State Retirement System

ACTUARIAL VALUATION REPORT

JANUARY 1, 2010

PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION
COMMONWEALTH OF MASSACHUSETTS

PERAC ACTUARIAL VALUATION REPORT

State Retirement System

January 1, 2010

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1. INTRODUCTION & CERTIFICATION

This report presents the results of the actuarial valuation of the State Retirement System. The valuation was performed as of January 1, 2010 pursuant to Chapter 32 of the General Laws of the Commonwealth of Massachusetts and based on the plan provisions at that time. The actuarial assumptions used to calculate the accrued liability and the normal cost reflect the Experience Study Analysis report we issued in 2007.

This valuation was based on member data as of December 31, 2009, which was supplied by the State Retirement Board. Asset information as of December 31, 2009 was provided by the Pension Reserve Investment Management Board. Both the membership data and financial information were reviewed for reasonableness but not audited by us.

We believe this report represents an accurate appraisal of the actuarial status of the State Retirement System performed in accordance with generally accepted actuarial principles and practices relating to pension plans. In our opinion, the actuarial assumptions used in this report are reasonable, related to plan experience and expectations, and represent our best estimate of anticipated experience.

Respectfully submitted,
Public Employee Retirement Administration Commission

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Joseph E. Connarton
Executive Director

Dated: March 4, 2010

2. EXECUTIVE SUMMARY

PART A | COSTS UNDER CURRENT VALUATION

The provisions of Chapter 32, Section 22C mandate the establishment of a funding schedule for the Commonwealth of Massachusetts pension obligation. The State Retirement System reflects one component of the Commonwealth schedule. The other components are the Massachusetts Teachers' Retirement System, liabilities for Boston teachers, and State reimbursements to local systems to reflect COLAs granted from 1982 through 1996. The schedule, as mandated by law, calls for payment of the Normal Cost plus an amortization payment on the Unfunded Actuarial Liability. The provisions of Chapter 32, Section 22C require amortization payments such that the Unfunded Actuarial Liability is reduced to 0 by June 30, 2025. Under the present schedule, the amortization payments to eliminate the unfunded liability increase by 4.5% per year.

The results of the January 1, 2010 actuarial valuation are as follows (in thousands):

Total Normal Cost	$577,553
Expected Employee Contributions	$400,147
Net Normal Cost	$177,406

Total Actuarial Liability	$24,862,421
Assets	$19,019,062
Unfunded Actuarial Liability	$5,843,359

2. EXECUTIVE SUMMARY *(continued)*

PART B | COMPARISON WITH PRIOR VALUATION

A comparison of the current valuation and the January 1, 2009 valuation is shown below (in thousands).

	1/1/10	1/1/09	Increase (Decrease)	Increase (Decrease)
Total Normal Cost	$577,553	$577,194	$359	0.1%
Expected Employee Contributions	400,147	397,064	3,083	0.8%
Net Normal Cost	$177,406	$180,130	(2,724)	(1.5%)
Actuarial Liability				
Actives	$12,372,017	$12,160,019	$211,998	1.7%
Retirees and Inactives	12,490,404	11,563,221	927,183	8.0%
Total	$24,862,421	$23,723,240	$1,139,181	4.8%
Assets (Actuarial Value)	19,019,062	16,992,214	$2,026,848	11.9%
Unfunded Actuarial Liability	$5,843,359	$6,731,026	$(887,667)	(13.2%)
Funded Ratio	76.5%	71.6%	4.9%	

The development of the actuarial gain/(loss) is shown on page 8. During 2009, there was an overall actuarial gain of $1.59 billion. There was a non-investment related gain (gain on actuarial accrued liability) of $141 million. There was a gain of approximately $1.45 billion on the actuarial value of assets. The return on assets was approximately 17.0% on an actuarial value basis, compared to 17.7% on a market value basis.

Chapter 25 of the Acts of 2009 transferred the liabilities and assets of the Massachusetts Turnpike Authority (MTA) Retirement System to the State Retirement System. These members (approximately 1,200 active and 730 retired) are included in the January 1, 2010 valuation results and their estimated actuarial liability is $325 million. The market value of assets as of December 31, 2009 was approximately $189 million. These assets are in a separate fund and were not included in this valuation. If these assets were included, the UAL would decrease by approximately $200 million.

Chapter 61 of the Acts of 2009, as amended by chapter 102 of the Acts of 2009, transferred active members of the county sheriffs' departments in Barnstable, Bristol, Dukes, Norfolk, Plymouth, and Suffolk Counties to the State effective January 1, 2010. The actuarial liabilities and assets for these members are not included in this valuation and will be reflected in the January 1, 2011 actuarial valuation along with MTA assets. Overall, these changes will not have a significant impact on the 2011 valuation results.

