Commonwealth of Massachusetts

ACTUARIAL VALUATION REPORT

AS OF JANUARY 1, 1992

FOR THE

COMMONWEALTH'S TOTAL PENSION OBLIGATION

Division of Public Employee

Retirement Administration

TABLE OF CONTENTS

SECTION I

INTRODUCTION AND CERTIFICATION

This report presents the results of the actuarial valuation of all of the pension benefits which are the obligation of the Commonwealth of Massachusetts as follows:

- State Employees Retirement System
- Massachusetts Teachers' Retirement System
- Boston Teachers
- Cost of Living allowances to local systems

The valuation was performed as of January 1, 1992 pursuant to G.L. c. 32, as amended by c. 697 of the Acts of 1987. This report will show results which reflect the funding schedule as described in c. 32, s. 22C. The actuarial assumptions used to calculate the accrued liability and the normal cost are the same as those used in the actuarial valuation as of January 1, 1990. It is our opinion that the assumptions used are each reasonably related to plan experience and expectations.

The valuation was based on member data as of December 31, 1991 which was supplied by the Boston, State, and Teachers' Retirement Boards. Such tests as we deemed necessary were performed on the data to ensure accuracy. Asset information as of December 31, 1991 was provided by the Office of the State Treasurer and by the Pension Reserve Investment Management Board through the Comptrollers' Office and by the Annual Statement for the Financial Condition as submitted to this office by the Boston Retirement Board and the State Retirement Board in accordance with G.L. c. 32, s. 20(5)(h), s. 23(1)(c) and s. 23(2)(e).

In our opinion, this report represents an accurate appraisal of the actuarial status of the Commonwealth's total pension obligation performed in accordance with generally accepted actuarial principles and practices relating to pension plans.

Respectfully submitted,

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DATED: December 28, 1992

SECTION II

SUMMARY DISCUSSION

PART A Costs under Current Plan

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 amortization payments must be such that the Unfunded Actuarial Liability as of January 1, 1987 is reduced to 0 by June 30, 2028, and these payments may not increase at a rate higher than 7 1/2% per year. In addition, for the first ten years of the schedule (through the fiscal year ending June 30, 1998), the total payment must be no less than the total estimated cost of benefits in each of those years and the Pension Reserve Fund shall not be allowed to be reduced from its value on January 1, 1988, increased by 8% per year.

The results of the January 1, 1992 actuarial valuation are as follows ($000's omitted):

Total Normal Cost	$	689,639
Employee Contributions		339,195
Net Normal Cost	$	350,444
Total Actuarial Liability	$	18,309,891
Assets		9,824,228
Unfunded Actuarial Liability	$	8,485,663

Please see page 6 for more detail on these amounts.

The funding schedule is not due to be revised until FY95. Based upon the current schedule, the amount to be contributed for the fiscal year beginning July 1, 1993 is set forth below ($000 omitted).

Normal Cost	$	390,607
Amortization Cost		415,977
(1) Total Funding Schedule Amount	$	806,584
(2) Cost of Benefits	$	887,567
Required Appropriation [Maximum of (1) or (2)]	$	887,567

SECTION II (Continued)

SUMMARY DISCUSSION

PART B Comparison with Prior Valuation

Below we have shown the comparison between the current valuation and the January 1, 1990 valuation. The valuations were on the same basis. ($000 omitted)

	1/1/92	1/1/90	Increase(Decrease)	
Total Normal Cost	$ 689,639	$ 651,150	$ 38,489	5.9%
Employee Contributions	339,195	338,069	1,126	0.3%
Net Normal Cost	$ 350,444	$ 313,081	$ 37,363	11.9%
Total Actuarial Liability	$18,309,891	$18,682,500	$ (372,609)	(2.0%)
Assets	9,824,228	7,813,562	2,010,666	25.7%
Unfunded Actuarial Liability	$ 8,485,663	$ 10,868,938	($2,383,275)	(21.9%)

Since the prior valuation, there has been extensive data clean up. In addition, it is probable that the demographic composition of the work force changed between January 1, 1990 and January 1, 1992 due to a reduction of the number of active members in the retirement system.

The development of the Expected Unfunded Actuarial Liability based on the January 1, 1990 valuation is displayed on Page 7. 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, 1990 to January 1, 1992, the Actuarial Gain was $3,444,575,000. Such a gain would be created by the higher than assumed investment returns and the decrease in payroll. Another contributing factor would be the clean up of the actuarial data which has occurred since 1990. For the COLA, the actuarial gain is attributable to the fact that no COLA increases were given in 1990 and 1991.

Gains and losses due to actuarial factors are normally amortized over 15 years with level dollar payments, since, if actuarial assumptions are appropriate, the gains and losses from one year to the next would tend to offset each other. However, gains and losses due to refinements in data and methodology would be amortized over the entire funding schedule, since these changes are one time only and, in fact, should theoretically have been part of the original Actuarial Liability. Because it appears that most of the Actuarial Gain is due to actuarial factors, this gain would be amortized over 15 years and would reduce the funding schedule amount fairly dramatically if a funding schedule had been developed from this valuation. However, since the Cost of Benefits minimum still applies, no change to the required appropriation would occur. It is the opinion of the actuary that this is beneficial, because it will allow time to accumulate several years of experience, thereby decreasing the likelihood of large fluctuations in the schedule.

