Commonwealth of Massachusetts

ACTUARIAL VALUATION REPORT

As of January 1, 2000

for the State Teachers'

Contributory Retirement System

Public Employee Retirement Administration Commission

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Section I
Introduction and Certification

This report presents the results of the actuarial valuation of the State Teachers' Contributory Retirement System.

The valuation was performed as of January 1, 2000 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 are the same as those used in the Commonwealth actuarial valuation as of January 1, 1998. Also, the figures in the valuation reflect a continuation of the phase-in methodology, adopted as part of the January 1, 1998 valuation, from using market value of assets to a market related or actuarial value of assets. In this valuation, assets are valued at 91% of market value. The 1998 report used 97% of market value as the actuarial value of assets.

We are in the process of conducting an experience study for the State Teachers. Any change in assumptions due to the results of that study will be reflected in the January 1, 2001 actuarial valuation.

This valuation was based on member data as of December 31, 1999, which was supplied by the Teachers' Retirement Board. We performed a number of tests on the data and made specific assumptions for questionable data items. Asset information as of December 31, 1999 was provided by the Pension Reserve Investment Management Board.

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

Respectfully submitted,
Public Employee Retirement Administration Commission

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James R. Lamenzo
Member of the American Academy of Actuaries
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Joseph E. Connarton
Executive Director
Dated: September 22, 2000

Section II
Summary Discussion

A. Costs under Current Valuation

Section 22C of G.L., c. 32 mandates the establishment of a funding schedule for the Commonwealth of Massachusetts pension obligation. 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, 2018. Under the present schedule, the amortization payments to eliminate the initial unfunded liability by the end of FY2017 are level. In addition there are various bases (gains, ERI) which are also being amortized on a level dollar basis.

The principal results of the January 1, 2000 actuarial valuation are as follows (000 omitted):

Total Normal Cost	$445,481
Employee Contributions	282,671
Net Normal Cost	$162,810
Total Actuarial Liability	$16,420,271
Assets (91% of market value)	13,681,111
Unfunded Actuarial Liability	$2,739,160

Section II
Summary Discussion (Continued)

B. Comparison with Prior Valuation

Below we have shown the comparison between the current valuation and the January 1, 1998 valuation ($000's omitted).

	1/1/00	1/1/98	Increase (Decrease)	Increase (Decrease)
Total Normal Cost	$445,481	$333,971	$111,510	33.4%
Employee Contributions	282,671	231,855	50,816	21.9%
Net Normal Cost	$162,810	$102,116	$60,694	59.4%
Actuarial Liability				
Actives	$10,588,975	$8,524,552	$2,064,423	24.2%
Retirees and Inactives	5,831,296	4,570,182	1,261,114	27.6%
Total	$16,420,271	$13,094,734	$3,325,537	25.4%
Assets (Actuarial Value)	13,681,111	10,169,993	3,511,118	34.5%
Unfunded Actuarial Liability	**$2,739,160**	**$2,924,741**	**$(185,581)**	(6.3%)
Funded Ratio	**83.3%**	**77.7%**	**5.6%**	

The development of the expected unfunded liability on January 1, 2000 is shown on page 8. The difference between this amount and the actual unfunded actuarial liability is known as the actuarial gain or loss. For the period from January 1, 1998 to January 1, 2000, the actuarial gain was $2.3 billion. This figure primarily reflects an asset gain over the two year period.

In 1999 PERAC tested and implemented new actuarial software. Based on the new software, the unfunded liability as of January 1, 1998 would have been approximately $4.2 billion and the funded ratio 71.0%.

This valuation continues the phase-in methodology with respect to the actuarial value of assets. As of January 1, 2000 the actuarial value of assets is 91% of the market value. As of January 1, 1998 the actuarial value of assets was 97% of the market value. We expect the phase-in to be complete by January 1, 2002. The increase in unfunded liability due to the phase-in during 1998 and 1999 (97% to 91% of market value) is $902 million.