2. EXECUTIVE SUMMARY *(continued)*

PART B | COMPARISON WITH PRIOR VALUATION *(continued)*

	1/1/10	1/1/09	Increase (Decrease)
Actives			
Number	85,839	86,529	(0.8%)
Total Payroll	$4,711,563,191	$4,712,654,890	(0.0%)
Average Salary	$54,888	$54,463	0.8%
Average Age	47.2	46.7	1.1%
Average Service	13.3	12.9	3.1%

There were approximately 80,500 active members as of January 1, 2009 who remained in active status as of January 1, 2010. Pay for these members increased 2.2%

	1/1/10	1/1/09	Increase (Decrease)
Retirees and Survivors			
Number	52,486	50,873	3.2%
Total Benefits	$1,324,484,951	$1,224,764,010	8.1%
Average Benefits	$25,235	$24,075	4.8%
Average Age	71.7	71.7	0.0%

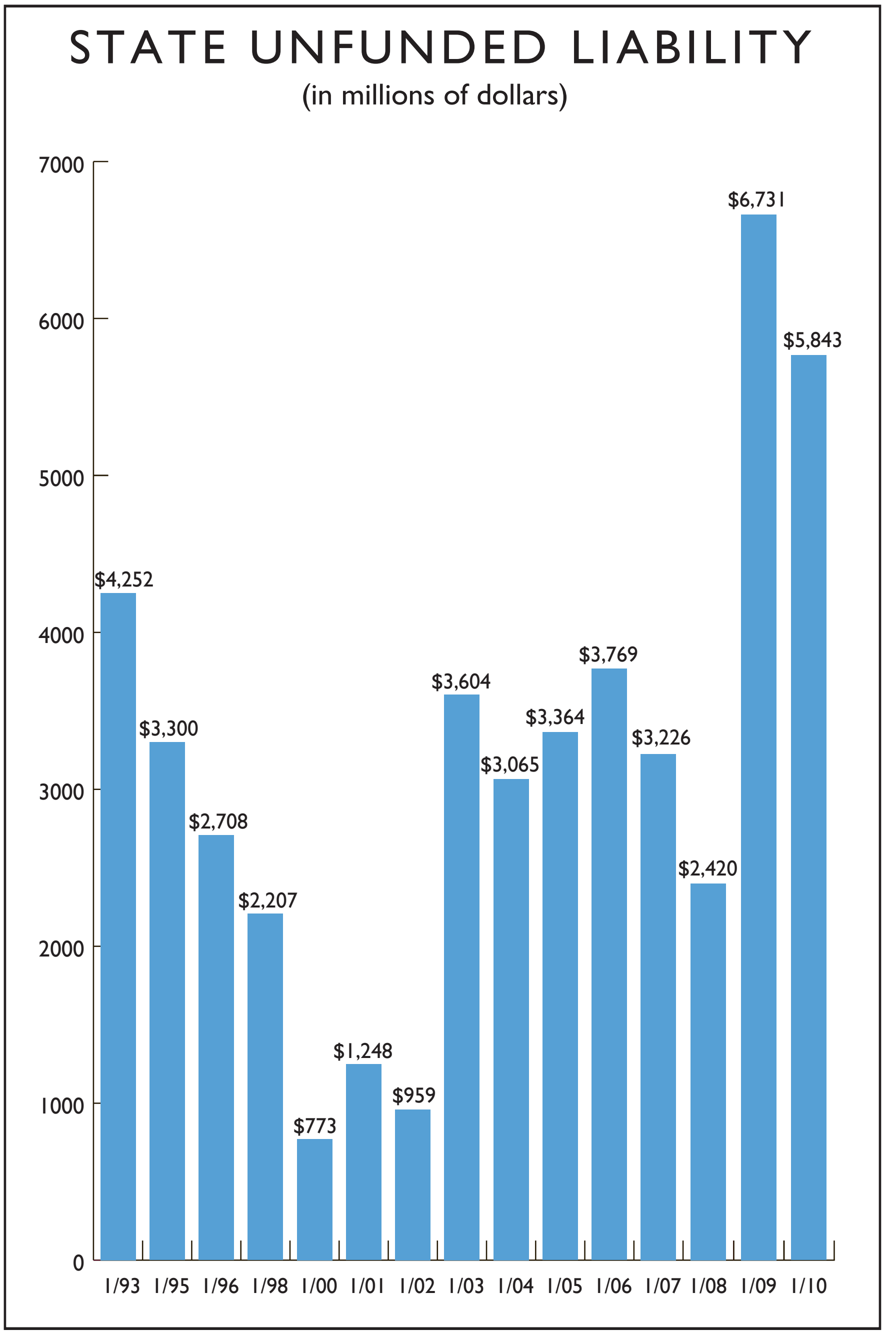
Benefits will continue to increase over time as active payroll increases.

2. EXECUTIVE SUMMARY *(continued)*

PART C | FUNDING PROGRESS

UNFUNDED LIABILITY

The chart below compares the Unfunded Actuarial Accrued Liability (UAL) since 1993. The UAL represents the actuarial accrued liability less the actuarial value of plan assets. When there is no UAL, a system is said to be "fully funded". In this exhibit, for years prior to 2000, estimates were developed to reflect implementation of new actuarial software.