SECTION II (Continued)

SUMMARY DISCUSSION

PART C Considerations for the Future

As discussed at the beginning of this section, the Commonwealth of Massachusetts must make payments in accordance with s. 22C of G.L. c. 32 for the Massachusetts Teachers' Contributory Retirement System, State Employees' Contributory Retirement System, Boston teachers and for cost-of-living allowances (COLA) granted to retirees and survivors of all local systems since the State assumed that liability.

In accordance with s. 22C, the Commonwealth must appropriate no less than the Cost of Benefits in each year through fiscal year 1998. The average annual increase in the Cost of Benefits over the first five years of the schedule was approximately 8% and it is expected that there will be a substantial increase in Cost of Benefits in FY93 due to the Early Retirement Incentive. The funding schedule may be expected to increase at a rate of approximately 6 1/2% per year. Therefore, the Cost of Benefits would be expected to continue to be the required appropriation amount through FY98.

On January 31, 1990, GASB proposed another Statement on establishing standards for recognition and measurement of pension expenditure/expense in financial statements. These requirements, if adopted, will take effect beginning in FY95, but there may be changes before the Statement is finalized. At this time, however, the method which has been used herein to develop funding costs would be acceptable in developing expense amounts in accordance with such Statement with one significant exception. That exception is in the rate of increase in the amortization payments. If the Exposure Draft is adopted, the statement would allow the amortization payments on the Unfunded Actuarial Accrued Liability to increase at a rate no greater than the rate at which payroll is projected to increase (6% under current assumptions) for purposes of determining pension expense to be disclosed in the financial statements. Since the amortization schedule used for the funding schedule has payments increasing by 7 1/2% per year, the expense amount in the financial statements could be approximately 25% larger than the amount required under the funding schedule. The Commonwealth should be aware of this possibility and should determine the consequences of such a result. It would seem reasonable to consider a schedule with a lower rate of increase in the amortization schedule. This would have the advantage of complying with current standards of funding and could also afford a smooth transition from the Cost of Benefits requirements. We recommend that this be analyzed thoroughly over the next few years, so that an informed decision can be made once the Cost of Benefits minimum no longer applies. In the next valuation (which will be used to update the funding schedule) we will look at this issue in more detail.

SECTION II (Continued)

SUMMARY DISCUSSION

PART D Other Information Available in this Report

As we stated in Part A of this section, the valuation results by type of benefit are on Page 6. The Development of the Actuarial Gain (Loss), as discussed in Part B, is on Page 7. Following that, on Page 8 is an explanation of the development of the appropriation amounts.

The actuarial information required by the auditors can be found on Pages 9 and 10.

In addition, we have included a summary of asset information on Page 11. Assets are shown on a market value basis. For purposes of developing the Unfunded Actuarial Liability, we have used the market value of assets. In future years, an actuarial value of assets will be considered that would result in a five-year average of market values. This will serve to moderate the fluctuations that can occur if an unadjusted market value is used each year.

On Pages 12 to 20, demographic information regarding the members of the State Employees' Retirement System, Massachusetts Teachers' Retirement System, and Boston Teachers is presented. These charts display age, service and salary information for active members and age and benefit information for retirees and survivors. We have also included a description of the missing or invalid data and any assumptions which were made in consideration of such erroneous data.

A description of the funding method used in calculating valuation results is on Page 21 and the actuarial assumptions used are on Pages 22 to 23.

A brief summary of plan provisions appears on Pages 24 to 28.

Finally, a glossary of actuarial terminology is presented on Pages 29 to 31.

SECTION III

SUMMARY OF VALUATION RESULTS ($000's omitted)

	State Employees	State Teachers	Boston Teachers	Local COLA *	TOTAL
A. Number of Members					
1. Active	86,952	59,713	4,956	N/A	
2. Vested Terminated	1,652	5,369	35	N/A	
3. Retired & Survivors	38,768	25,264	2,102	N/A	
TOTAL	127,372	90,346	7,093	N/A	
B. Total Active Payroll	$2,638,441	$2,032,181	$ 184,101		
C. Normal Cost					
1. Superannuation	$ 227,465	$ 163,138	$ 13,905		
2. Termination	24,171	14,048	1,294		
3. Disability	75,587	26,905	4,496		
4. Death	49,515	35,473	7,036		
Total Normal Cost	$ 376,738	$ 239,564	$ 26,731	$ 46,606	$ 689,639
Employee Contributions	197,769	129,252	12,174	0	339,195
Net Employer Normal Cost	$ 178,969	$ 110,312	$ 14,557	$ 46,606	$ 350,444
D. Actuarial Liability					
1. Active					
a. Superannuation	$3,543,303	$4,559,146	$ 382,683		
b. Termination	73,466	42,676	7,054		
c. Disability	446,320	301,671	48,206		
d. Death	393,682	522,126	60,300		
Total Active	$4,456,771	$5,425,619	$ 498,244	$ 382,783	$10,763,417
Vested Terminated	145,411	551,726	5,794	12,042	714,973
Non-Vested Inactives	43,313	43,060	598	0	86,971
Retirees & Survivors	2,657,040	2,685,928	254,595	1,146,967	6,744,530
Total Actuarial Liability	$7,302,535	$8,706,333	$ 759,231	$1,541,792	$18,309,891
Assets	4,698,747	4,783,890	341,591	0	9,824,228
Unfunded Actuarial Liability	$2,603,788	$3,922,443	$ 417,640	$1,541,792	$8,485,663
Funded Ratio	64.3%	54.9%	45.0%	0.0%	53.7%

*This represents the liability attributable to local employees. The liability attributable to the State, Teachers, and Boston teachers is calculated as part of the overall liability associated with those components.