Section II
Summary Discussion (Continued)

PART B Comparison with Prior Valuation (continued)

	1/1/00	1/1/98	% Difference
Actives			
Number	82,242	74,899	9.8%
Total Payroll	$3,703,587,026	$3,175,210,744	16.6%
Average Salary	$45,033	$42,393	6.2%
Average Age	45.3	45.1	0.4%
Average Service	16.0	16.8	(4.8%)

	1/1/00	1/1/98	% Difference
Retirees and Survivors			
Number	31,746	30,499	4.1%
Total Benefits	$628,775,895	$534,640,664	17.6%
Average Benefits	$19,806	$17,530	13.0%
Average Age	71.5	71.5	0.0%

We have detailed a number of the assumptions we made for missing or questionable data for active members of the Teachers' Retirement System in Section VII. We believe our assumptions with respect to data to be conservative based on our detailed review and comparison of salary and other information provided to us as part of the January 1, 2000, 1999, and 1998 data submissions, our request for 1999 individual pay records for approximately 500 members, and our discussions and individual data requests concerning various other issues. We believe the assumptions we have made provide reasonable valuation results and likely overstate the plan liabilities that would be determined for the Teachers' System if the payroll and total credited service for each member were accurately reflected in the data made available to PERAC.

Recently the Legislature enacted Chapter 114 of the Acts of 2000 *An Act Improving Teacher Recruitment, Retention, and Retirement*. Any member of the State Teachers' Retirement System or any teacher who is a member of the State-Boston retirement system before July 1, 2001 may elect to participate in this alternative retirement program. This valuation does not reflect the cost and liability of the program.

Section III
Summary of Valuation Results

A. Number of Members on Current Valuation Date	
1. Active Members	82,242
2. Retired Members and Survivors	31,746
Total	113,988
B. Total Regular Compensation of Active Members	$3,703,587,027
C. Normal Cost	
1. Superannuation	$339,715,566
2. Termination	21,032,982
3. Disability	46,855,672
4. Death	37,876,933
Total Normal Cost	$445,481,153
Employee Contribution	282,670,851
Net Employer Normal Cost	$162,810,302
D. Actuarial Liability	
1. Superannuation	$9,692,158,906
2. Termination	85,348,817
3. Disability	380,611,001
4. Death	430,856,526
Total Actives	$10,588,975,250
Vested Terminated Members (a)	175,000,000
Non-Vested Terminated Members (a)	N/A
Retirees and Survivors	5,656,295,880
Total Actuarial Liability	$16,420,271,130
Actuarial Value of Assets	13,681,111,047
Unfunded Actuarial Liability	**$2,739,160,083**
Funded Ratio (Ratio of Assets to Actuarial Liability)	83.3%

(a) Total inactive liability (including non-vested terminated members) for State Teachers estimated to be $175 million

Section IV
Development of Actuarial Gain or Loss ($000,000's omitted)

1.	Unfunded Actuarial Liability (UAL) 1/98	2,925
2.	Employer Normal Cost (8.25%)	102
3.	Interest on (1) and (2) at 8.25%	250
4.	Allocation of appropriation paid during 1998	418
5.	Interest on (4) assuming mid year payment	17
6.	Expected UAL 1/99: (1)+(2)+(3)-(4)-(5)	2,841
7.	Change in unfunded liability due to actuarial software (as of 1/99)	1,293
8.	Change in unfunded liability due to continued phase-in of asset valuation method	365
9.	Expected UAL 1/99 after adjustments: (6)+(7)+(8)	4,499
10.	Estimated employer normal cost for 1999 (8.25%)	153
11.	Interest on (9) and (10) at 8.25%	384
12.	Allocation of appropriation paid during 1999	384
13.	Interest on (12) assuming mid year payment	16
14.	Expected UAL 1/00: (9)+(10)+(11)-(12)-(13)	4,636
15.	Change in liability due to continued phase-in of asset valuation method	451
16.	Expected UAL 1/00 after adjustment: (14)+(15)	5,087
17.	UAL 1/00	2,739
18.	Total gain/(loss): (16)-(17)	2,348

Section V
State Teachers' Assets 12/31/99
(000's omitted)

A. Breakdown of Assets

Investment in the Pension Reserve Investment Trust	
Market value	$15,034,188
Actuarial value (91% of market value)	$13,681,111

Section V
State Teacher Assets 12/31/99
(000's omitted)