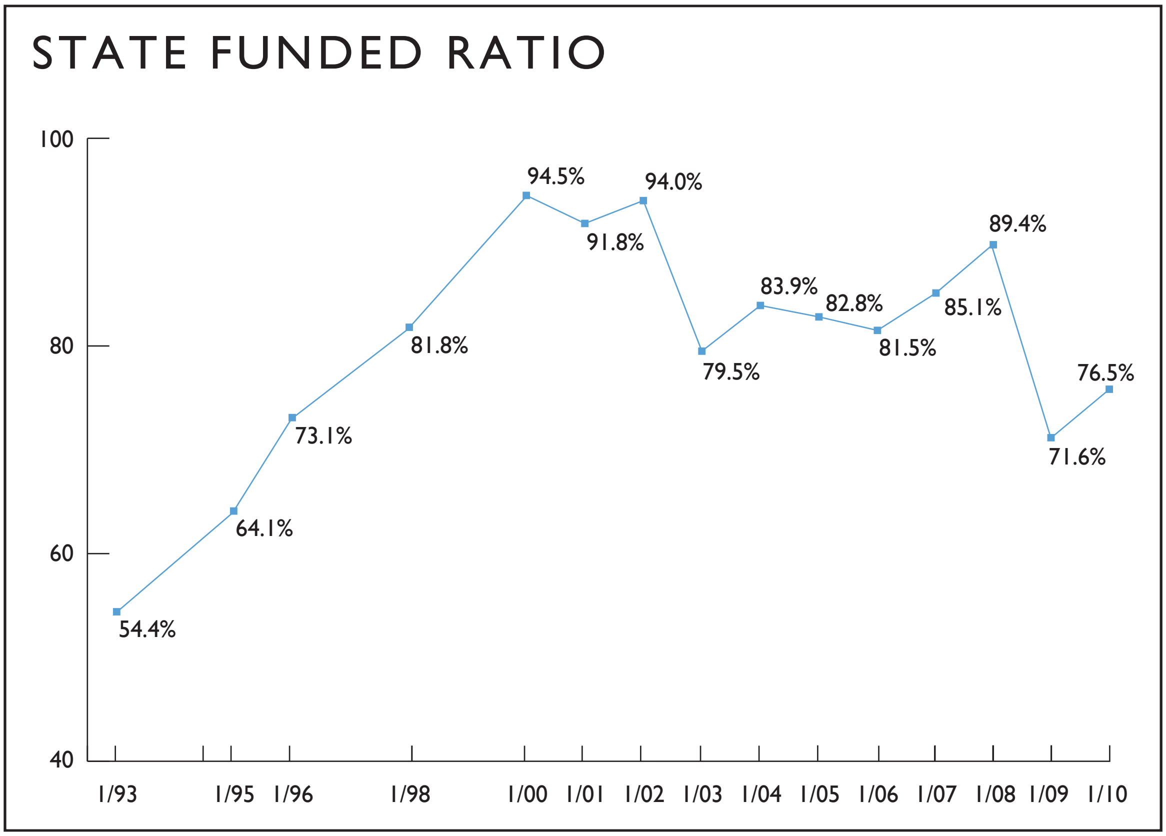


2. EXECUTIVE SUMMARY *(continued)*

PART C | FUNDING PROGRESS *(continued)*

FUNDED RATIO

The chart below shows the State's funded ratio progress since 1993. The funded ratio represents the actuarial value of plan assets divided by the actuarial accrued liability. When the funded ratio reaches 100%, a system is said to be "fully funded". In this exhibit, for years prior to 2000, estimates were developed to reflect implementation of new actuarial software.



3. SUMMARY OF VALUATION RESULTS

(Dollars in thousands)

A. Number of Members	
Active	85,839
Vested Terminated	3,779
Retired/ Beneficiaries	52,486
Total	142,104
B. Total Payroll	$4,711,563
C. Normal Cost	
Superannuation	$410,048
Death	42,398
Disability	63,606
Termination	61,501
Total Normal Cost	$577,553
Expected Employee Contributions	400,147
Net Employer Normal Cost	$177,406
D. Actuarial Liability	
Active	
Superannuation	$11,432,463
Death	304,665
Disability	342,326
Termination	292,563
Total Active	$12,372,017
Vested Terminated	494,278
Non-Vested Terminated	151,961
Retirees and Survivors	11,844,165
Total Actuarial Liability	$24,862,421
E. Actuarial Value of Assets	19,019,062
F. Unfunded Actuarial Liability: D – E	$5,843,359
G. Funded Ratio: E/D	76.5%

4. DEVELOPMENT OF THE ACTUARIAL GAIN OR LOSS

	(in millions)
A. Gain/(loss) on Actuarial Liability	
1. Actuarial Liability 1/1/2009	23,723
2. Total Normal Cost 1/1/2009	577
3. Interest on (1) and (2) at 8.25%	2,005
4. Benefits paid during 2009 [a]	1,250
5. Interest on (4) assuming mid year payment	52
6. Expected Actuarial Liability 1/1/2010: (1)+(2)+(3)-(4)-(5)	25,003
7. Actuarial Liability 1/1/2010	24,862
8. Gain/(loss): (6)-(7) [b]	141
B. Gain/(loss) on assets	
9. Actuarial Value of Assets (AVA) 1/1/2009	16,992
10. Interest on (9) at 8.25%	1,402
11. Net Receipts [c]	457
12. Net Disbursements [c]	1,257
13. Net Cash Flow: (11)-(12)	(800)
14. Interest on (13) [d]	(28)
15. Expected AVA 1/1/2010: (9)+(10)+(13)+(14)	17,566
16. AVA 1/1/2010	19,019
17. Gain/(loss): (16)-(15)	1,453
C. Total Gain/(loss): (8)+(17)	1,594

[a] Estimated

[b] Estimated increase in actuarial liability of $325 million for MTA transfer included as a loss

[c] Amounts actually received or disbursed by the fund.

[d] Assumes time weighting based on the monthly cash flow.

