

Pennsylvania Municipal Retirement System

Actuarial Valuation as of January 1, 2003

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May 10, 2004


Pennsylvania Municipal Retirement Board
Eastgate Center, Suite 301
1010 North Seventh Street
Harrisburg, Pennsylvania 17102-1400

Dear Board Members:

We are pleased to submit to you our Actuarial Report on the Pennsylvania Municipal Retirement System as of January 1, 2003. The participant and financial data upon which our calculations were based were supplied to us by the staff of the System, under the direction of James B. Allen, whose assistance we gratefully acknowledge. The actuarial calculations were prepared by Jarred Scott, under my supervision.

Sincerely,

THE SEGAL COMPANY

By: 
Eli Greenblum, FSA, MAAA, EA
Senior Vice President & Actuary

Enclosures

173121/00448.001

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Coverage

The System covered 656 defined benefit and 163 defined contribution plans as of January 1, 2003, compared to 644 and 154, respectively, as of a year earlier. In aggregate, there was a 2.6% increase in the number of plans since January 1, 2002. We received data on 8,142 active employees as of January 1, 2003 who were participating in defined benefit plans under PMRS, representing a 3.9% increase, the strongest growth in over 10 years. Their average salary of \$36,034 represents a 3.8% increase over the prior year figure. On average, these employees were age 45.2 and had 11.3 years of credited service, compared to age 44.8 and 11.3 years of credited service last year. The number of defined benefit inactive participants entitled to deferred pensions increased by 34.8% from 351 to 473. In addition, there were 797 active (and 100 inactive) employees participating in 163 defined contribution-only plans with an average salary of \$26,925.

Retiree Data

We received data on 2,534 pensioners and 393 beneficiaries as of January 1, 2003. Since the prior valuation date, 199 new pensions were awarded, a 19.1% decrease below 2001 awards. The new pensioners' average monthly benefit was \$1,087 (14.9% less than in the prior year) and the average pension in payment status as of January 1, 2003 is now \$888, an increase of 3.1% from the prior year. The average age of the pensioners on the rolls increased from 70.2 years to 70.3 years.

Financial Data

As of December 31, 2002, the System had assets at market value of \$916.7 million. For purposes of the actuarial valuation, we are valuing assets using the method adopted by the Board in April 1986, with minor modifications approved July 1991. The actuarial asset value is \$1,099.0 million, an increase of \$69.9 million since January 1, 2002. These assets are available as an offset to the actuarial liabilities for future benefits. The unallocated investment surplus/(shortfall) decreased significantly to \$(182.3) million, from a \$(32.1) million deficit last year. The shortfall represents (19.9)% of the market value of assets, versus a (3.2)% deficit at the beginning of 2002.

Actuarial Results

The actuarial valuation was prepared as of January 1, 2003, based on what we believe are reasonable assumptions of expected future experience, as adopted for the January 1, 1999 actuarial valuation. Revised minimum contribution amounts were developed and reported separately for 652 plans, including 10 plans of distressed municipalities to comply with applicable Commonwealth filing requirements. Four plans sponsored by counties are included in the results, but individual contribution requirements were not required and not redetermined.

As of the valuation date, there were margins in the Retirement Reserve and Disability Reserve Accounts, while the Investment Reserve deficit position deteriorated considerably. The margin in the Retirement Reserves increased by \$0.2 million to \$9.9 million and the Disability Reserve remained at \$665,000.

SECTION 1: Valuation Summary for the Pennsylvania Municipal Retirement System

Excess Investment Return

Investment performance during 2002 far below the 6.5% required “regular” rate of return did not permit the Board to award an “excess interest” amount under the current policy.

Accounting Information

The actuarial present value of accumulated plan benefits, the disclosure basis under FASB Statement No. 35, is \$767.0 million on January 1, 2003. The market value of System assets exceeds this amount by \$149.7 million.

In accordance with GASB Statement No. 25 requirements, we have determined that the total actuarial accrued liability on January 1, 2003 is \$955.3 million. The actuarial value of assets, comprised of the municipal and member reserve accounts and retired member actuarial present value, associated with all 819 plans exceeds the liability by \$129.6 million. Section 8 contains a complete summary of the GASB standards applicable to PMRS and employer accounting.

* * * * *

This actuarial valuation report as of January 1, 2003 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected.

As indicated above, the total unrecognized investment loss as of December 31, 2002 is \$182.3 million. This investment loss will not be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, but instead must be offset by recognition of investment gains derived from future experience. This also implies that earning the assumed rate of investment return of 6.5% per year (net of expenses) on a **market value** basis would not be sufficient to fully fund the “regular” rate of 6.5% on the actuarial value of assets in the next few years. Therefore, if the actual market return is equal to the assumed 6.5% rate and all other actuarial assumptions are met, the investment shortfall would still increase.

SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System

A. EMPLOYEE DATA

We received data on 8,142 active employees of 656 municipalities participating in PMRS defined benefit plans as of January 1, 2003. This includes 40 plans in which there were no active participants as of the valuation date. The member account balance provides a separate benefit in 64 of these plans.

There were 17 municipalities joining PMRS since the prior valuation date, three municipalities withdrawing and one municipality consolidating A and B plans. Two new defined benefit plans were previously defined contribution only plans. This accounts for net defined benefit increases of 12 plans and 93 employees. We note that 3 plans (1 new plan this year and 2 new plans from the prior year) that signed a contract to participate have not provided any participant or financial data to PMRS, and have consequently been excluded from the final municipality counts and from the remainder of this report. The 16 new

plans that provided data covered an average of six employees, while the median employee count was three.

The data included age, service, sex, salary and member contribution account information for each participant. The average salary of these participants was \$36,034. On average, the active members were age 45.2 with 11.3 years of service.

The number of defined benefit plan active employees included in the last ten valuations and their average age, service and salary are shown in **Table 1**. Average service stayed the same while average age and salary increased.

TABLE 1
Active Employees, Each of Last Ten Years, Participating in Defined Benefit Plans

Valuation as of January 1:	Number	Percent change from preceding year	Average age	Average service	Average pay
1994	7,329	(2.1)%	42.6	10.1	\$27,129
1995	7,527	2.7	42.9	10.4	28,264
1996	7,664	1.8	43.2	10.5	28,902
1997	7,725	0.8	43.5	10.8	30,228
1998	7,874	1.9	43.7	10.9	30,863
1999	7,933	0.7	44.1	11.1	31,821
2000	7,875	(0.7)	44.4	11.0	32,163
2001	7,911	0.5	44.8	11.3	33,415
2002	7,834	(1.0)	44.8	11.3	34,720
2003	8,142	3.9	45.2	11.3	36,034

SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System

Chart A graphically shows the number of active employees over the last ten years.

We also received data on 930 participants (797 active with a \$26,925 average salary and 133 inactive) in 163 defined contribution-only arrangements. There was 6% growth in the number of these plans last year, compared to an average 10% growth rate over the previous 3 years.

Table 2 provides a distribution of the number of municipalities by active employees for defined benefit and defined contribution plans. **Chart B** (page 3) is a graphical summary of this information.

CHART A
Number of Active Employees

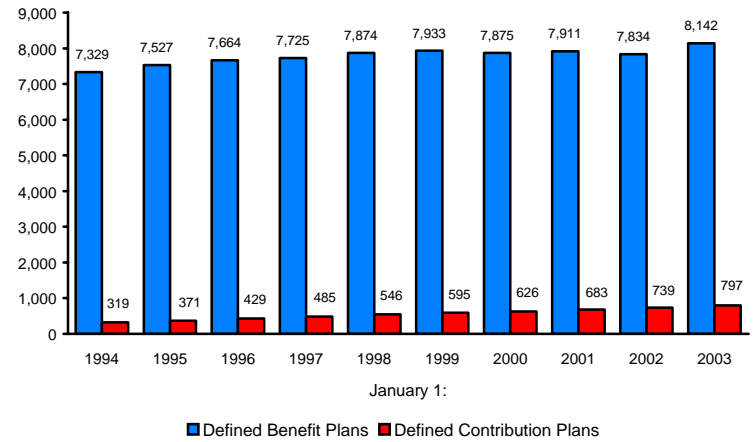


TABLE 2
Distribution of Number of Municipalities by Active Employee Count as of January 1, 2003

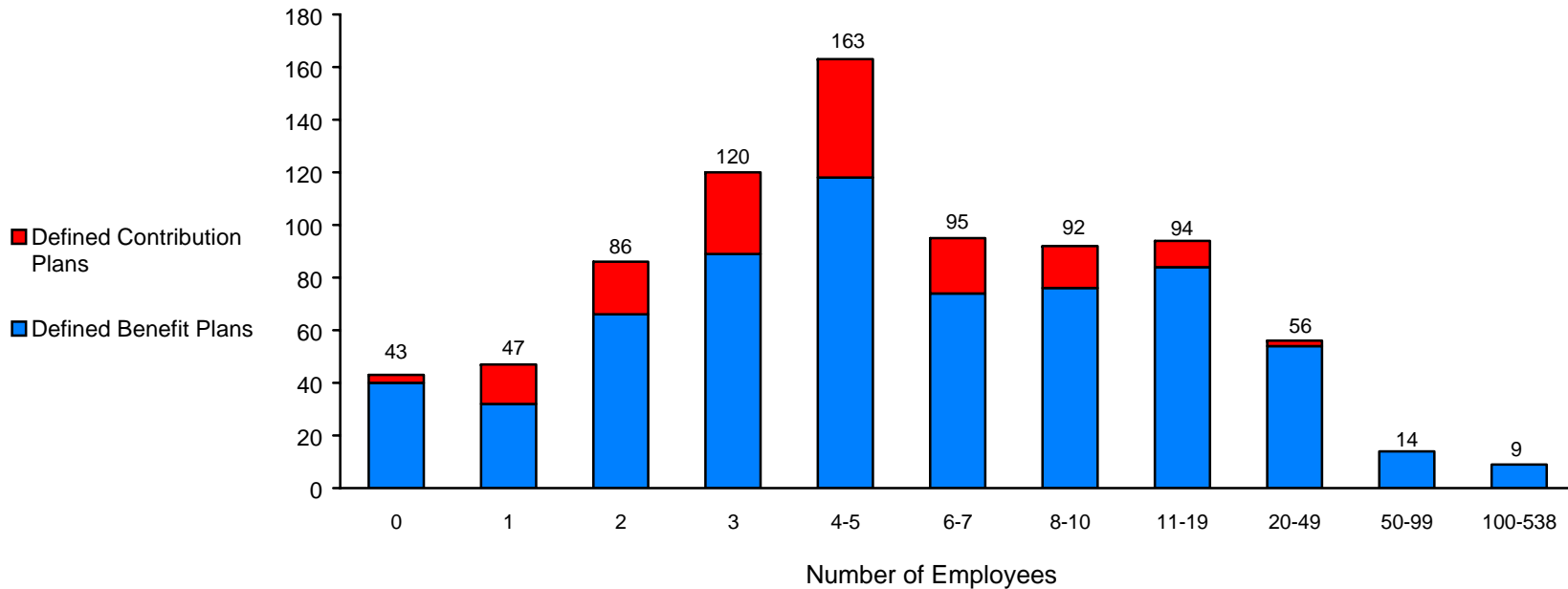
Number of employees	Defined benefit	Defined contribution
0	40	3
1	32	15
2	66	20
3	89	31
4 - 5	118	45
6 - 7	74	21
8 - 10	76	16
11 - 19	84	10
20 - 49	54	2
50 - 99	14	0
100 - 538	9	0
Total	656	163

SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System

Table 3 (page 5) compares detailed demographic statistics from this year's census to the prior two years. **Tables 4A and 4B** (pages 6 & 7) show distributions of active participants by age and service for defined benefit and defined contribution plans, respectively. **Charts C, D, E and F** (page 8) show the active employees by age and service graphically. **Tables 5A and 5B** (pages 9 & 10) show distributions of defined benefit and defined contribution active participants by salary range.

