

**Pennsylvania Municipal Retirement System**

*Actuarial Valuation as of January 1, 2005*

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July 7, 2006

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, 2005.

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 Brian Nichols, MAAA, EA, under my supervision.

Sincerely,

**THE SEGAL COMPANY**

A handwritten signature in black ink, appearing to read "Eli Greenblum".

By:

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

Enclosures

641727/00448.001

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## SECTION 1: Valuation Summary for the Pennsylvania Municipal Retirement System

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### Coverage

The System covered 678 defined benefit and 169 defined contribution plans as of January 1, 2005, compared to 656 and 163, respectively, as of January 1, 2003. In aggregate, there was a 3.4% increase in the number of plans since January 1, 2003. We received data on 8,341 active employees as of January 1, 2005 who were participating in defined benefit plans under PMRS, representing a 2.4% increase. Their average salary of \$38,931 represents an 8.0% increase over the 2003 figure. On average, these employees were age 45.9 and had 11.5 years of credited service, compared to age 45.2 and 11.3 years of credited service at January 1, 2003. The number of defined benefit inactive participants entitled to deferred pensions decreased by 1.9% from 473 to 464. In addition, there were 867 active (and 138 inactive) employees participating in 169 defined contribution-only plans with an average salary of \$30,973.

### Retiree Data

We received data on 2,768 pensioners and 424 beneficiaries as of January 1, 2005. Since January 1, 2004, 247 new pensions were awarded, a 15% increase above 2003 awards. The new pensioners' average monthly benefit was \$1,126 (6.1% lower than in the prior year) and the average pension in payment status as of January 1, 2005 is now \$946, an increase of 3.4% from 2004. The average age of the pensioners on the rolls decreased from 70.2 to 69.9.

### Financial Data

As of December 31, 2004, the System had assets at market value of \$1.238 billion. 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 \$1.222 billion, an increase of \$62.9 million since January 1, 2004. These assets are available as an offset to the actuarial liabilities for future benefits. The unallocated investment surplus/(shortfall) increased significantly to a surplus of \$15.4 million, from a \$(46.6) million deficit last year. The surplus represents 1.2% of the market value of assets, versus a (4.2)% deficit at the beginning of 2004.

### Actuarial Results

The actuarial valuation was prepared as of January 1, 2005, based on what we believe are reasonable assumptions of expected future experience, as first adopted for this January 1, 2005 actuarial valuation. The key assumption changes are as follows:

- Net investment return from 6.5% to 6.0%
- Mortality for members retiring on or after January 1, 2005 will follow the 1994 Group Annuity Mortality Static Table for males and females. Mortality for members retiring prior to January 1, 2005 remained the same as the prior valuation.
- Termination, disability incidence, disabled mortality, salary scale, retirement age, and other assumptions were changed as recommended in the most recent (1998-2003) actuarial experience study.

**SECTION 1: Valuation Summary for the Pennsylvania Municipal Retirement System**

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Revised minimum contribution amounts were developed and reported separately for 674 plans 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 was a slight deficit in the Retirement Reserve Account and a margin in the Disability Reserve Account, while the Investment Reserve deficit position of recent years became a modest surplus of \$15.4 million. The margin in the Retirement Reserves of \$11.1 million at January 1, 2004 was eliminated, primarily as a result of changes in assumptions. The Disability Reserve dropped to \$0.5 million.

**Excess Investment Return**

Investment performance during 2004 was above the 6.5% required “regular” rate of return for that year but was not enough to permit the Board to award an “excess interest” amount under the current policy, which requires a minimum threshold of 0.5%.

**Accounting Information**

In accordance with GASB Statement No. 25 requirements, we have determined that the total actuarial accrued liability on January 1, 2005 is \$1.15 billion. The actuarial value of assets, comprised of the municipal and member reserve accounts and retired member actuarial present value, associated with all 847 plans exceeds the liability by \$64.3 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, 2005 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected.

**SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System**

**A. EMPLOYEE DATA**

We received data on 8,341 active employees of 678 municipalities participating in PMRS defined benefit plans as of January 1, 2005. This includes 47 plans in which there were no active participants as of the valuation date. The member account balance provides a separate benefit in 63 of these plans.

There were 24 municipalities joining PMRS since the prior (1/1/2003) valuation date and 6 municipalities withdrawing. Three other municipalities provided initial data, and one new defined benefit plans was previously a defined contribution only plan. This accounts for net defined benefit increase of 22 plans and 199 employees. The 24 new plans that provided data covered an average of three employees.

The data included age, service, sex, salary and member contribution account information for each participant. The average salary of these participants was \$38,931. On average, the active members were age 45.9 with 11.5 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, average age and salary all 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
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
2004	--	--	--	--	--
2005	8,341	2.4*	45.9	11.5	38,931

\* 2 year change.

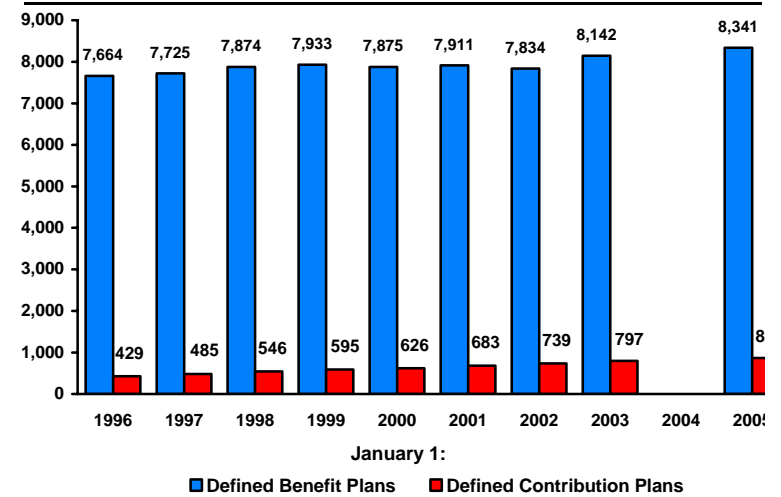
**SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System**