5. PLAN ASSETS

PART A | SUMMARY OF ASSETS (in thousands)

Pension Reserves Investment Trust (State Retirement System)	
Market value	$17,290,056
Actuarial value	$19,019,062

Under the actuarial value of assets corridor approach, the actuarial value of assets cannot be less than 90% nor greater than 110% of the market value of assets. As of January 1, 2010, the calculated actuarial value is 110% of the market value.

5. PLAN ASSETS *(continued)*

PART B | ACTUARIAL VALUE OF ASSETS

A. Development of 12/31/09 expected actuarial value of assets	(Dollars in thousands)
1. Market value of assets (MVA) 12/31/08	$15,447,468
2. Actuarial value of assets (AVA) 12/31/08 (as calculated)	$20,665,043
3. Net Receipts 2009 *	$456,688
4. Net Disbursements 2009 *	$1,257,364
5. Net Cash Flow (3) - (4)	($800,676)
6. Expected investment return on (2): 0.0825 x (2)	$1,704,866
7. Expected investment return on (5): ½ x 0.0825 x (5)	($33,028)
8. Expected AVA 12/31/09: (2) + (5) + (6) + (7)	$21,536,205
B. Previous differences not yet amortized	
1. Unrecognized amount of 12/31/08 difference	
a. .2 x 2005 gain	$147,004
b. .4 x 2006 gain	$626,738
c. .6 x 2007 gain	$567,439
d. .8 x 2008 gain	($6,558,758)
e. Total	($5,217,576)
C. Gain/(loss) from 2009	
1. Market value of assets 12/31/09	$17,290,056
2. Expected market value 12/31/09: A(8) + B(1e)	$16,318,629
3. Gain/ (loss) from 2009 investment: (1) – (2)	$971,427
D. Development of AVA 12/31/09	
1. 2009 gain/(loss)	$971,427
2. 2008 gain/(loss)	($8,198,447)
3. 2007 gain/(loss)	$945,732
4. 2006 gain/(loss)	$1,566,845
5. 2005 gain/(loss)	$735,020
6. 20% of 2009 gain/(loss)	$194,285
7. 20% of 2008 gain/(loss)	($1,639,689)
8. 20% of 2007 gain/(loss)	$189,146
9. 20% of 2006 gain/(loss)	$313,369
10. 20% of 2005 gain/(loss)	$147,004
11. Total: (6) + (7) + (8) + (9) + (10)	$795,885
12. Calculated actuarial value 12/31/09: A(8) + D(11)	$20,740,321
13. Percentage of Market value	120.0%
14. Actuarial value: (12) but not more than 110% of C(1)	$19,019,062

* Reflects actual cash flow of PRIT fund.

6. INFORMATION ON SYSTEM MEMBERSHIP

A critical element of an actuarial valuation is accurate and up-to-date membership information. PERAC conducted an extensive review of member data submitted for this valuation.

PART A | ACTIVE MEMBERS

	Actives	Vested Terminations
Number of Members	85,839	3,779
Average Age	47.2	52.1
Average Service	13.3	15.5
Average Salary	$54,888	$49,392
Average Annuity Savings Fund Balance	$52,467	$52,822

Age by Service Distribution of Active Members

	Years of Service							
Present Age	0 – 4	5 -9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Total
0 - 24	2,007	30	1					2,038
25 - 29	5,307	886	8					6,201
30 - 34	3,955	2,451	710	4				7,120
35 - 39	3,162	2,346	2,455	765	47	1		8,776
40 - 44	2,728	2,133	2,316	2,136	1,288	75	1	10,667
45 - 49	2,760	2,007	1,966	1,847	2,805	1,292	91	12,768
50 - 54	2,291	1,992	1,912	1,799	2,428	2,369	1,155	13,946
55 - 59	1,636	1,582	1,628	1,406	1,976	1,952	2,634	12,814
60 - 64	839	1,007	1,045	925	1,378	1,150	1,770	8,114
65+	247	410	484	401	531	475	837	3,385
Total	24,932	14,844	12,525	9,283	10,453	7,314	6,488	85,839

6. INFORMATION ON SYSTEM MEMBERSHIP *(continued)*

PART A | ACTIVE MEMBERS *(continued)*

Salary by Age Distribution of Active Members

Present Age	Number of Members	Total Salary	Average Salary
0 - 24	2,038	$65,216,273	$32,000
25 - 29	6,201	$249,996,107	$40,315
30 - 34	7,120	$334,245,044	$46,945
35 - 39	8,776	$459,195,580	$52,324
40 - 44	10,677	$585,591,247	$54,846
45 - 49	12,768	$714,863,501	$55,989
50 - 54	13,946	$803,302,721	$57,601
55 - 59	12,814	$781,072,926	$60,955
60 - 64	8,114	$504,856,752	$62,220
65+	3,385	$213,223,040	$62,991
Total	85,839	$4,711,563,191	$54,888

6. INFORMATION ON SYSTEM MEMBERSHIP *(continued)*

PART B | RETIREES AND SURVIVORS

	Superannuation	Ordinary Disability	Accidental Disability	Survivors	Total
Number of Members	42,086	663	3,090	6,647	52,486
Average Age	72.0	65.1	62.3	75.2	71.7
Average Annual Benefit	$26,697	$17,004	$33,200	$13,094	$25,235

