

*Report
of the
Actuary*

MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM
OF THE STATE OF RHODE ISLAND

Valuation and Review as of
June 30, 1988

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June 13, 1989

Retirement Board of the Municipal
Employees' Retirement System
State of Rhode Island
198 Dyer Street
Providence, RI 02903

Dear Members of the Board:

We are pleased to submit herewith our Actuarial Valuation of the Municipal Employees' Retirement System as of June 30, 1988.

Our report analyzes the actuarial status of the System, and projects the cost requirements for the Board to certify to each municipality for the fiscal year beginning July 1, 1990.

We received a great deal of help from State employees in obtaining the information which forms the basis of this report. Most important, Mr. Donald R. Hickey, Executive Director, Mr. John F. Sullivan, Assistant 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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Following the report, we have reviewed the attached contributions heretofore
the same basis, however, and plan of benefits and the
contribution.

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

Sincerely yours,

MARTIN E. SEAGAL COMPANY, INCORPORATED

By 

Sherman S. Seagal
Senior Vice President

By 
James E. Lane, F.R.S.A., M.A.A.A.
Senior Vice President and Actuary

1/10/54
DSS

Benefits Employees

The Martine Company Employees Retirement System of Martine Company
employees of the many subsidiaries, including subsidiaries, and related
and other entities with some exceptions as indicated. There is no
plan for general employees and the optional plan for police and firemen.
General employees contribute 5 percent of their annual earnings. These
police and fire groups have their 10-year service pension option
contribution 7 percent. For groups that elect an optional contributory
provision of police and fire departments that elect the 10-year service
pension option, the employee contribution rate is increased to 7 percent.

The System generally provides the amount benefits equal to 1% of final
average salary per year of service. Such benefits are available to members
at least age 58 with 10 years of service or after 10 years at any age.
Under one of the optional plans, police and firemen may receive at age 55 if
they have 10 years of service or after 15 years of service at any age.
Under the other optional plan, police and firemen may receive at any age
with 10 years of service. (This option provides a benefit equal to 1-1/2%
of final average salary per year of service.) Benefits are based on the
average of the highest three consecutive years' earnings.

The plan also provides non-service-connected disability benefits after
5 years of service; service-connected disability pensions with no minimum
service requirement; vested benefits after 10 years of service; survivors'
benefits; and certain lump sum death benefits.

More detail on the benefit provisions can be found in Exhibit IV of
the Actuarial Certificate following this report.

Throughout this report, "general employees" means participants under the
regular program and "police and firemen" means participants under the
optional program.

Employee Data

We received data on 4,563 active general employees and 370 police and firemen as of June 30, 1988, who were participating in the System. The average salary was \$17,100 for general employees and \$24,700 for police and firemen. On average, the general employees were age 46 1/2 and had 10 years of service; police and firemen were age 37 with 11 years of service.

Retiree Data

We received data on 1,952 pensioners and 84 beneficiaries as of June 30, 1988. The pensioners' average monthly benefit was \$352. Of all the pensioners on the rolls, almost 7 percent had retired in the year ended June 30, 1988.

Retirement Fund

As of June 30, 1988, the Fund had assets of approximately \$195.8 million available as an offset to the actuarial liabilities for future benefits.

Actuarial Valuation

The valuation was prepared as of June 30, 1988. Our calculations were based on what we believe are reasonable assumptions as to expected future experience. We applied the "entry age normal cost" method of funding, which spreads the cost of each employee's pension as a level percentage of his earnings from the date of hire to assumed retirement age. All of the assumptions are the same as applied in the last actuarial valuation (June 30, 1987) and are detailed in the attached Actuarial Certificate.

This valuation reflects the following benefit improvements or changes for the listed Systems:

System

3001 Barrington
3008 Cumberland
3010 E. Providence
3013 Gloucester
3014 Hopkinton
3029 Richmond
3030 Scituate
3040 Chariho Reg. Sch. Dist.
3057 Lincoln Housing
4050 E. Greenwich Fire
4062 Warren Police
4088 Gloucester Police

Improvement

Added Town Manager's Dept.
Merged municipal employees
Teachers' Aides added
Added municipal employees
Transferred employees and assets*
Transferred employees and assets*
COLA B and a 15 year amortization schedule
Added employees and assets*
COLA B
20 year service pension
20 year service pension
New system

*3014 Hopkinton and 3029 Richmond transferred employees and assets to 3040 Chariho Reg. Sch. District.

The combined employer normal cost* for all general employees is \$3.3 million. This is 4.3 percent of the payroll of participating general employees. The combined employer normal cost for all police and firemen is \$0.6 million or 6.8% of payroll.

For general employees, the actuarial liability* (the accumulated cost of the benefits assigned to periods before July 1, 1988) is \$188.5 million of which \$73.0 million represents the liability to those already receiving pensions. The unfunded actuarial liability at the end of the year is \$16.0 million after accounting for assets of \$172.5 million. For police and firemen, the actuarial liability is \$23.8 million of which \$7.2 million is for those receiving pensions. The unfunded actuarial liability is \$0.5 million after accounting for police and fire assets of \$23.3 million.

The value of the System's vested benefits for both general employees and police and firemen is approximately \$159.0 million. Assets exceed this amount by \$36.8 million.

Based on the normal cost plus an amortization payment of each municipality's unfunded actuarial liability, the total annual employer cost

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

11. EMPLOYEE DATA

We received data on 4,563 general employees and 370 police and firemen participating in the System on June 30, 1988. The data included age, service, sex, and salary for each employee. The average salary of the participants was \$17,170 for general employees and \$24,700 for police and firemen.

Tables 1A and 1B give detailed age, service and average salary data on general employees and police and firemen, respectively.

Tables 2A and 2B summarize certain basic statistics as of June 30, 1988 and 1987 on active general employees and police and firemen. Table 2C gives active employee statistical data separately for each participating municipality. This table shows the number of employees, their average age, average service, and average salary as of June 30, 1988. Table 2D shows the same information as of June 30, 1987 and is included for comparison purposes.

The data we received for this valuation in respect to some of the municipalities seemed inconsistent with that of prior years. Anomalous results are obtained when the data is inconsistent. Where errors in the data were obvious, we made adjustments based on the prior year's data. However, for the majority of the municipalities, the data was usable without adjustment. The Retirement System continues to make progress in improving the quality of the data. We urge that the Board continue to stress the importance of good data to the municipalities.

As of June 30, 1988 adjusted for monthly payment is \$6.6 million (8.5% of covered payroll) for general employees and \$0.8 million (8.5% of covered payroll) for police and firemen. These amounts are in addition to the required employer contributions. The amortization payments for each municipality are generally based on the period remaining of an initial 25-year funding period. In some instances, these remaining periods have been changed in order to spread the effects of actuarial cost fluctuations.

In cases where a municipality has an increase in its contribution rate from the prior year of more than two percentage points, it may adopt a "smoothed employer contribution rate." The "smoothed rate percent" equals the prior year's contribution rate plus two percentage points plus the cost of any benefit increase adopted. East Providence elected this option for the 1989-1990 fiscal year and is again eligible for the 1990-1991 fiscal year. Coventry Bounding is the only municipality newly eligible for a smoothed rate for the 1990-1991 fiscal year as determined in the June 30, 1988 actuarial valuation.

Some of the municipalities have only a few years remaining on their amortization period. This fact, when combined with even relatively small actuarial losses, can cause a significant increase in a municipality's calculated contribution rate before the smoothing formula is applied. As a result, we have recommended a modification to the actuarial funding method used to determine costs in order to reduce the year-to-year fluctuation in costs. This change in method is reviewed in Section V of the report.