CHART B

Distribution of Municipalities by Number of Active Employees



SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System

We also received data on all employees not active as of January 1, 2003 who have vested rights to a deferred pension. This year there were 473 such members in defined benefit plans, which is 122 more than last year. In addition, 177 non-vested inactive members from defined benefit plans were on leave without pay or had not yet requested the return of their member accounts.

All participant data was provided in computer-useable form via e-mail. We appreciate the continuing efforts made by the Secretary of the System and his staff to ensure that the municipality and participant data is complete, consistent and correct prior to forwarding the information to us.

SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System

TABLE 3
Selected Demographic Data, This Year and Two Preceding Years

Category	Valuation as of January 1:			Percent change 2003 from 2002
	2003	2002	2001	
Number of Plans:				
Defined Benefit	656	644	630	1.9%
Defined Contribution only	163	154	139	5.8
Active Employees in Defined Benefit Plans:				
Number	8,142	7,834	7,911	3.9
Average Age	45.2	44.8	44.8	--
Average Service	11.3	11.3	11.3	--
Total Payroll (\$ millions)	\$293.4	\$272.0	\$264.3	7.9
Average Pay	36,034	34,720	33,415	3.8
Average Salary Increase ¹	5.1%	5.4%	4.6%	--
Active Employees in Defined Contribution Plans	797	739	683	7.8
Average Age	46.0	45.6	45.4	--
Average Service	8.8	8.1	8.1	--
Inactive Participants in Defined Benefit Plans with Rights to:				
Deferred Pension	473	351	331	34.8
Return of Contributions	177	182	168	(2.7)
Inactive Participants in Defined Contribution Plans	100	102	102	(2.0)
Pensioners:				
Number	2,534	2,428	2,324	4.4
Average Age	70.3	70.2	70.6	--
Average Monthly Benefit	\$888	\$861	\$803	3.1
Number of New Awards	199	246	185	(19.1)
Average New Benefit	\$1,087	\$1,277	\$954	(14.9)
Number Receiving Legislated COLA	78	36	36	(8.3)
Average Legislated COLA	\$94	\$54	\$54	(3.7)
Survivor Beneficiaries:				
Number	393	371	363	5.9
Average Age	74.6	74.1	74.1	--
Average Monthly Benefit	\$595	\$560	\$540	6.3
Number Receiving Legislated COLA	13	11	12	18.2
Average Legislated COLA	\$82	\$65	\$66	(3.1)

¹ For participants active during the past two years.

SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System

TABLE 4A

**Number and Average Salaries of Employees in Active Service in Defined Benefit Plans as of January 1, 2003
by Age and by Years of Service**

Age	Total	Years of service								
		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 and Over
Total	8,142 \$36,034	2,734 \$30,090	1,498 \$35,453	1,463 \$38,254	869 \$40,652	763 \$41,208	499 \$43,371	243 \$43,430	54 \$42,258	19 \$42,170
Under 20	6 \$21,829	6 \$21,829	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
20 - 24	215 25,239	213 25,189	2 \$30,650	-- --	-- --	-- --	-- --	-- --	-- --	-- --
25 - 29	472 31,171	398 30,501	72 34,597	2 \$41,208	-- --	-- --	-- --	-- --	-- --	-- --
30 - 34	801 34,843	441 32,030	231 38,188	123 38,137	6 \$45,258	-- --	-- --	-- --	-- --	-- --
35 - 39	1,046 36,267	414 29,844	278 38,724	253 42,055	92 41,907	9 \$35,452	-- --	-- --	-- --	-- --
40 - 44	1,350 37,174	384 30,824	257 35,950	293 39,516	205 43,280	184 41,121	27 \$40,444	-- --	-- --	-- --
45 - 49	1,520 37,341	360 30,944	261 34,410	280 37,957	203 40,811	231 42,851	173 42,397	12 \$40,964	-- --	-- --
50 - 54	1,247 38,355	245 29,392	182 34,093	232 38,172	158 39,405	152 43,873	170 45,577	100 45,795	8 \$43,094	-- --
55 - 59	879 36,122	183 29,642	124 31,733	172 35,174	118 38,212	109 39,256	80 42,568	73 44,683	19 44,674	1 \$37,825
60 - 64	433 36,025	69 29,398	66 30,510	72 35,975	60 38,773	57 35,085	40 42,793	36 42,547	23 42,325	10 42,343
65 - 69	109 31,689	13 25,889	19 21,735	20 30,143	21 37,305	15 35,465	5 41,650	12 34,293	1 31,686	3 44,955
70 and over	64 26,518	8 22,947	6 30,477	16 15,446	6 32,885	6 29,721	4 35,550	10 27,743	3 27,747	5 41,021

SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System

TABLE 4B

**Number and Average Salaries of Employees in Active Service in Defined Contribution Plans as of January 1, 2003
by Age and by Years of Service**

Age	Years of service								
	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39
Total	797 \$26,925	305 \$23,074	189 \$27,756	163 \$29,767	68 \$32,684	42 \$27,712	22 \$29,144	6 \$35,480	2 \$41,593
Under 20	4 \$9,670	4 \$9,670	--	--	--	--	--	--	--
20 - 24	15 17,016	15 17,016	--	--	--	--	--	--	--
25 - 29	43 27,543	35 27,261	8 \$28,778	--	--	--	--	--	--
30 - 34	67 28,060	41 25,992	22 31,607	3 \$29,603	1 \$30,148	--	--	--	--
35 - 39	102 26,447	46 21,209	25 27,277	19 33,130	8 30,627	4 \$41,387	--	--	--
40 - 44	129 28,501	47 24,665	37 30,800	32 30,001	10 33,870	3 26,365	--	--	--
45 - 49	153 27,284	54 23,928	34 25,429	32 33,733	15 30,022	11 23,218	7 \$33,231	--	--
50 - 54	121 29,982	32 19,957	30 29,275	25 33,347	17 39,887	9 30,987	4 32,675	3 \$45,475	1 \$53,194
55 - 59	86 24,796	18 21,107	14 26,879	28 25,411	12 30,591	6 18,010	6 18,846	2 38,226	--
60 - 64	49 24,397	10 24,957	12 20,374	14 25,002	3 33,182	6 29,870	4 24,205	--	--
65 - 69	19 25,067	3 6,859	2 30,166	6 26,990	2 6,782	3 32,571	2 46,075	--	1 29,992
70 and over	9 13,335	1 8,113	4 18,705	4 9,271	--	--	--	--	--

SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System

CHART C

Age Distribution of Active Employees in Defined Benefit Plans

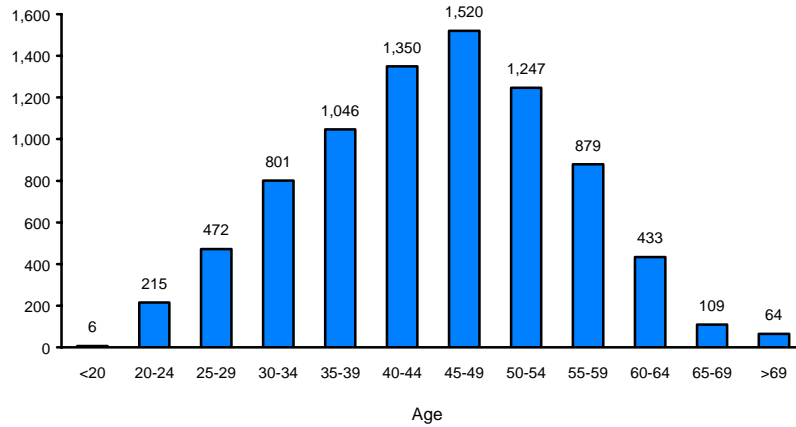


CHART D

Service Distribution of Active Employees in Defined Benefit Plans

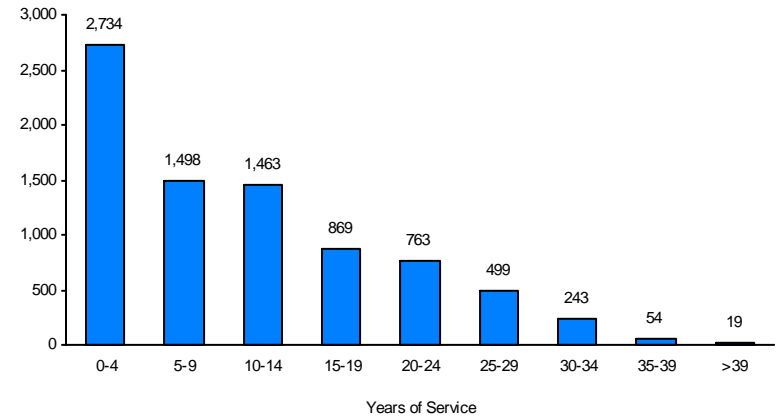


CHART E

Age Distribution of Active Employees in Defined Contribution Plans

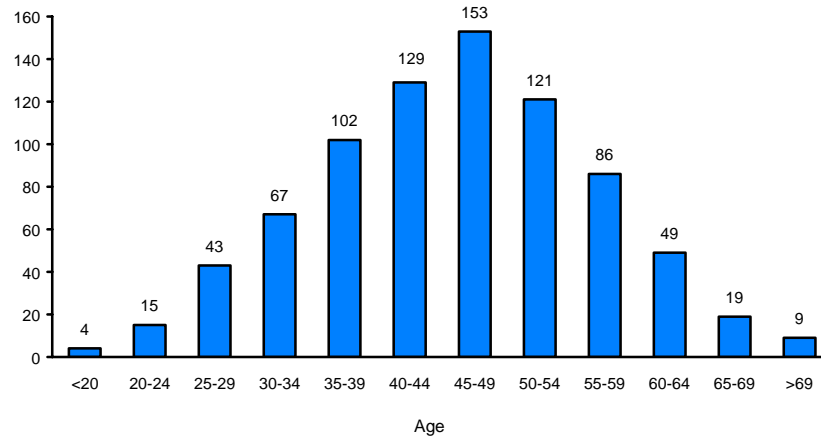
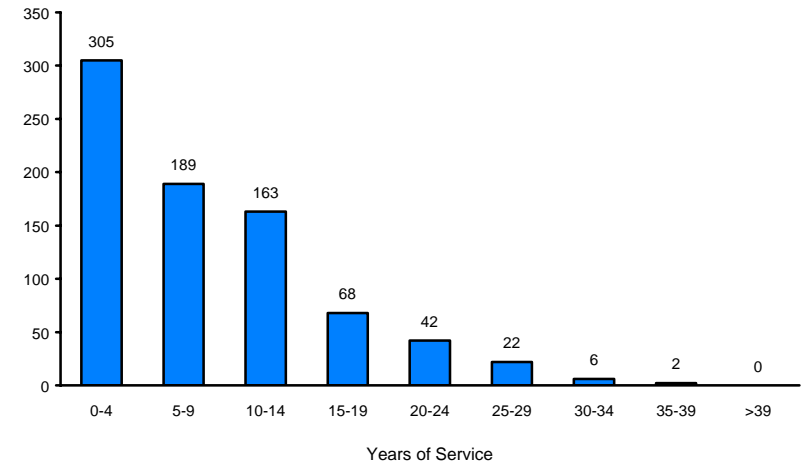


CHART F

Service Distribution of Active Employees in Defined Contribution Plans



SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System

TABLE 5A

**Defined Benefit Plan Participants in Active Service as of January 1, 2003
by Annual Compensation**

Annual salary	Municipal	Uniformed	Total
Total	7,295	847	8,142
\$ 0 - \$ 4,999	106	12	118
5,000 - 9,999	68	0	68
10,000 - 14,999	147	1	148
15,000 - 19,999	379	3	382
20,000 - 24,999	729	20	749
25,000 - 29,999	1,135	34	1,169
30,000 - 34,999	1,419	74	1,493
35,000 - 39,999	1,181	98	1,279
40,000 - 44,999	843	161	1,004
45,000 - 49,999	517	150	667
50,000 - 54,999	298	109	407
55,000 - 59,999	174	67	241
60,000 - 64,999	117	47	164
65,000 - 69,999	81	40	121
70,000 - 74,999	47	17	64
75,000 - 79,999	17	4	21
80,000 - 89,999	17	9	26
90,000 - 99,999	6	1	7
100,000 - 109,999	8	0	8
110,000 - 119,949	2	0	2
120,000 - 129,999	2	0	2
130,000 and over	2	0	2

SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System

TABLE 5B

**Defined Contribution Plan Participants in Active Service as of January 1, 2003
by Annual Compensation**

Annual salary	Municipal	Uniformed	Total
Total	790	7	797
\$ 0 - \$ 4,999	71	1	72
5,000 - 9,999	37	--	37
10,000 - 14,999	32	--	32
15,000 - 19,999	57	--	57
20,000 - 24,999	101	1	102
25,000 - 29,999	154	1	155
30,000 - 34,999	150	2	152
35,000 - 39,999	86	2	88
40,000 - 44,999	49	--	49
45,000 - 49,999	21	--	21
50,000 - 54,999	15	--	15
55,000 - 59,999	7	--	7
60,000 - 64,999	6	--	6
65,000 - 69,999	1	--	1
70,000 - 74,999	1	--	1
80,000 and over	2	--	2

SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System

A. RETIREE DATA

The data on retired members and beneficiaries included age, sex, monthly benefit, death benefit, retirement date, form and type of pension. **Table 3** (page 5) contains significant statistics on the pensioners and beneficiaries as of January 1, 2003 and prior years.