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

We also received data on 1,005 participants (867 active with a \$30,973 average salary and 138 inactive) in 169 defined contribution-only arrangements. There was 1.8% annual growth in the number of these plans since 2003, compared to an average 8% annual growth rate over the previous 2 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, 2005**

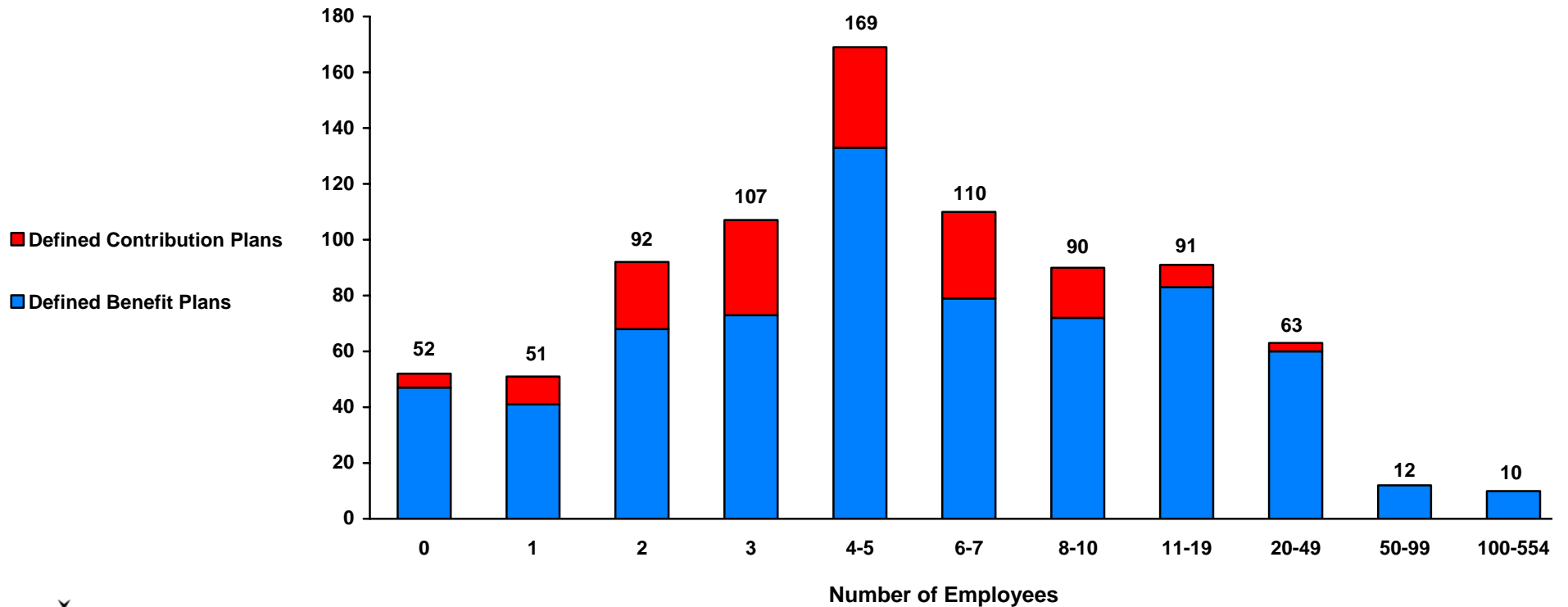
Number of employees	Defined benefit	Defined contribution
0	47	5
1	41	10
2	68	24
3	73	34
4 - 5	133	36
6 - 7	79	31
8 - 10	72	18
11 - 19	83	8
20 - 49	60	3
50 - 99	12	0
100 - 554	10	0
<b>Total</b>	<b>678</b>	<b>169</b>

**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

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We also received data on all employees not active as of January 1, 2005 who have vested rights to a deferred pension. This year there were 464 such members in defined benefit plans, which is 9 less than for 2003. In addition, 165 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 the 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 2005 from 2003
	2005	2004	2003	
Number of Plans:				
Defined Benefit	678	--	656	3.4%
Defined Contribution only	169	--	163	3.7
Active Employees in Defined Benefit Plans:				
Number	8,341	--	8,142	2.4
Average Age	45.9	--	45.2	--
Average Service	11.5	--	11.3	--
Total Payroll (\$ millions)	\$321.8	--	\$293.4	9.7
Average Pay	38,931	--	36,034	8.0
Average Salary Increase <sup>1</sup>	4.5%	--	5.1%	--
Active Employees in Defined Contribution Plans	867	--	797	8.8
Average Age	46.9	--	46.0	--
Average Service	9.4	--	8.8	--
Inactive Participants in Defined Benefit Plans with Rights to:				
Deferred Pension	464	--	473	(1.9)
Return of Contributions	165	--	177	(6.8)
Inactive Participants in Defined Contribution Plans	138	--	100	38.0
Pensioners:				
Number	2,768	2,649	2,534	9.2
Average Age	69.9	70.2	70.3	--
Average Monthly Benefit	\$946	\$915	\$888	6.5
Number of New Awards	247	216	199	24.1
Average New Benefit	\$1,126	\$1,199	\$1,087	3.6
Number Receiving Legislated COLA	103	--	110	(6.4)
Survivor Beneficiaries:				
Number	424	408	393	7.9
Average Age	75.1	75.1	74.6	--
Average Monthly Benefit	\$639	\$600	\$595	7.4