DEVELOPMENT OF THE ACTUARIAL GAIN OR LOSS
($000's Omitted)

	STATE	TEACHERS	BOSTON TEACHERS	LOCAL COLA	TOTAL
A. Development of Expected Unfunded Actuarial Liability					
1. Unfunded Actuarial Liability, 1/1/90	$ 3,394,315	$5,043,881	$ 427,140	$2,003,602	$10,868,938
2. Normal Cost, 1/1/90	166,935	88,632	9,398	48,116	313,081
3. Interest on 1. and 2. at 8% per year	284,900	410,601	34,923	164,137	894,561
4. Appropriation paid during 1990	299,121	258,434	25,730	82,599	665,884
5. Interest on 4 (assume mid-year payment).	11,965	10,337	1,029	3,304	26,635
6. Expected Unfunded Actuarial Liability, 1/1/91 [1.+2.+3.-4.-5.]	$ 3,535,064	$5,274,343	$ 444,702	$2,129,952	$11,384,061
7. Projected Normal Cost, 1/1/91	176,951	93,950	9,962	51,003	331,866
8. Interest on 6. and 7. at 8% per year	296,961	429,463	36,373	174,476	937,273
9. Appropriation paid during 1991	322,772	268,066	26,411	77,907	695,156
10. Interest on 9. (assume mid-year payment)	12,911	10,723	1,056	3,116	27,806
11. Expected Unfunded Actuarial Liability, 1/1/92 [6.+7.+8.-9.-10.]	$ 3,673,293	$5,518,967	$ 463,570	$2,274,408	$11,930,238
B. Actual Unfunded Actuarial Liability	$ 2,603,788	3,922,443	$ 417,640	$1,541,792	$8,485,663
C. Actuarial Gain (Loss) [A.11.-B.]	$ 1,069,505	1,596,524	$ 45,930	$ 732,616	$ 3,444,575

SECTION V

APPROPRIATION REQUIREMENTS FOR THE FISCAL YEAR BEGINNING JULY 1, 1993
($000's Omitted)

	STATE	TEACHERS	BOSTON TEACHERS	COLA	TOTAL
1. Normal Cost from funding schedule	$ 207,337	$110,083	$ 11,673	$ 61,514	$ 390,607
2. Amortization Payment for the Unfunded Actuarial Liability from funding schedule	$ 128,529	190,992	16,909	79,547	415,977
3. Total Amount Required under Funding Schedule [1.+2.]	$ 335,866	301,075	28,582	141,061	806,584
4. Cost of Benefits	$ 414,359	338,143	30,805	104,260	887,567
5. Required Appropriation [Maximum of 3. or 4.]	$ 414,359	338,143	30,805	104,260 *	$887,567

*Although the amount for the COLA in number three exceeds the appropriation for the COLA in number five, s. 22c authorizes an appropriation equal to the Cost of Benefits when that cost exceeds the funding schedule amount for all four components.

NOTE: Payments are assumed to occur monthly.

INFORMATION REQUIRED BY AUDITORS

(000's omitted)

The information below and on the following page is required by the auditors in order to complete the financial statements for the Commonwealth. The Pension Benefit Obligation has been calculated in accordance with GASB Statement No. 5, and is a reflection of the system's status at the current time. The actuarial method which was used to determine these amounts is the Projected Unit Credit Cost Method, with salary increases. This method allocates an amount of benefit to each year of service, which is unlike the Entry Age Normal Cost Method, used in the valuation, which allocates a cost as a percent of salary to each year of service. See page 21 for more details on the Entry Age Normal Cost Method.

Pension expense as determined in accordance with APB Opinion No. 8 was also calculated using the Projected Unit Credit Cost Method.

A. GASB STATEMENT NO. 5 - ACTUARIAL INFORMATION

	STATE	TEACHERS	BOSTON TEACHERS	COLA	TOTAL
Projected Benefit Obligation as of 1/1/92 attributable to:					
1. Retirees and beneficiaries currently receiving benefits	$ 2,657,040	$2,685,928	$254,595	$1,146,967	$ 6,744,530
2. Terminated employees who have not yet received benefits or a return of contributions (inactives)	188,724	594,786	6,392	12,042	801,944
3. Current employees (active members)					
a. Accumulated employee contributions with interest	1,634,489	1,649,266	133,477	0	3,417,232
b. Vested benefits financed by the Commonwealth	1,962,161	3,061,555	282,557	412,752	5,719,025
c. Non-vested benefits financed by the Commonwealth	617,986	239,329	27,592	72,346	$ 957,253
Total Pension Benefit Obligation	$7,060,400	$8,230,864	$704,613	$1,644,107	$17,639,984
Assets at Market Value	4,698,747	4,783,890	341,591	0	9,824,228
Unfunded Pension Benefit Obligation	$ 2,361,653	$3,446,974	$363,022	$1,644,107	$7,815,756

INFORMATION REQUIRED BY AUDITORS
($000's omitted)