Table 1A

Number and Average Salaries of Employees in Active Service as of June 30, 1988 by Age and by Years of Service

GENERAL 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	4,551 \$17,100	1,643 \$15,400	911 \$17,300	789 \$18,300	650 \$18,200	328 \$18,600	102 \$22,400	52 \$17,800	11 \$27,200	3 \$20,500	72 \$19,500
Under 20	815,400	815,700	—	—	—	—	—	—	—	—	2 \$14,200
20 - 24	16,800 265	16,100 183	\$20,500 68	— 9	— —	— —	— —	— —	— —	— —	2 15,300
25 - 29	17,400 408	16,900 201	18,100 117	\$19,700 73	— 12	— —	— —	— —	— —	— —	5 20,300
30 - 34	18,800 601	17,800 272	19,000 135	19,500 97	\$17,400 82	— 7	— —	— —	— —	— —	5 24,600
35 - 39	18,000 81	14,700 262	19,000 127	22,500 89	21,200 61	\$21,100 33	— 3	— —	— —	— —	8 21,400
40 - 44	18,000 82	15,800 177	17,800 131	20,000 123	22,400 71	24,700 30	\$26,000 17	— —	— —	— —	6 24,200
45 - 49	17,000 608	14,700 186	15,800 108	17,100 134	19,700 114	22,300 58	26,500 21	\$19,800 12	— —	— —	11 19,200
50 - 54	16,800 673	13,800 145	16,200 104	16,600 127	16,800 145	18,500 87	25,000 30	21,500 16	— —	— —	5 22,700
55 - 59	16,700 498	14,700 80	16,700 94	16,400 111	16,600 120	18,800 74	20,600 22	15,600 17	\$27,200 3	\$17,900 2	15 18,100
60 - 64	17,100 134	14,900 4	15,800 19	17,600 24	17,100 40	16,000 32	22,400 7	20,400 3	35,100 3	21,800 3	5 20,700
65 - 69	15,800 16	7,700 —	13,900 —	18,400 1	16,800 4	14,700 6	14,000 2	4,400 1	21,700 2	— —	2 11,700
70 and over	13,600 94	— —	— —	17,000 1	10,200 1	13,200 1	10,500 —	12,200 1	23,500 —	— —	— —
Unknown	14,800	14,200	17,200	17,300	6,800	20,700	—	7,200	—	—	6 14,100

RHODE ISLAND MUNICIPAL EMPLOYEES

Table 1B

Number and Average Salaries of Employees in Active Service as of June 30, 1988 by Age and by Years of Service

POLICE AND FIREMEN

Age	Total	Years of service							
		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Unknown
Total	370 \$24,700	114 \$21,600	74 \$24,600	56 \$25,800	58 \$26,500	33 \$27,200	11 \$31,700	6 \$31,800	18 \$25,100
20 - 24	32 \$18,600	32 \$18,600	—	—	—	—	—	—	—
25 - 29	75 23,200	49 22,300	22 \$24,700	—	—	—	—	—	4 \$25,900
30 - 34	81 24,500	20 22,900	33 24,100	20 \$26,100	2 \$29,900	—	—	—	6 24,700
35 - 39	51 25,500	6 23,300	10 25,100	21 26,300	10 26,100	—	—	—	4 24,700
40 - 44	45 26,200	1 21,400	8 25,100	9 25,100	20 26,700	7 \$27,100	1 \$31,300	—	1 26,500
45 - 49	37 28,100	—	—	4 27,600	15 26,600	11 29,000	5 32,400	—	1 \$24,000
50 - 54	24 26,900	1 27,800	3 27,000	—	8 25,500	8 26,100	3 32,700	—	1 24,900
55 - 59	13 28,100	—	—	2 16,900	2 24,800	2 28,700	2 28,700	5 33,400	—
60 - 64	7 25,800	1 29,700	—	—	1 26,600	5 24,900	—	—	—
Unknown	5 23,100	4 22,700	—	—	—	—	—	—	1 24,600

RHODE ISLAND MUNICIPAL EMPLOYEES

Table 2A

Statistical Data on Active Employees
on June 30, 1988 and 1987

GENERAL EMPLOYEES

	June 30, 1988	June 30, 1987
Number of covered employees	4,563	4,209
Total annual salary	\$78,238,600	\$66,755,600
Average annual salary	\$17,100	\$15,900
Average age	46 1/2	47
Average years of service	10	9 1/2
Number eligible for service retirement	664	587
Number vested but not eligible to retire	1,271	1,179

RHODE ISLAND MUNICIPAL ERS

Table 2B

Statistical Data on Active Employees
on June 30, 1988 and 1987

POLICE AND FIREMEN

	June 30, 1988	June 30, 1987
Number of covered employees	370	329
Total annual salary	\$9,147,800	\$7,859,100
Average annual salary	\$24,700	\$23,900
Average age	37	37 1/2
Average years of service	11	10 1/2
Number eligible for service retirement	39	26
Number vested but not eligible to retire	125	115

RHODE ISLAND MUNICIPAL ERS

Table 2C

Statistical Data on Active Employees on June 30, 1988
by Municipality

Municipality	Number	Average age	Average service	Average salary
General Employees	139	47	10 1/2	\$17,400
01 Barrington	119	45 1/2	10	17,600
02 Bristol	136	45 1/2	6 1/2	12,900
03 Burrillville	623	46 1/2	11	17,600
07 Cranston	131	51	9	13,300
08 Cumberland	133	46 1/2	8 1/2	15,900
09 E. Greenwich	388	47	11	19,300
10 E. Providence				
11 Exeter-W.Greenwich School District	32	44 1/2	9	11,400
12 Foster	33	42 1/2	5 1/2	14,300
13 Gloucester	37	44	4 1/2	14,400
14 Hopkinton	35	46	7	13,400
15 Jamestown	36	41	7	20,600
16 Johnston	210	48 1/2	11	15,800
16 Johnston	293	44	11	19,000
21 Newport	22	46 1/2	8	15,500
22 New Shoreham	192	44 1/2	8	18,800
23 N. Kingstown	223	47	9	15,400
24 N. Providence	71	48 1/2	8 1/2	18,000
25 N. Smithfield	655	47	11	17,400
26 Pawtucket	21	42	4 1/2	12,600
29 Richmond	53	50	12	14,600
30 Scituate	108	49 1/2	10	16,900
31 Smithfield	197	44	8	16,900
32 S. Kingstown	76	50	10	16,900
33 Tiverton	73	49	11	15,100
34 Warren	10	53	12 1/2	19,200
36 Westerly	346	47 1/2	9 1/2	17,600
39 Woonsocket				
40 Chariho Regional School District	24	45 1/2	6	13,900
41 Foster-Glocester	31	49	11 1/2	15,100
51 Cranston Housing	12	41	5 1/2	22,600
52 E. Providence Housing	12	50 1/2	5 1/2	19,900
53 Pawtucket Housing	34	43 1/2	6 1/2	23,900
56 Cumberland Housing	11	47	6 1/2	21,800
57 Lincoln Housing	5	48	9	21,400
59 Bristol Housing	6	51 1/2	10	21,400
65 Burrillville Housing	2	45	6 1/2	22,900
66 N. Providence Housing	6	45	7	14,600
67 E. Smithfield Water	2	52	4 1/2	27,500
68 Greenville Water	4	45 1/2	10	28,600
71 Warren Housing	5	48 1/2	6	18,500
72 Johnston Housing	5	46 1/2	6 1/2	14,800
79 Coventry Housing	3	52 1/2	11	16,000
83 W. Warwick Housing	6	42 1/2	7 1/2	19,600
84 Smithfield Housing	3	44 1/2	8 1/2	14,600
Police and Fire				
50 E. Greenwich Fire	16	38	9	26,700
54 E. Greenwich Police	24	38 1/2	12	27,000
55 N. Kingstown Fire	64	38	12 1/2	26,500
58 N. Providence Fire	42	36	10	25,500
60 Barrington P & F	58	38	14 1/2	24,600
62 Warren Police	20	38 1/2	11 1/2	24,900
63 S. Kingstown P & F	41	37	11 1/2	24,900
64 Primrose Volunteer Fire	5	35	12	25,500
76 N. Smithfield Police	14	37 1/2	7	23,700
77 Tiverton Fire	18	44 1/2	11 1/2	22,600
82 Foster Police	6	35 1/2	14	23,500
85 Woonsocket Police	33	29	9 1/2	22,800
86 Charlestown Police	10	33	4	22,800
87 Hopkinton Police	8	33	7 1/2	21,500
88 Gloucester Police	11	34	4	23,000
			4 1/2	22,800
				19,800

