

*Report  
of the  
Actuary*

MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM  
OF THE STATE OF RHODE ISLAND

Valuation and Review as of  
June 30, 1986

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MARTIN E. SEGAL COMPANY

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May 8, 1987

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, 1986.

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, 1988.

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:

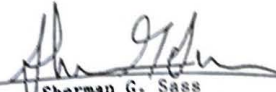
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Following the report, we have attached our actuarial certificate detailing the cost factors, assumptions, and plan of benefits used for the valuation.

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

Sincerely yours,

MARTIN E. SEGAL COMPANY, INCORPORATED

By:   
Sherman G. Sass  
Senior Vice President

By:   
James R. Laws, F.S.A., N.A.A.A.  
Vice President and Actuary

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## I. SUMMARY

### Benefit Provisions

The Municipal Employees' Retirement System of Rhode Island covers employees of the many municipalities, housing authorities, and water and sewer districts which have elected to participate. There is one plan for general employees and a second optional plan for police and firemen.\* General employees contribute 6 per cent of their annual earnings; those police and firemen under the optional program contribute 7 per cent. For groups that elect an optional cost-of-living provision, the employee contribution rate is increased by 1 per cent.

The System generally provides retirement benefits equal to 2% 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 30 years at any age. Police and firemen may retire at age 55 if they have 10 years of service or after 25 years of service at any age. 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; widow's benefits for service-connected death; and certain lump sum death benefits.

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

### Employee Data

We received data on 4,000 active general employees and 302 police and firemen as of June 30, 1986, who were participating in the System. The average salary was \$15,600 for general employees and \$22,600 for police and firemen. On average, the general employees were age 47 1/2 and had 10 years of service; police and firemen were age 37 1/2 with 11 years of service.

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

#### Retiree Data

We received data on 1,724 pensioners and 63 beneficiaries as of June 30, 1986. The pensioners' average monthly benefit was \$313. Of all the pensioners on the rolls, 8 per cent had retired in the year ended June 30, 1986.

#### Retirement Fund

As of June 30, 1986, the Fund had assets of approximately \$150.9 million available as an offset to the actuarial liabilities for future benefits.

#### Actuarial Valuation

The valuation was prepared as of June 30, 1986. 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 and methods are the same as applied in the last actuarial valuation (June 30, 1985) and are detailed in the attached Actuarial Certificate.

The employer normal cost\* for general employees is \$2.2 million. This is 3.6 per cent of the payroll of participating general employees. The employer normal cost for police and firemen is \$0.4 million or 6.6% of payroll.

For general employees, the actuarial liability\* (the accumulated cost of the benefits assigned to periods before July 1, 1986) is \$143.1 million of which \$54.1 million represents the liability to those already receiving pensions. The unfunded actuarial liability at the end of the year is \$9.6 million after accounting for assets of \$133.5 million. For police and firemen, the actuarial liability is \$17.9 million of which \$6.0 million is for those receiving pensions. The unfunded actuarial liability stands at \$0.6 million after accounting for police and fire assets of \$17.4 million.

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

The value of the System's vested benefits is approximately \$159.4 million. Thus the assets are short of this amount by \$8.5 million.

Based on the normal cost plus an amortization payment of each municipality's unfunded actuarial liability, the total annual employer cost as of June 30, 1986 adjusted for monthly payment is \$4.0 million (6.3% of covered payroll) for general employees and \$0.6 million (9.0% of covered payroll) for police and firemen. These amounts are in addition to the required employee 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.

11. EMPLOYEE DATA

We received data on 4,000 general employees and 302 police and firemen participating in the System on June 30, 1986. The data included age, service, sex, and salary for each employee. The average salary of the participants was \$15,600 for general employees and \$22,600 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, 1986 and 1985 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, 1986. Table 2D shows the same information as of June 30, 1985 and is included for comparison purposes.

The data we received for this valuation in respect of some of the municipalities seemed inconsistent, and in some cases, more incomplete, when compared to that of the prior year. 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. The Retirement Board has made much progress in improving the quality of the data. We urge that the Board continue to stress the importance of good data to the municipalities.

Table 1A  
Number and Average Salaries of Employees in Active Service  
as of June 30, 1986 by Age and by Years of Service