B. APB OPINION NO. 8 - PENSION EXPENSE

FY89 Unpaid Pension Liability

		STATE	TEACHERS	BOSTON TEACHERS	LOCAL COLA	TOTAL
FY89 Unpaid Pension Liability	$	170,661	$234,881	$21,288	$129,016	$555,846
FY90 Unpaid Pension Liability	+	174,892	237,555	21,868	155,710	590,025
FY91 Unpaid Pension Liability	+	233,645	$312,631	$20,523	$166,869	$733,668
Total Unpaid Pension Liability (FY89 through FY91)		579,198	785,067	63,679	451,595	$1,879,539
Normal Cost, 7/1/91	$	397,304	$277,218	$30,214	$ 49,305	$ 754,041
Amortization of 7/1/88 Unfunded Acc. Liability	+	235,020	331,608	29,174	160,553	756,355
Amortization of FY89(Gain) Loss	+	(17,462)	+(15,314)	+(1,714)	+ 0	+ (34,490)
Amortization of FY90 Loss (Gain)	+	5,635	(2,479)	488	(9,671)	(6,027)
Amortization of FY91 Loss (Gain)	+	(146,772)	(157,202)	(9,156)	(76,935)	(390,065)
Total Pension Expense, 7/1/91	$	473,725	$433,831	$49,007	$123,252	$1,079,814
Interest to 6/30/92	+	37,898	34,706	3,921	9,860	86,385
Interest on Unpaid Pension Liability	+	46,336	62,805	5,094	36,128	150,363
Total Pension Expense, 6/30/92	$	557,959	$531,343	$58,022	$169,239	$1,316,563
Actual FY92 Contributions (includes Employee Contributions)	-	522,771	432,402	38,585	73,990	1,067,748
FY92 Unpaid Pension Liability	$	35,188	$98,941	$19,437	$95,249	$ 248,815
Total Unpaid Pension Liability(FY89-FY92)	$	614,386	$884,008	$83,116	$546,844	$2,128,354

NOTE: Opinion #8 requires the development of a funding schedule according to the level dollar amortization method. The funding schedule established pursuant to c. 32, s. 22C is based on the increasing amortization payment method. This explains the existence of an unpaid pension liability under Opinion #8.

SECTION VII

ASSETS

($000's omitted)

	STATE	TEACHERS
A. Breakdown of Assets		
Investment in the Treasurers' Masters Trust (market value)	$3,035,632	$3,460,902
Investment in the Pension Reserve Investment Trust (market value)	$1,663,115	1,322,988
	$4,698,747	$4,783,890
B. Breakdown of Assets by Fund		
Annuity Savings Fund	$1,802,146	
Annuity Reserve Fund	$ 481,768	*
Military Service Fund	523	
Pension Fund	$ 751,195	
Pension Reserve Fund	$1,663,115	
	$4,698,747	$4,783,890

C. Assets for Boston Teachers

For Boston Teachers, we assumed that the portion of total assets to be allocated is the same proportion as was the case in the January 1, 1992 actuarial valuation (as of July 1, 1992) for the City of Boston, performed by William M. Mercer, Inc.

	12/31/91	12/31/89
Total City of Boston assets (Market Value)	$1,181,976	$961,848
Assets allocated to Boston Teachers	$ 341,591	$275,080

* This breakdown has not been made available to us at this time, however, $3,460,902,000 is attributable to the Annuity Savings Fund, the Annuity Reserve Fund, the Military Service Fund and $1,322,988 is attributable to the Pension Reserve Fund. This information is normally included in the Annual Statement which must be submitted to PERA by May 15 of each year, however, the Teachers' Retirement System has been unable to complete these statements since 12/31/88.

SECTION VIII

INFORMATION ON SYSTEM MEMBERSHIP

PART A - State Employees

A critical element of an actuarial valuation is accurate and up-to-date membership information. In recognition of this fact, PERA conducted an extensive review of existing data collection methods while also analyzing actual member information submitted as of 12/31/91 by the State Board of Retirement.

With respect to the refinement of the existing database, PERA and the State Board of Retirement devoted extensive effort in this area. This enormous task required numerous corrections and additions to incomplete information. Significant accomplishments have been realized.

A. Active Members

	Actives	Vested Terminations
Number of Members	86,952	1,652
Average Age	43.3	50.6
Average Service	9.7	15.5
Average Salary	$30,344	$27,481
Average Annuity Savings Fund Balance	$18,798	$25,822

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	2,832	314						3,146
25-29	5,303	3,291	237					8,831
30-34	4,372	5,226	2,627	110				12,335
35-39	3,417	4,505	4,123	1,253	119			13,417
40-44	2,655	3,906	3,665	2,397	1,260	68		13,951
45-49	1,996	3,036	2,504	1,807	1,987	469	15	11,814
50-54	1,170	1,996	1,659	1,113	1,367	738	190	8,233
55-59	829	1,441	1,431	934	1,103	777	417	6,932
60-64	453	1,109	1,178	804	870	648	540	5,602
65+	114	422	686	425	433	281	330	2,691
Total	23,141	25,246	18,110	8,843	7,139	2,981	1,492	86,952

Salary by Age Distribution of Active Members

PART A - State Employees (Continued)