RHODE ISLAND MUNICIPAL ERS

MARTIN F. SEGAL COMPANY

Table 2D

Statistical Data on Active Employees on June 30, 1987
by Municipality

Municipality	Number	Average age	Average service	Average salary
General Employees				
01 Barrington	140	47	10 1/2	\$16,600
02 Bristol	118	46	9 1/2	16,600
03 Burrillville	124	46 1/2	6 1/2	13,300
07 Cranston	545	47 1/2	10 1/2	14,700
08 Cumberland	118	52	9 1/2	13,700
09 E. Greenwich	119	46 1/2	9	15,200
10 E. Providence	342	48	11	18,800
11 Exeter-W.Greenwich School District	30	44 1/2	9	10,900
12 Foster	26	47	6	14,400
13 Gloucester	11	49 1/2	9	8,200
14 Hopkinton	34	46 1/2	7 1/2	12,300
15 Jamestown	35	40 1/2	7	18,300
16 Johnston	207	49	10 1/2	15,100
16 Johnston	283	44	10 1/2	18,000
21 Newport	19	45	8	14,300
22 New Shoreham	182	44	8	17,000
23 N. Kingstown	203	47	9	14,400
24 N. Providence	70	49	9	16,000
25 N. Smithfield	599	47 1/2	11	15,700
26 Pawtucket	19	42 1/2	3 1/2	11,700
29 Richmond	49	49 1/2	11	15,100
30 Scituate	111	50 1/2	9 1/2	16,600
31 Smithfield	183	44	8	15,900
32 S. Kingstown	74	49 1/2	9 1/2	15,300
33 Tiverton	68	48 1/2	10 1/2	15,100
34 Warren	10	52	10 1/2	18,300
36 Westerly	326	49 1/2	10 1/2	15,700
39 Woonsocket				
40 Chariho Regional School District	22	47 1/2	5 1/2	14,600
41 Foster-Glocester	29	49	10	12,300
51 Cranston Housing	12	42	6 1/2	18,400
52 E. Providence Housing	10	49	3 1/2	18,000
53 Pawtucket Housing	33	46 1/2	6 1/2	22,000
56 Cumberland Housing	9	50	6 1/2	20,800
57 Lincoln Housing	6	52 1/2	10	21,000
59 Bristol Housing	6	53	9	22,300
65 Burrillville Housing	2	44	9	21,100
66 N. Providence Housing	5	45 1/2	8	16,200
67 E. Smithfield Water	2	51	3 1/2	25,200
68 Greenville Water	4	44 1/2	8 1/2	26,000
71 Warren Housing	4	45	6 1/2	18,500
72 Johnston Housing	6	49 1/2	7 1/2	16,800
79 Coventry Housing	5	50	8 1/2	15,500
83 W. Warwick Housing	6	41 1/2	6 1/2	18,000
84 Smithfield Housing	3	43 1/2	8	13,700
Police and Fire				
50 E. Greenwich Fire	13	40 1/2	8	26,100
54 E. Greenwich Police	23	38 1/2	11 1/2	26,000
55 N. Kingstown Fire	57	38 1/2	12	25,000
58 N. Providence Fire	36	37 1/2	10 1/2	23,800
60 Barrington P & F	55	38 1/2	14	23,700
62 Warren Police	18	39 1/2	11 1/2	23,400
63 S. Kingstown P & F	39	37 1/2	12	24,700
64 Primrose Volunteer Fire	6	33	5 1/2	19,000
76 N. Smithfield Police	15	38 1/2	7	19,700
77 Tiverton Fire	18	43	12 1/2	23,300
82 Foster Police	7	36 1/2	7 1/2	21,100
85 Woonsocket Police	25	29	4	24,000
86 Charlestown Police	10	32 1/2	6 1/2	22,800
87 Hopkinton Police	17	30 1/2	3 1/2	20,900

RHODE ISLAND MUNICIPAL ERS

MARTIN F. SEGAL COMPANY

111. REFINERIE, BAKELIE

The data on production and consumption of refined sugar in the United States for the years 1948 and 1949 are as follows:

Year	Production (Million Pounds)	Consumption (Million Pounds)
1948	1,970	1,980
1949	1,970	1,970

The data on production and consumption of refined sugar in the United States for the years 1948 and 1949 are as follows:

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The data on production and consumption of refined sugar in the United States for the years 1948 and 1949 are as follows:

Table 3

Penalties assessed in the State Budget, June 30, 1969
by type and by Municipality Amount

Monthly amount	Total	Type of penalties		
		Service	Secondary liability	Beneficiary
Total	131	123	8	2
Under \$75	2	1	1	—
\$75 - 99	3	3	—	—
100 - 149	1	1	—	—
150 - 199	7	7	—	—
200 - 249	8	7	1	—
250 - 299	15	13	2	—
300 - 349	15	14	1	—
350 - 399	16	15	1	—
400 - 449	14	13	1	—
450 - 499	9	8	1	—
500 - 599	8	7	1	—
600 - 699	11	10	1	—
700 - 799	8	8	—	—
800 - 899	5	5	—	—
900 -	4	4	—	—
1,000 - 1,199	1	1	—	—
1,200 - 1,499	3	3	—	—
1,500 - 2,499	1	1	—	—

RHODE ISLAND MUNICIPAL ERIS

Table 4

Penalties assessed in the State Budget, June 30, 1969
by type and by age in Beneficiary State

Age in beneficiary State	Total	Type of penalties		
		Service	Secondary liability	Beneficiary
Total	131	123	8	2
40 - 44	1	—	1	—
45 - 49	3	—	3	—
50	1	—	1	—
51	1	—	1	—
52	1	—	1	—
53	1	—	1	—
54	1	—	1	—
55	1	—	1	—
56	1	—	1	—
57	1	—	1	—
58	1	—	1	—
59	1	—	1	—
60	1	—	1	—
61	1	—	1	—
62	1	—	1	—
63	1	—	1	—
64	1	—	1	—
65	1	—	1	—
66	1	—	1	—
67	1	—	1	—
68	1	—	1	—
69	1	—	1	—
70	1	—	1	—

RHODE ISLAND MUNICIPAL ERIS

Table 5
Pensions in Payment Status on June 30, 1988
by Type and by Monthly Amount

Monthly amount	Total	Type of pension			
		Service	Ordinary disability	Accidental disability	Beneficiary
Total	2,036	1,788	111	53	84
Under \$50	49	42	5	1	1
\$50 - 99	152	138	9	1	4
100 - 149	202	184	13	--	5
150 - 199	280	240	28	2	10
200 - 249	228	196	21	1	10
250 - 299	193	167	12	--	14
300 - 349	176	159	6	5	6
350 - 399	132	118	2	4	8
400 - 449	125	113	4	2	6
450 - 499	82	71	2	5	4
500 - 599	131	114	4	7	6
600 - 699	79	67	2	7	3
700 - 799	61	58	2	--	1
800 - 899	40	36	--	3	1
900 - 999	37	27	--	6	4
1,000 - 1,099	19	13	1	5	--
1,100 - 1,199	14	12	--	1	1
1,200 - 1,299	11	11	--	--	--
1,300 - 1,399	3	3	--	--	--
1,400 - 1,499	5	5	--	--	--
1,500 - 1,999	15	12	--	3	--
2,000 - 2,499	1	1	--	--	--
2,500 - 2,999	1	1	--	--	--

RHODE ISLAND MUNICIPAL ERS

Table 6
Pensions in Payment Status on June 30, 1988
by Type and by Age

Age on June 30, 1988	Total	Type of pension			
		Service	Ordinary disability	Accidental disability	Beneficiary
Total	2,036	1,788	111	53	84
Under 30	3	--	1	--	2
30 - 34	3	--	--	1	2
35 - 39	2	--	--	2	--
40 - 44	8	--	3	3	2
45 - 49	20	2	11	6	1
50 - 54	35	6	15	9	5
55 - 59	90	52	20	9	9
60 - 64	353	309	20	10	14
65 - 69	587	546	19	6	16
70 - 74	433	401	12	4	16
75 - 79	296	278	6	1	11
80 - 84	130	121	3	2	4
85 - 89	63	60	1	--	2
90 - 94	11	11	--	--	--
95 - 99	2	2	--	--	--

RHODE ISLAND MUNICIPAL ERS

Table 7
 Pension and Beneficiary Statistical Data
 as of June 30, 1988 by Municipality