Table 6 shows a distribution of the number of municipalities by the number of pensioners and beneficiaries in pay status for defined benefit and defined contribution plans. **Chart G** is a graphical representation of this information.

CHART G

Distribution of Municipalities by Number of Pensioners and Beneficiaries

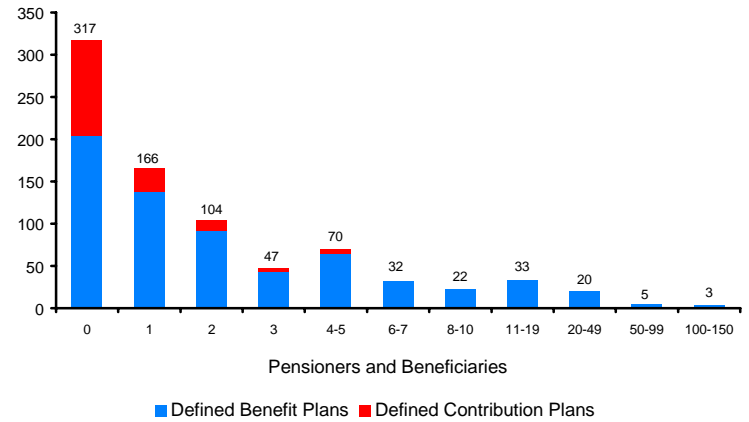


TABLE 6

Distribution of Number of Municipalities by Pensioners and Beneficiaries in Pay Status as of January 1, 2003

Number in pay status	Defined benefit municipalities	Defined contribution municipalities
Total	656	163
0	204	113
1	138	28
2	92	12
3	43	4
4 - 5	65	5
6 - 7	31	1
8 - 10	22	--
11 - 19	33	--
20 - 49	20	--
50 - 99	5	--
100 - 150	3	--

SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System

Tables 7 through 10 (pages 13 through 16) provide detail with respect to the pensions awarded in the last year and pensions in payment status as of January 1, 2003. Since January 1, 2002, a total of 199 pensions were awarded as follows: 170 normal, 17 involuntary early, 5 voluntary early, 5 non-service disability, and 2 service disability. Of these new awards, 99 are being paid on a Joint and Survivor basis. **Table 11** (page 17) provides a historical overview of pension awards. The average 2002 new pension amount of \$1,087 is 14.9% less than the 2001 figure of \$1,277. **Table 12** (page 18) provides a distribution of beneficiaries in payment status as of January 1, 2003 by age.

Pension payments during 2002, as reported in the audited financial statements, totalled \$29,575,725, a 2.2% increase over the previous year. The monthly amounts of benefit being paid to the 2,534 pensioners and 393 survivors as of

January 1, 2003 are \$2,251,009 and \$233,714, respectively. Note that the average monthly pensioner benefit of \$888 grew 3.1% during the year, as a result of new awards, deaths, and Cost of Living Adjustments.

These amounts include legislated “Special Ad Hoc” adjustments that became effective January 1, 1989 for certain retired members of police and firefighter plans. The data provided indicates that 33 retirees and 13 beneficiaries in seven plans sponsored by PMRS are still receiving an average monthly “Ad Hoc” benefit of \$52 and \$63, respectively. The “Ad Hoc” benefits are offset by any prospective regular benefit increase.

Another legislated increase was effective in 2003, covering 77 retirees and 2 beneficiaries, with average monthly increases granted of \$73 and \$124, respectively.

SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System

TABLE 7

Pensions Awarded in the Year Ended January 1, 2003 by Type and by Monthly Amount

Monthly amount	Total	Type of pension				
		Normal	Involuntary early	Voluntary early	Service disability	Non-service disability
Total	199	170	17	5	2	5
Under \$100	11	11	--	--	--	--
\$ 100 - \$ 199	15	15	--	--	--	--
200 - 299	11	9	1	1	--	--
300 - 399	14	12	1	--	1	--
400 - 499	13	10	2	1	--	--
500 - 599	11	10	1	--	--	--
600 - 699	7	6	1	--	--	--
700 - 799	12	6	3	1	--	2
800 - 899	9	7	--	1	--	1
900 - 999	9	7	1	--	1	--
1,000 - 1,199	14	9	2	1	--	2
1,200 - 1,399	14	12	2	--	--	--
1,400 - 1,599	14	13	1	--	--	--
1,600 - 1,799	9	9	--	--	--	--
1,800 - 1,999	7	7	--	--	--	--
2,000 - 2,199	4	3	1	--	--	--
2,200 - 2,399	7	6	1	--	--	--
2,400 - 2,599	2	2	--	--	--	--
2,600 - 2,799	5	5	--	--	--	--
2,800 - 2,999	4	4	--	--	--	--
3,000 - 3,499	1	1	--	--	--	--
3,500 - 3,999	5	5	--	--	--	--
4,000 and over	1	1	--	--	--	--

SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System

TABLE 8

Pensions Awarded in the Year Ended January 1, 2003 by Type and by Age on Effective Date

Age on effective date	Total	Type of pension				
		Normal	Involuntary early	Voluntary early	Service disability	Non-service disability
Total	199	170	17	5	2	5
Under 55	25	10	7	3	2	3
55 - 59	30	19	7	2	--	2
60 - 64	76	73	3	--	--	--
65 - 69	44	44	--	--	--	--
70 - 74	16	16	--	--	--	--
75 - 79	6	6	--	--	--	--
80 - 84	2	2	--	--	--	--

SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System

TABLE 9

Pensions in Payment Status on January 1, 2003 by Type and by Monthly Amount

Monthly amount	Total	Type of pension				
		Normal	Involuntary early	Voluntary early	Service disability	Non-service disability
Total	2,534	2,055	248	141	20	70
Under \$100	99	76	8	12	1	2
\$ 100 - \$ 199	172	121	18	32	1	--
200 - 299	221	171	21	26	--	3
300 - 399	201	165	20	12	1	3
400 - 499	177	138	24	8	2	5
500 - 599	191	150	23	9	1	8
600 - 699	166	129	16	11	--	10
700 - 799	158	118	22	5	--	13
800 - 899	149	113	21	4	2	9
900 - 999	135	111	13	8	2	1
1,000 - 1,199	241	195	23	7	5	11
1,200 - 1,399	152	130	16	2	1	3
1,400 - 1,599	135	123	6	3	3	--
1,600 - 1,799	78	75	2	--	1	--
1,800 - 1,999	65	60	3	--	--	2
2,000 - 2,199	53	49	4	--	--	--
2,200 - 2,399	40	37	3	--	--	--
2,400 - 2,599	25	23	2	--	--	--
2,600 - 2,799	28	27	--	1	--	--
2,800 - 2,999	14	13	1	--	--	--
3,000 - 3,499	15	13	2	--	--	--
3,500 - 3,999	11	10	--	1	--	--
4,000 and over	8	8	--	--	--	--

SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System

TABLE 10

Pensions in Payment Status on January 1, 2003 by Type and by Age

Age on January 1, 2002	Total	Type of pension				
		Normal	Involuntary early	Voluntary early	Service disability	Non-service disability
Total	2,534	2,055	248	141	20	70
Under 55	129	43	30	34	7	15
55 - 59	171	104	32	19	4	12
60 - 64	334	264	34	18	4	14
65 - 69	555	459	70	17	2	7
70 - 74	516	454	27	20	3	12
75 - 79	428	372	34	18	--	4
80 - 84	251	225	14	10	--	2
85 - 89	106	92	7	4	--	3
90 - 94	35	33	--	1	--	1
95 - 99	7	7	--	--	--	--
100 - 104	2	2	--	--	--	--

SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System

TABLE 11

Pensions Awarded, Each of the Last Ten Years, by Type and by Monthly Amount

Year ended: January 1:	Total		Type of pension							
			Normal		Involuntary early		Voluntary early		Disability	
	Number	Average monthly amount	Number	Average monthly amount	Number	Average monthly amount	Number	Average monthly amount	Number*	Average monthly amount
1994	154	\$784	133	\$822	4	\$617	9	\$217	8 (0)	\$874
1995	162	734	139	736	12	831	4	275	7 (3)	780
1996	182	727	141	757	19	648	12	395	10 (2)	855
1997	165	819	133	811	15	877	6	144	11 (4)	1,194
1998	169	782	142	831	10	594	9	337	8 (4)	647
1999	152	939	122	1,006	13	785	6	347	11 (2)	698
2000	179	869	152	912	22	647	3	345	2 (0)	850
2001	185	954	147	1,028	25	736	8	423	5 (1)	702
2002	246	1,277	206	1,346	30	957	6	945	4(0)	655
2003	199	1,087	170	1,121	17	974	5	670	7(2)	837

*Number of service-related disability pensions are shown in parentheses.

SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System

TABLE 12

Beneficiaries as of January 1, 2003

Age	Number	Total monthly benefits
Total	393	\$233,714
Under 50	10	\$ 4,905
50 - 54	11	7,840
55 - 59	17	12,383
60 - 64	21	15,732
65 - 69	44	31,624
70 - 74	57	36,172
75 - 79	78	47,648
80 - 84	57	28,512
85 - 89	46	17,318
90 - 94	19	6,412
95 - 99	4	440
Not applicable, period certain-only	29	24,728

SECTION 4: Actuarial Assumptions and Methods for the Pennsylvania Municipal Retirement System

A. ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions applied in our actuarial valuation of the Pennsylvania Municipal Retirement System as of January 1, 2003 are those most recently approved by the Board, based on the 5-year experience report presented to the Board in November 1999. Based on that report, assumption changes were adopted effective with the January 1, 1999 actuarial valuation. Each of the assumptions used in the current actuarial valuation is briefly described in this section.

Investment Yield

Funding a pension plan on an actuarial reserve basis involves the accumulation of substantial reserves to pay future benefits. These reserves are invested and the rate of long-term investment earnings is a major factor in determining the contributions required to support the ultimate cost of the plan. In projecting future actuarial investment earnings for PMRS, an added degree of conservatism is required to reflect the relationship between the guaranteed “regular” rate of interest (applied to all reserve accounts regardless of investment performance) and the actuarially assumed rate. These two rates are identical to conform with legal counsel's interpretation of the applicable Commonwealth Statute (Act 15).

This actuarial valuation as of January 1, 2003 is based on the assumption that the net effective rate of investment yield on the assets of the System will be 6.5% per year, after deduction of expenses payable from excess interest earnings. The Board initially approved this rate in May 1987, for use in the January 1, 1987 actuarial valuation. As discussed in Sections V and VII, actual investment performance during 2002 was well below the assumed level.

Salary Increases

Because the retirement benefits provided by PMRS are generally based on an employee’s final average compensation, increases in salaries have a significant effect on benefit costs.