Benefit by Payment and Retirement Type

	Superannuation	Ordinary Disability	Accidental Disability	Survivors	Total
Annuity	$188,802,234	$1,573,947	$6,681,246	$12,355,292	$209,412,719
Pension	$934,785,536	$9,699,760	$95,907,063	$74,679,873	$1,115,072,232
Total	$1,123,587,770	$11,273,707	$102,588,309	$87,035,165	$1,324,484,951

6. INFORMATION ON SYSTEM MEMBERSHIP *(continued)*

PART B | RETIREES & SURVIVORS *(continued)*

Benefit by Age Distribution

Present Age	Number of Members	Total Benefits	Average Benefits
Less than 40	161	$4,184,153	$25,989
40 - 44	420	$13,294,039	$31,652
45 - 49	952	$27,777,356	$29,178
50 - 54	1,671	$44,051,412	$26,362
55 - 59	3,849	$103,717,920	$26,947
60 - 64	7,963	$239,690,504	$30,101
65 - 69	8,988	$267,814,329	$29,797
70 - 74	7,756	$210,243,338	$27,107
75 - 79	7,309	$175,191,444	$23,969
80 - 84	6,584	$134,732,627	$20,464
85 - 89	4,535	$74,590,340	$16,448
90+	2,298	$29,197,488	$12,706
Totals	52,486	$1,324,484,951	$25,235

7. VALUATION COST METHODS

PART A | ACTUARIAL COST METHOD

The Actuarial Cost Method which was used to determine pension liabilities in this valuation is known as the *Entry Age Normal Cost Method***.** Under this method the *Normal Cost* for each active member on the valuation date is determined as the level percent of salary, which, if paid annually from the date the employee first became a member of the retirement system, would fully fund by retirement, death, disability or termination, the projected benefits which the member is expected to receive. The *Actuarial Liability* for each member is determined as the present value as of the valuation date of all projected benefits which the member is expected to receive, minus the present value of future annual Normal Cost payments expected to be made to the fund. Since only active members have a Normal Cost, the Actuarial Liability for inactives, retirees and survivors is simply equal to the present value of all projected benefits. The sum of Normal Cost and Actuarial Liability for each member is equal to the Normal Cost and Actuarial Liability for the Plan. The *Unfunded Actuarial Liability* is the Actuarial Liability less current assets.

The Normal Cost for a member will remain a level percent of salary for each year of membership except for changes in provisions of the Plan or the actuarial assumptions employed in projection of benefits and present value determinations. The Normal Cost for the entire system will also change due to the addition of new members or the retirement, death or termination of members. The Actuarial Liability for a member will increase each year to reflect the additional accrual of Normal Cost. It will also change if the Plan provisions or actuarial assumptions are changed.

Differences each year between the actual experience of the Plan and the experience projected by the actuarial assumptions are reflected by adjustments to the Unfunded Actuarial Liability. An experience difference which increases the Unfunded Actuarial Liability is called an *Actuarial Loss* and one which decreases the Unfunded Actuarial Liability is called an *Actuarial Gain.*

PART B | ASSET VALUATION METHOD

In valuations prior to 1998, plan assets were determined at market value. As part of the 1998 valuation, this methodology was adjusted so that investment gains and losses for a given year would not be fully recognized until five years have passed. This calculation recognizes 20% of the gain or loss occurring in the prior year, 40 % of those gains or losses occurring two years ago, etc., so that 100% of the gain or loss occurring 5 or more years ago is recognized. This approach reduces the potential volatility in the market value approach from year to year. Under our corridor approach, the actuarial value of assets cannot be less than 90% nor greater than 110% of the market value. The calculated actuarial value of assets as of January 1, 2010 is 110% of the market value.

8. ACTUARIAL ASSUMPTIONS

Investment Return 8.25% per year

Interest Rate credited to the Annuity Savings Fund 3.5% per year

Assumed rate of Cost of Living Increases (COLA) 3% per year (on the first $12,000 of an allowance)

Mortality

Pre-retirement mortality reflects RP-2000 Employees table projected 10 years with Scale AA (gender distinct) Post-retirement mortality reflects RP-2000 Healthy Annuitant table projected 10 years with scale AA (gender distinct). For disabled members, the mortality rate is assumed to be in accordance with the RP-2000 Table (gender distinct) set forward 3 years for males. It is assumed that 55% of pre-retirement deaths are job-related for Group 1 and 2 members and 90% are job-related for Group 4 members. For members retired under an Accidental Disability, 40% of deaths are assumed to be from the same cause as the disability.

Salary Increase

Based on an analysis of past experience. Annual rates are shown below.

Service	Groups 1& 2	Group 3	Group 4
0	8.00%	8.00%	10.00%
1	7.50%	8.00%	9.00%
2	7.00%	8.00%	8.50%
3	6.50%	8.00%	8.00%
4	6.25%	7.50%	7.50%
5	6.00%	7.00%	7.00%
6	5.75%	6.00%	6.50%
7	5.50%	5.50%	6.00%
8	5.50%	5.50%	5.50%
9	5.50%	5.50%	5.50%
10	5.25%	5.25%	5.25%
11	5.25%	5.25%	5.25%
12	5.25%	5.25%	5.25%
13-15	5.00%	5.25%	5.25%
16-19	4.75%	5.25%	5.25%
20+	4.50%	5.00%	5.00%