Municipality	Number	Average Age	Average Monthly Benefits
General Employees	32	70 1/2	300
11 Barrington	52	70 1/2	309
12 Berlin	36	67	444
13 Berlinville	307	71 1/2	222
14 Canton	18	68	325
15 Carlisle	38	70	400
16 E. Providence	177		224
17 E. Providence	4	63 1/2	380
18 E. Providence	5	66	380
19 E. Providence	2	64 1/2	421
20 E. Providence	2	80 1/2	168
21 E. Providence	5	68 1/2	289
22 E. Providence	43	68	287
23 E. Providence	142	70 1/2	400
24 E. Providence	2	65 1/2	125
25 E. Providence	2	68	355
26 E. Providence	75	70	257
27 E. Providence	68	70	350
28 E. Providence	40	72	342
29 E. Providence	205	67	246
30 E. Providence	3	72	235
31 E. Providence	30	68 1/2	320
32 E. Providence	42	71	278
33 E. Providence	54	70	277
34 E. Providence	21	69	260
35 E. Providence	35	70	641
36 E. Providence	10	70	225
37 E. Providence	205	70	225
38 E. Providence			292
39 E. Providence	6	60 1/2	346
40 E. Providence	7	70 1/2	126
41 E. Providence	7	70	391
42 E. Providence	25	69	400
43 E. Providence	1	62 1/2	236
44 E. Providence	3	65 1/2	283
45 E. Providence			—
46 E. Providence	1	70 1/2	218
47 E. Providence	1	72 1/2	364
48 E. Providence	1	69 1/2	261
49 E. Providence	1	65 1/2	615
50 E. Providence	2	65 1/2	290
51 E. Providence	3	63	345
52 E. Providence	1	64 1/2	—
53 E. Providence			—
54 E. Providence			—
55 E. Providence			—
56 E. Providence			—
57 E. Providence			—
58 E. Providence			—
59 E. Providence			—
60 E. Providence			—
61 E. Providence			—
62 E. Providence			—
63 E. Providence			—
64 E. Providence			—
65 E. Providence			—
66 E. Providence			—
67 E. Providence			—
68 E. Providence			—
69 E. Providence			—
70 E. Providence			—
71 E. Providence			—
72 E. Providence			—
73 E. Providence			—
74 E. Providence			—
75 E. Providence			—
76 E. Providence			—
77 E. Providence			—
78 E. Providence			—
79 E. Providence			—
80 E. Providence			—
81 E. Providence			—
82 E. Providence			—
83 E. Providence			—
84 E. Providence			—
85 E. Providence			—
86 E. Providence			—
87 E. Providence			—
88 E. Providence			—
89 E. Providence			—
90 E. Providence			—
91 E. Providence			—
92 E. Providence			—
93 E. Providence			—
94 E. Providence			—
95 E. Providence			—
96 E. Providence			—
97 E. Providence			—
98 E. Providence			—
99 E. Providence			—
100 E. Providence			—

11. RETIREMENT FUND

The State retains the Municipal Employees' Retirement Fund. The Retirement Board provides us with financial reports as of June 30, 1988.

The fund receives all worker and employer contributions. The assets are invested by the State Investment Commission, with the investment earnings being added to the fund and available for retirement. During fiscal 1988, the investment earnings represented 11.2% of the average assets of the fund, or 4.7% more than the long-term interest assumption of 7.5%. The corresponding investment yield during fiscal 1987 was 11.0%.

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 files after retirement without having received payments from the fund equal to his total contributions.

Table 8 provides a summary of income and expenses for the year ended June 30, 1988.

As of June 30, 1988 assets included approximately \$65.4 million. Table 9 provides a distribution of the assets by category of investment. About 57% of the fund was invested in fixed income securities such as bonds and notes.

The financial statements indicate that 87% of the assets relate to general employees and 13% are for police and firemen. There is also a small unassigned reserve for unclaimed benefits. Table 10 shows the allocation of assets in detail.

1. Includes 1988-89 contributions by the State Police. 2. Includes 1988-89 contributions by the State Police and Fire. 3. Includes 1988-89 contributions by the State Police and Fire. 4. Includes 1988-89 contributions by the State Police and Fire. 5. Includes 1988-89 contributions by the State Police and Fire. 6. Includes 1988-89 contributions by the State Police and Fire. 7. Includes 1988-89 contributions by the State Police and Fire. 8. Includes 1988-89 contributions by the State Police and Fire. 9. Includes 1988-89 contributions by the State Police and Fire. 10. Includes 1988-89 contributions by the State Police and Fire. 11. Includes 1988-89 contributions by the State Police and Fire. 12. Includes 1988-89 contributions by the State Police and Fire. 13. Includes 1988-89 contributions by the State Police and Fire. 14. Includes 1988-89 contributions by the State Police and Fire. 15. Includes 1988-89 contributions by the State Police and Fire. 16. Includes 1988-89 contributions by the State Police and Fire. 17. Includes 1988-89 contributions by the State Police and Fire. 18. Includes 1988-89 contributions by the State Police and Fire. 19. Includes 1988-89 contributions by the State Police and Fire. 20. Includes 1988-89 contributions by the State Police and Fire. 21. Includes 1988-89 contributions by the State Police and Fire. 22. Includes 1988-89 contributions by the State Police and Fire. 23. Includes 1988-89 contributions by the State Police and Fire. 24. Includes 1988-89 contributions by the State Police and Fire. 25. Includes 1988-89 contributions by the State Police and Fire. 26. Includes 1988-89 contributions by the State Police and Fire. 27. Includes 1988-89 contributions by the State Police and Fire. 28. Includes 1988-89 contributions by the State Police and Fire. 29. Includes 1988-89 contributions by the State Police and Fire. 30. Includes 1988-89 contributions by the State Police and Fire. 31. 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Includes 1988-89 contributions by the State Police and Fire. 62. Includes 1988-89 contributions by the State Police and Fire. 63. Includes 1988-89 contributions by the State Police and Fire. 64. Includes 1988-89 contributions by the State Police and Fire. 65. Includes 1988-89 contributions by the State Police and Fire. 66. Includes 1988-89 contributions by the State Police and Fire. 67. Includes 1988-89 contributions by the State Police and Fire. 68. Includes 1988-89 contributions by the State Police and Fire. 69. Includes 1988-89 contributions by the State Police and Fire. 70. Includes 1988-89 contributions by the State Police and Fire. 71. Includes 1988-89 contributions by the State Police and Fire. 72. Includes 1988-89 contributions by the State Police and Fire. 73. Includes 1988-89 contributions by the State Police and Fire. 74. Includes 1988-89 contributions by the State Police and Fire. 75. Includes 1988-89 contributions by the State Police and Fire. 76. 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MEMORANDUM FOR THE BOARD OF SUPERVISORS
 RE: RISK MANAGEMENT - 1998

PROPERTY DAMAGE	1,100,000	
LIABILITY	1,100,000	
GENERAL LIABILITY	1,100,000	
COMMERCE	1,100,000	
WORKERS COMPENSATION	1,100,000	
UNEMPLOYMENT COMPENSATION	1,100,000	
DISABILITY	1,100,000	
HEALTH CARE	1,100,000	
ACCIDENT AND SICKLEAVE	1,100,000	
RETIREMENT	1,100,000	
INVESTMENT	1,100,000	
TOTAL	11,000,000	

PROPERTY DAMAGE	1,100,000	
LIABILITY	1,100,000	
GENERAL LIABILITY	1,100,000	
COMMERCE	1,100,000	
WORKERS COMPENSATION	1,100,000	
UNEMPLOYMENT COMPENSATION	1,100,000	
DISABILITY	1,100,000	
HEALTH CARE	1,100,000	
ACCIDENT AND SICKLEAVE	1,100,000	
RETIREMENT	1,100,000	
INVESTMENT	1,100,000	
TOTAL	11,000,000	

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

RHODE ISLAND MUNICIPALERS

Table 10
Allocation of Assets by Plan
as of June 30, 1988

General Employees:		
Retirement reserves	\$149,824,731	
Employer reserves	(5,510,693)	
Member reserves	<u>28,099,246</u>	
Total General Employees Reserves		\$172,413,284
Police and Fire:		
Retirement reserves	\$ 18,828,071	
Employer reserves	607,590	
Member reserves	<u>3,912,942</u>	
Total Police and Fire Reserves		23,348,603
Unallocated:		
Unclaimed benefit reserve		<u>38,615</u>
Total Assets		<u>\$195,800,501</u>

RHODE ISLAND MUNICIPAL ERS

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

V. ACTUARIAL ASSUMPTIONS AND COST METHODS

The actual cost of a pension plan consists of the benefit payments and operating 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 obligations. 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, 1987 actuarial valuation.