<sup>1</sup> 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, 2005  
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	8,341 \$38,931	2,542 \$33,359	1,719 \$37,214	1,207 \$40,151	1,206 \$42,811	633 \$43,210	583 \$46,645	342 \$47,337	83 \$46,932	26 \$47,230
Under 20	5 \$11,103	5 \$11,103	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
20 - 24	155 29,267	149 29,234	6 \$30,077	-- --	-- --	-- --	-- --	-- --	-- --	-- --
25 - 29	474 34,944	376 33,964	94 38,909	4 \$33,870	-- --	-- --	-- --	-- --	-- --	-- --
30 - 34	682 37,660	352 35,650	232 40,014	85 39,283	13 \$39,467	-- --	-- --	-- --	-- --	-- --
35 - 39	974 39,760	379 34,740	288 40,318	191 45,311	114 45,658	2 \$44,530	-- --	-- --	-- --	-- --
40 - 44	1,263 39,090	348 33,350	294 36,400	248 41,490	243 45,777	106 43,438	24 \$43,558	-- --	-- --	-- --
45 - 49	1,551 39,886	366 32,622	272 37,932	218 39,779	267 43,766	202 43,837	191 46,551	35 \$42,939	-- --	-- --
50 - 54	1,445 40,958	272 33,148	239 35,480	192 39,873	254 43,145	142 46,287	191 48,048	143 46,387	12 \$57,588	-- --
55 - 59	1,022 39,432	184 32,428	149 34,238	150 37,522	196 38,802	96 42,098	107 46,699	101 51,050	38 46,499	1 \$36,805
60 - 64	539 39,152	84 34,440	98 33,897	89 38,204	85 40,309	54 38,658	48 43,429	50 47,827	21 47,851	10 49,324
65 - 69	153 33,710	19 18,720	37 29,026	14 28,726	21 35,439	22 39,496	19 45,250	7 41,458	5 38,466	9 41,159
70 and over	78 27,888	8 15,549	10 24,133	16 17,865	13 28,360	9 25,847	3 46,420	6 35,921	7 34,304	6 54,586

**SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System**

**TABLE 4B**

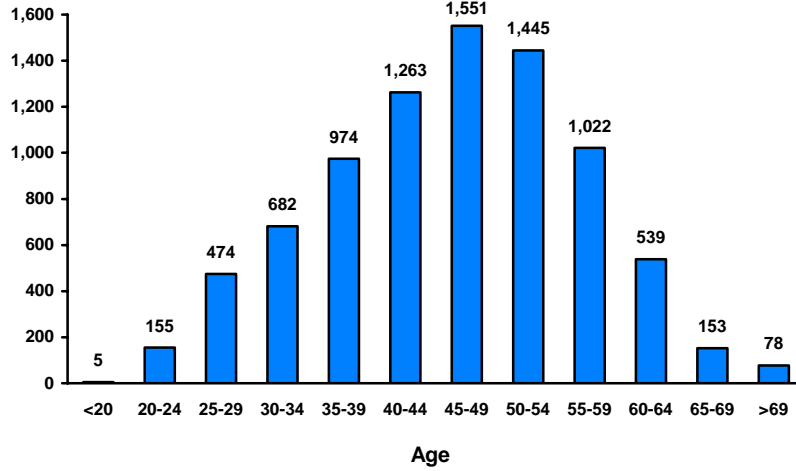
**Number and Average Salaries of Employees in Active Service in Defined Contribution Plans as of January 1, 2005  
by Age and by Years of Service**

Age	Years of service								
	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39
Total	867 \$30,973	296 26,609	208 29,684	155 32,944	122 37,316	37 36,962	36 34,683	8 43,287	5 36,389
Under 20	4 \$8,518	4 \$8,518	-- --	-- --	-- --	-- --	-- --	-- --	-- --
20 - 24	17 26,145	16 27,644	1 \$2,163	-- --	-- --	-- --	-- --	-- --	-- --
25 - 29	38 27,136	33 26,791	5 29,408	-- --	-- --	-- --	-- --	-- --	-- --
30 - 34	73 31,866	36 31,348	31 31,841	5 \$34,313	1 \$39,048	-- --	-- --	-- --	-- --
35 - 39	91 29,956	38 28,089	27 29,732	17 31,092	8 38,296	1 \$20,922	-- --	-- --	-- --
40 - 44	136 32,865	38 28,583	42 33,264	28 33,839	21 35,939	7 40,592	-- --	-- --	-- --
45 - 49	163 32,629	49 29,038	36 30,548	32 34,431	29 35,401	7 40,190	9 \$37,585	1 \$47,986	-- --
50 - 54	139 33,740	39 26,353	26 26,402	33 37,078	20 46,640	7 36,557	12 36,130	1 68,427	1 \$61,328
55 - 59	107 29,677	23 21,116	22 26,510	20 31,170	25 36,656	7 32,554	6 30,317	2 39,283	2 39,214
60 - 64	67 27,909	13 16,551	13 25,584	11 28,274	12 34,354	7 36,142	7 29,889	3 35,632	1 29,760
65 - 69	24 26,949	5 14,014	4 31,556	4 24,802	6 27,395	1 44,399	2 42,821	1 44,421	1 12,427
70 and over	8 15,226	2 6,045	1 10,000	5 19,944	-- --	-- --	-- --	-- --	-- --

SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System

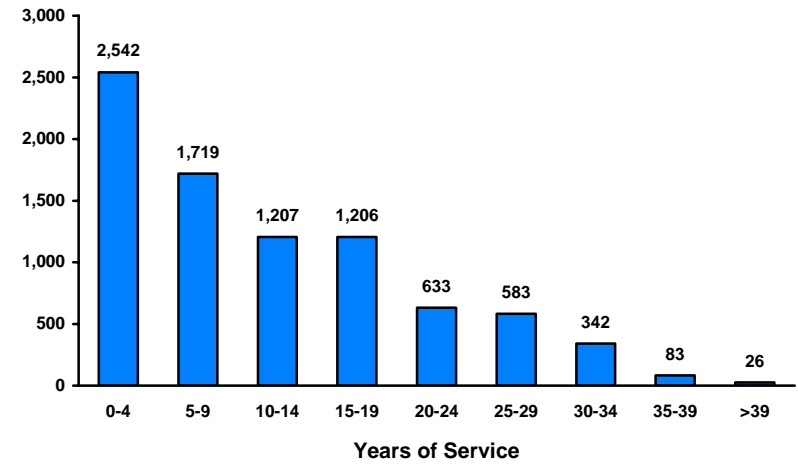
**CHART C**

**Age Distribution of Active Employees in Defined Benefit Plans**



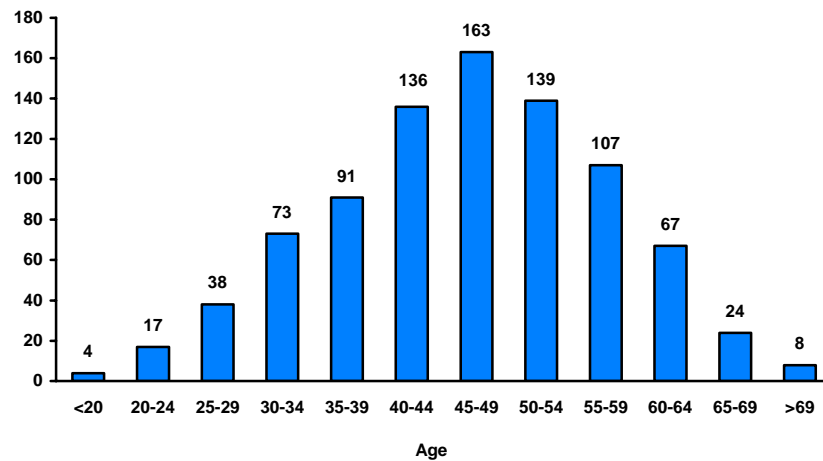
**CHART D**

**Service Distribution of Active Employees in Defined Benefit Plans**



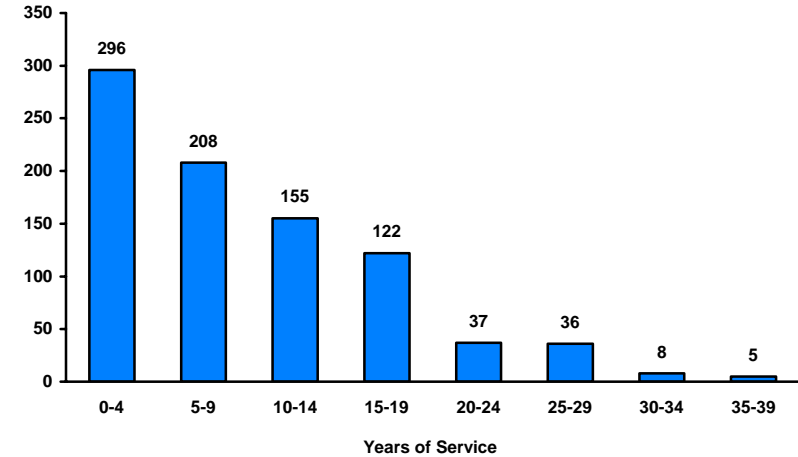
**CHART E**

**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, 2005  
by Annual Compensation**

<b>Annual salary</b>	<b>Municipal</b>	<b>Uniformed</b>	<b>Total</b>
Total	7,482	859	8,341
\$ 0 - \$ 4,999	64	--	64
5,000 - 9,999	96	1	97
10,000 - 14,999	129	--	129
15,000 - 19,999	295	3	298
20,000 - 24,999	517	11	528
25,000 - 29,999	909	28	937
30,000 - 34,999	1,282	70	1,352
35,000 - 39,999	1,342	86	1,428
40,000 - 44,999	1,017	119	1,136
45,000 - 49,999	690	141	831
50,000 - 54,999	440	124	564
55,000 - 59,999	259	96	355
60,000 - 64,999	161	67	228
65,000 - 69,999	89	36	125
70,000 - 74,999	77	34	111
75,000 - 79,999	45	25	70
80,000 - 89,999	37	12	49
90,000 - 99,999	17	6	23
100,000 - 109,999	5	--	5
110,000 - 119,999	6	--	6
120,000 - 129,999	1	--	1
130,000 and over	4	--	4

**SECTION 2: Employee Data for the Pennsylvania Municipal Retirement System**

**TABLE 5B**

**Defined Contribution Plan Participants in Active Service as of January 1, 2005  
by Annual Compensation**

<b>Annual salary</b>	<b>Municipal</b>	<b>Uniformed</b>	<b>Total</b>
Total	857	10	867
\$ 0 - \$ 4,999	23	--	23
5,000 - 9,999	45	--	45
10,000 - 14,999	43	--	43
15,000 - 19,999	42	--	42
20,000 - 24,999	94	--	94
25,000 - 29,999	141	3	144
30,000 - 34,999	161	1	162
35,000 - 39,999	137	4	141
40,000 - 44,999	82	2	84
45,000 - 49,999	34	--	34
50,000 - 54,999	23	--	23
55,000 - 59,999	10	--	10
60,000 - 64,999	9	--	9
65,000 - 69,999	6	--	6
70,000 - 74,999	--	--	--
75,000 - 79,999	3	--	3
80,000 - 89,999	3	--	3
90,000 - 99,999	--	--	--
100,000 - 109,999	--	--	--
110,000 - 119,999	--	--	--
120,000 - 129,999	--	--	--
130,000 and over	1	--	1

**SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System**

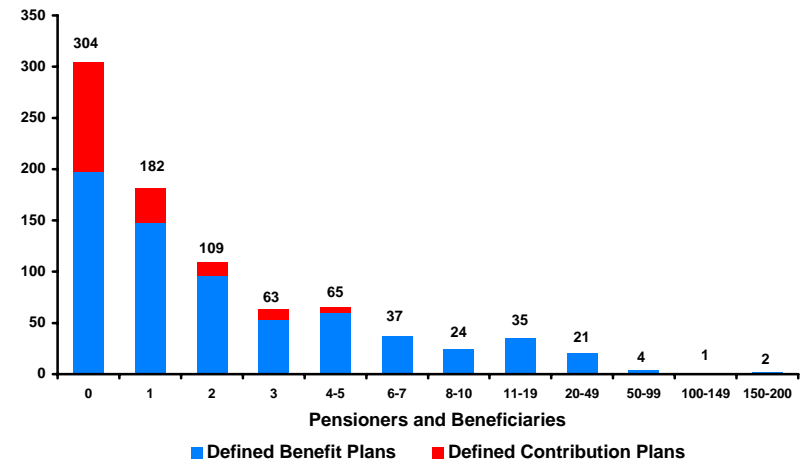
**A. RETIREE DATA**

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, 2005 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, 2005**