GENERAL EMPLOYEES

Age	Total	Years of service								Unknown
		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30- 34	35 and over	
Total	4,000 \$15,600	1,145 \$13,900	1,001 \$15,900	808 \$16,000	581 \$15,700	183 \$19,100	78 \$19,300	29 \$21,700	7 \$16,200	168 \$17,300
Under 20	4 \$14,200	3 \$13,400	--	--	--	--	--	--	--	1 \$16,700
20 - 24	98 15,000	87 14,800	10 \$15,900	--	--	--	--	--	--	1 19,600
25 - 29	222 15,900	121 15,100	90 16,900	9 \$15,800	--	--	--	--	--	2 18,900
30 - 34	379 15,900	163 13,800	130 17,500	68 17,200	9 \$18,200	--	--	--	--	9 18,000
35 - 39	454 16,600	182 14,100	121 16,900	85 19,200	53 19,700	4 \$21,400	--	--	--	9 17,500
40 - 44	407 15,900	136 13,200	109 15,700	91 17,100	38 20,300	20 18,900	5 \$22,900	--	--	8 21,300
45 - 49	460 15,100	106 12,500	133 14,200	110 15,400	66 17,300	21 21,300	11 18,700	--	--	13 20,500
50 - 54	560 15,200	101 13,700	123 14,400	147 15,100	111 14,600	27 20,400	18 20,100	7 \$24,700	2 \$18,200	24 17,100
55 - 59	647 15,900	108 14,800	122 15,200	163 16,000	137 14,500	53 17,900	22 19,500	7 30,700	2 16,400	33 18,400
60 - 64	467 15,700	40 13,500	93 16,200	101 14,900	129 14,900	46 19,800	17 18,700	7 16,900	3 14,700	31 15,600
65 and over	112 15,200	4 10,800	18 16,200	22 14,100	32 14,400	11 15,000	5 15,300	8 15,300	--	12 19,800
Unknown	190 14,000	94 13,500	52 16,900	12 11,600	6 5,200	1 300	--	--	--	25 13,400

Table 1B

Number and Average Salaries of Employees in Active Service as of June 30, 1986 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	302 \$22,600	84 \$20,100	51 \$21,900	51 \$23,000	55 \$24,900	17 \$25,800	11 \$28,100	1 \$28,400	32 \$22,200
20 - 24	11 \$20,000	10 \$19,800	--	--	--	--	--	--	1 \$21,900
25 - 29	61 20,300	41 20,100	11 \$20,000	--	--	--	--	--	9 21,600
30 - 34	67 21,500	20 20,100	26 21,700	14 \$23,400	--	--	--	--	7 20,600
35 - 39	46 22,400	5 19,000	6 22,800	18 22,800	15 \$23,100	--	--	--	2 22,000
40 - 44	41 23,400	1 21,100	2 19,900	12 22,600	18 23,600	5 \$26,200	--	--	3 23,200
45 - 49	31 27,800	--	2 33,300	4 22,600	14 30,000	6 28,200	1 \$21,800	--	4 22,900
50 - 54	17 25,000	--	1 25,000	1 30,500	5 21,600	3 23,700	4 28,400	1 \$28,400	2 24,500
55 - 59	15 25,300	--	--	2 21,400	3 22,700	2 22,000	6 29,000	--	2 25,300
60 - 64	4 23,700	1 25,700	--	--	--	1 23,800	--	--	2 22,600
Unknown	9 20,400	6 19,500	3 22,300	--	--	--	--	--	--

RHODE ISLAND MUNICIPAL ERS

Table 2A  
Statistical Data on Active Employees  
on June 30, 1986 and 1985

GENERAL EMPLOYEES

	June 30, 1986	June 30, 1985
Number of covered employees	4,000	3,003
Total annual salary	\$62,366,300	\$58,078,900
Average annual salary	\$15,600	\$19,000
Average age	47 1/2	47
Average years of service	10	10
Number eligible for service retirement	549	571
Number vested but not eligible to retire	1,137	1,087

RHODE ISLAND MUNICIPAL ERS

Table 23

Statistical Data on Active Employees  
on June 30, 1986 and 1985

## POLICE AND FIREMEN

	June 30, 1986	June 30, 1985
Number of covered employees	302	300
Total annual salary	\$6,832,400	\$6,328,900
Average annual salary	\$22,600	\$21,100
Average age	37 1/2	38
Average years of service	11	10 1/2
Number eligible for service retirement	23	31
Number vested but not eligible to retire	112	121