Mortality Rates

We assumed that mortality rates would conform with 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 11 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 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 would be a high percent of his pay when he or she is young and a lower percent of his or her 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, longevity and promotions. The scale has relatively greater increases at the younger ages to correspond with salary schedules. Salary scale factors at sample ages are:

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

The salary scale includes a component which has a parallel in the question of choosing an assumption as to future investment yield and the two are therefore interrelated. Both assumptions include an allowance for the level of inflation in future years.

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 substantial reserve which is earning an investment yield), a yield of 8 percent - in contrast to a 7 percent yield - will reduce annual costs by 12% or more.

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 30 and 40 years from now.

We applied a long-term investment return assumption of 7 1/2% in the actuarial cost calculations. This assumption takes account of probable moderate long-term inflation of approximately 4% per year.

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 in advance the release of municipal 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 except retirement would be as follows:

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

15% of the above disability rates are assumed accidental.

Age	Optional Police and Fire Rate (%)			Total*
	Death*	Disability	Withdrawal	
		.12	--	.17
20	.05	.17	--	.23
25	.06	.22	--	.30
30	.08	.29	--	.41
35	.11	.44	--	.60
40	.16	.72	--	1.01
45	.29	1.21	--	1.74
50	.53	--	--	.85
55	.85	--	--	

50% of the above disability rates are assumed accidental.

*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 as early as age 58 for general employees and age 55 for police and firemen. Long service employees may get unreduced benefits at even younger ages. We have assumed general employees will retire at age 65, or completion of 10 years of service if later. Police and firemen retirements are assumed to occur when an officer is both age 60 and has 10 years of service. In police and fire departments that have elected the optional plan paying unreduced benefits after 20 years of service, retirements are assumed to occur at the later of age 57 and completion of 10 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.

Cost Method

We have used the "entry age normal cost method of funding." 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. The normal cost can be visualized as the cost of benefits earned during the current year.

The 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.

The unfunded actuarial liability equals the amount by which the actuarial liability exceeds the assets. This amount, for each municipality, is funded over the years remaining on their original or revised amortization period (generally, the original amortization period was 25 years).

Recently we have seen more year-to-year fluctuations in the contribution rates of certain municipalities. As a result, municipalities with a significant increase in their contribution rate from one year to the next (generally 2% or more) may elect a "smoothed contribution rate" as described in Section I. These vacillations are usually attributable to decreases in the amortization periods over which actuarial gains and losses (including data corrections) are funded. When this funding period becomes very short, even relatively minor losses cause a significant increase in the cost of a municipality's retirement program. We therefore recommend a modification to the method for funding each municipality's unfunded actuarial accrued liability.

The proposed modification generally has no impact until the June 30, 1989 valuation (the results of which form the basis for actual contributions during the 1991-92 fiscal year.). It does not affect the existing

undfunded actuarial account liability of the number of years over which the liability is funded--this schedule remains intact. Only future changes in the undfunded liability and the payments on them are affected. Specifically, any increases or decreases in the undfunded liability, whether due to any increases or decreases in the required benefit improvements, will be actuarial gains/losses or to legalised benefit improvements, will be funded over the projected working lifetime of active members and included in part of the normal cost. If the average projected working lifetime of active members is less than five years, however, such undfunded liability will be funded over five years. New municipalities entering the system would continue to have a 25-year funding period applied with respect to their initial undfunded liability. While generally applicable with respect to the June 30, 1988 valuation, it is recommended that the method be applied to the June 30, 1988 valuation for any municipality which has both a funding period of less than five years and a calculated net service contribution rate that is more than double the 1987 calculated rate (that is, where the effect of a short amortization period and actuarial losses would cause a significant increase in the contribution rate).

To summarize, the principal effect of the recommended changes is that future changes in accrued liability due to actuarial gains/losses and benefit improvements will be funded over the working lives of active employees rather than over a fixed funding schedule. Please note that amortization over the future working lifetime of active members is a commonly applied actuarial funding approach and is the same method that the State and Teachers' Systems use to fund actuarial gains/losses.

Overall Actuarial Basis

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

Working Note

It was necessary to make certain "non-actuarial" assumptions where data was lacking or inconclusive. In all cases, an assumed best substantiated fact the same characteristics as other participants, taking into account the known characteristics (e.g., male members age 20 with unknown service were assumed to have the same service distribution as male members age 20 with known service).

Significant efforts are being made by the Retirement Office to improve the quality of data received from the municipalities.

Table 11

Reported Number of Years of Life Remaining at Specified Ages

Age	Male	Female
25	28.7	28.0
30	21.9	21.1
35	17.1	16.2
40	12.3	11.5
45	8.5	7.7
50	5.7	5.0
55	3.9	3.2
60	2.9	2.4
65	2.1	1.7
70	1.5	1.2
75	1.0	0.8
80	0.7	0.5
85	0.5	0.4
90	0.3	0.2
95	0.2	0.1

1971 Group-Kindly Mortality Tables

U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

Table 12

General Employees

The costs for general employees as of June 30, 1988 developed as follows:

Item	Amount	% of Payroll
(1) Participating payroll	\$18,798,888	--
(2) Employer normal cost	3,346,966	6.2%
(3) Unfunded actuarial liability	16,733,166	--
(4) Amortization of unfunded actuarial liability	3,566,888	3.9
(5) Total normal cost if paid July 1, 1988 = (2) + (4)	6,913,854	8.2
(6) Total normal cost payable monthly = (5) plus 1/12 year interest	6,661,966	8.5

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

Police and Firemen

The costs for police and firemen as of June 30, 1988 developed as follows:

Item	Amount	% of Payroll
(1) Participating payroll	\$9,141,866	--
(2) Employer normal cost	623,866	6.8%
(3) Unfunded actuarial liability	697,166	--
(4) Amortization of unfunded actuarial liability	177,266	1.9
(5) Total normal cost if paid July 1, 1988 = (2) + (4)	801,132	8.7
(6) Total normal cost payable monthly = (5) plus 1/12 year interest	776,566	8.5

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

The actuarial cost method develops costs that assume the employer contributions will be paid into the retirement funds at the beginning of the year, and begin earning interest from that time. In fact, the money is deposited monthly. Thus, about half a year's interest is lost, and the contributions should be increased to reflect this loss. These adjustments are incorporated in line 6 of the above charts.

Comments on Results

The costs reported on the preceding page are for the System as a whole. The principal cost factors for each municipality are shown in Table 12. (The total of the unfunded actuarial liabilities shown in Table 12 exceeds the total shown on the preceding page because some municipalities have assets in excess of their actuarial liabilities -- that is, they are "overfunded." Table 12 shows zero balances for these municipalities, but for the System as a whole the overfunding of these municipalities reduces the unfunded actuarial liability.)

The amortization shown on line 4 is the total of the amortization requirements for the individual municipalities over a period of 25 years from the date the municipality joined the System. The earliest membership date is 1957; those original groups have completed their amortization schedules. Other groups have more years left. Some of the amortization periods were lengthened several years ago to spread the effects of actuarial losses over a longer period.

Looking at the total cost figures compared to the previous year, beginning of year costs increased marginally by 0.1 percent of payroll (from 8.1 percent to 8.2 percent) for general employees. The normal cost percentage increased from 4.2 percent to 4.3 percent and the amortization payment decreased from 4.0 percent to 3.9 percent. (Detail figures do not add because of rounding.)

For police and firemen, beginning of year costs decreased by 0.2 percent of payroll (from 8.4 percent to 8.2 percent). The normal cost

percentage increased from 6.6 percent to 6.8 percent and there was a decrease in the amortization payment when expressed as a percent of payroll from 1.8 percent to 1.3 percent. (Again detail figures do not add because of rounding.)