Number in pay status	Defined benefit municipalities	Defined contribution municipalities	Total municipalities
Total	678	169	847
0	197	107	304
1	148	34	182
2	96	13	109
3	53	10	63
4 - 5	60	5	65
6 - 7	37	--	37
8 - 10	24	--	24
11 - 19	35	--	35
20 - 49	21	--	21
50 - 99	4	--	4
100 - 149	1	--	1
150 - 200	2	--	2



### SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System

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**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, 2005. Since January 1, 2004, a total of 247 pensions were awarded as follows: 189 normal, 35 involuntary early, 13 voluntary early, 9 non-service disability, and 1 service disability. Of these new awards, 103 are being paid on a Joint and Survivor basis. **Table 11** (page 17) provides a historical overview of pension awards. The average new pension amount of \$1,126 is 6% less than the prior figure of \$1,198. **Table 12** (page 18) provides a distribution of beneficiaries in payment status as of January 1, 2005 by age.

Pension payments during 2004, as reported in the audited financial statements, totalled \$34,730,243, a 7.8% increase over the previous year. The monthly amounts of benefit being paid to the 2,768 pensioners and 424 survivors as of

January 1, 2005 are \$2,620,191 and \$269,720, respectively. Note that the average monthly pensioner benefit of \$946 grew 6.5% 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 28 retirees and 13 beneficiaries in seven plans sponsored by PMRS are still receiving an average monthly “Ad Hoc” benefit of \$51 and \$53, respectively. The “Ad Hoc” benefits are offset by any prospective regular benefit increase.

Another legislated increase was effective in 2003, currently covering 75 retirees and 2 beneficiaries, with average monthly increases granted of \$72 and \$124, respectively.

**SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System**

**TABLE 7**

**Pensions Awarded in the Year Ended January 1, 2005 by Type and by Monthly Amount**

Monthly amount	Total	Type of pension				
		Normal	Involuntary early	Voluntary early	Service disability	Non-service disability
Total	247	189	35	13	1	9
Under \$100	16	15	1	--	--	--
\$ 100 - \$ 199	9	8	1	--	--	--
200 - 299	13	8	3	2	--	--
300 - 399	7	4	1	2	--	--
400 - 499	9	6	1	2	--	--
500 - 599	16	11	4	1	--	--
600 - 699	13	7	4	2	--	--
700 - 799	15	12	3	--	--	--
800 - 899	9	5	--	2	--	2
900 - 999	14	12	--	--	--	2
1,000 - 1,199	34	20	9	1	--	4
1,200 - 1,399	19	17	1	--	1	--
1,400 - 1,599	11	11	--	--	--	--
1,600 - 1,799	18	16	1	1	--	--
1,800 - 1,999	16	11	4	--	--	1
2,000 - 2,199	6	5	1	--	--	--
2,200 - 2,399	7	7	--	--	--	--
2,400 - 2,599	4	4	--	--	--	--
2,600 - 2,799	3	3	--	--	--	--
3,000 - 3,499	4	3	1	--	--	--
3,500 - 3,999	2	2	--	--	--	--
4,000 and over	2	2	--	--	--	--

**SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System**

**TABLE 8**

**Pensions Awarded in the Year Ended January 1, 2005 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	247	189	35	13	1	9
Under 55	46	7	22	8	1	8
55 - 59	54	41	7	5	--	1
60 - 64	98	92	6	--	--	--
65 - 69	32	32	--	--	--	--
70 - 74	7	7	--	--	--	--
75 - 79	7	7	--	--	--	--
80 - 84	3	3	--	--	--	--

**SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System**

**TABLE 9**

**Pensions in Payment Status on January 1, 2005 by Type and by Monthly Amount**

Monthly amount	Total	Type of pension				
		Normal	Involuntary early	Voluntary early	Service disability	Non-service disability
Total	2,768	2,221	292	155	26	74
Under \$100	118	96	9	11	1	1
\$ 100 - \$ 199	180	127	18	33	2	--
200 - 299	219	165	25	26	--	3
300 - 399	193	156	19	16	--	2
400 - 499	168	127	23	11	2	5
500 - 599	203	158	26	11	--	8
600 - 699	178	138	20	12	--	8
700 - 799	158	115	26	5	--	12
800 - 899	163	121	22	6	2	12
900 - 999	146	117	14	7	3	5
1,000 - 1,199	273	209	39	7	5	13
1,200 - 1,399	179	153	17	3	4	2
1,400 - 1,599	146	131	7	4	4	--
1,600 - 1,799	106	99	4	1	2	--
1,800 - 1,999	80	70	7	--	--	3
2,000 - 2,199	63	57	6	--	--	--
2,200 - 2,399	45	44	1	--	--	--
2,400 - 2,599	45	41	4	--	--	--
2,600 - 2,799	35	34	--	1	--	--
2,800 - 2,999	12	11	1	--	--	--
3,000 - 3,499	29	25	3	--	1	--
3,500 - 3,999	19	17	1	1	--	--
4,000 and over	10	10	--	--	--	--

**SECTION 3: Retiree Data for the Pennsylvania Municipal Retirement System**

**TABLE 10**

**Pensions in Payment Status on January 1, 2005 by Type and by Age**

Age on January 1, 2005	Total	Type of pension				
		Normal	Involuntary early	Voluntary early	Service disability	Non-service disability
Total	2,768	2,221	292	155	26	74
Under 55	149	39	43	37	8	22
55 - 59	221	129	41	29	6	16
60 - 64	416	334	46	20	5	11
65 - 69	576	481	68	19	3	5
70 - 74	530	469	34	13	3	11
75 - 79	438	379	34	20	1	4
80 - 84	273	245	15	12	--	1
85 - 89	127	110	9	4	--	4
90 - 94	29	26	2	1	--	--
95 - 99	9	9	--	--	--	--