Present Age	Number of Participants	Total Salary	Average Salary
20-24	3,146	$ 62,144,186	$ 19,753
25-29	8,831	217,594,737	$ 24,640
	2*	$ 37,104	$ 18,552
30-34	12,335	343,991,399	$ 27,887
	65*	1,566,399	$ 24,098
35-39	13,417	408,601,167	$ 30,454
	162*	4,503,721	$ 27,801
40-44	13,951	450,749,496	$ 32,309
	307*	9,331,688	$ 30,396
45-49	11,814	388,528,732	$ 32,887
	345*	10,404,875	$ 30,159
50-54	8,233	271,499,587	$ 32,977
	297*	8,712,112	$ 29,334
55-59	6,932	228,415,793	$ 32,951
	207*	5,220,207	$ 25,218
60-64	5,602	180,772,704	$ 32,269
	126*	2,859,667	$ 22,696
65+	2,691	86,143,508	$ 32,012
	141*	2,762,912	$ 19,595
Total	86,952	$2,638,441,309	$ 30,344
	1,652*	$ 45,398,685	$ 27,481

Total Employee Contributions made during 1991: $171,823,921

* Vested Terminated Employees

SECTION VIII (Continued)

PART A - State Employees (Continued)

About 2% of the active data (including vested terminated members) was missing Sex Code or Date of Birth. In those few cases, we assumed the missing data was in the same pattern as the data which was present. For example, we assumed that 53.5% of the missing Sex Codes were F and 46.5% were M, which is the same proportion as found in the available data. Unless otherwise indicated, we assumed employees are full time, two thirds of the members are married with the male spouse three years older, and married members have two children. Veteran Status was not available in about 4% of the records. In those cases, we assumed that 80% of the members were not veterans and 20% were veterans.

C. Retirees and Survivors

	Super.	Disabilities Acc	Disabilities Ord	Survivors	Total
Number of Members	29,761	2,156	871	5,980	38,768
Average Age	71.9	63.0	66.8	70.5	71.1
Average Annual Benefit	$ 10,302	$ 14,920	$ 10,468	$ 5,209	$ 9,777
Annuity	$ 28,954,623	$ 940,114	$ 510,352	$3,030,062	$ 33,435,151
Pension from Commonwealth	277,435,431	31,227,205	8,602,948	28,101,285	345,366,869
Pension from Other Systems	226,008	1,035	4,553	18,837	250,433
Total	$306,616,062	$32,168,354	$9,117,853	$31,150,184	$379,052,453

Benefit by Age Distribution

Present Age	Number of Participants	Total Benefits	Average Benefits
less than 40	151	$ 1,625,644	$ 10,766
40-45	284	3,564,792	$ 12,552
46-49	594	8,177,470	$ 13,767
50-54	768	9,839,720	$ 12,812
55-59	1,793	20,735,157	$ 11,565
60-64	4,451	56,068,451	$ 12,597
65-69	8,311	100,552,008	$ 12,099
70-74	8,616	80,653,208	$ 9,361
75-79	6,636	49,204,979	$ 7,415
80-84	4,272	29,186,147	$ 6,832
85-89	2,213	15,121,340	$ 6,833
90+	679	4,323,537	$ 6,368
Total	38,768	$379,052,453	$ 9,777

Retiree data had very few errors or missing information. In the few cases where assumptions were necessary, a best estimate was made based on the data available in that particular record.

SECTION VIII

INFORMATION ON SYSTEM MEMBERSHIP

PART B - Massachusetts Teachers'

A critical element of an actuarial valuation is accurate and up-to-date membership information. In recognition of this fact, PERA conducted an extensive review of existing data collection methods while also analyzing actual member information submitted as of 12/31/91 by the Teachers' Board of Retirement.

With respect to the refinement of the existing database, PERA, the Teachers' Board of Retirement, and programmers in the Treasury Department devoted extensive effort in this area. This enormous task required numerous corrections and additions to incomplete information. Significant accomplishments have been realized, however, the work is ongoing.

A. Active Members	Actives	Vested Terminations
Number of Members	59,713	5,369
Average Age	46.0	50.2
Average Service	16.2	19.5
Average Salary	$34,032	$24,054
Average Annuity Savings Fund Balance	$27,620	$28,706

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
20-24	316	1						317
25-29	1,826	729						2,555
30-34	1,353	2,181	309					3,843
35-39	1,212	2,410	2,309	1,312	1			7,244
40-44	1,170	2,359	2,318	5,251	3,646			14,744
45-49	592	1,353	1,536	2,230	5,515	2,332		13,558
50-54	224	549	604	1,106	1,598	2,705	1,321	8,107
55-59	102	241	284	603	858	980	2,615	5,683
60-64	28	131	101	315	496	396	1,518	2,985
65+	10	25	28	68	132	96	318	677
Total	6,833	9,979	7,489	10,885	12,246	6,509	5,772	59,713

Salary by Age Distribution of Active Members

PART B - Massachusetts Teachers' (Continued)

Present Age	Number of Participants	Total Salary	Average Salary
20-24	317	$ 4,927,485	$ 15,544
25-29	2,555	53,836,171	21,071
30-34	3,843 10*	97,322,567 189,177*	25,325 18,918*
35-39	7,244 332*	216,167,765 7,396,160*	29,841 22,278*
40-44	14,744 1,279*	497,586,834 27,943,911*	33,748 21,848*
45-49	13,558 1,403*	494,765,008 35,851,353*	36,492 25,553*
50-54	8,107 985*	306,148,534 24,178,950*	37,763 24,547*
55-59	5,683 736*	219,633,536 18,834,477*	38,647 25,590*
60-64	2,985 426*	115,860,877 11,173,987*	38,814 26,230*
65+	677 198*	25,932,344 3,577,184*	38,305 18,067*
TOTAL	59,713 5,369*	2,032,181,121 129,145,199*	$ 34,032 24,054*