## RHODE ISLAND MUNICIPAL ERAS

Table 2C

Statistical Data on Active Employees on June 30, 1986  
by Municipality

Municipality	Number	Average age	Average service	Average salary
General Employees				
07 Barrington	134	47	10	\$15,800
02 Bristol	111	46	9	16,000
03 Burrillville	115	48	7 1/2	13,400
07 Cranston	558	48	11	13,900
08 Cumberland	87	52 1/2	10 1/2	13,400
09 E. Greenwich	119	46	9	14,200
10 E. Providence	327	47 1/2	11	17,600
11 Foxborough				
12 Foster	27	46 1/2	10	10,700
13 Foxboro	26	45 1/2	5 1/2	12,100
14 Hopkinton	14	47 1/2	7	7,800
15 Mansfield	27	43 1/2	7	12,300
16 Needham	35	41 1/2	8	16,200
21 Norwell	235	44	10 1/2	14,700
22 New Shoreham	21	44	10 1/2	12,400
23 N. Kingstown	172	46 1/2	8 1/2	16,500
24 N. Providence	138	45 1/2	8 1/2	15,500
25 N. Scituate	71	45 1/2	8 1/2	15,800
26 Pawtucket	523	47	10 1/2	17,200
28 Richmond	15	42 1/2	5 1/2	21,400
30 Scituate	34	51	10 1/2	12,800
31 Smithfield	106	45 1/2	7 1/2	15,700
32 S. Kingstown	187	45 1/2	8 1/2	15,500
33 Tiverton	71	45	8 1/2	14,700
34 Warren	60	45	10 1/2	14,400
36 Westerly	12	50	8 1/2	15,100
39 Woonsocket	228	50	11	15,100
40 Charlin Regional School District				
41 Foster-Cloveseter	25	45 1/2	5	13,100
51 Cranston Housing	30	48 1/2	5 1/2	11,900
52 E. Providence Housing	11	44	7 1/2	17,800
53 Pawtucket Housing	10	46 1/2	3	17,400
56 Cumberland Housing	28	48 1/2	8 1/2	21,800
57 Lincoln Housing	10	49	7 1/2	15,600
59 Bristol Housing	7	47	9	20,400
63 Barrillville Housing	5	52	10	15,600
65 Barrillville Housing	2	43	8	20,100
66 N. Providence Housing	5	44 1/2	6	15,400
67 E. Smithfield Water	2	50	2 1/2	24,900
68 Greenville Water	4	43 1/2	8	25,200
71 Warren Housing	4	39 1/2	6	18,100
72 Johnston Housing	4	51 1/2	8 1/2	15,300
79 Coventry Housing	4	51 1/2	10	15,300
83 W. Warwick Housing	5	43 1/2	6 1/2	15,000
84 Smithfield Housing	2	42 1/2	10 1/2	13,800
Police and Fire				
50 E. Greenwich Fire	12	42 1/2	10	25,200
54 E. Greenwich Police	24	37	10	24,900
55 N. Kingstown Fire	39	35	12	21,700
58 N. Providence Fire	31	37 1/2	11 1/2	22,100
60 Barrington P & F	56	38 1/2	13 1/2	23,900
62 Warren Police	18	40	11 1/2	22,200
63 S. Kingstown P & F	41	36 1/2	11 1/2	21,900
64 Primrose Volunteer Fire	6	31 1/2	5 1/2	17,400
75 N. Smithfield Police	11	38	9	18,900
77 Tiverton Fire	18	42	11 1/2	21,600
82 Foster Police	6	35 1/2	7 1/2	20,700
85 Woonsocket Police	20	29	4	20,200





The data on terminated employees with vested rights to a deferred benefit did not include enough information to allow a calculation of the total cost for them. We therefore continued the past practice of recognizing an accrued liability for these participants equal to their accumulated employee contributions. We continue to recommend that information regarding terminated vested employees be maintained by the System so that their liability can be determined more accurately in future valuations.

Table 3

Pensions Awarded in the Year Ended June 30, 1986  
by Type and by Monthly Amount

Monthly amount	Total	Type of pension			
		Service	Ordinary disability	Accidental disability	Beneficiary
Total	143	128	5	4	6
Under \$50	2	2	--	--	--
\$50 - 99	6	6	--	--	--
100 - 149	13	12	1	--	--
150 - 199	13	12	--	1	--
200 - 249	11	9	1	--	1
250 - 299	13	12	1	--	--
300 - 349	18	18	--	--	--
350 - 399	9	9	--	--	--
400 - 449	14	12	1	--	1
450 - 499	8	7	1	--	--
500 - 599	15	12	--	--	3
600 - 699	6	6	--	--	--
700 - 799	2	1	--	--	1
800 - 899	4	3	--	1	--
900 - 999	3	2	--	1	--
1,000 - 1,099	1	1	--	--	--
1,100 - 1,199	2	2	--	--	--
1,400 - 1,499	2	2	--	--	--
1,500 - 1,999	1	--	--	1	--

RHODE ISLAND MUNICIPAL ERS

Table 4  
Pensions Awarded in the Year Ended June 30, 1986  
by Type and by Age on Effective Date

Age on effective date	Total	Type of Pension			
		Service	Ordinary disability	Accidental disability	Beneficiary
Total	143	128	5	4	6
50	2	--	1	1	--
51	1	--	--	--	1
54	1	--	1	--	--
55	2	2	--	--	--
56	4	2	1	--	1
57	2	--	2	--	--
58	9	9	--	--	--
59	7	7	--	--	--
60	7	6	--	--	1
61	11	10	--	1	--
62	34	33	--	1	--
63	7	7	--	--	--
64	8	5	--	1	2
65	19	19	--	--	--
66	8	8	--	--	--
67	9	9	--	--	--
68	5	5	--	--	--
69	3	3	--	--	--
71	2	2	--	--	--
72	1	1	--	--	--
79	1	--	--	--	1

RHODE ISLAND MUNICIPAL ERS

Table 5  
Pensions in Payment Status on June 30, 1986  
by Type and by Monthly Amount

Monthly amount	Total	Type of pension			
		Service	Ordinary disability	Accidental disability	Beneficiary
Total	1,787	1,568	104	52	63
Under \$50	55	49	4	1	1
\$50 - 99	165	152	9	1	3
100 - 149	219	198	15	1	5
150 - 199	277	234	32	2	9
200 - 249	214	185	16	2	11
250 - 299	153	132	10	--	11
300 - 349	144	129	6	5	4
350 - 399	107	95	3	4	5
400 - 449	95	88	2	2	3
450 - 499	71	57	5	7	2
500 - 599	92	81	--	7	4
600 - 699	55	48	1	5	1
700 - 799	46	44	--	--	2
800 - 899	27	24	--	3	--
900 - 999	24	16	--	6	2
1,000 - 1,099	16	11	1	4	--
1,100 - 1,199	12	11	--	1	--
1,200 - 1,299	5	5	--	--	--
1,300 - 1,399	2	2	--	--	--
1,400 - 1,499	3	3	--	--	--
1,500 - 1,999	5	4	--	1	--