**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
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
2004	214	1,199	171	1,226	26	1,206	8	609	9 (4)	1,199
2005	247	1,126	189	1,185	35	994	13	653	10 (1)	1,100

\*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, 2005**

<b>Age</b>	<b>Number</b>	<b>Total monthly benefits</b>
Total	424	\$269,720
Under 50	7	4,682
50 - 54	11	7,115
55 - 59	19	12,405
60 - 64	25	21,224
65 - 69	45	32,278
70 - 74	49	37,551
75 - 79	81	48,332
80 - 84	79	48,623
85 - 89	50	19,968
90 - 94	20	5,887
95 - 99	1	231
100 - 104	1	100
Not applicable, period certain-only	36	31,325

**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, 2005 are those most recently approved by the Board, based on the 5-year experience report presented to the Board in November 2004. Based on that report, assumption changes were adopted effective with the January 1, 2005 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, 2005 is based on the assumption that the net effective rate of investment yield on the assets of the System will be 6.0% per year, after deduction of expenses payable from excess interest earnings. The Board initially approved this rate in November 2004. A 6.5% “regular” rate of interest applied through the end of 2004 and an assumed yield of 6.5% was used in the previous valuation. As discussed in Sections V and VII, actual investment performance during 2003 and 2004 was well above 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 that incorporates an inflation assumption of 3.0% 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:

<b>Salary Increase</b>			
<b>Age</b>	<b>Inflation</b>	<b>Merit</b>	<b>Total*</b>
25	3.0%	4.8%	7.8%
30	3.0	2.9	5.9
35	3.0	2.1	5.1
40	3.0	1.5	4.5
45	3.0	1.2	4.2
50	3.0	1.1	4.1
55	3.0	0.9	3.9
60	3.0	0.7	3.7
65	3.0	0.0	3.0

*\* Add 2% for each of the first 3 years of service.*

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 2004 averaged 4.5% for the 6,994 participants who were active during all of 2003 and 2004 compared to an expected increase of 4.4%. The average increase for participants below age 40 was about 5.9%, while older participants averaged 4.0% increases. Municipal (non-uniformed) employees received an average increase of 4.3% (expected increase of 4.4%), compared with a 5.3% average increase (expected increase of 4.8%) for Uniformed employees. For comparison, the prior valuation report showed that overall average salary increased by 5.1% from 2001 to 2002, including 5.1% for Municipal employees and 5.4% for Uniformed employees. See **Tables 13A, 13B and 13C** (below and page 21) for more detail on salary increases during 2004.

**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 2004 - Combined Uniformed and Municipal Employees**

<b>Age</b>	<b>Number of Employees (a)</b>	<b>Prior Year Salaries</b>	<b>Current Year Salaries</b>	<b>Percentage Increase</b>	<b>Projected Increase (b)</b>	<b>Expected Salaries</b>	<b>Deviation (c)</b>
Under 30	454	\$15,574,600	\$16,774,300	7.7%	7.5%	\$16,737,600	0.2%
30 - 39	1,501	57,883,000	60,983,200	5.4	5.1	60,839,400	0.2
40 - 49	2,522	99,987,000	103,834,700	3.8	4.3	104,251,000	-0.4
50 - 59	1,998	78,877,600	82,156,400	4.2	3.9	81,978,200	0.2
60 and over	519	18,314,700	18,978,700	3.6	2.7	18,805,000	0.9
<b>Total</b>	<b>6,994</b>	<b>\$270,636,896</b>	<b>\$282,727,296</b>	<b>4.5%</b>	<b>4.4%</b>	<b>\$282,611,200</b>	<b>0.0%</b>

(a) Includes only those employees who earned a full year of service during 2003 and 2004.

(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 2004 - Uniformed Employees**

<b>Age</b>	<b>Number of Employees (a)</b>	<b>Prior Year Salaries</b>	<b>Current Year Salaries</b>	<b>Percentage Increase</b>	<b>Projected Increase (b)</b>	<b>Expected Salaries</b>	<b>Deviation (c)</b>
Under 30	86	\$3,793,300	\$4,235,500	11.7%	7.0%	\$4,060,300	4.3%
30 - 39	292	13,756,100	14,600,100	6.1	5.1	14,463,000	0.9
40 - 49	233	12,125,600	12,559,800	3.6	4.3	12,644,800	-0.7
50 - 59	103	5,425,400	5,579,700	2.8	3.9	5,638,600	-1.0
60 and over	15	792,000	821,000	3.7	2.8	814,400	0.8
Total	729	\$35,892,400	\$37,796,100	5.3%	4.8%	\$37,621,100	0.5%

**TABLE 13C**

**Average Salary Increases for 2004 - Municipal Employees**

<b>Age</b>	<b>Number of Employees (a)</b>	<b>Prior Year Salaries</b>	<b>Current Year Salaries</b>	<b>Percentage Increase</b>	<b>Projected Increase (b)</b>	<b>Expected Salaries</b>	<b>Deviation (c)</b>
Under 30	368	\$11,781,300	\$12,538,800	6.4%	7.6%	\$12,677,300	-1.1%
30 - 39	1,209	44,126,900	46,383,100	5.1	5.1	46,376,400	0.0
40 - 49	2,289	87,861,500	91,274,900	3.9	4.3	91,606,200	-0.4
50 - 59	1,895	73,452,200	76,576,700	4.3	3.9	76,339,600	0.3
60 and over	504	17,522,700	18,157,700	3.6	2.7	17,990,600	0.9
Total	6,265	\$234,744,592	\$244,931,200	4.3%	4.4%	\$244,990,112	0.0%

(a) Includes only those employees who earned a full year of service during 2003 and 2004.

(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
Under 46	5%
46 - 54	15
55 - 61	10
62	30
63 - 64	20
65	35
66 - 74	15
75	100

Rates indicated are adjusted by adding 5% (10% for ages 62-62) 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.