8. ACTUARIAL ASSUMPTIONS *(continued)*

Retirement

	Group 1		Group 2	Group 3	Group 4
Age	Male	Female			
45	0.000	0.000	0.000	0.020	0.040
46	0.000	0.000	0.000	0.020	0.040
47	0.000	0.000	0.000	0.050	0.060
48	0.000	0.000	0.000	0.050	0.060
49	0.000	0.000	0.000	0.050	0.060
50	0.015	0.030	0.020	0.050	0.050
51	0.010	0.030	0.020	0.075	0.050
52	0.010	0.030	0.020	0.075	0.100
53	0.015	0.025	0.040	0.075	0.100
54	0.020	0.035	0.050	0.075	0.150
55	0.040	0.050	0.100	0.080	0.250
56	0.035	0.060	0.100	0.080	0.150
57	0.040	0.055	0.100	0.080	0.150
58	0.045	0.070	0.100	0.110	0.150
59	0.050	0.090	0.130	0.110	0.200
60	0.080	0.080	0.150	0.110	0.200
61	0.100	0.100	0.150	0.150	0.250
62	0.160	0.160	0.150	0.150	0.250
63	0.160	0.160	0.150	0.150	0.200
64	0.160	0.160	0.200	0.250	0.300
65	0.250	0.250	0.200	0.250	0.650
66	0.250	0.250	0.200	0.250	0.250
67	0.250	0.250	0.200	0.250	0.250
68	0.250	0.250	0.200	0.250	0.250
69	0.250	0.250	0.200	0.250	0.250
70	1.000	1.000	1.000	1.000	1.000

8. ACTUARIAL ASSUMPTIONS *(continued)*

Disability Based on an analysis of past experience. Sample annual rates are shown below.

Age	Group 1	Group 2	Group 3	Group 4
20	0.00010	0.00060	0.0010	0.0020
30	0.00010	0.00080	0.0016	0.0040
40	0.00075	0.00166	0.0080	0.0070
50	0.00140	0.00425	0.0140	0.0100
60	0.00200	0.00550	0.0300	0.0080

It is also assumed that 75% of disabilities will be job-related for Group 1 and 2 members, and 95% will be job-related for Group 3 and 4 members.

Withdrawal

Based on an analysis of past experience. For Groups 1 and 2, rates are both age and service based for service up to 10 years. After 10 years of service, rates are age based. For groups 3 and 4 rates are service based. Sample annual rates are shown below.

Groups 1 & 2

Age	Service		
	0	5	10+
20	0.270	0.000	0.000
30	0.230	0.100	0.055
40	0.160	0.080	0.040
50	0.140	0.060	0.030

Service	Group 3	Group 4
0	0.008	0.080
5	0.008	0.045
10	0.006	0.030
15	0.006	0.025
20+	0.006	0.040

9. SUMMARY OF PLAN PROVISIONS

ADMINISTRATION

There are 106 contributory Retirement Systems for public employees in Massachusetts. Each system is governed by a retirement board and all boards, although operating independently, are governed by Chapter 32 of the Massachusetts General Laws. This law in general provides uniform benefits, uniform contribution requirements and a uniform accounting and funds structure for all systems.

PARTICIPATION

Participation is mandatory for all full-time employees. Eligibility with respect to part-time, provisional, temporary, seasonal or intermittent employment is governed by regulations promulgated by the retirement board, and approved by PERAC. Membership is optional for certain elected officials.

There are 4 classes of membership in the State Retirement System:

Group 1:

General employees, including clerical, administrative, technical and all other employees not otherwise classified.

Group 2:

Certain specified hazardous duty positions.

Group 3:

State police officers and inspectors

Group 4:

Police officers, firefighters, corrections officers, and other specified hazardous positions.

MEMBER CONTRIBUTIONS

Member contributions vary depending on the most recent date of membership:

Prior to 1975:	5% of regular compensation
1975 - 1983:	7% of regular compensation
1984 to 6/30/96:	8% of regular compensation
7/1/96 to present:	9% of regular compensation
7/1/96 to present:	12% of regular compensation (State Police)
1979 to present:	an additional 2% of regular compensation in excess of $30,000.

RATE OF INTEREST

Interest on regular deductions made after January 1, 1984 is a rate established by PERAC in consultation with the Commissioner of Banks. The rate is obtained from the average rates paid on individual savings accounts by a representative sample of at least 10 financial institutions.

9. SUMMARY OF PLAN PROVISIONS *(continued)*

RETIREMENT AGE

The mandatory retirement age for some Group 2 and Group 4 employees is age 65. Most Group 2 and Group 4 members may remain in service after reaching age 65. Group 4 members who are employed in certain public safety positions are required to retire at age 65. There is no mandatory retirement age for employees in Group 1.

SUPERANNUATION RETIREMENT

A member is eligible for a superannuation retirement allowance (service retirement) upon meeting the following conditions:

- completion of 20 years of service, or

- attainment of age 55 if hired prior to 1978, or if classified in Group 4, or

- attainment of age 55 with 10 years of service, if hired after 1978, and if classified in Group 1 or 2

AMOUNT OF BENEFIT

A member's annual allowance is determined by multiplying average salary by a benefit rate related to the member's age and job classification at retirement, and the resulting product by his creditable service. The amount determined by the benefit formula cannot exceed 80% of the member's highest three year average salary. For veterans as defined in G.L. c. 32, s. 1, there is an additional benefit of $15 per year for each year of creditable service, up to a maximum of $300.

- Salary is defined as gross regular compensation.