The salary increase assumption applied in an actuarial valuation projects annual rates of future salary increases. The assumption is a salary scale table which incorporates an inflation assumption of 3.5% per year with age-specific percentages reflecting merit and promotional increases. Plans that calculate benefits based on final rate of pay at time of retirement or on final year’s actual salary have an additional 6% increase applied at time of assumed retirement. Sample rates are as follows:

Salary Increase			
Age	Inflation	Merit	Total
25	3.5%	4.9%	8.4%
30	3.5	3.0	6.5
35	3.5	2.1	5.6
40	3.5	1.5	5.0
45	3.5	1.3	4.8
50	3.5	1.1	4.6
55	3.5	0.9	4.4
60	3.5	0.7	4.2
65	3.5	0.0	3.5

Using an age-related salary scale assumption is fairly common actuarial practice, but is particularly appropriate for PMRS given the need to apply the assumption to determine plan-specific costs for municipalities with wide variations in demographic profiles.

SECTION 4: Actuarial Assumptions and Methods for the Pennsylvania Municipal Retirement System

Actual salary increases during 2002 averaged 5.1% for the 6,523 participants who were active during all of 2001 and 2002 compared to an expected increase of 5.0%. The average increase for participants below age 40 was about 6.2%, while older participants averaged 4.7% increases. Municipal (non-uniformed) employees received an average increase of 5.1% (expected increase of 5.0%), compared with a 5.4% average increase (expected increase of 5.3%) for Uniformed employees. For comparison, the prior valuation report showed that overall average salary increased by 5.4% from 2000 to 2001, including 5.4% for Municipal employees and 5.7% for Uniformed employees. See **Tables 13A, 13B and 13C** (below and page 21) for more detail on salary increases during 2002.

Retirement Age

In terms of cost impact, one of the more important assumptions is the age at which employees will retire from service. If it is assumed that employees will retire as soon as they become eligible, the projected cost will be higher than if it is assumed that retirement is deferred for a number of years beyond eligibility. Of course, the ultimate cost of the Plan will depend on the ages at which employees actually retire from service in the future.

TABLE 13A

Average Salary Increases for 2002 - Combined Uniformed and Municipal Employees

Age	Number of Employees (a)	Prior Year Salaries	Current Year Salaries	Percentage Increase	Projected Increase (b)	Expected Salaries	Deviation (c)
Under 30	386	\$11,962,500	\$13,014,300	8.8%	8.0%	\$ 12,917,500	0.7%
30 - 39	1,484	53,683,500	56,671,000	5.6	5.6	56,699,400	-0.1
40 - 49	2,495	91,789,700	96,265,600	4.9	4.8	96,172,900	0.1
50 - 59	1,732	63,543,600	66,539,800	4.7	4.4	66,362,900	0.3
60 and over	426	13,761,800	14,306,700	4.0	3.9	14,293,200	0.1
Total	6,523	\$234,741,088	\$246,797,392	5.1%	5.0%	\$246,445,900	0.1%

(a) Includes only those employees who earned a full year of service during 2001 and 2002.

(b) Based on the assumed salary scale.

(c) Difference between actual salary and projected salary increase percentages.

SECTION 4: Actuarial Assumptions and Methods for the Pennsylvania Municipal Retirement System

TABLE 13B

Average Salary Increases for 2002 - Uniformed Employees

Age	Number of Employees (a)	Prior Year Salaries	Current Year Salaries	Percentage Increase	Projected Increase (b)	Expected Salaries	Deviation (c)
Under 30	69	\$2,663,200	\$ 2,912,300	9.4%	7.7%	\$ 2,867,600	1.6%
30 - 39	285	12,981,500	13,785,200	6.2	5.6	13,714,000	0.5
40 - 49	223	10,783,300	11,250,500	4.3	4.8	11,299,900	-0.4
50 - 59	102	5,021,300	5,223,100	4.0	4.4	5,244,400	-0.4
60 and over	13	617,700	627,600	1.6	3.9	641,600	-2.2
Total	692	\$32,067,000	\$33,798,700	5.4%	5.3%	\$33,767,500	0.1%

TABLE 13C

Average Salary Increases for 2002 - Municipal Employees

Age	Number of Employees (a)	Prior Year Salaries	Current Year Salaries	Percentage Increase	Projected Increase (b)	Expected Salaries	Deviation (c)
Under 30	317	\$ 9,299,300	\$ 10,102,000	8.6%	8.1%	\$ 10,050,000	0.5%
30 - 39	1,199	40,702,000	42,885,800	5.4	5.6	42,985,400	-0.2
40 - 49	2,272	81,006,400	85,015,100	4.9	4.8	84,873,000	0.2
50 - 59	1,630	58,522,200	61,316,800	4.8	4.4	61,118,600	0.3
60 and over	413	13,144,100	13,679,100	4.1	3.9	13,651,600	0.2
Total	5,831	\$202,673,984	\$212,998,800	5.1%	5.0%	\$212,678,600	0.1%

(a) Includes only those employees who earned a full year of service during 2001 and 2002.

(b) Based on the assumed salary scale.

(c) Difference between actual salary and projected salary increase percentages.

SECTION 4: Actuarial Assumptions and Methods for the Pennsylvania Municipal Retirement System

While employees are expected to retire at various ages, the actuarial cost calculations are based on the following assumptions:

- (a) For Uniformed Members it was assumed that:
 - (i) members first eligible for normal retirement at age 57 or younger will defer their retirement four years;
 - (ii) members first eligible to retire at ages 58, 59, 60 or 61 will retire at age 62 and;
 - (iii) members first eligible to retire at ages 62 or older will retire when first eligible.
- (b) Municipal Members are assumed to retire over a range of ages. The probability that a member retires at a given age (if eligible for unreduced benefits at that age) is shown below:

Age	Rate of Normal Retirement
61 and younger	10% each year
62	35
63 - 64	20
65	45
66 - 74	20
75	100

Rates indicated are adjusted by adding 5% for the year in which the member is first eligible for normal retirement.

- (c) Inactive vested members are assumed to retire when first eligible for unreduced benefits.

¹ No termination rates are applied once an employee becomes eligible for voluntary early or normal retirement.

Termination Rates Before Retirement

For municipal plans with 25 or more active members, the annual termination rates indicated below were used; for municipalities with between 6 and 24 members a percentage of the indicated rates was used where such percentage equaled 100 percent less 5 percent times (25 - number of members); for municipalities with 5 members or less, no terminations were assumed.

Years of Service	Rate of Termination ¹		
	Uniformed Members Male and Female	Municipal Members Male	Municipal Members Female
less than 1	10%	12%	16%
1 but less than 2	8	10	14
2 but less than 3	8	9	12
3 but less than 4	7	8	10
4 but less than 5	6	7	9
5 but less than 6	5	7	8
6 but less than 7	4	6	7
7 but less than 8	3	5	6
8 but less than 9	3	4	5
9 but less than 10	2	3	4
10 or more	2	2	3

The adjustments for groups with less than 25 active members are intended to reflect the greater variability in experience from year to year for such groups rather than a specific expectation that such groups will have less actual turnover.

SECTION 4: Actuarial Assumptions and Methods for the Pennsylvania Municipal Retirement System

Disability Rates

Assumed rates of disablement for Uniformed plans are equal to the rates set forth in the 1964 OASDI (Social Security) Experience for Males. Rates assumed for Municipal plans are equal to 50% of those rates. Sample annual rates for the full table are as follows:

Age	Rate of Disablement
25	0.085%
35	0.147
45	0.360
55	1.009
65	2.321

The portion of disablements assumed to occur from service related causes is 15% for Municipal employees and 50% for Uniformed employees.

Mortality Rates

A mortality table is used to project the number of employees at each age who will die in active service, and also to determine the amount of the reserve required at the time of retirement to pay benefits for the remainder of an employee's lifetime.

The 1983 Group Annuity Table for Males was used as the basis for projecting expected mortality both before and after retirement. Females are assumed to have the mortality of a male 6 years younger. The life expectancies that result from the application of the table follow for male ages 55 to 75 and female ages 61 to 81:

Expected Number of Years of Life Remaining					
Age		1983 Table	Age		1983 Table
Male	Female		Male	Female	
55	61	24.8	65	71	16.7
56	62	24.0	66	72	15.9
57	63	23.1	67	73	15.2
58	64	22.3	68	74	14.5
59	65	21.5	69	75	13.8
60	66	20.6	70	76	13.2
61	67	19.8	71	77	12.5
62	68	19.0	72	78	11.9
63	69	18.2	73	79	11.3
64	70	17.5	74	80	10.7
			75	81	10.2

Disability pensioners are assumed to have the mortality characteristics of a healthy pensioner who is 10 years older.

SECTION 4: Actuarial Assumptions and Methods for the Pennsylvania Municipal Retirement System

Presence and Age of Spouse

It was assumed that 85% of members will be married at the time of retirement and that wives are 4 years younger than their husbands.

Social Security Benefits

Where it has been necessary to estimate the amount of a member's primary Social Security benefit, the following has been assumed:

- a) The Social Security Taxable Wage Base and the U.S. Average Wage will increase by 4.0% compounded annually.
- b) The Consumer Price Index will increase by 3.5% compounded annually.

Post-Retirement Cost-of-Living Increases

Where post-retirement adjustments are provided, we have assumed that they will average 3.5% per year until the maximum increase is achieved.

Administration Expenses

The reserve for non-investment related expenses of the system, net of the \$20 per participant annual assessment, is based on expected expenses for the coming year. The amount allocated for 2003 is \$2,400,000, which is the same as the administrative expense reserve held for 2002.

Asset Valuation Method

Since ERISA has been in effect, actuaries have been required to reflect market value in the procedure used to value assets of private pension plans. Although PMRS covers public sector employees, and thus is not subject to ERISA, we nevertheless believe that it is appropriate to recognize market value in the asset figure used for valuation purposes.

On the other hand, valuing assets purely at market value would subject PMRS plans to possible wide fluctuations from year to year. Gains and losses from this factor could cause undesirable swings in the actuarially determined employer contribution rate and thereby undermine a fundamental purpose of the Plan's funding method — to stabilize the rate of contribution. Therefore, it is desirable to adopt an asset valuation procedure that reflects market value, but only on a systematic basis that limits the effects of large fluctuations.

SECTION 4: Actuarial Assumptions and Methods for the Pennsylvania Municipal Retirement System

The PMRS Board has adopted an asset valuation method that was first effective for the year ending December 31, 1985, with minor modifications first approved for the year ending December 31, 1990. This method recognizes only the portion of investment income to be distributed as excess interest (according to the formula shown in Section 7), after adjusting the sum of all audited reserve accounts for a one-year administration expense reserve. The steps in the determination of the actuarial asset value as of December 31, 2002 are shown in **Table 14**. The difference between the market value of assets of \$916,674,000 and the actuarial value of \$1,098,991,000 is considered the “surplus.” The amount of this investment reserve/(shortfall) as of December 31, 2002 is \$(187,317,000), which is (19.9)% of the market value.

Funding Method

Funding the PMRS on an actuarial reserve basis seeks to achieve the following objectives:

1. Assist budgeting by establishing contributions that will remain relatively level as a percentage of payroll over a long period of years;
2. Finance pensions earned by present employees on a current basis. This means that the pensions of present employees are being funded currently by the generation of taxpayers who benefit from the services of these employees, rather than by future generations of taxpayers.
3. Produce investment earnings on accumulated reserves to help meet future pension costs;
4. Make it possible to estimate the long-term actuarial cost of various proposals for benefit improvements.

TABLE 14

Determination of Actuarial Asset Value as of December 31, 2002 (\$1,000s)

Item	Amount
1. Prior Year Actuarial Value	\$ 1,029,062
2. Total Audited Reserve Accounts	1,096,591
3. Expected 2003 Administration Expenses	2,400
4. Preliminary Actuarial Value: [= 2. + 3.]	1,098,991
5. Current Year Market Value	916,674
6. Prior Year Market Value	996,963
7. New Surplus: [= (5. - 4.) - (6. - 1.)]	(150,218)
8. Percentage of New Surplus to be Credited as Excess Interest*	N/A
9. Excess Interest (not less than zero): [= 7. x 8.]	\$ 0
10. Current Year Actuarial Value: [= 4. + 9.]	<u>\$1,098,991</u>

* See Section 7 for derivation of this percentage.