Table 13 shows the recommended rates for each participating municipality. These rates are to be effective for the year beginning July 1, 1990. The total rates are separated into normal cost and unfunded liability amortization components. For comparison, the recommended total rates for the years beginning July 1, 1989 and 1988 are also shown. In addition, the remaining amortization periods for each municipality are presented. One new group joined the System this year, Gloucester Police.

From Table 13 it can be noted that a few municipalities experienced increases in the calculated contribution rate. Such increases were caused by a number of factors - salary increases greater than expected; changes in participant data; retirements at ages younger than assumed; other actuarial losses. As noted earlier in this report, the effect of these factors can be especially significant if the amortization period for funding the unfunded liabilities is short. The Retirement Board adopted a procedure which allows a municipality to smooth the effect of a significant increase in contribution rates.

The optional "smoothed contribution rate" is equal to the prior year's contribution rate plus two percentage points plus the cost of any benefit improvement adopted during the year. East Providence chose this option for the 1989-1990 fiscal year based on the results of the June 30, 1987 actuarial valuation and is eligible for this option for the 1990-1991 fiscal year based on the results of this year's valuation. Coventry Housing experienced a large increase in the calculated contribution rate from the June 30, 1987 actuarial valuation to the June 30, 1988 valuation and is therefore eligible to adopt a smoothed contribution rate for the 1990-1991 fiscal year (See Table 13.).

As reviewed in detail in Section V, we recommend an additional smoothing approach which is built into the calculated rate percent for a municipality. Under this approach, future changes in a municipality's unfunded liability due to actuarial gains or losses or due to benefit improvements are funded over the future working lifetime of active employees. This is the method utilized with respect to the State and Teachers' System to reflect actuarial gains/losses. This approach is generally effective with the 1989 valuation but can apply in this 1988 valuation if a municipality has both a very short amortization period and a significant net actuarial loss during the fiscal 1988 year.

G.A.S.B. Disclosure Information

For plan years beginning after December 15, 1986, the Retirement System 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 "value of vested benefits" because future salary increases are taken into account, non-vested benefits are included and because of the proration of benefits uniformly over an employee's total projected service.

For the entire Retirement System, the pension benefit obligation as of June 30, 1988 has been determined to be \$196,232,300. Approximately 58% of this amount is attributable to benefits on behalf of active employees with the balance (42%) attributable to the benefits of pensioners and terminated employees not yet receiving benefits. Exhibit II of the attached actuarial valuation certificate provides additional detail regarding this disclosure amount. Table 14 provides a breakdown of the pension benefit obligation by each participating municipality.

Overall Status of System

As Table 13 shows, the costs for the majority of the municipalities are lower than those reported last year. This is mainly attributable to the favorable investment returns. In addition, other actuarial gains and losses have an effect. An example will explain the situation. In a large system, if some participants retire earlier than assumed due to disability, for example, the impact on the total system is generally not significant. However, the impact on the costs of a small system (such as a municipality) can be quite dramatic if the retiree is one of its few members. As a whole, the assumptions we employ are reasonable for the whole system, but for any one system at any one time, the assumptions and the actual experience may differ significantly. When this happens, the individual system's liabilities will be substantially affected resulting in yearly fluctuations. We recommend the continuation of the practice of annual valuations and look forward to working with the Retirement Board in this effort.

TABLE 11
 RECOMMENDED COMPENSATION OF OFFICERS OF THE CORPORATION
 as of December 31, 1988

Officer	Age	Salary	Estimated Bonus	Total Compensation
1. E. G. Gammage, Jr.	58	\$100,000	\$10,000	\$110,000
2. J. H. Gammage	58	75,000	7,500	82,500
3. J. H. Gammage	58	75,000	7,500	82,500
4. J. H. Gammage	58	75,000	7,500	82,500
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87. J. H. Gammage	58	75,000	7,500	82,500
88. J. H. Gammage	58	75,000	7,500	82,500

*Based on 1988 Plan 3
 **Based on "75-year service pension" system, plan
 1988-1989 APPROVED, 1988

Table 13
 Rhode Island Municipal Employees' Retirement System
 Recommended Compensation Rates

Year	Normal	ABNORMAL	Municipality
1981	100%	100%	01 Barrington
1982	100%	100%	02 Barrington
1983	100%	100%	03 Northville
1984	100%	100%	07 Cranston
1985	100%	100%	08 Cumberland
1986	100%	100%	09 Providence
1987	100%	100%	10 Providence (Alternative)
1988	100%	100%	11 School District
1989	100%	100%	12 School District
1990	100%	100%	13 Cranston
1991	100%	100%	14 Cranston
1992	100%	100%	15 Cranston
1993	100%	100%	16 Cranston
1994	100%	100%	17 Cranston
1995	100%	100%	18 Cranston
1996	100%	100%	19 Cranston
1997	100%	100%	20 Cranston
1998	100%	100%	21 Cranston
1999	100%	100%	22 Cranston
2000	100%	100%	23 Cranston
2001	100%	100%	24 Cranston
2002	100%	100%	25 Cranston
2003	100%	100%	26 Cranston
2004	100%	100%	27 Cranston
2005	100%	100%	28 Cranston
2006	100%	100%	29 Cranston
2007	100%	100%	30 Cranston
2008	100%	100%	31 Cranston
2009	100%	100%	32 Cranston
2010	100%	100%	33 Cranston
2011	100%	100%	34 Cranston
2012	100%	100%	35 Cranston
2013	100%	100%	36 Cranston
2014	100%	100%	37 Cranston
2015	100%	100%	38 Cranston
2016	100%	100%	39 Cranston
2017	100%	100%	40 Cranston
2018	100%	100%	41 Cranston
2019	100%	100%	42 Cranston
2020	100%	100%	43 Cranston
2021	100%	100%	44 Cranston
2022	100%	100%	45 Cranston
2023	100%	100%	46 Cranston
2024	100%	100%	47 Cranston
2025	100%	100%	48 Cranston
2026	100%	100%	49 Cranston
2027	100%	100%	50 Cranston
2028	100%	100%	51 Cranston
2029	100%	100%	52 Cranston
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2031	100%	100%	54 Cranston
2032	100%	100%	55 Cranston
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2039	100%	100%	62 Cranston
2040	100%	100%	63 Cranston
2041	100%	100%	64 Cranston
2042	100%	100%	65 Cranston
2043	100%	100%	66 Cranston
2044	100%	100%	67 Cranston
2045	100%	100%	68 Cranston
2046	100%	100%	69 Cranston
2047	100%	100%	70 Cranston
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2061	100%	100%	84 Cranston
2062	100%	100%	85 Cranston
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2066	100%	100%	89 Cranston
2067	100%	100%	90 Cranston
2068	100%	100%	91 Cranston
2069	100%	100%	92 Cranston
2070	100%	100%	93 Cranston
2071	100%	100%	94 Cranston
2072	100%	100%	95 Cranston
2073	100%	100%	96 Cranston
2074	100%	100%	97 Cranston
2075	100%	100%	98 Cranston
2076	100%	100%	99 Cranston
2077	100%	100%	100 Cranston

Table 13 (continued)

Rhode Island Municipal Employees' Retirement System
Recommended Contribution Rates

Municipality	YEAR BEGINNING JULY 1, 1990				TOTAL RATE YEAR BEGINNING JULY 1,	
	Amortization Period	Normal Cost	Past Service	Total Rate	1989	1988
General Employees (continued)						
32 S. Kingstown	--	3.86%	--%	3.86%	3.95%	3.39%
33 Tiverton	1	5.09	--	5.09	11.18	9.92
34 Warren	--	4.62	--	4.62	8.57	4.36
36 Westerly	14	4.89	42.84	47.73	48.13	31.52
39 Woonsocket	--	4.36	--	4.36	4.62	3.83
40 Charlho Reg. Sch. Dist.	18	4.90	3.90	8.80	8.35	9.43
41 Foster-Glocester	22	4.57	11.85	16.42	14.74	14.46
51 Cranston Housing	5	3.54	--	3.54	3.92	3.46
52 E. Providence Housing	5	5.83	--	5.83	6.18	4.91
53 Pawtucket Housing	5	3.83	--	3.83	4.35	3.66
56 Cumberland Housing	13	4.83	1.17	6.00	5.30	4.79
57 Lincoln Housing	6	6.13	5.18	11.31	12.04	5.15
59 Bristol Housing	7	5.37	--	5.37	7.74	4.70
65 Burrillville Housing	14	4.22	--	4.22	3.75	3.15
66 N. Providence Housing	14	4.45	--	4.45	4.40	3.87
67 E. Smithfield Water	18	7.18	3.42	10.60	10.89	10.48
68 Greenville Water	14	3.59	0.91	4.50	4.62	4.02
71 Warren Housing	12	5.35	--	5.35	5.37	3.49
72 Johnston Housing	14	5.44	1.67	7.11	7.59	5.74
79 Coventry Housing	14	6.05	9.03	15.08	5.94	5.18
Coventry Hsg. (alternative)*				7.94	--	--
83 W. Warwick Housing	18	3.93	6.21	10.14	10.56	15.70
84 Smithfield Housing	18	5.03	4.40	9.43	10.52	12.63

(continued...)