RHODE ISLAND MUNICIPAL ERS

Table 6  
Pensions in Payment Status on June 30, 1986  
by Type and by Age

Age on June 30, 1986	Total	Type of Pension			
		Service	Ordinary disability	Accidental disability	Beneficiary
Total	1,787	1,568	104	52	63
Under 30	1	--	--	--	1
30 - 34	4	--	1	4	2
35 - 39	4	--	4	2	2
40 - 44	8	--	7	9	1
45 - 49	19	2	12	6	7
50 - 54	32	7	25	7	4
55 - 59	79	43	21	11	13
60 - 64	325	280	17	5	9
65 - 69	507	476	10	3	11
70 - 74	403	379	4	1	9
75 - 79	232	218	2	3	3
80 - 84	121	113	1	--	1
85 - 89	39	37	--	--	--
90 - 94	12	12	--	--	--
95 - 99	1	1	--	--	--

RHODE ISLAND MUNICIPAL ERS

Table 7  
Pensioner and Beneficiary Statistical Data  
as of June 30, 1986 by Municipality

Municipality	Number	Average age	Average monthly benefit
<u>General Employees</u>			
01 Barrington	86	69 1/2	281
02 Bristol	50	69	306
03 Burrillville	24	66 1/2	385
07 Cranston	273	71 1/2	278
08 Cumberland	9	67 1/2	293
09 E. Greenwich	29	68	294
10 E. Providence	148	70 1/2	323
11 Exeter-W. Greenwich School District	2	58 1/2	201
12 Foster	3	62 1/2	461
13 Gloucester	--	--	--
14 Hopkinton	5	78 1/2	168
15 Jamestown	14	69	376
16 Johnston	50	67 1/2	258
21 Newport	136	69 1/2	371
22 New Shoreham	3	67 1/2	129
23 N. Kingstown	70	68	330
24 N. Providence	58	70	236
25 N. Smithfield	34	68 1/2	224
26 Pawtucket	309	71	308
29 Richmond	3	65	246
30 Scituate*	28	71	236
31 Smithfield**	36	69	259
32 S. Kingstown	50	70 1/2	263
33 Tiverton	30	71	249
34 Warren	32	68 1/2	235
36 Westerly	8	70	593
39 Woonsocket	165	70 1/2	278
40 Charli Regional School District	2	66	241
41 Foster-Gloicester	--	--	--
51 Cranston Housing	5	71	217
52 E. Providence Housing	6	69 1/2	359
53 Pawtucket Housing	21	69	379
56 Cumberland Housing	--	--	--
57 Lincoln Housing	2	65	199
59 Bristol Housing	--	--	--
65 Burrillville Housing	--	--	--
66 N. Providence Housing	1	68 1/2	239
67 E. Smithfield Water	2	70 1/2	364
68 Greenville Water	1	67 1/2	261
71 Warren Housing	--	--	--
72 Johnston Housing	1	66 1/2	241
79 Coventry Housing	--	--	--
80 S. Kingstown Housing	1	65 1/2	246
83 W. Warwick Housing	2	65 1/2	660
84 Smithfield Housing	--	--	--
<u>Police and Fire</u>			
50 E. Greenwich Fire	4	63	847
54 E. Greenwich Police	8	62	462
55 N. Kingstown Fire	20	63 1/2	656
58 N. Providence Fire	5	63 1/2	449
60 Barrington P & F	25	58	666
62 Warren Police	10	60	585
63 S. Kingstown P & F	7	56	650
64 Primrose Volunteer Fire	1	72 1/2	303
76 N. Smithfield Police	2	44	458
77 Tiverton Fire	6	63	564
82 Foster Police	--	--	--
85 Woonsocket Police	--	--	--

\*Includes 1 pensioner formerly covered by the Scituate Police Plan.

\*\*Includes 2 pensioners formerly covered by the Smithfield Police and Fire Plan.

RHODE ISLAND MUNICIPAL ERS

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11. RETIREMENT FUND

The State maintains the Municipal Employees' Retirement Fund. The Retirement Board provided us with financial statements as of June 30, 1986.

The Fund receives all member and employer contributions. The assets are invested by the State Investment Commission, with the investment earnings being added to the Fund and available for reinvestment. During fiscal 1986, the investment earnings represented 12.14% of the average assets of the Fund, or 4,344 more than the long-term interest assumption of 7.50%. The corresponding investment yield during fiscal 1985 was 9.40%.

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 9 provides a summary of income and expenditures for the year ended June 30, 1986.

As of June 30, 1986 assets totalled approximately \$150.9 million. Table 9 provides a distribution of the assets by category of investment. About 54% of the Fund was invested in fixed income securities such as Bonds and notes.

The financial statements indicate that 88% of the assets relate to general employees and 12% are for police and firemen. There is also a small unallocated reserve for unclaimed benefits. Table 10 shows the allocation of assets in detail.