SECTION 4: Actuarial Assumptions and Methods for the Pennsylvania Municipal Retirement System

In general, the funding method refers to the budgeting or payment program under which the Plan is being financed.

The actuarial cost method used for determining Plan liabilities and costs is the Entry Age Normal Actuarial Cost Method. Under this method a “normal cost” is calculated that would fund each employee’s benefits during his or her career as a level percent of pay. The unfunded actuarial accrued liability is calculated at each valuation date as:

the present value of all Plan benefits,
less the present value of future normal cost payments,
less current assets (actuarial value).

The normal cost rate is applied to the projected payroll and expected employee contributions are deducted. Actuarial gains (or losses) are reflected by decreases (or increases) in the unfunded actuarial accrued liability. Under Act 205 of 1984, the unfunded actuarial accrued liability is amortized as a level dollar amount* over the lesser of:

- (a) i. 30 years, with respect to the initial liability as of 1/1/1985 (or first valuation);
- ii. 20 years, with respect to changes due to plan provisions and actuarial assumptions;
- iii. 10 years, with respect to changes in benefits for currently retired members;
- iv. 15 years, with respect to actuarial gains and losses; or

- (b) the average assumed future working lifetime of active employees, as of the date the liability was established. Severely distressed municipalities do not need to apply this part (b).

With the two exceptions described below, the funding method is applied individually with respect to each municipality:

Retired members are paid monthly benefits from the System’s retiree reserve account, which at the time of retirement receives a transfer from the municipal and member accounts in an amount actuarially determined to be sufficient to pay all future benefits for the member (and, if applicable, a surviving beneficiary). Thus, post-retirement experience is pooled within the System.**

A disabled member’s pension is met in part from the amount that can be provided by the member’s own accumulated contributions and from the amount that can be provided by the value of that portion of the member’s accrued benefit attributable to municipal contributions, with the balance of the pension being provided by the appropriate transfer from the Disability Reserve Account. The amount of annual transfer from accumulated municipal contributions to the Disability Reserve Account is determined on the one year term cost basis, i.e. it is the expected cost of disabilities in the coming year.

* Under Act 205 of 1984, certain distressed municipalities may use “level percent of payroll” amortization of the initial liability, where the assumed rate of increase in annual payroll is 4.0%.

** However, this treatment does not apply to payments made to certain retirees as a result of legislated ‘Special Ad-Hoc’ benefits effective in 1989.

SECTION 4: Actuarial Assumptions and Methods for the Pennsylvania Municipal Retirement System

Overall Actuarial Basis

We believe that the actuarial assumptions and methods, individually and in the aggregate, form a reasonable basis for valuing the plans of the System and changes to them. Of course, actuarial assumptions are projections of future events and, therefore, never match actual experience exactly. Section VI provides additional discussion of actuarial experience during the most recent year with respect to those assumptions where the entire System's experience is shared, or "pooled": investment yield, mortality and disability. A separate 5-year experience report was presented to the Board in November 1999; the next report will cover experience during 1998 through 2002 and will be presented at a Board meeting later this year.

SECTION 5: Financial Data for the Pennsylvania Municipal Retirement System

A. FINANCIAL DATA

Table 15 provides a detailed breakdown of assets at market value as of December 31, 2002

TABLE 15
Assets as of December 31, 2002 at Market Value (\$1,000s)

Item	Amount	
Accounts Receivable:		
Accrued investment income	\$ 2,490	
Investment sales	6,080	
Contributions	<u>3,707</u>	
Total		\$ 12,277
Investments:		
Fixed income	\$270,515	
Other assets	<u>644,581</u>	
Total		915,096
Fixed assets		<u>393</u>
Total assets		\$927,766
Less: Accounts payable and accrued expenses	\$ 897	
Investment purchases payable	<u>10,195</u>	<u>11,092</u>
Net assets at market value		<u>\$916,674</u>

Note: Assets may not add exactly to amount shown due to rounding.

SECTION 5: Financial Data for the Pennsylvania Municipal Retirement System

Table 16 (page 29) and **Chart H** show a distribution of the investment portfolio at market value and, for comparison, the distribution last year. At the end of 2002, 29.6% was in fixed income securities, 58.9% was in equities, and 11.5% in real estate funds. At the beginning of that year, the corresponding percentages were 26.0% fixed, 62.6% equity and 11.4% real estate. The Board adopted a revised asset allocation policy in 1995 of 25% fixed income, 65% equity (including 15% each in “small-cap” and international stocks) and 10% real estate, at market value.

CHART H

Investment Portfolio at Market Value by Type of Security

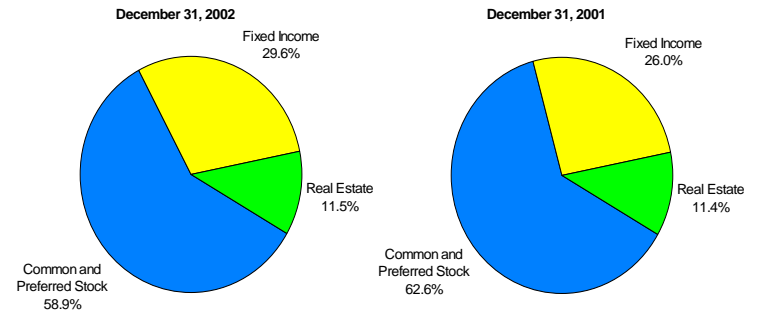


TABLE 16

Investment Portfolio, at Market Values, by Type of Security

Type of Security	December 31, 2002		December 31, 2001	
	Amount* (\$1,000s)	Percent*	Amount* (\$1,000s)	Percent*
Fixed Income Investments:				
U.S. Government Bonds	\$153,067	16.7%	\$ 151,858	15.2%
Short-Term Investments	32,730	3.6	34,467	3.5
Corporate Bonds	<u>84,719</u>	<u>9.3</u>	<u>72,905</u>	<u>7.3</u>
Total Fixed Income	\$270,515	29.6%	\$ 259,230	26.0%
Common & Preferred Stock	539,153	58.9	624,893	62.6
Real Estate Funds	<u>105,428</u>	<u>11.5</u>	<u>114,043</u>	<u>11.4</u>
Total Investments	\$915,096	100.0%	\$ 998,166	100.0%

* Amounts and percents may not add exactly to totals shown due to rounding.

Note: The total does not match the total value of all System assets; this table shows only the investment portfolio.

SECTION 5: Financial Data for the Pennsylvania Municipal Retirement System

Table 17 is a summary of the income and expenses of the Fund on the actuarial basis. It reflects investment yield inclusive only of regular and “excess” interest. So restated, the net actuarial value of assets available for benefits increased by \$69,929,000 in 2002.

TABLE 17
Summary, Income and Expenses Year Ended December 31, 2002 (Actuarial Basis; \$1,000s)

Item	Amount	
Contributions:		
Municipal contributions	\$28,836	
Member contributions	13,640	
Municipal expense assessments	<u>260</u>	
Total contributions		\$42,736
Investment income:		
Regular interest	\$65,278	
Excess interest*	<u>0</u>	
Total investment income		<u>65,278</u>
Total income		\$ 108,014
Expenses:		
Total expenses during year	\$ 4,827	
Less: investment management fees	(2,420)	
Less: expense reserve for 2002	<u>(2,400)</u>	
Net administrative expense		\$ 7
Benefit payments:		
Retirement pensions	\$ 28,675	
Disability pensions	901	
Refunds to terminated members	<u>8,503</u>	
Total benefit payments		<u>38,078</u>
Total expenses		<u>38,085</u>
Net change in actuarial asset value		<u>\$ 69,929</u>
Actuarial asset value as of January 1, 2002		<u>1,029,062</u>
Actuarial asset value as of January 1, 2003		<u>\$1,098,991</u>

Note: Individual amounts may not add to totals shown due to rounding.

** Available as of January 1, 2003 to be allocated as of December 31, 2003.*

SECTION 5: Financial Data for the Pennsylvania Municipal Retirement System

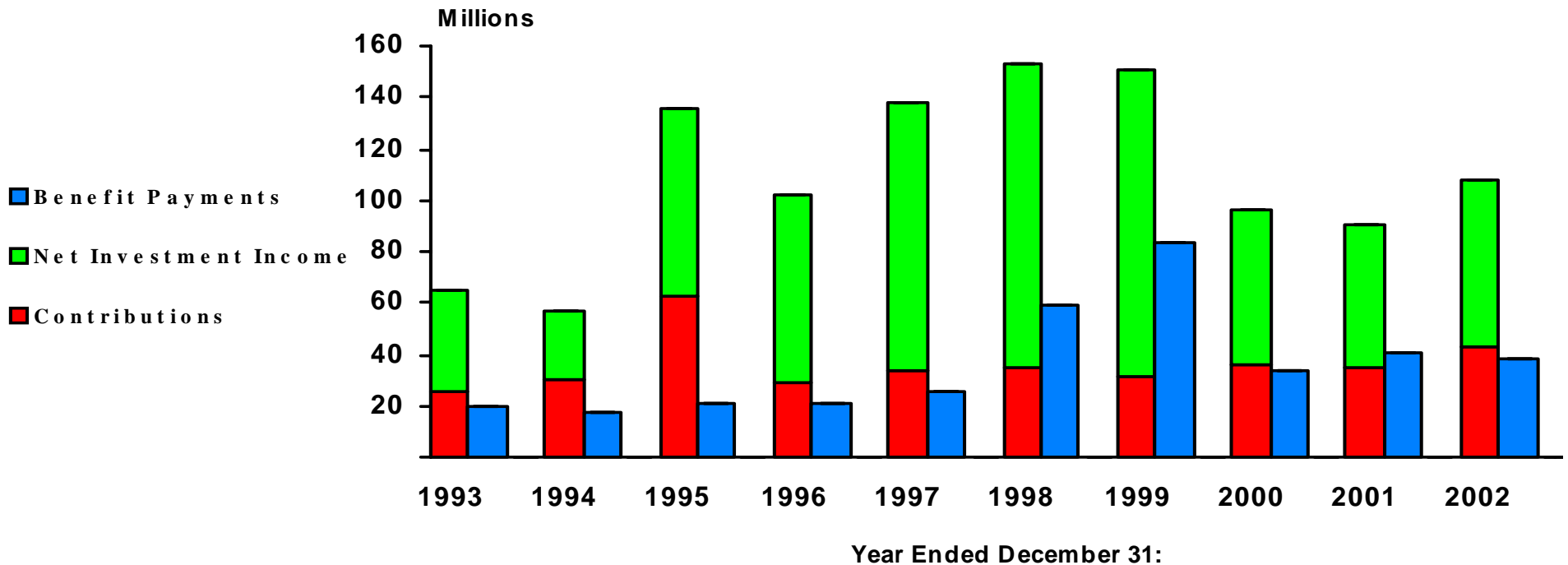
As indicated in Table 17, the actuarial investment income for 2002 was \$65.3 million. This income resulted in a total credited interest rate of 6.5% for 2002. Considering all assets (whether or not invested), and net investment income of \$(82,540,000) including changes in market values, the total market value rate of return* for 2002 was (8.27)%.

* *Technical note: The rate of return was calculated assuming non-investment income and expense occurred uniformly throughout the year.*

Table 18 (page 32) shows the progress of the assets over the past ten years, as measured for actuarial purposes. Over the last 5 years, the annual compound growth rate of assets, including the effect of contributions and benefit payments, was about 9.7%. **Chart I** shows the relationship between contribution and actuarial investment income compared with benefit payments over the past ten years.

CHART I

Contributions and Net Investment Income (Actuarial Basis) vs. Benefit Payments



SECTION 5: Financial Data for the Pennsylvania Municipal Retirement System

TABLE 18

Progress of the Fund Through December 31, 2002 (All amounts in \$1,000s)

Year ended December 31:	Contributions	Investment return¹	Benefit payments²	Actuarial value of assets at end of year
1993	\$25,613	\$39,536	\$20,192	\$406,894
1994	29,709	26,692	17,106	446,189
1995	63,181	72,766	20,600	561,536
1996	28,617	73,665	21,231	642,587
1997	33,105	104,526	25,378	754,840
1998	34,617	118,861	58,955	849,363
1999	31,744	119,068	83,444	916,731
2000	35,368	60,385	33,416	979,068
2001	34,267	56,510	40,783	1,029,062
2002	42,736	65,278	38,085	1,098,991

¹ On the actuarial basis, including excess interest. Figures are net of investment fees.