**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 <sup>1</sup>	
	Uniformed Members Male and Female	Municipal Members Male      Female
less than 1	13%	13%      16%
1 but less than 2	10	12      15
2 but less than 3	7	10      13
3 but less than 4	7	9      11
4 but less than 5	6	6      9
5 but less than 6	5	6      8
6 but less than 7	4	6      7
7 but less than 8	3	5      7
8 but less than 9	3	4      6
9 but less than 10	3	3      5
10 or more	3	2      4

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.

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

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

**Disability Rates**

Assumed rates of disablement for Uniformed plans are equal to 60% of the rates set forth in the 1964 OASDI (Social Security) Experience for Males. Rates assumed for Municipal plans are equal to 40% of those rates. Sample annual rates are as follows:

Age	Uniformed	Non-Uniformed
25	0.051%	0.034%
35	0.088	0.059
45	0.216	0.144
55	0.605	0.404
65	1.393	0.928

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 for those retired prior to January 1, 2005. Females are assumed to have the mortality of a male 6 years younger. For those retiring on or after January 1, 2005, the 1994 Group Annuity Mortality Static Table for males and females was used to project mortality. The life expectancies that result from the application of the table follow:

Expected Number of Years of Life Remaining					
Age		1983 Table	1994 Table		
Male	Female		Age	Male	Female
55	61	24.8	55	26.2	30.2
56	62	24.0	56	25.3	29.2
57	63	23.1	57	24.4	28.3
58	64	22.3	58	23.5	27.4
59	65	21.5	59	22.7	26.5
60	66	20.6	60	21.8	25.6
61	67	19.8	61	21.0	24.7
62	68	19.0	62	20.2	23.8
63	69	18.2	63	19.4	23.0
64	70	17.5	64	18.6	22.1
65	71	16.7	65	17.8	21.3
66	72	15.9	66	17.1	20.5
67	73	15.2	67	16.4	19.7
68	74	14.5	68	15.7	18.9
69	75	13.8	69	15.0	18.1
70	76	13.2	70	14.3	17.3
71	77	12.5	71	13.6	16.5
72	78	11.9	72	13.0	15.8
73	79	11.3	73	12.3	15.0
74	80	10.7	74	11.7	14.3
75	81	10.2	75	11.1	13.6

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

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### **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 3.5% compounded annually.
- b) The Consumer Price Index will increase by 3.0% compounded annually.

### **Post-Retirement Cost-of-Living Increases**

Where post-retirement adjustments are provided, we have assumed that they will average 3.0% 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 2005 is \$3,000,000, compared to \$2,450,000 for 2004.

### **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 years ending December 31, 1990 and 2004. 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, 2004 are shown in **Table 14**. The difference between the market value of assets of \$1,237,561,000 and the actuarial value of \$1,222,130,000 is considered the “surplus.” The amount of this investment reserve/(shortfall) as of December 31, 2004 is \$15,431,000, which is 1.2% 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, 2004 (\$1,000s)**

Item	Amount
1. Prior Year Actuarial Value	\$1,159,168
2. Total Audited Reserve Accounts	1,219,130
3. Expected 2005 Administration Expenses	3,000
4. Preliminary Actuarial Value: [= 2. + 3.]	1,222,130
5. Current Year Market Value	1,237,561
6. Prior Year Market Value	1,112,541
7. New Surplus: [= (5. - 4.) - (6. - 1.), not greater than (5. - 4.)]	15,431
8. Percentage of New Surplus to be Credited as Excess Interest*	0
9. Excess Interest (not less than zero): [= 7. x 8.]	\$ 0
10. Current Year Actuarial Value: [= 4. + 9.]	<u>\$1,222,130</u>

\* See Section 7 for derivation of this percentage; subject to minimum threshold.

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

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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.

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\* 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

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### **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 (presented to the Board in November 2004, covering experience during 1998 through January 1, 2003) formed the basis for several changes in assumptions first effective with this actuarial valuation. Details on the prior assumptions are shown in Exhibit IV of the Certificate in the Appendix. The next study will cover experience during 2003 through 2007.



**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, 2004

<b>TABLE 15</b>		
<b>Assets as of December 31, 2004 at Market Value (\$1,000s)</b>		
<b>Item</b>	<b>Amount</b>	
Accounts Receivable:		
Accrued investment income	\$1,914	
Investment sales	1,418	
Contributions	<u>2,927</u>	
Total		\$6,259
Investments:		
Fixed income	\$306,092	
Equities	812,368	
Real estate	<u>115,747</u>	
Total		1,234,207
Fixed assets		<u>313</u>
Total assets		\$1,240,778
Less: Accounts payable and accrued expenses	\$1,707	
Investment purchases payable	<u>1,510</u>	
Total		<u>3,217</u>
Net assets at market value		<u>\$1,237,561</u>

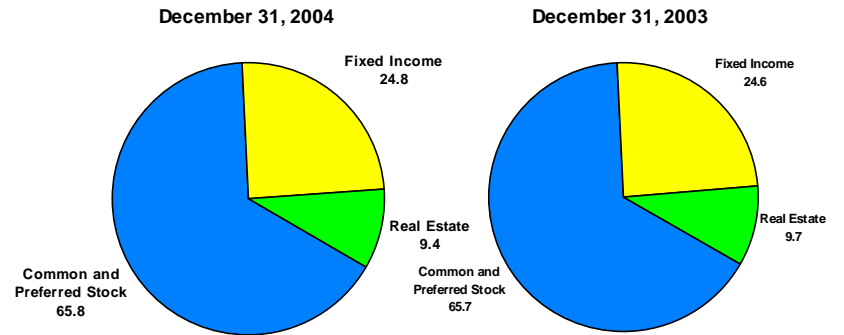
*Note: Assets may not add exactly to amount shown due to rounding.*

**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 2004, 24.8% was in fixed income securities, 65.8% was in equities, and 9.4% in real estate funds. At the beginning of that year, the corresponding percentages were 24.6% fixed, 65.7% equity and 9.7% real estate. The Board has an asset allocation policy 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, 2004		December 31, 2003	
	Amount* (\$1,000s)	Percent*	Amount* (\$1,000s)	Percent*
Fixed Income Investments:				
U.S. Government Bonds	\$170,497	13.8%	\$158,219	14.2%
Short-Term Investments	23,953	1.9	26,827	2.4
Corporate Bonds	<u>111,642</u>	<u>9.0</u>	<u>89,455</u>	<u>8.0</u>
Total Fixed Income	\$306,092	24.8%	\$274,500	24.6%
Common & Preferred Stock	812,368	65.8	731,946	65.7
Real Estate Funds	<u>115,747</u>	<u>9.4</u>	<u>108,229</u>	<u>9.7</u>
Total Investments	\$1,234,207	100.0%	\$1,114,676	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 \$62,962,000 in 2004, and \$60,177,000 in 2003.