Table 8  
Summary Statement of Income and Expenses  
for Year Ended June 30, 1986

Employer contributions	\$ 8,451,404	
Member contributions	<u>4,647,643</u>	
Total contributions		\$13,099,047
Net miscellaneous items		11,230
Investment income:		
Dividends	\$3,191,318	
Interest	8,806,823	
Capital gains	4,143,826	
Less: Expenses	<u>115,196</u>	
Net investment income		<u>16,026,771</u>
Total income available for benefit payments		\$29,137,048
Benefit payments:		
Pension benefits	\$ 6,658,100	
Death benefits	74,000	
Contribution refunds	<u>586,223</u>	
Total benefit payments		<u>7,328,323</u>
Excess of income over expenses		<u>\$21,808,725</u>

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## V. ACTUARIAL ASSUMPTIONS AND COST METHOD

The actual cost of a pension plan consists of the benefit payments and administrative expenses less any investment earnings. An actuarial cost method aims to budget this cost so as to establish a reasonable relationship between employer pension contributions and the employee services that give rise to the pension 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 previous actuarial valuation.

### Mortality Rates

We assumed that mortality rates would conform with the Male and Female 1971 Group Annuity Mortality Tables. These are tables of pension plan mortality, and we believe they provide a reasonable basis for estimating experience under the System. These tables are in general use for valuing pension plan mortality experience in the United States. 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 per cent of his pay when he or she is young and a lower per cent of his or her higher salary at a later age. By the use of a salary projection, the contribution for an individual, all other things remaining the same, tends to stay at the same percentage of salary during the course of the individual's employment.

To what extent salaries will increase in future years is a major policy question. If the actual salary increases are greater than assumed, actuarial losses will occur and pension costs will increase. If actual salary increases are less than assumed, there will be actuarial gains and costs will decrease.

For purposes of our cost determination, we have made a moderate allowance for general salary increases in the future. We also reflect salary increases as the result of longevity and promotions. The scale has relatively greater increases at the younger ages to correspond with salary schedules. The salary scale factors 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 per cent - in contrast to a 7 per cent 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:

<u>Age</u>	<u>General Employees Rate (%)</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 accidental.

MARTIN E. SEGAL COMPANY

### Optional Police and Fire Rate (%)

<u>Age</u>	<u>Death*</u>	<u>Disability</u>	<u>Withdrawal</u>	<u>Total*</u>
20	.05	.12	--	.17
25	.06	.17	--	.23
30	.08	.22	--	.30
35	.11	.29	--	.41
40	.16	.44	--	.60
45	.29	.72	--	1.01
50	.53	1.21	--	1.74
55	.85	--	--	.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 or reduced 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 any case where the employee already meets these assumed conditions of age and service, it is projected 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. In a rough sense, it 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.

MARTIN E. SEGAL COMPANY

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VI. RESULTS OF VALUATION

General Employees

The costs for general employees as of June 30, 1986 developed as follows:

<u>Item</u>	<u>Amount</u>	<u>% of Payroll</u>
(1) Participating payroll	\$62,566,300	--
(2) Employer normal cost	2,223,400	3.6%
(3) Unfunded actuarial liability	9,593,600	--
(4) Amortization of unfunded actuarial liability	1,585,300	2.5
(5) Total annual cost if paid July 1, 1986 = (2) + (4)	3,808,800	6.1
(6) Total annual cost if paid monthly = (5) plus 1/2 year interest	3,951,600	6.3

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

Police and Firemen

The costs for police and firemen as of June 30, 1986 developed as follows:

<u>Item</u>	<u>Amount</u>	<u>% of Payroll</u>
(1) Participating payroll	\$6,832,400	--
(2) Employer normal cost	448,400	6.6%
(3) Unfunded actuarial liability	574,200	--
(4) Amortization of unfunded actuarial liability	147,400	2.2
(5) Total annual cost if paid July 1, 1986 = (2) + (4)	595,800	8.7
(6) Total annual cost if paid monthly = (5) plus 1/2 year interest	618,200	9.0

Note: Detail 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. As mentioned earlier, some of the amortization periods were lengthened five years ago to spread the effects of actuarial losses over a longer period. Treating the amortization period as zero years for municipalities with no unfunded actuarial liability, the average remaining amortization period is about 9 years for general employees and 18 years for police and firemen.

Looking at the total cost figures compared to the previous year, it can be seen that for general employees, costs decreased by 2.3 per cent of payroll (from 8.4 per cent to 6.1 per cent). The normal cost percentage remained the same at 3.6% but there was a decrease in the amortization payment when expressed as a per cent of payroll from 4.8 per cent to 2.5 per cent.

For police and firemen, costs decreased by .8 per cent of payroll (from 9.5 per cent to 8.7 per cent). The normal cost percentage decreased from 6.7 per cent to 6.6 per cent and the amortization payment as a per cent of payroll decreased by 0.6 per cent (from 2.8 per cent to 2.2 per cent).

The significant decreases in the amortization payment per cent of payroll figures were primarily attributable to the large actuarial gain from investments during fiscal 1986 (4.64% of average assets or approximately \$6.1 million).