² Includes payouts to withdrawing municipalities and non-investment administration expenses in excess of reserve.

SECTION 5: Financial Data for the Pennsylvania Municipal Retirement System

Table 19 shows various rates of investment return over the same ten year period.

TABLE 19
Investment Return, Last Ten Years

Year	Regular interest	Excess¹ interest	Total credited interest	Market² yield
1993	6.5%	3.93%	10.43%	12.49%
1994	6.5	0.00	6.50	0.01
1995	6.5	8.37	14.87	22.69
1996	6.5	6.56	13.06	15.35
1997	6.5	9.42	15.92	17.86
1998	6.5	9.68	16.18	16.75
1999	6.5	8.49	14.99	14.59
2000	6.5	0.00	6.50	3.30
2001	6.5	0.00	6.50	(3.90)
2002	6.5	0.00	6.50	(8.27)
Average for the period	6.5%	4.65%	11.15%	9.09%

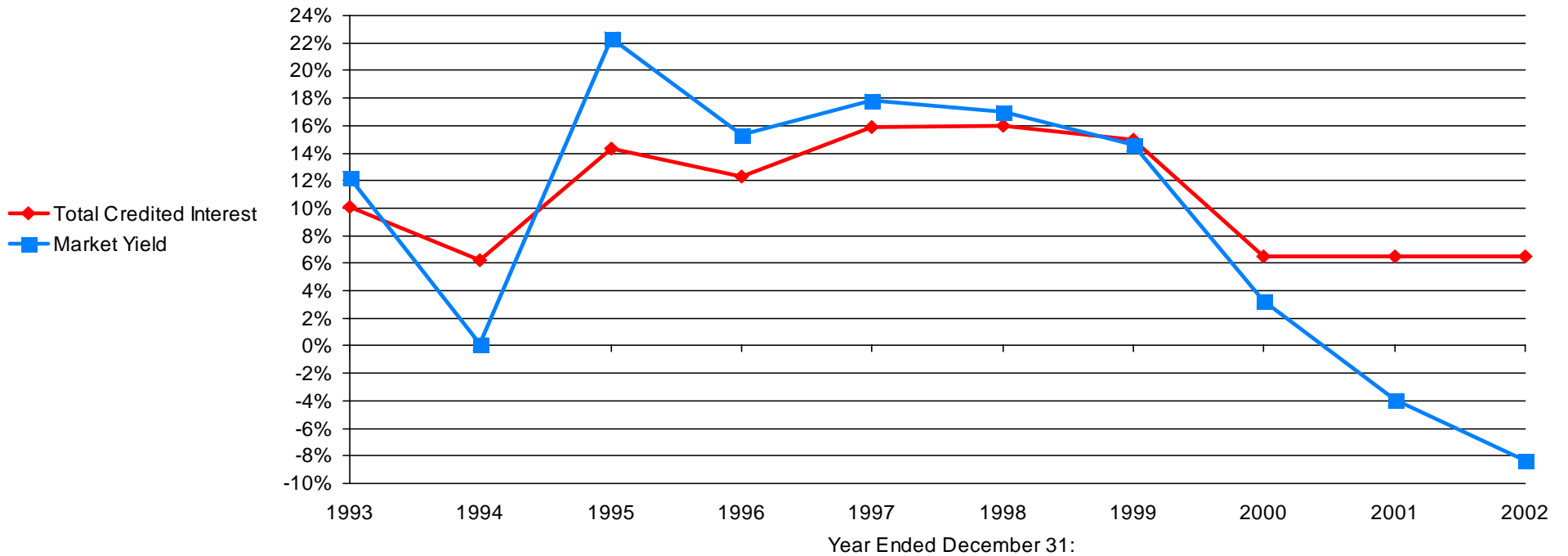
¹ Awarded at the end of the following year.

² Estimated, assuming non-investment income and expenses occur uniformly throughout the year.

SECTION 6: Actuarial Experience for the Pennsylvania Municipal Retirement System

Chart J illustrates the wide fluctuations in the net investment return based on market value and the stabilizing effect of the asset valuation method on the total credited interest over the last ten years.

CHART J
Investment Return



SECTION 6: Actuarial Experience for the Pennsylvania Municipal Retirement System

A. ACTUARIAL EXPERIENCE

The actuarial funding system for PMRS contemplates that each municipality pays its own costs based on its own experience except in three areas where experience is pooled.

- (a) Each municipality is credited with the same rate of investment return on its assets, and a reserve is maintained by the System as part of the actuarial asset valuation method (as described in Section IV). The reserve is available for crediting of regular interest (at 6.5%) even if the actual return on invested assets is lower than the regular rate.
- (b) Each municipality is charged annually with the amount expected to be needed for disability retirements, regardless of the number of employees from that municipality who in fact become disabled, if any.
- (c) At retirement, the expected amount needed for the member's lifetime pension is transferred to the Retired Reserve Account; no further adjustment is made to the municipal account regardless of how long the member (and spouse, if applicable) collects his or her pension.

On December 31, 2002, two of the pooled components (Disability and Retirement) had a margin against future adverse experience, while the Investment Reserve is in a deficit position.

The margin in the **Investment Reserve** component was eliminated in 2001 due to negative market returns and the required 6.5% credit to member and municipal accounts. Adverse experience continued in 2002, and there is now an investment deficit of \$182,317,000. No excess interest was applied to accounts as of December 31, 2002 at the end of 2003. This shortfall in the Reserve represents (19.89)% of the market value of assets as of December 31, 2002

compared to a (3.22)% Reserve deficit as of one year prior. As discussed in the next section, the determination of the portion awarded as excess interest is based on investment performance, using methodology adopted in 1986.

The **Disability Reserve Account** receives disability allocations each year based on each municipality's expected disability requirement. Each time an employee becomes disabled, there is a transfer to the Retired Reserve Account of the excess of the amount needed for the disability pension over the amounts in the municipal and member accounts that would have been needed upon termination or retirement if the employee were not disabled. If experience is exactly as projected on a cumulative basis, there would be no balance in the Disability Reserve at year end.

There is, in fact, a balance of \$664,900 as of December 31, 2002, that can be considered a reserve for possible adverse future disability experience. We note that the balance did not change during 2002, following a decrease of \$382,000 (after adjustment) in 2001. Transfers out of disability reserves were \$235,200, compared to 2002 contribution allocations of \$621,400. Stated as a percent of municipal reserves, the Disability Reserves are 0.13%. This ratio is the same as the percent at December 31, 2001, after adjustment.

The Board's policy (adopted January 1992) is that the Disability Reserves shall not exceed 1.5 times the highest level of required disability transfers to the Retired Members' Reserves in the last three years. The limit at December 31, 2002 is \$664,900, based on a \$443,256 transfer during 2001. The excess was transferred to the Investment Reserves.

SECTION 6: Actuarial Experience for the Pennsylvania Municipal Retirement System

The **Retirement Reserve Account** receives the amount needed to pay for the lifetime pension for each new pension at the time it is awarded. On December 31, 2002, the account had a balance of \$305,822,000. Based on our actuarial calculations, \$295,879,000 is the present value of future expected pension payments to retired pensioners and beneficiaries as of that date. The actuarial present value takes into consideration (1) the life expectancy of the pensioner and/or beneficiary, and (2) investment earnings at the assumed rate of 6.5% per year on System assets.

As with disability, the excess of the reserves over the actuarial value represents past experience that has been

more favorable than assumed. The amount of the excess is \$9.94 million or 3.4% of the actuarial liability, which in effect is a margin for future adverse mortality experience (i.e., pensioners living longer than projected). This margin is approximately \$0.21 million higher than it was a year ago, but it decreased (from 3.6% last year) as a percent of the actuarially determined value.

We note that studies indicate that there have been and will continue to be significant improvements in mortality of the elderly, so we regard the continued maintenance of such a margin as desirable.

SECTION 7: Excess Interest Allocation for the Pennsylvania Municipal Retirement System

A. EXCESS INTEREST ALLOCATION

Each year, municipalities are eligible to receive a supplemental allocation of investment monies beyond the regular 6.5% interest rate. This “excess interest” award is derived as a portion of new “surplus” created during the year. “Surplus” refers to the excess of market value over the actuarial value of assets. Once the preliminary actuarial asset value has been determined (as shown earlier on **Table 14**), a formula is used to allocate the new surplus.

Generally, depending on the relative size of surplus to market value (referred to as “margin”), between 10% and 90% of new surplus will become “excess interest.” For the year ended December 31, 2002, there was no new surplus that could be allocated to excess interest.

A derivation of these results follows (all dollar amounts are in \$1,000s):

	12/31/2002 (Preliminary)	12/31/2001 (Final)
Market value	\$916,674	\$996,963
Actuarial value	<u>1,098,991</u>	<u>1,029,062</u>
Surplus/(deficit)	\$(182,317)	\$(32,099)
New Surplus [= (182,317) – (32,099)]		\$(150,218)
Margin [= (182,317) ÷ 916,674]		(19.89)% = ‘m’
New Margin [= (150,218) ÷ 916,674]		(16.39)% = ‘n’
Excess Interest Portion [= (.10 + 8m) ÷ (1.0+8n)]		N/A = ‘e’

No further adjustment is required as long as ‘e’ is between 10% and 90%. However, this New Surplus amount is negative, so nothing is added to the preliminary actuarial asset value and the final actuarial asset value is also \$1,098,991.

The final surplus is now determined as:

Market value	\$916,674,000
Actuarial value	<u>1,098,991,000</u>
Surplus/(deficit)	\$(182,317,000)
Percent of market value	(19.89)%

If the surplus represents more than 10% of market value, under current policy additional excess interest would be allocated until the surplus is reduced to 10% of market value.

Under Act 15, as amended in 1981, any excess interest is allocated to each municipality in the same proportion that each municipality’s asset accounts as of December 31 bear to the System’s total asset accounts as of such date where, for this purpose, asset accounts include member reserve accounts, retired members’ actuarial reserves* and municipal accounts. Each municipality may allocate its share of excess actuarial investment income among its member reserve, retired members and municipal asset accounts as it so chooses.

SECTION 7: Excess Interest Allocation for the Pennsylvania Municipal Retirement System

Any actual allocation is made at the end of 2003 and would not yet be reflected in account balances as of December 31, 2002. The determination of the allocation percentage (the “excess interest rate”) is as follows (all dollar amounts are in \$1,000s):

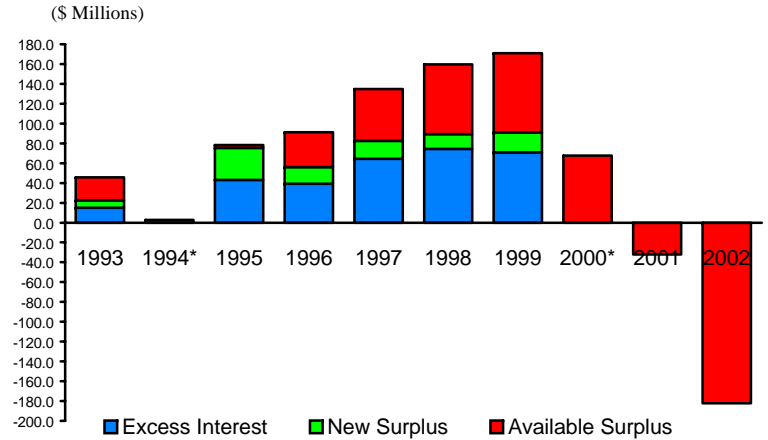
Assets as of December 31, 2002:

Member Accounts	\$268,611
Municipal Accounts	521,493
Retired Members (Actuarial basis)	<u>295,879</u>
Total eligible assets	\$1,085,983
Total excess interest to be allocated	\$0
Ratio of total excess interest to eligible assets	0%

Therefore, each municipality’s 2002 excess interest allocation is equal to 0% of its total asset accounts as of December 31, 2002. **Table 20** and **Chart K** contain historical summaries of experience in the operation of the PMRS excess interest method for the last ten years.

