by Statement No. 5 of the Governmental Accounting Standards Board is shown below as of June 30, 1990.

	<u>Pension Benefit Obligation</u>	
	<u>State</u> <u>Employees</u>	<u>Teachers</u>
1) Participants currently receiving benefits and terminated employees not yet receiving benefits	\$ 714,243,000	\$ 643,393,000
2) Current employees		
Accumulated employee contributions	170,354,700	256,859,600
Employer-financed vested	239,492,000	384,658,000
Employer-financed nonvested	<u>202,803,500</u>	<u>411,031,600</u>
3) Total pension benefit obligation	\$1,326,893,200	\$1,695,942,200

EXHIBIT III

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 %)

<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 assumed 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 assumed service-connected.

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

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

EXHIBIT III (Continued)

Salary scale:

<u>Age</u>	<u>Present salary as a % of salary at 65</u>	<u>Annual increase (Rate %)</u>
		6.36
20	9.11	6.27
25	12.38	6.11
30	16.73	5.91
35	22.43	5.59
40	29.73	5.23
45	38.76	4.96
50	49.73	4.84
55	63.15	4.67
60	80.07	

Includes allowance for inflation of 4 1/2% per year.

Unknown characteristics of employees: Same as those exhibited by employees with known characteristics. Unknown salary is assumed to be \$20,000 for State Employees and \$25,000 for Teachers.

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

Post-retirement increases -- 3% compounded annually

Percent married -- Social Security awards during 1972

Net investment return -- 8%

Actuarial value of assets --

Sum of Preliminary Value and write-up, but no more than 120% of market value or less than 80% of 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.

If Preliminary Value exceeds market value, there is a write-down of assets determined in a similar manner.

Actuarial cost method -- Frozen initial liability method. The method is also referred to as the entry age normal cost method with frozen initial liability.

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.

EXHIBIT III (Continued)

Frozen actuarial liability calculated on an individual basis and the outstanding balance of the unfunded amount is based on expected value regardless of actual contributions. It is funded over the 30-year period ended June 30, 2016. Payment on outstanding balance of unfunded frozen initial liability originally was based on sum of (1) interest on outstanding balance, and (2) a payment is based on the sum-of-the-digits amortization method. In 1989, the Legislature amended the Sections 36-10-2 and 36-10-2.1 of the General Laws to adopt level percent of salary funding.

EXHIBIT IV

SUMMARY OF PLAN PROVISIONS

Service pension

	<u>General Employees</u>	<u>Correctional Officers</u>	<u>Legislators</u>
Age requirement:	60	None	50
	or		55
Service requirement:	10 yrs.	28 yrs.	20 yrs.
			or
			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 3% for the next 14 years of service 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 for each of the first 30 years of 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. Legislators receive \$600 per year of service to a maximum of \$12,000.

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: Sum of (a) \$800 per year of service to a maximum of \$16,000 and with a minimum of \$4,000, and
(b) Refund of employee contributions.

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

Age requirement: None

Service requirement: 10 years / Legislators: 8 years

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: Sum of (a) 50% of salary to spouse or children under age 18, less workmen's compensation, and
(b) Refund of employee contributions.

Post-retirement death benefit

Lump sum benefit: Sum of (a) 100% of employee contributions, less benefits paid, and
(b) Pre-retirement death benefit, reduced 25% per year of retirement, but not less than \$4,000.

Employee contribution rate

State Employees	7-3/4%*
Teachers	8-1/2
Legislators	30

Available options

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

Post-retirement cost-of-living increases

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

*Of the 7 3/4 percent contribution by State employees, 1/4 percent reflects the amount required to provide for post-retirement health benefits.