Table 13 shows the recommended rates for each participating municipality. These rates are to be effective for the year beginning July 1, 1988. 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, 1987 and 1986 are also shown. In addition, the remaining amortization periods for each municipality are presented. Three new groups joined the System this year: the Towns of Cumberland, Gloucester and Foster-Glocester.

#### Value of Vested Benefits

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

The "value of vested benefits" represents the single sum value under the plan's investment income and mortality assumptions of all benefits to present and former employees. In this calculation, future employment by the employee is not a condition for the receipt of benefits. Thus, it includes the present value of an immediate or deferred pension for all pensioners, beneficiaries, vested former employees, and active participants with at least 10 years of service. For active employees with less than 10

years of service, only the accumulated employee contributions are included, since that is all such employees would receive if they had no further employment. This year we again included the accumulated employee contributions for inactive former employees.

For the Municipal Employees' Retirement System, the value of vested benefits is as follows:

	<u>General Employees</u>	<u>Police and Firemen</u>
Active members	\$ 89,803,500	\$ 7,464,600
Inactive members	1,873,200	80,200
Retired members	<u>54,147,200</u>	<u>5,988,000</u>
Total value of vested benefits	\$145,823,900	\$13,532,800
Assets	<u>133,533,400</u>	<u>17,357,100</u>
Unfunded value of vested benefits	\$ <u>12,290,500</u>	\$ <u>--</u>

Table 12 includes the unfunded vested benefits for each municipality.

Recently, the Government Accounting Standards Board (GASB) released GASB Statement #5. This Statement requires disclosure of certain pension cost values on the financial statements of both the public employee retirement system and the employer. We will be providing further information on this subject in the near future.

#### 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 mostly a result of the favorable investment results during fiscal 1986. In addition, other actuarial gains and losses can 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 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 12  
Actuarial Cost Factors as of June 30, 1982  
by Municipality

Municipality	Year Joined	Employer normal cost	Unfunded actuarial liability	Unfunded value of vested benefits
<b>General Employees</b>				
01 Barrington	1957	\$ 73,800	\$ 17,200	\$ 32,800
02 Bristol	1957	56,200	--	--
03 Burrillville	1968	65,700	200,100	--
07 Cranston*	1963	139,100	4,139,100	236,300
08 Cumberland	1983	55,400	1,183,000	4,706,300
09 E. Greenwich	1957	37,100	--	1,302,500
10 E. Providence*	1961	203,300	360,700	--
11 Exeter N. Greenwich School District	1982	11,700	277,200	1,146,500
12 Foster	1981	11,600	180,100	243,900
14 Gloucester	1985	6,100	90,500	95,300
14 Hopkinton	1969	15,600	--	88,700
15 Jamestown	1964	15,600	--	--
16 Johnston	1968	110,600	338,700	--
21 Newport	1966	101,900	2,110,300	820,800
22 New Shoreham	1980	8,800	71,900	1,876,100
23 N. Kingstown	1957	85,800	--	53,500
24 N. Providence	1961	91,300	282,100	--
25 N. Smithfield	1964	48,600	--	276,500
26 Pawtucket	1962	296,200	3,211,000	98,700
29 Richmond	1979	7,400	44,400	4,130,600
30 Scituate	1967	25,000	73,100	15,700
31 Smithfield	1959	69,100	--	43,900
32 S. Kingstown	1957	83,700	--	--
33 Tiverton	1964	47,100	161,700	--
34 Warren	1957	37,000	--	50,000
36 Westerly	1976	7,300	442,400	--
39 Woonsocket	1962	183,300	--	452,200
40 Chartha Regional School District	1981	16,000	151,100	--
41 Foster-Glocester	1985	15,300	408,400	59,100
51 Cranston Housing	1968	6,500	--	363,300
52 E. Providence Housing	1968	8,200	--	--
53 Pawtucket Housing	1968	21,500	--	--
56 Cumberland Housing	1969	8,700	3,500	--
57 Lincoln Housing	1969	4,900	13,500	47,000
59 Bristol Housing	1970	4,400	--	99,000
65 Burrillville Housing	1972	1,200	--	--
66 N. Providence Housing	1973	2,900	--	--
67 E. Smithfield Water	1973	3,100	19,300	--
68 Greenville Water	1973	3,100	7,400	13,400
71 Warren Housing	1975	2,400	--	--
72 Johnston Housing	1976	4,200	600	--
79 Coventry Housing	1977	3,000	--	56,400
83 W. Warwick Housing	1981	2,300	98,900	--
84 Smithfield Housing	1981	1,300	22,500	87,500
84 Smithfield Housing	1981	1,300	22,500	64,900
<b>Police and Fire</b>				
50 E. Greenwich Fire	1967	24,600	--	--
54 E. Greenwich Police	1968	37,800	--	--
55 N. Kingstown Fire	1968	91,700	59,900	--
58 N. Providence Fire	1968	45,600	221,300	--
60 Barrington P & F	1970	81,300	557,300	--
62 Warren Police	1970	26,800	383,800	--
63 S. Kingstown P & F	1971	56,600	--	93,700
64 Primrose Volunteer Fire	1972	6,600	--	--
76 N. Smithfield Police	1977	14,900	--	--
77 Tiverton Fire	1977	29,200	113,400	--
82 Foster Police	1981	8,800	10,400	--
85 Woonsocket Police	1982	24,600	--	--