CHART K

Excess Interest, New Surplus and Available Surplus Amount



* The new surplus was negative and no excess interest was awarded.

CHART 20

PMRS Excess Interest Method, Last Ten Years (\$ Millions)

Year	Available		New		Excess portion	Excess interest		Final	
	Surplus	Margin	Surplus	Margin		Amount	Rate	Surplus	Margin
1993	\$45.8	10.5%	\$22.6	5.2%	66.3%	\$15.0	3.93%	\$30.8	7.0%
1994	2.8	0.6	(28.0)	(6.2)	30.0	-0-	-0-	2.8	0.6
1995	78.2	13.1	75.4	12.6	57.1	43.1	8.37	35.2	5.9
1996	91.3	13.1	56.1	8.1	69.9	39.2	6.56	52.1	7.5
1997	134.7	16.3	82.6	10.0	78.1	64.5	9.42	70.2	8.5
1998	159.7	17.1	89.5	9.6	83.1	74.3	9.68	85.4	9.1
1999	167.6	16.5	82.3	8.1	86.3	71.0	8.49	96.6	9.5
2000	67.5	6.5	(29.2)	(2.8)	79.3	-0-	-0-	67.5	6.5
2001	(32.1)	(3.2)	(99.6)	(10.0)	N/A	-0-	-0-	(32.1)	(3.2)
2002	(182.3)	(19.9)	(150.2)	(16.4)	N/A	-0-	-0-	(182.3)	(19.9)

SECTION 8: Accounting Information for the Pennsylvania Municipal Retirement System

A. ACCOUNTING INFORMATION

The Governmental Accounting Standards Board (GASB) establishes standards for the way governmental entities account for their pension plans. The current standards, GASB Statements Nos. 25 and 27, replaced the prior reporting requirements under GASB Statement No. 5.

The Financial Accounting Standards Board (FASB) Statement No. 35 describes the calculation of a standardized measure called the “present value of accumulated plan benefits,” that is independent of the actuarial funding method. This amount is the actuarial present value of current benefit accruals, excluding future salary increases. As of January 1, 2003 the **actuarial present value of accumulated plan benefits** is \$767,018,900 of which \$715,798,500 represents the **actuarial present value of accrued vested benefits**.

Note that the figures disclosed here are inclusive of values attributable to defined contribution-only plans administered by the PMRS. A detailed breakdown of these figures is included in the attached Certificate of Actuarial Valuation, which also contains a description of the actuarial assumptions used in the projections.

B. GASB STATEMENT NO. 25

For plan years commencing after June 15, 1996, the System is subject to the disclosure requirements of Statement No. 25 of the Governmental Accounting Standards Board (GASB).

Statement No. 25 establishes financial reporting standards for defined benefit pension plans as they relate to the System’s financial accounting. As used in Statement No. 25, pension benefits include retirement income as well as other types of postemployment benefits (disability, death benefits, life insurance) but excludes postemployment healthcare.

Statement No. 25 for defined benefit plans requires two financial statements for PMRS on an accrued basis - a statement of net assets and a statement of changes in net assets. The statement requires the fair value of assets for those financial statements where previously cost or amortized cost could be used.

Statement No. 25 also requires notes to the Financial Statements including plan description, classes of employees covered, a brief description of benefit provisions and a summary of significant accounting policies (including funding policy).

Also required is supplementary information ("Required Supplementary Information"), including a schedule of funding progress and a schedule of employer contributions. The actuarial information to be shown must be determined under certain parameters. (These parameters are the same as those required under GASB Statement No. 27, described on the next page.)

SECTION 8: Accounting Information for the Pennsylvania Municipal Retirement System

C. GASB PARAMETERS

Actuarial Valuations

Must occur at least every two years and the results must be applied within 12 months (24 months for biennial valuations, applicable for most of PMRS) for plans and 24 months for employers.

Actuarial Assumptions

Best estimate of individual assumptions and required consistency of all assumptions. Investment return assumption (discount rate) based on estimated long-term investment yield for plan.

Actuarial Cost Method

Entry age, frozen entry age, attained age, frozen attained age, aggregate or projected unit credit are acceptable.

Actuarial Value of Assets

Market related.

Annual Required Contributions of Employers

Must include normal (current service) cost and amortization of the plan's total unfunded actuarial liability (UAL).

Amortization Period for UAL

Periods of up to 40 years acceptable for the first 10 years after the effective date of Statement No. 25. After that, periods cannot exceed 30 years. Significant decreases in UAL caused by changing actuarial methods must be amortized over at least 10 years.

Amortization Method

Level dollar or level percentage of projected payroll, open or closed basis. PMRS municipalities generally use the level dollar, closed basis – though a few severely distressed municipalities apply level percentage of payroll amortization to the original UAL balance at January 1, 1985.

GASB Statement No. 25 eliminates the need to report actuarial accrued liabilities on a standardized basis (*i.e.*, pension benefit obligation) and instead substitutes all actuarial determined information based on the plan's funding methods (Entry Age Normal Actuarial Cost for PMRS.)

Paragraph 39 states that the required schedules of "Funding Progress" and "Employer Contributions" should include information for the current year and as many of the prior years as information according to the parameters is available.

The "Schedule of Funding Progress" is presented in **Table 21** (page 41). Only the odd-numbered years show results for all municipalities in the System. Even numbered years show only the distressed municipalities and county-sponsored plans that are required to redetermine contribution requirements.

SECTION 8: Accounting Information for the Pennsylvania Municipal Retirement System

TABLE 21
GASB Statement No. 25 Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b)-(a)	Funded Ratio (a)/(b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b)-(a)]/(c)
1/1/1998	\$189,831,000	\$169,580,200	\$(20,250,800)	111.9%	\$63,507,000	0.00%
1/1/1999	768,038,700	692,084,400	(75,954,300)	111.0	267,134,600	0.00
1/1/2000	202,070,300	167,273,700	(34,796,600)	120.8	64,141,200	0.00
1/1/2001	959,454,800	812,645,100	(146,809,700)	118.1	282,113,600	0.00
1/1/2002	242,905,700	196,473,500	(46,432,200)	123.6	67,861,900	0.00
1/1/2003	1,084,828,900	955,259,400	(129,569,500)	113.6	293,388,800	0.00

Notes: For 1998, 2000 and 2002, values shown only include plans required to redetermine contribution requirements.

Figures include values attributable to defined contribution only plans, but exclude any excess interest awarded for the year preceding the valuation date to be allocated at the end of the following year.

SECTION 8: Accounting Information for the Pennsylvania Municipal Retirement System

D. GASB STATEMENT NO. 27

GASB Statement No. 27 establishes the standards of accounting and financial reporting for pension expenditures/expense and related pension liabilities, pension assets, note disclosures and required supplementary information in the financial reports of governmental employers. (The financial reporting for the pension trust funds is covered by GASB Statement No. 25 as described in subsection B.)

GASB Statement No. 27 does not mandate or require the employer to fund (contribute) any specific amount. Rather it determines the standards (parameters) to be used for purpose of expensing the cost of pension benefits on the employer's financial statements. To the extent that an employer wants to fund (contribute) the same amount that it expenses, the amount contributed must be determined under certain parameters. When the funding methods and assumptions meet the parameters, the same methods and assumptions are used for both funding and expensing (accounting). If they do not, the employer/entity must choose between making two calculations at each actuarial valuation - one for funding and one for accounting - or modifying the funding approach to meet the parameters. Using different methods for accounting and funding may result in increasing employer liabilities (Net Pension Obligation).

The implementation date for GASB Statement No. 27 was for fiscal years beginning on or after June 15, 1997, although earlier adoption was permitted.

Statement No. 27 terminology includes:

Net Pension Obligation (NPO) - Represents the employer's transition obligation/asset for past underfunding/overfunding of contribution amounts compared to those actuarially determined. It includes the cumulative difference between annual pension cost (ARC) and the employer's contributions.

Actuarial Required Contribution (ARC) - Represents the contribution amount that can also be used for purposes of reporting annual pension expense/accounting. If an employer has an NPO, an adjustment to the ARC is needed to be used for expense/accounting purposes. In determining the ARC amount, certain actuarial parameters must be met. The parameters are the same as those for GASB 25 (see subsection C).

The actuarial assumptions and methods currently employed for purposes of actuarially determining annual contribution for PMRS municipalities are, in our opinion, within the required GASB parameters, with the sole exception that the aggregated amortization period (derived from the various layers of amortization of UAL under Act 205 of 1984) may in some cases exceed the maximum years stated in GASB 25.

May 10, 2003

PENNSYLVANIA MUNICIPAL RETIREMENT SYSTEM

Certificate of Actuarial Valuation

This is to certify that we have prepared an annual actuarial valuation of the System as of January 1, 2003, in accordance with generally accepted actuarial principles and practices. This certificate includes the following attached exhibits:

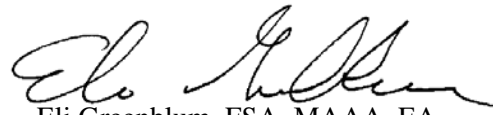
Certificate Contents

EXHIBIT I	Funded Status of Actuarial Accrued Liabilities
EXHIBIT II	Actuarial Present Value of Accumulated Plan Benefits
EXHIBIT III	Actuarial Assumptions
EXHIBIT IV	Actuarial Methods

Individual municipality actuarial valuation results as of January 1, 2003, have been provided separately for 652 plans, including 10 plans sponsored by distressed municipalities, that are required to redetermine contribution levels as of January 1, 2003 under the applicable Commonwealth statute (Act 205 of 1984). We have calculated (1) the unfunded liability; (2) the amortization required; and (3) the normal cost as a percentage of payroll. State law delegates to the governing authority the determination of payroll that is to be applied to the normal cost percentage. Other municipalities have been included in the actuarial results reported in this certificate, but individual plan funding requirements for those plans were not required and not redetermined; contribution requirements for 4 plans sponsored by counties are determined on a biennial basis, most recently as of January 1, 2002.

The valuation was based on information supplied by the System’s auditor with respect to assets, and by the System’s administrative staff with respect to reserve accounts; age, service and compensation of employees; and age, benefit form and amount for inactive participants and pensioners. We have not verified and customarily would not verify such information, but we have examined the data for reasonableness and have no reason to doubt its substantial accuracy. The actuarial assumptions employed in this valuation were adopted by the Pennsylvania Municipal Retirement Board based on our recommendations.

To the best of my knowledge, the information supplied in this actuarial certificate is complete and accurate, and in my opinion the assumptions used in the aggregate are reasonably related to the experience of the various plans and to reasonable expectations of anticipated experience.



Eli Greenblum, FSA, MAAA, EA
Senior Vice President & Actuary
Enrolled Actuary No. 02-3636

APPENDIX: Certificate of Actuarial Valuation for the Pennsylvania Municipal Retirement System

EXHIBIT I

**Funded Status of Actuarial Accrued Liabilities
GASB Statement No. 25 Disclosure**

The actuarial assumptions as of January 1, 2003 are shown in Exhibit III. The information below was derived from the following membership data, as provided by the System, regarding:

- 573 defined benefit plans and 91 defined contributions-only plans as of January 1, 1997;
- 18 defined benefit plans required to redetermine contribution levels as of January 1, 1998;
- 600 defined benefit plans and 116 defined contribution-only plans as of January 1, 1999;
- 16 defined benefit plans required to redetermine contribution levels as of January 1, 2000;
- 630 defined benefit plans and 139 defined contribution-only plans as of January 1, 2001;
- 14 defined benefit plans required to redetermine contribution levels as of January 1, 2002.
- 656 defined benefit plans and 163 defined contribution-only plans as of January 1, 2003.