Total Employee Contributions made during 1991: $123,207,830

Less than 2 1/2% of the remaining active data was missing Sex Code or Date of Birth. In those few cases, we assumed the missing data was in the same pattern as the data which was present. For example, we assumed that 65% of the missing Sex Codes were F and 35% were M, which is the same proportion as found in the available data. We assumed all employees are full time unless otherwise indicated. Two thirds of the members were assumed to be married with the male spouse three years older and married members were assumed to have two children. Since Veteran Status was not available, we assumed that 85% of the members were not veterans and 15% were veterans.

*Vested terminated members.

SECTION VIII (Continued)

INFORMATION ON SYSTEM MEMBERSHIP

PART B - Massachusetts Teachers' (Continued)

C. Retirees and Survivors

	Super.	DISABILITIES Acc.	Ord.	Survivors	Total
Number of Members	21,992	210	491	2,571	25,264
Average Age	72.3	61.4	63.1	68.5	71.7
Average Annual Benefit	$13,482	$20,114	$11,851	$6,510	$12,796
Annuity	$28,441,112	$195,545	$440,435	$1,813,418	$30,890,510
Pension from Commonwealth	268,059,951	4,028,505	5,378,650	14,923,412	292,390,518
Total	296,501,063	4,224,050	5,819,085	16,736,830	323,281,028

BENEFIT BY AGE DISTRIBUTION

Present Age	Number of Members	Total Benefits	Average Benefits
less than 40	37	$ 182,988	$ 4,946
40-45	109	964,419	8,848
46-49	346	3,428,553	9,909
50-54	499	4,841,012	9,701
55-59	1,504	17,077,355	11,355
60-64	3,845	61,305,358	15,944
65-69	4,893	75,750,875	15,481
70-74	4,276	54,765,315	12,808
75-79	3,383	38,343,285	11,334
80-84	3,291	35,519,656	10,793
85-89	2,326	23,982,458	10,311
90+	755	7,119,754	9,430
Totals	25,264	$323,281,028	$12,796

Retiree data had very few errors or missing information. In the few cases where assumptions were necessary, a best estimate was made based on the data available in that particular record.

SECTION VIII

INFORMATION ON SYSTEM MEMBERSHIP

PART C - Boston Teachers

A critical element of an actuarial valuation is accurate and up-to-date membership information. In recognition of this fact, PERA conducted an extensive review of existing data collection methods while also analyzing actual member information submitted as of 12/31/91 by the Boston Board of Retirement.

With respect to the refinement of the existing database, PERA, the Boston Board of Retirement, and programmers in the City of Boston Management Information Systems Department devoted extensive effort in this area. This enormous task required numerous corrections and additions to incomplete information. Significant accomplishments have been realized; however, the work is ongoing.

Active Members

	Active	Vested Term.
Number of Members	4,956	35
Average Age	47.3	52.6
Average Service	15.7	19.6
Average Salary	$37,153	$39,853
Average Annuity Saving Fund Balance	$26,932	$33,412

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
20-24	25	1						26
25-29	101	63						164
30-34	94	173	41	1				309
35-39	87	196	159	119	1			562
40-44	75	262	109	358	273	1		1,078
45-49	43	152	94	150	437	225	1	1,102
50-54	20	91	62	97	127	230	64	691
55-59	19	51	36	89	110	100	87	492
60-64	7	35	25	60	111	46	86	370
65+	0	15	10	35	46	28	28	162
Total	471	1,039	536	909	1,105	630	266	4,956

SECTION VIII (Continued)

INFORMATION ON SYSTEM MEMBERSHIP

PART C - Boston Teachers - (Continued)

Salary by Age Distribution of Active Members

Present Age	Number of Participants	Total Salary	Average Salary
20-24	26	$ 340,491	$13,096
25-29	164	4,354,962	$26,555
30-34	309	10,035,803	$32,478
35-39	562	20,102,424	$35,769
	4*	150,832	$37,708
40-44	1,078	42,323,659	$39,261
	5*	196,877	$39,375
45-49	1,102	44,351,533	$40,246
	9*	379,344	$42,149
50-54	691	26,682,140	$38,614
	4*	140,240	$35,060
55-59	492	17,746,582	$36,070
	3*	92,649	$30,883
60-64	370	13,235,407	$35,771
	5*	252,985	$50,597
65+	162	4,955,047	$30,587
	5*	181,936	$36,387
Total	4,956	$ 184,128,048	$37,153
	35*	1,394,863	$39,853

Total Employee Contributions made during 1991: $ 10,977,552

Less than 1% of the active data was missing. Date of Birth. In those few cases, we made an estimate based on the data available in the particular record. Unless otherwise indicated, we assumed all employees are full time, that two thirds of the members were married with the male spouse three years older, and that married members have two children.