\*Based on COLA Plan B  
RHODE ISLAND MUNICIPAL ERS

Model Island Municipal Employees' Retirement System  
Model Island Municipal Employees' Retirement Rates

Municipalities	Year Beginning July 1, 1988			Vital Rate	
	Amortization Cost	Normal	Partial	1987	1986
GENERAL EMPLOYEES	4	3,624	0.231	3,833	6,934
17 Barrington	7	3,229	2.36	3,220	3,33
18 Barrington	7	4,441	5.26	6,728	3,97
19 Barrington	14	4,441	8.80	13,811	7,77
20 Barrington	24	4,441	15.81	18,376	9,68
21 Barrington	5	4,441	3.50	3,19	12,48
22 Barrington	5	5,887	2.21	3,50	3,88
23 Barrington	5	5,887	3.82	10,339	20,33
24 Barrington	5	5,887	5.43	13,17	14,54
25 Barrington	20	5,887	7.29	18,376	8,93
26 Barrington	20	5,887	13.12	24,000	5,22
27 Barrington	20	5,887	18.95	30,625	3,80
28 Barrington	20	5,887	24.78	37,250	2,88
29 Barrington	20	5,887	30.61	43,875	1,96
30 Barrington	20	5,887	36.44	50,500	1,04
31 Barrington	20	5,887	42.27	57,125	1,12
32 Barrington	20	5,887	48.10	63,750	1,20
33 Barrington	20	5,887	53.93	70,375	1,28
34 Barrington	20	5,887	59.76	77,000	1,36
35 Barrington	20	5,887	65.59	83,625	1,44
36 Barrington	20	5,887	71.42	90,250	1,52
37 Barrington	20	5,887	77.25	96,875	1,60
38 Barrington	20	5,887	83.08	103,500	1,68
39 Barrington	20	5,887	88.91	110,125	1,76
40 Barrington	20	5,887	94.74	116,750	1,84
41 Barrington	20	5,887	100.57	123,375	1,92
42 Barrington	20	5,887	106.40	130,000	2,00
43 Barrington	20	5,887	112.23	136,625	2,08
44 Barrington	20	5,887	118.06	143,250	2,16
45 Barrington	20	5,887	123.89	149,875	2,24
46 Barrington	20	5,887	129.72	156,500	2,32
47 Barrington	20	5,887	135.55	163,125	2,40
48 Barrington	20	5,887	141.38	169,750	2,48
49 Barrington	20	5,887	147.21	176,375	2,56
50 Barrington	20	5,887	153.04	183,000	2,64
51 Barrington	20	5,887	158.87	189,625	2,72
52 Barrington	20	5,887	164.70	196,250	2,80
53 Barrington	20	5,887	170.53	202,875	2,88
54 Barrington	20	5,887	176.36	209,500	2,96
55 Barrington	20	5,887	182.19	216,125	3,04
56 Barrington	20	5,887	188.02	222,750	3,12
57 Barrington	20	5,887	193.85	229,375	3,20
58 Barrington	20	5,887	199.68	236,000	3,28
59 Barrington	20	5,887	205.51	242,625	3,36
60 Barrington	20	5,887	211.34	249,250	3,44
61 Barrington	20	5,887	217.17	255,875	3,52
62 Barrington	20	5,887	223.00	262,500	3,60
63 Barrington	20	5,887	228.83	269,125	3,68
64 Barrington	20	5,887	234.66	275,750	3,76
65 Barrington	20	5,887	240.49	282,375	3,84
66 Barrington	20	5,887	246.32	289,000	3,92
67 Barrington	20	5,887	252.15	295,625	4,00
68 Barrington	20	5,887	257.98	302,250	4,08
69 Barrington	20	5,887	263.81	308,875	4,16
70 Barrington	20	5,887	269.64	315,500	4,24
71 Barrington	20	5,887	275.47	322,125	4,32
72 Barrington	20	5,887	281.30	328,750	4,40
73 Barrington	20	5,887	287.13	335,375	4,48
74 Barrington	20	5,887	292.96	342,000	4,56
75 Barrington	20	5,887	298.79	348,625	4,64
76 Barrington	20	5,887	304.62	355,250	4,72
77 Barrington	20	5,887	310.45	361,875	4,80
78 Barrington	20	5,887	316.28	368,500	4,88
79 Barrington	20	5,887	322.11	375,125	4,96
80 Barrington	20	5,887	327.94	381,750	5,04
81 Barrington	20	5,887	333.77	388,375	5,12
82 Barrington	20	5,887	339.60	395,000	5,20
83 Barrington	20	5,887	345.43	401,625	5,28
84 Barrington	20	5,887	351.26	408,250	5,36
85 Barrington	20	5,887	357.09	414,875	5,44
86 Barrington	20	5,887	362.92	421,500	5,52
87 Barrington	20	5,887	368.75	428,125	5,60
88 Barrington	20	5,887	374.58	434,750	5,68
89 Barrington	20	5,887	380.41	441,375	5,76
90 Barrington	20	5,887	386.24	448,000	5,84
91 Barrington	20	5,887	392.07	454,625	5,92
92 Barrington	20	5,887	397.90	461,250	6,00
93 Barrington	20	5,887	403.73	467,875	6,08
94 Barrington	20	5,887	409.56	474,500	6,16
95 Barrington	20	5,887	415.39	481,125	6,24
96 Barrington	20	5,887	421.22	487,750	6,32
97 Barrington	20	5,887	427.05	494,375	6,40
98 Barrington	20	5,887	432.88	501,000	6,48
99 Barrington	20	5,887	438.71	507,625	6,56
100 Barrington	20	5,887	444.54	514,250	6,64

\*Rounded to reflect reduction in accrued liability for cost-of-living adjustment.