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Table 13 (continued)

Rhode Island Municipal Employees' Retirement System
Recommended Contribution Rates

Municipality	YEAR BEGINNING JULY 1, 1990				TOTAL RATE YEAR BEGINNING JULY 1,	
	Amortization Period	Normal Cost	Past Service	Total Rate	1989	1988
Police and Fire						
50 E. Greenwich Fire	14	10.83%	0.15%	10.98%	12.48%	8.43%
54 E. Greenwich Police	14	6.89	--	6.89	7.05	6.83
55 N. Kingstown Fire	10	6.51	0.45	6.96	7.53	7.35
58 N. Providence Fire	6	6.92	2.37	9.29	11.68	12.21
60 Barrington P & F	14	6.38	0.10	6.48	8.74	10.71
62 Warren Police	17	9.69	14.17	23.86	25.92	16.25
63 S. Kingstown P & F	1	6.66	--	6.66	6.75	6.53
64 Primrose Volunteer Fire	9	7.18	--	7.18	7.01	6.55
76 N. Smithfield Police	14	6.69	--	6.69	7.04	7.07
77 Tiverton Fire	14	7.87	1.54	9.41	10.49	10.86
82 Foster Police	18	7.17	--	7.17	8.59	8.38
85 Woonsocket Police	19	6.36	--	6.36	6.34	6.32
86 Charlestown Police	23	6.61	3.95	10.56	11.05	12.68
87 Hopkinton Police	6	6.60	--	6.60	6.35	6.23
88 Glocester Police	24	8.11	2.41	10.52	8.62	--

* "Smoothed employer contribution rate."

RHODE ISLAND MUNICIPAL ERS

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Municipality	Participating currently terminated employees and per receiving benefits				Total Pension Benefit Obligation
	Accumulated employees contributions	Employer-financed vested	Employer-financed nonvested	Current Employees	
General Employees (Cont.)	\$ 88,400	\$ 47,200	\$ 34,200	\$ 61,900	\$ 231,700
29 Salaries	930,300	302,000	487,300	493,400	2,212,900
30 Retirement	1,620,800	622,900	960,800	747,500	3,932,000
32 O. Expenses	1,636,700	970,000	846,900	1,208,500	4,662,200
33 Unions	911,400	429,400	747,600	509,400	2,597,800
34 Welfare	989,300	431,900	884,900	476,800	2,782,900
36 Insurance	697,300	79,600	174,200	107,200	1,058,300
39 Unions	7,443,200	1,991,700	2,773,700	2,479,500	14,688,200
40 General Employees	199,100	67,500	106,900	81,900	451,400
41 Pension-Insurance	43,500	64,000	365,100	271,600	744,200
51 General Employees	230,600	62,800	100,500	71,900	465,800
52 O. Expenses	294,100	99,400	54,800	49,100	447,500
53 Insurance	1,160,300	218,200	288,400	148,300	1,815,300
56 Contractual Employees	79,200	61,000	107,800	57,800	305,900
57 Unions	128,300	45,100	103,000	39,200	315,500
59 Contractual Employees	—	50,000	53,600	85,000	188,600
60 Contractual Employees	—	15,000	3,100	21,300	39,500
65 Contractual Employees	22,000	29,100	8,700	30,700	90,500
66 O. Expenses	62,400	10,200	3,600	12,800	89,000
68 Contractual Employees	24,500	36,300	24,000	43,600	128,500

(Continued...)

Pension Benefit Obligation by Municipality

Table 14 (continued)

Municipality	Participating currently terminated employees and per receiving benefits				Total Pension Benefit Obligation
	Accumulated employees contributions	Employer-financed vested	Employer-financed nonvested	Current Employees	
General Employees	\$ 1,029,800	\$ 532,000	\$ 2,200,200	\$ 1,070,800	\$ 4,832,700
11 Salaries	1,771,500	776,500	844,800	934,700	4,327,300
12 Retirement	1,527,900	500,700	680,000	558,500	3,566,900
17 Unions	13,124,200	4,250,700	5,988,700	5,337,700	29,700,700
18 O. Expenses	616,000	247,700	1,327,000	795,800	2,986,500
19 Welfare	1,411,200	637,900	904,600	686,800	3,640,400
20 Unions	9,502,300	3,032,000	4,863,600	4,124,500	22,522,500
21 General Employees	111,000	77,000	186,200	129,000	567,200
22 Pension	241,800	89,000	131,500	129,600	591,900
23 Unions	90,200	37,200	102,600	131,700	381,700
24 Unions	62,500	119,800	147,500	157,100	500,800
26 Unions	508,200	191,600	182,900	196,300	1,179,000
27 Unions	2,001,100	1,127,700	2,504,000	1,441,300	7,328,100
28 Unions	6,071,300	2,196,700	2,471,900	2,362,700	13,092,600
29 Unions	47,100	73,100	127,500	111,900	359,700
30 Unions	3,178,200	1,028,400	1,029,300	1,213,400	6,447,300
31 Unions	1,297,900	1,059,700	1,707,100	1,104,700	5,769,500
32 O. Expenses	1,199,700	381,500	521,900	521,000	2,624,100
35 Unions	11,372,800	4,372,300	6,825,000	3,008,500	25,578,700

(Continued...)

Pension Benefit Obligation by Municipality

Table 14

Table 14 (continued)

Pension Benefit Obligation by Municipality

Municipality	Participants currently receiving benefits and terminated employees not yet receiving benefits	Current Employees			Total Pension Benefit Obligation
		Accumulated employee contributions	Employer-financed vested	Employer-financed unvested	
<u>General Employees (Cont.)</u>					
71 Warren Housing	\$ 17,600	\$ 24,900	\$ 25,200	\$ 37,900	\$ 105,800
72 Johnston Housing	153,200	17,500	34,100	8,800	213,100
79 Coventry Housing	153,600	18,400	38,100	27,800	237,900
83 W. Warwick Housing	114,600	30,800	22,400	28,800	196,600
84 Smithfield Housing	—	9,000	59,400	9,700	78,100
<u>Police and Fire</u>					
50 E. Greenwich Fire	613,800	176,900	276,700	212,800	1,280,200
54 E. Greenwich Police	525,500	304,600	505,200	403,400	1,738,700
55 N. Kingstown Fire	1,643,500	823,800	926,800	1,347,000	4,741,100
58 N. Providence Fire	221,000	389,300	636,200	595,000	1,841,500
60 Barrington P & F	2,128,900	773,300	928,700	1,109,400	4,940,300
62 Warren Police	736,100	244,700	196,400	434,000	1,611,200
63 S. Kingstown P & F	905,700	485,900	482,800	796,800	2,670,200
64 Primrose Volunteer Fire	38,200	31,700	23,100	54,100	147,100
76 N. Smithfield Police	68,900	150,300	194,200	210,800	623,200
77 Tiverton Fire	359,400	245,300	360,500	319,600	1,284,800
82 Foster Police	—	51,100	25,800	93,400	170,300
85 Woonsocket Police	5,100	179,300	83,300	180,200	442,900
86 Charlestown Police	—	26,800	43,000	148,900	228,700
87 Hopkinton Police	—	37,500	20,400	41,600	109,500
88 Gloucester Police	—	14,200	46,900	28,400	89,500

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

RHODE ISLAND MUNICIPAL EMPLOYERS

MARTIN E. SEGAL COMPANY
CORPORATE AND RETIREMENT

100 WASHINGTON STREET
SUITE 2000
NEW YORK, N.Y. 10036
TEL: (212) 850-8000

June 11, 1999


MUNICIPAL EMPLOYERS' 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, 1998.