B. Development of Actuarial Value of Assets (AVA)

A. Development of 12/31/99 actuarial value	
1. Market value 12/31/98	12,158,140
2. Actuarial value 12/31/98 (as calculated)	11,089,445
3. Employee contributions 1999 (est.)	259,718
4. Employer contributions 1999 (est.)	446,000
5. Benefit payments 1999 (est.)	(599,000)
6. Expected Investment return on (2): .0825 x (2)	914,879
7. Expected Investment return on (3)+(4)+(5): ½ x .0825 x [(3) + (4) + (5)]	4,402
8. Expected AVA 12/31/99: (2)+(3)+(4)+(5)+(6)+(7)	12,115,444
B. Previous differences not yet amortized	
1. Unrecognized amount of 12/31/98 difference:	
a. .6 x 1997 gain	475,606
b. .8 x 1998 gain	593,089
c. Total	1,068,694
C. Gain/(loss) from 1999	
1. Market value 12/31/99	15,034,188
2. Expected market value 12/31/99:A(8)+B(1c)	13,184,139
3. Gain/ (loss) from 1999 investment	1,850,049
D. Development of AVA 12/31/99	
1. 1999 gain	1,850,049
2. 1998 gain	741,361
3. 1997 gain	792,676
4. 20% of 1999 g/(l)	370,010
5. 20% of 1998 g/(l)	148,272
6. 20% of 1997 g/(l)	158,535
7. Total	676,817
8. Actuarial value 12/31/99: A(8)+D(7)	12,792,262
9. % of Market Value	85.1%
E. Actuarial value scheduled phase-in (91% of Market Value)	13,681,111
F. Actuarial Value: greater of D(8) and E	13,681,111

Section VI
Information on System Membership

A critical element of an actuarial valuation is accurate and up-to-date membership information which is provided by the retirement board. As a part of this valuation, PERAC analyzed the member information submitted as of 12/31/99 by the State Teachers' Board of Retirement.

We made several assumptions with regard to missing, questionable or unavailable data. Since credited service is not provided, we estimated service based on the date of hire provided. The TRB indicated that this date of hire represents the original date of hire/membership with the Teachers' System. To the extent there are members with breaks in service, this methodology will overstate the plan's liability. For member data without a date of birth and/or date of hire, we assumed (based on credited service or date of birth) the member was hired at age 30 or current age if less than 30.

We also reviewed whether reported pay was reasonable for all members with reported pay greater than $80,000. We requested individual data sheets for about 50 members of this group. We compared annuity savings fund contributions for 1999 to both reported pay and the contribution rate for all others. Pay for all members hired after September 1, 1999 was assumed to be $30,000 unless otherwise provided by individual record listing. Pay for members hired January 1, 1999 to September 1, 1999 was annualized based on the annuity saving fund (ASF) contribution for 1999 and the date of hire unless an individual record was requested.

Members with pay less than $5,000 were assumed to be inactive unless additional information was specifically requested and provided and these members were shown to be active. Other adjustments were made for members with reported pay between $5,000 and $15,000 depending on status code, employment date, ASF balance, and refund amounts.

We could not determine the number of vested terminations and instead estimated a combined inactive (terminated vested plus terminated with an ASF balance) liability.

We believe all of the payroll changes we assumed for this valuation, in aggregate, and combined with using total creditable service based on the original date of hire with the Teachers' system, are conservative and likely overstate the plan liabilities that would be determined if the payroll and total credited service for each member were accurately reflected in the data made available to PERAC.

Section VI
Information on System Membership

A. Active Members

	Actives
Number of Members	82,242
Average Age	45.3
Average Service	16.0
Average Salary	$45,033
Average Annuity Savings Fund Balance	$37,360

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	1,923	2						1,925
25-29	7,565	1,078	2					8,645
30-34	4,525	2,583	608	6				7,722
35-39	2,606	1,335	2,016	407	6			6,370
40-44	2,749	1,215	1,805	1,837	996	7		8,609
45-49	2,652	1,342	1,863	1,495	4,556	3,923	19	15,850
50-54	1,541	876	1,464	843	1,586	7,719	4,843	18,872
55-59	596	287	651	460	614	1,547	6,442	10,597
60-64	145	64	179	181	266	437	1,784	3,056
65 +	29	19	55	35	65	102	291	596
Total	24,331	8,801	8,643	5,264	8,089	13,735	13,379	82,242

Section VI
Information on System Membership (Continued)

Part A Active Members (continued)