- Average Salary is the average annual rate of regular compensation received during the 3 consecutive years that produce the highest average, or, if greater, during the last three years (whether or not consecutive) preceding retirement.

- The Benefit Rate varies with the member's retirement age, but the highest rate of 2.5% applies to Group 1 employees who retire at or after age 65, Group 2 employees who retire at or after age 60, and to Group 4 employees who retire at or after age 55. A .1% reduction is applied for each year of age under the maximum age for the member's group. For Group 2 employees who terminate from service under age 55, the benefit rate for a Group 1 employee shall be used.

- For Group 3 members, the rate is 3% for any age.

9. SUMMARY OF PLAN PROVISIONS *(continued)*

DEFERRED VESTED BENEFIT

A participant who has completed 10 or more years of creditable service is eligible for a deferred vested retirement benefit. Elected officials and others who were hired prior to 1978 may be vested after 6 years in accordance with G.L. c. 32, s. 10.

The participant's accrued benefit is payable commencing at age 55, or the completion of 20 years, or may be deferred until later at the participant's option.

WITHDRAWAL OF CONTRIBUTIONS

Member contributions may be withdrawn upon termination of employment. Employees who first become members on or after January 1, 1984, may receive only limited interest on their contributions if they voluntarily terminate their service. Those who leave service with less than 5 years receive no interest; those who leave service with greater than 5 but less than 10 years receive 50% of the interest credited.

DISABILITY RETIREMENT

The Massachusetts Retirement Plan provides 2 types of disability retirement benefits:

ORDINARY DISABILITY

Eligibility: Non-veterans who become totally and permanently disabled by reason of a non-job related condition with at least 10 years of creditable service (or 15 years creditable service in systems in which the local option contained in G.L. c. 32, s.6(1) has not been adopted).

Veterans with ten years of creditable service who become totally and permanently disabled by reason of a non-job related condition prior to reaching "maximum age".

Retirement Allowance: Equal to the accrued superannuation retirement benefit as if the member was age 55. If the member is a veteran, the benefit is 50% of the member's final rate of salary during the preceding 12 months, plus an annuity based upon accumulated member contributions plus credited interest. If the member is over age 55, he or she will receive not less than the superannuation allowance to which he or she is entitled.

9. SUMMARY OF PLAN PROVISIONS *(continued)*

ACCIDENTAL DISABILITY

Eligibility: Applies to members who become permanently and totally unable to perform the essential duties of the position as a result of a personal injury sustained or hazard undergone while in the performance of duties. There are no minimum age or service requirements.

Retirement Allowance: 72% of salary plus an annuity based on accumulated member contributions, with interest. This amount is not to exceed 100% of pay. For those who became members in service after January 1, 1988 or who have not been members in service continually since that date, the amount is limited to 75% of pay. There is an additional pension of $708.60 per year, per child who is under 18 at the time of the member's retirement, with no age limitation if the child is mentally or physically incapacitated from earning. The additional pension may continue up to age 22 for any child who is a full time student at an accredited educational institution. For veterans as defined in G.L. c. 32, s. 1, there is an additional benefit of $15 per year for each year of creditable service, up to a maximum of $300.

ACCIDENTAL DEATH

Eligibility: Applies to members who die as a result of a work-related injury or if the member was retired for accidental disability and the death was the natural and proximate result of the injury or hazard undergone on account of which such member was retired.

Allowance: An immediate payment to a named beneficiary equal to the accumulated deductions at the time of death, plus a pension equal to 72% of current salary and payable to the surviving spouse, dependent children or the dependent parent, plus a supplement of $708.60 per year, per child, payable to the spouse or legal guardian until all dependent children reach age 18 or 22 if a full time student, unless mentally or physically incapacitated.

The surviving spouse of a member of a police or fire department or any corrections officer who, under specific and limited circumstances detailed in the statute, suffers an accident and is killed or sustains injuries resulting in his death, may receive a pension equal to the maximum salary for the position held by the member upon his death.

In addition, an eligible family member may receive a one time payment of $100,000.00 from the State Retirement Board.

9. SUMMARY OF PLAN PROVISIONS *(continued)*

DEATH AFTER ACCIDENTAL DISABILITY RETIREMENT

Effective November 7, 1996, Accidental Disability retirees were allowed to select Option C at retirement and provide a benefit for an eligible survivor. For Accidental Disability retirees prior to November 7, 1996, who could not select Option C, if the member's death is from a cause unrelated to the condition for which the member received accidental disability benefits, a surviving spouse will receive an annual allowance of $6,000.

DEATH IN ACTIVE SERVICE

Eligibility: At least 2 years of service

Allowance: An immediate allowance equal to that which would have been payable had the member retired and elected Option C on the day before his or her death. For death occurring prior to the member's superannuation retirement age, the age 55 benefit rate is used. The minimum annual allowance payable to the surviving spouse of a member in service who dies with at least two years of creditable service is $3,000, provided that the member and the spouse were married for at least one year and living together on the member's date of death.

The surviving spouse of such a member in service receives an additional allowance equal to the sum of $1,440 per year for the first child and $1,080 per year for each additional child until all dependent children reach age 18 or 22 if a full time student, unless mentally or physically incapacitated.