*Vested terminated members

SECTION VIII (Continued)

INFORMATION ON SYSTEM MEMBERSHIP

PART C - Boston Teachers (Continued)

Retirees and Survivors

	Super.	Disabilities Acc	Disabilities Ord	Survivors	Total
Number of Members	1,797	57	42	206	2,102
Average Age	74.7	62.3	67.0	71.3	73.9
Average Annual Benefit	$16,765	$18,090	$13,297	$6,820	$15,757
Annuity	$ 2,707,186	$ 40,997	$ 34,914	$ 182,778	$ 2,965,875
Pension from Commonwealth	27,419,624	990,135	523,592	1,222,154	30,155,505
Pension from Other Systems					
Total	$30,126,810	$1,031,132	$ 558,506	$ 1,404,932	$ 33,121,380

Benefit by Age Distribution

Present Age	Number of Participants	Total Benefits	Average Benefits
less than 40	4	$ 17,888	$ 4,472
40-45	5	68,839	$13,768
46-49	14	160,586	$11,470
50-54	32	291,044	$ 9,095
55-59	66	892,540	$13,523
60-64	228	4,268,025	$18,719
65-69	400	8,088,901	$20,222
70-74	367	6,098,642	$16,618
75-79	304	4,358,976	$14,339
80-84	377	5,196,387	$13,784
85-89	220	2,743,729	$12,471
90+	85	935,823	$11,010
Total	2,102	$ 33,121,380	$15,757

Retiree data had very few errors or missing information. In the few cases where assumptions were necessary, a best estimate was made based on the data available in that particular record.

SECTION IX

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 Employees' Contributory Retirement System, the Massachusetts Teachers' Retirement System and for Boston Teachers, for the year beginning January 1, 1992, 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 minus current 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

Assets have been valued at market value. See page 17 for details on the allocation of assets for Boston Teachers.

C. Valuation Method for COLA

The costs and liabilities for the COLA were calculated for 16 systems for whom we had completed valuations and which used the same assumptions and cost method as were used in this report. The results were extrapolated based upon numbers of members in each category (active, vested termination, retiree and survivor).

SECTION X

ACTUARIAL ASSUMPTIONS

Rate of Investment Return	8% per year
Rate of Salary Increase	6% per year
Interest Rate credited to the Annuity Savings Fund	5 1/2% per year
Assumed Rate of Cost of Living Increases (COLA)	3% per year

Mortality Rate

1971 Group Annuity Mortality Table with ages set back one year for non-disabled males and set back six years for non-disabled females. A one-year setback means that members are assumed to die at an age one year later than would be the case under the table with no setback. The purpose of this is to reflect the improvement in mortality since 1971. This is applicable to both pre-retirement and post-retirement benefits. For disabled members, mortality is assumed to be in accordance with the 1971 Group Annuity Mortality Table set forward nine years for males and set forward four years for females. It is assumed that 55% of pre-retirement deaths are job-related. For members retired under an Accidental (job-related) Disability, it is assumed that 40% of deaths are from the same cause as the disability.

Rate of Withdrawal

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

Age	Teachers	Other Groups 1 & 2	Groups 3 & 4
20	.0960	.1200	.0210
30	.0444	.0555	.0165
40	.0185	.0231	.0056
50	.0117	.0146	0

SECTION X (Continued)

ACTUARIAL ASSUMPTIONS

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

Age	All Teachers	Other Groups 1 & 2	Groups 3 & 4
20	.0003	.0006	.0010
30	.0006	.0011	.0023
40	.0012	.0024	.0087
50	.0031	.0061	0
60	.0061	.0123	0

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	Teachers Groups 1 & 2	Group 3	Group 4
50		1.0000	.3201
51		1.0000	.0718
52		1.0000	.0593
53		1.0000	.0803
55		1.0000	.0769
55	.1255	1.0000	.1554
56	.0321	1.0000	.0907
57	.0310	1.0000	.0909
58	.0334	1.0000	.1194
59	.0348	1.0000	.1136
60	.0784	1.0000	.2395
61	.0692	1.0000	.1360
62	.1511	1.0000	.1950
63	.1071	1.0000	.1253
64	.1037	1.0000	.1873
65	.3568	1.0000	1.0000
66	.2214	1.0000	1.0000
67	.2159	1.0000	1.0000
68	.2164	1.0000	1.0000
69	.2536	1.0000	1.0000
70	1.0000	1.0000	1.0000

Note: For Group 3 members, retirement is assumed to occur on the later of attainment of age 50 or completion of 20 years of service.

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

Credited Service Members are assumed to buy back the period of service between Date of Hire and Date of Membership, if any.

Assumptions made with respect to data are discussed in Section VIII.

SECTION XI

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 bound together under 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 whose employment commences prior to age 65. Eligibility with respect to part-time, provisional, temporary, seasonal or intermittent employment is governed by the retirement board. Membership is optional for certain elected officials and certain state officials appointed by the governor.

There are 4 classes of membership in the retirement system:

Group 1 -general employees, including teachers, 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 - Municipal police officers, firefighters, state correction officers and other specified hazardous positions.

MEMBER CONTRIBUTIONS: Member contributions vary depending on the date of membership:

Prior to 1975 - 5% of regular compensation
1975 - 1983 - 7% of regular compensation
1984 to present - 8% of regular compensation

Individuals whose membership became effective on or after January 1, 1979, contribute an additional 2% of regular compensation over $30,000.

RATE OF INTEREST: Regular Interest on regular deductions made after January 1, 1984 is a rate established by the Commissioner of PERA 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.