Salary by Age Distribution of Active Members

Present Age	*Number of Participants*	*Total Salary*	*Average Salary*
0 - 24	1,925	$56,630,784	$29,419
25 - 29	8,645	$277,257,594	$32,071
30 - 34	7,722	$276,899,257	$35,858
35 - 39	6,370	$254,091,108	$39,889
40 - 44	8,609	$366,740,824	$42,600
45 - 49	15,850	$746,298,100	$47,085
50 - 54	18,872	$965,664,601	$51,169
55 - 59	10,597	$564,076,238	$53,230
60 - 64	3,056	$164,268,791	$53,753
65 +	596	$31,659,729	$53,120
Total	82,242	$3,703,587,026	$45,033

B. Retirees and Survivors

	Superannuation	*Acc Dis*	*Ord Dis*	*Survivors*	Total
Number of Members	28,023	248	478	2,997	31,746
Average Age	72.0	65.6	65.5	68.3	71.5
Avg. Annual Benefit	$21,027	$24,989	$14,640	$8,785	$19,806
	Benefit by Payment and Retirement Type				
Annuity	$20,630,810	$32,033	$50,077	$434,984	$21,147,904
Pension	$568,620,370	$6,165,169	$6,947,973	$25,894,478	$607,627,990
TOTAL	$589,251,181	$6,197,202	$6,998,050	$26,329,462	$628,775,895

Section VI
Information on System Membership (Continued)

B. Retirees and Survivors (continued)

Benefit by Age Distribution

Present Age	*Number of Members*	*Total Benefits*	*Average Benefits*
less than 40	250	$2,079,636	$8,319
40 -44	27	$175,652	$6,506
45 - 49	153	$1,613,485	$10,546
50 - 54	758	$10,612,584	$14,001
55 - 59	2,107	$38,760,323	$18,396
60 - 64	5,078	$133,956,292	$26,380
65 - 69	6,736	$168,325,891	$24,989
70 - 74	5,755	$117,611,747	$20,436
75 - 79	4,276	$69,447,959	$16,241
80 - 84	2,948	$40,327,630	$13,680
85 - 89	2,083	$26,675,365	$12,806
90 +	1,575	$19,189,331	$12,183
Totals	31,746	$628,775,895	$19,806

Section VII
Valuation Cost Methods

A. Actuarial Cost Method

The Actuarial Cost Method which was used to determine pension liabilities and costs for benefits payable under the State Teachers' Contributory Retirement System for the year beginning January 1, 2000 is known as the Entry Age Normal Cost Method. Under this method the Normal Cost for each active participant on the valuation date is determined as the level percent of salary, which, if paid annually from the date the participant first became a member of the retirement system, would fully fund by retirement, death, disability or termination, the projected benefits which the participant is expected to receive. The Actuarial Liability for each participant is determined as the present value as of the valuation date of all projected benefits which the participant 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 participant is equal to the Normal Cost and Actuarial Liability for the Plan. The Unfunded Actuarial Liability is the Actuarial Liability less the actuarial value of assets.

The Normal Cost for a participant will remain a level percent of salary for each year of participation 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 addition of new participants or the retirement, death or termination of participants. The Actuarial Liability for a participant 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.

B. Asset Valuation Method

In valuations prior to the 1998 valuation, plan assets were determined at market value. As part of the 1998 valuation, this methodology was adjusted to reduce the potential volatility in the market value approach from year to year. For the 1998 valuation, we began to phase in an actuarial value of assets methodology by adopting an approach of using 97% of market value as the actuarial value of assets as of January 1, 1998. With this valuation we have adopted a 5-year average asset methodology. To continue the phase-in process, the actuarial value of assets as of January 1, 2000 was determined to be not less than 91% of the market value.

Section VIII
Actuarial Assumptions

Rate of Investment Return	8.25% per year
Rate of Salary Increase	6.0% per year
Interest Rate credited to the Annuity Savings Fund	5.5% per year
Assumed rate of Cost of Living Increases (COLA)	3% per year
Mortality Rate	1983 Group Annuity Mortality Table (gender distinct). This is applicable to both pre-retirement and post-retirement benefits. For disabled members, the mortality rate is assumed to be in accordance with the 1983 Group Annuity Mortality Table (gender distinct) with ages set forward 10 years. It is assumed that 55% of pre-retirement deaths are job-related. For members retired under an Accidental (job-related) Disability 40% of deaths are assumed to be from the same cause as the disability.
Rate of Withdrawal	Based on an analysis of past experience. Sample annual rates are shown below:

Age	
20	0.0960
30	0.0444
40	0.0185
50	0.0117

Section VIII
Actuarial Assumptions (Continued)

Rate of Disability

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

Age	
20	0.0003
30	0.0006
40	0.0012
50	0.0031
60	0.0061

It is also assumed that 55% of disabilities will be job-related.