COST OF LIVING

Chapter 17 of the Acts of 1997 provides that the first $12,000 of a retiree's total allowance is subject to an annual cost-of-living adjustment. Each year PERAC submits to the legislature the percentage increase in the Consumer Price Index used for indexing Social Security benefits. This benefit is subject to an annual vote of the Massachusetts General Court, but cannot exceed 3.0%.

9. SUMMARY OF PLAN PROVISIONS *(continued)*

METHODS OF PAYMENT

A member may elect to receive his or her retirement allowance in one of 3 forms of payment.

Option A: Total annual allowance, payable in monthly installments, commencing at retirement and terminating at the member's death.

Option B: A reduced annual allowance, payable in monthly installments, commencing at retirement and terminating at the death of the member, provided, however, that if the total amount of the annuity portion received by the member is less than the amount of his or her accumulated deductions, including interest, the difference or balance of his accumulated deductions will be paid in a lump sum to the retiree's beneficiary or beneficiaries of choice.

Option C: A reduced annual allowance, payable in monthly installments, commencing at retirement. At the death of the retired employee, 2/3 of the allowance is payable to the member's designated beneficiary (who may be the spouse, or former spouse who remains unmarried for a member whose retirement becomes effective on or after February 2, 1992, child, parent, sister, or brother of the employee) for the life of the beneficiary. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases (or "pops up") based on the factor used to determine the Option C benefit at retirement. For members who retired prior to January 12, 1988, if the System has accepted Section 288 of Chapter 194 of the Acts of 1998 and the beneficiary pre-deceases the retiree, the benefit payable "pops up" in the same fashion. The Option C became available to accidental disability retirees on November 7, 1996.

ALLOCATION OF PENSION COSTS

If a member's total creditable service was partly earned by employment in more than one retirement system, the cost of the "pension portion" is allocated between the different systems pro rata based on the member's service within each retirement system.

10. GLOSSARY OF TERMS

ACTUARIAL ACCRUED LIABILITY

That portion of the Actuarial Present Value of pension plan benefits which is not provided by future Normal Costs or employee contributions. It is the portion of the Actuarial Present Value attributable to service rendered as of the Valuation Date.

ACTUARIAL ASSUMPTIONS

Assumptions, based upon past experience or standard tables, used to predict the occurrence of future events affecting the amount and duration of pension benefits, such as: mortality, withdrawal, disablement and retirement; changes in compensation; rates of investment earnings and asset appreciation or depreciation; and any other relevant items.

ACTUARIAL COST METHOD (OR FUNDING METHOD)

A procedure for allocating the Actuarial Present Value of all past and future pension plan benefits to the Normal Cost and the Actuarial Accrued Liability.

ACTUARIAL GAIN OR LOSS (OR EXPERIENCE GAIN OR LOSS)

A measure of the difference between actual experience and that expected based upon the set of Actuarial Assumptions, during the period between two Actuarial Valuation dates.

Note: The effect on the Accrued Liability and/or the Normal Cost resulting from changes in the Actuarial Assumptions, the Actuarial Cost Method or pension plan provisions would be described as such, not as an Actuarial Gain (Loss).

ACTUARIAL PRESENT VALUE

The dollar value on the valuation date of all benefits expected to be paid to current members based upon the Actuarial Assumptions and the terms of the Plan.

AMORTIZATION PAYMENT

That portion of the pension plan appropriation which represents payments made to pay interest on and the reduction of the Unfunded Accrued Liability.

10. GLOSSARY OF TERMS *(continued)*

ANNUAL STATEMENT

The statement submitted to PERAC each year that describes the asset holdings and Fund balances as of December 3l and the transactions during the calendar year that affected the financial condition of the retirement system.

ANNUITY RESERVE FUND

The fund into which total accumulated deductions, including interest, is transferred at the time a member retires, and from which annuity payments are made.

ANNUITY SAVINGS FUND

The fund in which employee contributions plus interest credited are held for active members and for former members who have not withdrawn their contributions and are not yet receiving a benefit (inactive members).

ASSETS

The value of securities held by the plan.

COST OF BENEFITS

The estimated payment from the pension system for benefits for the fiscal year.

FUNDING SCHEDULE

The schedule based upon the most recently approved actuarial valuation which sets forth the amount which would be appropriated to the pension system in accordance with Section 22C of M.G.L. Chapter 32.

GASB

Governmental Accounting Standards Board

10. GLOSSARY OF TERMS *(continued)*

NORMAL COST

Total Normal Cost is that portion of the Actuarial Present Value of pension plan benefits, which is to be paid in a single fiscal year. The Employee Normal Cost is the amount of the expected employee contributions for the fiscal year. The Employer Normal Cost is the difference between the Total Normal Cost and the Employee Normal Cost.

PENSION FUND

The fund into which appropriation amounts as determined by PERAC are paid and from which pension benefits are paid.

PENSION RESERVE FUND

The fund which shall be credited with all amounts set aside by a system for the purpose of establishing a reserve to meet future pension liabilities. These amounts would include excess interest earnings.

SPECIAL FUND FOR MILITARY SERVICE CREDIT

The fund which is credited with amounts paid by the retirement board equal to the amount which would have been contributed by a member during a military leave of absence as if the member had remained in active service of the retirement board. In the event of retirement or a non-job related death, such amount is transferred to the Annuity Reserve Fund. In the event of termination prior to retirement or death, such amount shall be transferred to the Pension Fund.

UNFUNDED ACCRUED LIABILITY

The excess of the Actuarial Accrued Liability over the Assets.

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