This certificate contains the following attached exhibits:

- EXHIBIT I - Actuarial Cost Factors as of July 1, 1998
 - A. General employees
 - B. Police and firemen
- 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 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: 
James R. Laws, F.S.A., M.A.A.A.
Senior Vice President and Actuary

/s/ hva
D33

EXHIBIT 1
ACTUARIAL COST FACTORS AS OF JULY 1, 1988

A. GENERAL EMPLOYEES

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

- a. 4,563 active participants (including 1,935 fully vested) with total annual salaries of \$78,238,600
- b. 655 inactive participants
- c. 1,940 pensioners (including 63 beneficiaries of deceased pensioners and active employees)

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

1. Total normal cost	\$ 8,235,100
2. Projected employee contributions	4,888,200
3. Employer normal cost	3,346,900
4. Actuarial liability - total	188,523,600
Active employees	\$113,104,500
Inactive employees	2,405,400
Pensioners (including beneficiaries of deceased pensioners and active employees)	73,013,700
5. Assets	172,489,900
6. Unfunded actuarial liability	16,033,700
Liability for accrued vested benefits:	\$142,632,800

- Notes:
- (a) Included are 160 active employees unknown as to age, service, or both.
 - (b) The liability included for inactive employees is the sum of (i) accumulated contributions for those with less than 10 years of service and (ii) two times accumulated contributions for those with 10 or more years of service.
 - (c) The liability for accrued vested benefits is based on the same retirement age assumptions as are costs, following the procedure required by Statement No. 5 of the Governmental Accounting Standards Board.
 - (d) Detail figures may not add to totals shown because of rounding.

EXHIBIT 1
ACTUARIAL COST FACTORS AS OF JULY 1, 1988

B. POLICE AND FIREMEN

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

- a. 370 active participants (including 164 fully vested) with total annual salaries of \$9,147,800
- b. 12 inactive participants
- c. 96 pensioners (including 21 beneficiaries of deceased pensioners and active employees)

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

1. Total normal cost	\$ 1,273,400
2. Projected employee contributions	649,600
3. Employer normal cost	623,800
4. Actuarial liability - total	23,769,500
Active employees	\$16,523,400
Inactive employees	60,000
Pensioners (including beneficiaries of deceased pensioners and active employees)	7,186,000
5. Assets	23,272,400
6. Unfunded actuarial liability	497,100
Liability for accrued vested benefits:	\$16,376,400

- Notes:
- (a) Included are 22 active employees unknown as to age, service, or both.
 - (b) The liability included for inactive employees is the sum of (i) accumulated contributions for those with less than 10 years of service and (ii) two times accumulated contributions for those with 10 or more years of service.
 - (c) The liability for accrued vested benefits is based on the same retirement age assumptions as are costs, following the procedure required by Statement No. 5 of the Governmental Accounting Standards Board.
 - (d) Detail figures may not add to totals shown because of rounding.

EXHIBIT I

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, 1988.

	General Employees	Police and Firemen	Total
1) Participants currently receiving benefits and terminated employees not yet receiving benefits	\$ 75,418,100	\$ 7,246,100	\$ 82,664,200
2) Current employees			
Accumulated employee contributions	27,059,600	3,934,700	30,994,300
Employer-financed vested	40,154,100	5,195,700	45,349,800
Employer-financed nonvested	31,183,400	6,039,600	37,223,000
3) Total pension benefit obligation	\$ 173,816,200	\$ 19,415,400	\$ 193,231,600

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

EXHIBIT II

ACTUARIAL ASSUMPTIONS AND RISK ADJUST

Mortality Table - Male and Female 90% Longevity Mortality Table
 Disability Mortality Table age 15 - age 64 mortality and replacement table
 Termination rates before retirement

AGE	Death	Disability	Termination	Total
20	.05	.06	-.20	-.11
25	.06	.07	-.20	-.11
30	.07	.08	-.20	-.11
35	.08	.09	-.20	-.11
40	.09	.10	-.20	-.11
45	.10	.11	-.20	-.11
50	.11	.12	-.20	-.11
55	.12	.13	-.20	-.11
60	.13	.14	-.20	-.11

5% of the above disability rates are assumed accidental.

AGE	Death	Disability	Termination	Total
21	.05	.06	-.20	-.11
22	.06	.07	-.20	-.11
23	.07	.08	-.20	-.11
24	.08	.09	-.20	-.11
25	.09	.10	-.20	-.11
26	.10	.11	-.20	-.11
27	.11	.12	-.20	-.11
28	.12	.13	-.20	-.11
29	.13	.14	-.20	-.11
30	.14	.15	-.20	-.11

5% of the above disability rates are assumed accidental.

Values shown are net rates for males and females combined.

Note: Values rates are not add to totals shown because of rounding.

Salary scale:

Age	Future salary as a percent of salary at 65	Annual increase (Rate %)
		3.83
57	11.40	3.77
58	13.00	3.61
59	14.70	3.44
60	16.41	3.00
61	18.22	3.73
62	20.08	4.43
63	21.93	4.34
64	23.82	4.17

Includes allowance for inflation of 4% per year.

Unknown characteristics of employees: Same as those exhibited by employees with known characteristics.

Retirement age -- General Employees: 65, or completion of service requirement, if later;

Optional Police and Firemen: 60, or completion of service requirement, if later;

Police and Firemen electing 20 year service plan: 57, or completion of service requirement, if later.

Percent married -- Social Security awards during 1972

Net investment return -- 7 1/2%

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

Actuarial cost method -- Entry age normal cost

EXHIBIT IV

SUMMARY OF PLAN PROVISIONS

Service pension

	General Employees		Police and Firemen		
					(Optional)
Age requirement:	30	None	32	None	None
Service requirement:	10 yrs.	30 yrs.	10 yrs.	23 yrs.	20 yrs.

Amount: 2% (2-1/2% for the 20-year service plan for police and firemen) of final average salary per year of service to a maximum of 25%. Final average salary is defined as the average compensation earned during the highest 3 consecutive years prior to termination. For police and firemen, mandatory retirement is at age 65.

Early Retirement (Police and Firemen only)

Age requirement: 50

Service requirement: 20 years

Amount: Regular pension accrued, reduced by 6% for each year of age less than 55.

Disability

Ordinary:

Age requirement: None

Service requirement: 5 years

Amount: Regular pension accrued but calculated as if participant has at least 10 years of service, payable immediately.

Accidental:

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 58 for general and at age 55 for police and firemen.

Pre-retirement death benefits

Ordinary death benefits:

Lump sum benefit:

- Age requirement: None
- Service requirement: None
- Amount: (a) \$800 per year of service to a maximum of \$16,000 and with a minimum of \$4,000.
- (b) Refund of employee contributions

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

- Age requirement: None
- Service requirement: 10 years
- Amount: Benefit employee would have received had he retired the day before he died and elected the 100% joint and survivor option.

Police and firemen's survivor's benefit:

- Age requirement: None
- Service requirement: None
- Amount: 30% of final average salary to the spouse plus 10% to each child under age 18.

Accidental death benefit:

Age requirement: None

Service requirement: None

- Amount: (a) 50% of salary to spouse or children under age 18, less workmen's compensation. Police and firemen also receive 10% for each child under 18 to a maximum of 66 2/3%.
- (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 \$4,000.

Police and firemen's survivor's benefit:

Same as pre-retirement

Employee contribution rate:

4% for general employees, 7% for police and firemen, until 75% benefit is accrued. Increased to 7% for general employees and 8% for police and firemen if municipal group elects post-retirement cost-of-living increase. Increased an additional 1% for police and firemen if municipal group elects the 20 year service plan.

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 the original amount, not compounded, to pensioners and beneficiaries if municipal group elects this optional provision.