MARTIN E. SEGAL COMPANY

90 BOSTON STREET  
BOSTON, MASSACHUSETTS 02108  
(617) 462-0100

May 8, 1987

MUNICIPAL 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, 1986.

This certificate contains the following attached exhibits:

- EXHIBIT I - Actuarial Cost for Year Beginning July 1, 1986
- A. General employees
- B. Police and firemen
- EXHIBIT II - Actuarial Assumptions and Cost Method
- EXHIBIT III - Summary of Plan Provisions

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

MARTIN E. SEGAL COMPANY, INCORPORATED

By:   
James R. Lawe, F.S.A., M.A.A.A.  
Vice President and Actuary

ATLANTA / BOSTON / CHICAGO / CLEVELAND / DALLAS / DENVER / HARTFORD / HOUSTON / LOS ANGELES  
NEW ORLEANS / NEW YORK / PHOENIX / SAN FRANCISCO / WASHINGTON, D.C. / EDMONTON / TORONTO

EXHIBIT I  
ACTUARIAL COST FOR YEAR BEGINNING JULY 1, 1986  
A. GENERAL EMPLOYEES

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

- a. 4,000 active participants (including 1,686 fully vested) with total annual salaries of \$62,566,300
- b. 756 inactive participants
- c. 1,699 pensioners (including 45 beneficiaries of deceased pensioners and active employees)

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

1. Total normal cost .....	\$ 6,127,500
2. Projected employee contributions .....	3,904,100
3. Employer normal cost .....	2,223,400
4. Actuarial liability - total .....	143,127,000
Active employees .....	\$87,106,600
Inactive employees .....	1,873,200
Pensioners (including beneficiaries of deceased pensioners and active employees) .....	54,147,200
5. Assets .....	133,533,400
6. Unfunded actuarial liability .....	9,593,600
Liability for accrued vested benefits:	\$145,823,900

Note: Included are 333 active employees unknown as to age, service, or both. Status of beneficiaries was unclear. The liability included for inactive employees is the sum of their accumulated contributions. The liability for accrued vested benefits is based on a different set of retirement age assumptions.

MARTIN E. SEGAL COMPANY

EXHIBIT I  
ACTUARIAL COST FOR YEAR BEGINNING JULY 1, 1986

B. POLICE AND FIREMEN

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

- a. 302 active participants (including 135 fully vested) with total annual salaries of \$6,832,400
- b. 11 inactive participants
- c. 88 pensioners (including 18 beneficiaries of deceased pensioners and active employees)

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

1. Total normal cost .....	\$ 926,700
2. Projected employee contributions .....	478,300
3. Employer normal cost .....	448,400
4. Actuarial liability - total .....	17,931,300
Active employees .....	\$11,863,100
Inactive employees .....	80,200
Pensioners (including beneficiaries of deceased pensioners and active employees) .....	5,988,000
5. Assets .....	17,357,100
6. Unfunded actuarial liability .....	574,200

Liability for accrued vested benefits: \$13,532,800

Note: Included are 41 active employees unknown as to age, service, or both. Status of beneficiaries was unclear. The liability included for inactive employees is the sum of their accumulated contributions. The liability for accrued vested benefits is based on a different set of retirement age assumptions.

MARTIN E. SEGAL COMPANY

EXHIBIT II  
ACTUARIAL ASSUMPTIONS AND COST METHOD

Mortality rates -- Male and Female 1971 Group Annuity Mortality Table  
Disability mortality before age 65 -- Age 65 mortality under stipulated table  
Termination rates before retirement:

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

15% of the above disability rates are assumed accidental.

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

50% of the above disability rates are assumed accidental.

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

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

Salary scale:

Age	Present salary as a percent of salary at 65	Annual increase (Rate %)
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

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. The liability for accrued vested benefits is based on an assumed retirement age equal to the normal retirement age.

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 III  
SUMMARY OF PLAN PROVISIONS

Service pension

	<u>General Employees</u>		<u>Police and Firemen</u>	
Age requirement:	58	None	55	None
	or	30 yrs.	or	25 yrs.
Service requirement:	10 yrs.			
Amount:	2% of final average salary per year of service to a maximum of 75%. Final average salary is defined as the average of 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: 2% final average salary at disability per year of service (but not less than 20%), 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) \$400 per year of service to a maximum of \$8,000 and with a minimum of \$2,000.  
(b) Refund of employee contributions

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 \$2,000.

Police and firemen's survivor's benefit:

Same as pre-retirement

Employee contribution rate:

6% 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.

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.