Rate of Retirement (Superannuation)

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

Age	
43	0.0000
44	0.0000
45	0.0000
46	0.0000
47	0.0000
48	0.0000
49	0.0000
50	0.0000
5l	0.0000
52	0.0000
53	0.0000
54	0.0000
55	0.1255
56	0.0321
57	0.0310
58	0.0334
59	0.0348
60	0.0784
61	0.0692
62	0.1511

Actuarial Assumptions (Continued)

Age	
63	0.1071
64	0.1037
65	0.3568
66	0.2214
67	0.2159
68	0.2164
69	0.2536
70	1.0000

Administrative Expenses — Assumed to be paid separately and are not included in the appropriation.

Section IX
Summary of Plan Provisions (as of 1/1/00)

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 one retirement law, 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. All members of the State Teachers' Retirement System are classified in Group 1.

> 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, state correction officers and other hazardous positions specified in the statute.

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 : Regular 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.

Section IX
Summary of Plan Provisions (Continued)

RETIREMENT AGE: There is no mandatory retirement age for most employees. Certain public safety personnel are required to retire at age 65. Mandatory retirement age for state police officers is age 55, but the Commonwealth has been enjoined from enforcing this provision in conjunction with ongoing litigation.

Members over the age of 70 may elect to continue making contributions on regular compensation and continue to accrue additional years of creditable service.

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

hired after 1978, with 10 years of service and age 55.

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 employees' highest three year average salary (75% for Group 3 members). For veterans as defined in G.L. c. 32, s. 1, there is an additional benefit of $15 per year for each year of service, up to a maximum of 20 years.

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 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. 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.

Section IX
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 : If a member is under age 55, member contributions may be withdrawn. 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 interest.

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 before attaining age 55 with at least 10 years of creditable service.

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.

Accidental Disability:

Eligibility: Applies to members who become permanently and totally incapacitated for further duty 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. The member must file his or her application prior to attaining statutory "maximum age."

Section IX
Summary of Plan Provisions (Continued)

Retirement Allowance: 72% of salary plus an annuity based on accumulated member contributions, with interest. This amount is not to exceed 100% of pay (75% for members hired after 1987). There is an additional pension of $527.28 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 21 for any child who is a full time student at an accredited educational institution.

The retirement allowance of any member retired subsequent to January 12, 1988 for accidental disability after attaining age 55 with less than ten years of creditable service is recalculated as a superannuation as of the date the member attains age 65.

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 $312 per year, per child, payable to the spouse or legal guardian until all dependent children reach age 18 or 21 if a full time student, unless mentally or physically incapacitated.

The surviving spouse of a member of a police department 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.

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 until remarriage or death.

Section IX
Summary of Plan Provisions (Continued)

DEATH IN ACTIVE SERVICE :

Eligibility: At least 2 years of service

Allowance: An 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.

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. The percentage is based on the increase in the Consumer Price Index used for indexing Social Security benefits but cannot exceed 3.0%. This benefit is subject to an annual vote of the Massachusetts General Court.

METHODS OF PAYMENT

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

Section IX
Summary of Plan Provisions (Continued)

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 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.

Section X
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.

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).

Section X
Glossary of Terms (Continued)

ASSETS The value of securities as described in Section VII.

COST OF BENEFITS The estimated payment from the pension system for benefits for the fiscal year. This is the minimum amount payable during the first six years of some Funding Schedules.

EXPENSE FUND The fund into which the appropriation for administrative expenses is paid and from which all such expenses are paid.

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 22D of M.G.L. Chapter 32.

GASB Governmental Accounting Standards Board

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 BENEFIT OBLIGATION The portion of the Actuarial Present Value attributable to past service in accordance with the Projected Unit Credit cost method as stipulated by GASB Statement Number 5.

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 Commonwealth 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 Commonwealth. 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.