Actuarial Valuation Date	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (AAL) — Entry Age (b)	Unfunded AAL (b-a)	Funded Ratio (a/b)
1/1/1998	\$189,831,000	\$169,580,200	\$(20,250,800)	111.9%
1/1/1999	768,038,700	692,084,400	(75,954,300)	111.0
1/1/2000	202,070,300	167,273,700	(34,796,600)	120.8
1/1/2001	959,454,800	812,645,100	(146,809,700)	118.1
1/1/2002	242,905,700	196,473,500	(46,432,200)	123.6
1/1/2003	1,084,828,900	955,259,400	(129,569,500)	113.6

¹ According to method described in Exhibit IV, but excluding one-year administration expense reserve and excess interest allocation, if any, to be credited at year end. For even-numbered year valuations of plans required to redetermine contribution requirements, excludes Disability Reserves, and Retired Reserve allocation is based on current actuarial present value.

APPENDIX: Certificate of Actuarial Valuation for the Pennsylvania Municipal Retirement System

EXHIBIT I (Continued)

**Funded Status of Actuarial Accrued Liabilities
GASB Statement No. 25 Disclosure**

	As of January 1,			
	2003	2002	2001	2000
a. Retirees currently receiving benefits	2,534	487	2,324	476
b. Beneficiaries currently receiving benefits	393	112	363	113
c. Terminated vested employees entitled to future benefits - defined benefit plans	473	73	331	60
d. Terminated non-vested employees entitled to contribution refunds - defined benefit plans	177	57	168	19
e. Active employees in defined benefit plans	8,142	1,900	7,911	1,984
i. aggregate salary	\$293,388,800	\$67,861,900	\$264,346,000	\$64,141,200
ii. vested	4,189	9155	4,005	885
iii. non-vested	3,953	985	3,906	1,099
f. Participants in defined contribution-only plans	897	--	785	--
i. aggregate salary	\$21,459,225	--	\$17,767,600	--
ii. active	797	--	683	--
iii. inactive	100	--	102	--

APPENDIX: Certificate of Actuarial Valuation for the Pennsylvania Municipal Retirement System

EXHIBIT II

Actuarial Present Value of Accumulated Plan Benefits

The actuarial present value of accumulated Plan benefits, calculated in conformance with FASB Statement No. 35, is shown below as of January 1, 2003 and, for comparative purposes, as of January 1, 2002.

	Benefit Information Date	
	January 1, 2003	January 1, 2002
Actuarial present value of accrued vested benefits:		
Participants currently receiving payments	\$296,136,900	\$272,081,900
Other vested benefits	<u>419,661,600</u>	<u>379,632,500</u>
Total vested benefits	\$715,798,500	\$651,714,400
Actuarial present value of non-vested accumulated plan benefits	<u>51,220,400</u>	<u>49,860,700</u>
Total actuarial present value of accumulated plan benefits	<u>\$767,018,900</u>	<u>\$701,575,100</u>

The amounts shown above have been calculated in accordance with Interpretations 1 and 2 promulgated by the Actuarial Standards Board for calculating such values. The actuarial assumptions used are as shown in Exhibit III.

APPENDIX: Certificate of Actuarial Valuation for the Pennsylvania Municipal Retirement System

EXHIBIT II (continued)

Actuarial Present Value of Accumulated Plan Benefits

The factors that affected the change in the actuarial present value of accumulated Plan benefits from the preceding to the current benefit information date are as follows:

Factors	Change in Actuarial Present Value of Accumulated Plan Benefits
Withdrawn municipalities	\$(507,800)
Newly entered municipalities	3,495,900
Benefits accumulated, net experience gain or loss, changes in data and upgrades	52,157,000
Benefits paid (including contribution refunds)	(37,570,600)
Interest	<u>47,869,300</u>
Total	<u>\$65,443,800</u>

APPENDIX: Certificate of Actuarial Valuation for the Pennsylvania Municipal Retirement System

**EXHIBIT III
Actuarial Assumptions**

The following actuarial assumptions were adopted by the PMRS Board in November 1999, for first use in the January 1, 1999 actuarial valuation:

- Healthy life mortality rates:** 1983 Group Annuity Mortality Table for Males, with ages set back 6 years for females.
- Disabled life mortality rates:** Mortality under healthy life table for a life 10 years older.
- Termination rates before retirement:** For all plans with 25 or more active members, the termination rates indicated below were used; for municipalities with between 6 and 24 members, a percentage of the indicated rates where such percentage equals 100 percent less 5 percent x (25 - number of members); for municipalities with 5 or fewer members, no terminations were assumed.

Years of Service	Rate ¹ (%)		
	Uniformed Members	Municipal Members	
	Male and Female	Male	Female
less than 1	10%	12%	16%
1 but less than 2	8	10	14
2 but less than 3	8	9	12
3 but less than 4	7	8	10
4 but less than 5	6	7	9
5 but less than 6	5	7	8
6 but less than 7	4	6	7
7 but less than 8	3	5	6
8 but less than 9	3	4	5
9 but less than 10	2	3	4
10 or more	2	2	3

¹No termination rates are applied once the employee becomes eligible for voluntary early or normal retirement.

APPENDIX: Certificate of Actuarial Valuation for the Pennsylvania Municipal Retirement System

**EXHIBIT III (Continued)
Actuarial Assumptions**

The following actuarial assumptions were adopted by the PMRS Board in November 1999 for first use in the January 1, 1999 actuarial valuation:

Disability incidence rates: (a) 50% of 1964 OASDI (Social Security) Experience for Males. Sample rates are as follows:

Age	Rate (%)
25	0.043%
35	0.074
45	0.180
55	0.504
65	1.160

(b) Uniformed plans -- 100% of 1964 OASDI (Social Security) Experience for Males. Sample rates are as follows:

Age	Rate (%)
25	0.085%
35	0.147
45	0.360
55	1.009
65	2.321

Type of disability: (a) Municipal plans -- 15% of disablements are assumed to be service related.
(b) Uniformed plans -- 50% of disablements are assumed to be service related.

Workers compensation: Service related disability benefits payable from municipal plans are offset by 25% of final average salary

EXHIBIT III (Continued)
Actuarial Assumptions

The following actuarial assumptions were adopted by the PMRS Board in November 1999 for first use in the January 1, 1999 actuarial valuation:

Salary scale: 3.5% inflation and age related scale for merit/seniority. Plans that calculate benefits based on final rate of pay at time of retirement or on the final year’s actual salary are assumed to have an additional 6% increase applied at time of assumed retirement.

Sample rates are as follows:

Age	Total Rate (%) (including inflation)
25	8.4%
30	6.5
35	5.6
40	5.0
45	4.8
50	4.6
55	4.4
60	4.2
65	3.5

Retirement age: Active members are assumed to retire no earlier than the age at which unreduced benefits are available. No early retirement is assumed. Specific assumptions regarding retirement age are as follows:

- (a) Uniformed Members:
 - (i) Members first eligible to retire at age 57 or younger will defer their retirement four years,
 - (ii) Members first eligible to retire at ages 58, 59, 60 or 61 will retire at age 62, and
 - (iii) Members first eligible to retire at ages 62 or older will retire when first eligible.

APPENDIX: Certificate of Actuarial Valuation for the Pennsylvania Municipal Retirement System

**EXHIBIT III (Continued)
Actuarial Assumptions**

The following actuarial assumptions were adopted by the PMRS Board in November 1999 for first use in the January 1, 1999 actuarial valuation:

Retirement age (continued): (b) Municipal Members: Members are assumed to retire over a range of ages. The probability that a member retires at a given age (if still active and eligible for unreduced benefits at that age) is shown below:

Age	Rate of Normal Retirement ²
61 and younger	10%
62	35
63 - 64	20
65	45
66 - 74	20
75	100

Inactive vested members are assumed to retire when first eligible for unreduced benefits.

Marital Status and Spouse's Age:³ 85 percent of members will be married at time of retirement and wives are four years younger than their husbands.

Social Security:³

- a) The Social Security Taxable Wage Base will increase by 4.0% compounded annually.
- b) The Consumer Price Index will increase by 3.5% compounded annually.
- c) The Average Total Wages of All Workers will increase by 4.0% compounded annually.

Post-Retirement Cost-of-Living Increases:³ 3.5%

² Rates indicated are adjusted by adding 5% for the year in which the member is first eligible for normal retirement.

³ If applicable.

EXHIBIT III (Continued)
Actuarial Assumptions

The following actuarial assumptions were adopted by the PMRS Board in November 1999 for first use in the January 1, 1999 actuarial valuation:

- Net Investment Return:**
- 6.5 percent compounded annually (net of investment and certain administration expenses) for funding purposes.
 - 6.5 percent compounded annually (net of investment expenses) for calculation of values intended to comply with FASB Statement No. 35.

EXHIBIT IV

Actuarial Methods

Contribution requirements are individually determined for each participating municipality, on an actuarial basis as described below, at least biannually. The frequency of actuarial valuation is determined by applicable Commonwealth statute (Act 205 of 1984 and Act 293 of 1972). The following actuarial methods were adopted effective January 1, 1985, unless indicated otherwise.

Actuarial Value of Assets (adopted effective January 1, 1991):

Sum of all audited reserve accounts as of the valuation date, including Member, Municipal, Retired, and Disability Reserves, and a one-year administration expense reserve, plus the portion of any additional investment income to be distributed as “excess interest”. The actuarial value can never be less than 90 percent of fair market value.

Each year, municipalities receive an excess interest allocation derived as a portion of new surplus created during the prior year. “Surplus” refers to the excess of fair market value over the actuarial value of assets. Once the preliminary actuarial asset value has been determined, a formula is used to allocate the new surplus. Generally, depending on the relative size of surplus to fair market value, between 10 percent and 90 percent of new surplus will become excess interest. However, there was no excess interest allocation in 2003 because the new surplus was negative.

Actuarial Cost Method:

Entry Age Normal Actuarial Cost Method

Entry age is defined as attained age less credited service. The normal cost rate is derived as a level percent of future compensation of current employees, on an individual basis. This rate is applied to the projected payroll and projected employee contributions are deducted. Actuarial gains (or losses), including the effect of contributions greater or less than the previously determined actuarial level, are reflected by decreases (or increases) in the unfunded actuarial accrued liability. Under Act 205 of 1984, the unfunded actuarial accrued liability is amortized as a level dollar amount⁴ over the lesser of:

- (a) i. 30 years, with respect to the initial liability as of 1/1/85 (or first valuation);
- ii. 20 years, with respect to changes due to plan provisions and actuarial assumptions;
- iii. 10 years, with respect to changes in benefits for currently retired members;
- iv. 15 years, with respect to actuarial gains and losses; or

⁴In certain instances, distressed municipalities may use “level percent of payroll” amortization of the initial liability, where the assumed annual payroll increase is 4%.

EXHIBIT IV (Continued)

Actuarial Methods

Contribution requirements are individually determined for each participating municipality, on an actuarial basis as described below, at least biannually. The frequency of actuarial valuation is determined by applicable Commonwealth statute (Act 205 of 1984 and Act 293 of 1972). The following actuarial methods were adopted effective January 1, 1985, unless indicated otherwise.

Actuarial Cost Method (continued):

(b) the average assumed working lifetime of active employees as of the date the liability was established.⁵

With the two exceptions which follow, the funding method is applied individually with respect to each municipality:

Retired and disabled members are paid monthly benefits from the System's Retired Reserve account, which at the time of retirement receives a transfer from the municipal and member accounts in an amount actuarially determined to be sufficient to pay all future benefits for the member (and, if applicable, a surviving beneficiary). Thus, post-retirement experience is pooled with the system. (However, this procedure does not apply to the legislated ad-hoc adjustments effective January 1, 1989).

A disabled member's pension is met in part from the amount that can be provided by the member's own accumulated contributions and from the amount that can be provided by the value of that portion of the member's accrued benefit attributable to municipal contributions, with the balance of the pension being provided by the appropriate transfer from the Disability Reserve Account. The amount of annual transfer from accumulated municipal contributions to the Disability Reserve Account is determined on the one year term cost basis, i.e. it is the expected cost of disabilities in the coming year.

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⁵ If there are no active employees, the unfunded liability is amortized in one year from the date that the liability was established. If a municipality attains certain levels of distressed status under applicable Commonwealth statute, then part (b) will not be applied.