SUMMARY OF PLAN PROVISIONS

RETIREMENT AGE: The maximum retirement age for Group 4 employees is age 65. There is no maximum retirement age for employees in Group 1. Group 1 employees may remain in service after age 70 upon completion of an annual physical which determines that the member is capable of performing the duties of his or her office or position.

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: An employee is eligible for a superannuation retirement allowance (or 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, or
- *attainment of age 55 if classified in Group 3

AMOUNT OF BENEFIT: An employees' annual pension 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. 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. The amount determined by the benefit formula cannot exceed 80% of the employees' average salary.

For Group 3 members, an allowance will be equal to one-half of the average annual rate of regular compensation received during the 12 month period immediately preceding the retirement date, with an increase of of 1/12 of 1% for each full month of service in excess of 20 years.

Salary is defined as gross regular compensation.

Average Salary is the average of pay during the 3 consecutive years that produce the highest average, or, if greater, during the last three years (whether or not consecutive) preceeding retirement.

The Benefit Rate varies with the employees' retirement age, but the highest rate of 2.5% applies to Group 1 employees who retire on or after age 65, Group 2 employees who retires on or after age 60, and to Group 4 employees who retire on or after age 55. A .1% reduction is applied for each year of age under the maximum age for the member's group.

SUMMARY OF PLAN PROVISIONS

DEFERRED VESTED BENEFIT: A participant who has completed 10 or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary in accordance with G.L. c. 32 s. 10, a participant may be vested after 6 years.

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 or over age 55 and not entitled to receive a retirement allowance, member contributions may be withdrawn. Employees who first become members on or after January 1, 1984 and who voluntarily withdraw from service, may receive only limited interest on their contributions. 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.

COST OF LIVING: The first $9,000 of a retiree's total allowance is subject to a cost-of-living adjustment related to a change of at least 3% in the Consumer Price Index. This benefit is subject to an annual vote of the Massachusetts General Court. The total Cost-of-Living adjustment for periods after 1982 is paid for by the Commonwealth of Massachusetts.

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

Ordinary Disability:

Eligibility: Non-veterans prior to age 55 with 10 years of service or veterans with 10 years of creditable service prior to reaching maximum retirement age, who become totally and permanently disabled by reason of a non-job related disability.

Retirement Allowance: Equal to the accrued 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 preceeding 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.

SECTION XI (Continued)

SUMMARY OF PLAN PROVISIONS

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 at some definite place and at some definite time without serious and willful misconduct on his or her part. There are no minimum age or service requirements.

Retirement Allowance: 72% of salary plus an annuity based on accumulated member contributions, with interest. In addition, a dependent allowance of $472.56 per year subject to Cost-of Living increases granted by the legislature, per dependent child, up to age 18, 21 if a full time student, with no age limitation if the child is mentally or physically incapacitated from earning. The total allowance is not to exceed 100% of pay. (75% for members hired after 1987)

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 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 incapacitated.

DEATH AFTER ACCIDENTAL DISABILITY RETIREMENT

If the member's death is from a cause unrelated to the condition for which the member received accidental disability benefits, the spouse will receive an annual allowance of $3,000 until remarriage or death.

DEATH IN ACTIVE SERVICE:

Eligibility: At least 2 years of service

Allowance: An immediate allowance equal to two-thirds of the option (c) allowance to which the member would have been entitled had he or she retired on the date of death. For death occurring prior to the member's attaining age 55, the benefit rate corresponding to age 55 for the member's group is used.

For members in service with at least 2 years of service at death, the surviving spouse receives an additional allowance equal to the sum of $1440 per year for the first eligible child and $1080 per year for each additional eligible child.

METHODS OF PAYMENT

An employee 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 employee's death.

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

Option C: A reduced annual allowance, payable in monthly installments, commencing at retirement, and at the death of the retired employee, 2/3 of the pension payable to the member's designated beneficiary (who may be the spouse, former spouse who has not remarried, child, parent, sister, or brother of the employee) for the life of the beneficiary. If the beneficiary pre-deceases the retiree, the benefit payable increases (or pops-up) to the amount which would have been payable under Option A. Option C is not available to accidental disability recipients.

ALLOCATION OF PENSION COSTS: If an employee's total creditable service was partly earned by employment in more than 1 municipality, authority of state agency, (thus more than one retirement system) the cost of the "pension portion" is allocated between the different systems pro rata based on the employee's service within each retirement system.

SECTION XII

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, 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. The Unfunded Liability as of January 1, 1987 is amortized separately from each Actuarial Gain or Loss or change that goes to make up the Unfunded Accrued Liability in subsequent years.

GLOSSARY OF TERMS

ANNUITY SAVINGS FUND

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

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.

COMMONWEALTH'S PENSION LIABILITY FUND

The fund into which is paid the appropriation made by the Commonwealth in accordance with the most recent Funding Schedule plus any additional appropriation as recommended by the Governor.

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 ten years of the Funding Schedule.

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 to be appropriated to the pension system, excluding administrative expenses, in accordance with s. 22C of G.L. c. 32.

SECTION XII (Continued)

GLOSSARY OF TERMS

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 amounts from the Commonwealth's Pension Liability Fund are transferred and from which pension benefits are paid.

PENSION RESERVE FUND

The fund which is credited with all amounts set aside for the purpose of meeting future pension liabilities, including excess interest earnings. On January 12, 1988, this became the Commonwealth's Pension Liability Fund.

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. 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.