**TABLE 17**

**Summary, Income and Expenses Year Ended December 31, 2003 and December 31, 2004 (Actuarial Basis; \$1,000s)**

Item	December 31, 2004	December 31, 2003
Contributions:		
Municipal contributions	\$17,041	\$14,696
Member contributions	15,821	14,760
Municipal expense assessments	<u>263</u>	<u>270</u>
Total contributions	\$33,126	\$29,727
Investment income:		
Regular interest	\$75,012	\$70,402
Excess interest*	<u>0</u>	<u>0</u>
Total investment income	\$75,012	70,402
<b>Total income</b>	<b>\$108,138</b>	<b>\$100,129</b>
Expenses:		
Total expenses during year	\$7,292	\$6,044
Less: investment management fees	(4,165)	(3,433)
Less: expense reserve for 2004	<u>(3,000)</u>	<u>(2,450)</u>
Net administrative expense	\$127	\$161
Benefit payments:		
Retirement pensions	\$33,641	\$31,239
Disability pensions	1,090	973
Refunds to terminated members	<u>10,318</u>	<u>7,579</u>
Total benefit payments	\$45,049	\$39,791
<b>Total expenses</b>	<b><u>45,176</u></b>	<b><u>39,952</u></b>
Net change in actuarial asset value	<u>\$62,962</u>	<u>\$60,177</u>
Actuarial asset value as of the following January 1	<u>\$1,222,130</u>	<u>1,159,168</u>

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

*\* Available as of January 1, 2005 to be allocated as of December 31, 2005.*

**SECTION 5: Financial Data for the Pennsylvania Municipal Retirement System**

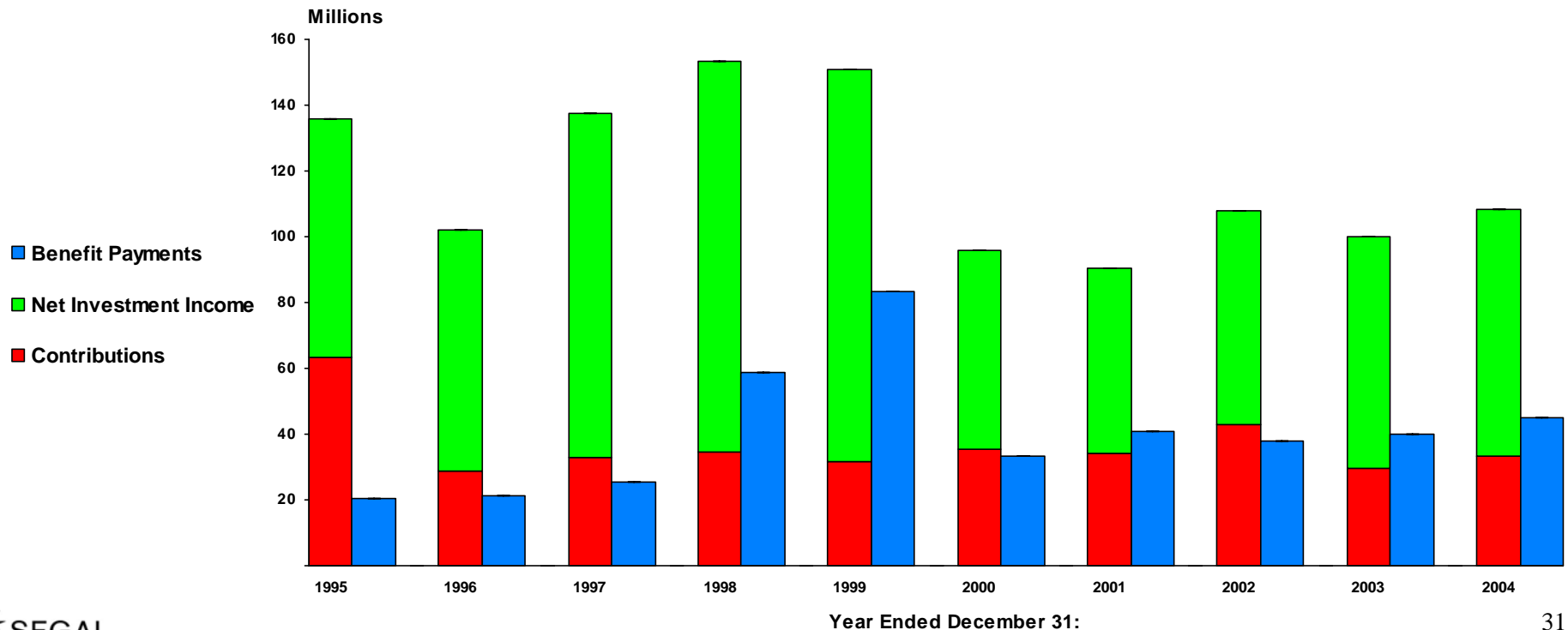
As indicated in Table 17, the actuarial investment income for 2004 was \$75.0 million. This income resulted from a total credited interest rate of 6.5% for 2004. Considering all assets (whether or not invested), and net investment income of \$140,070,000 including changes in market values, the estimated total market value rate of return\* for 2004 was 12.68%.

\* *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 6.4%. **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, 2004 (All amounts in \$1,000s)**

<b>Year ended December 31:</b>	<b>Contributions</b>	<b>Investment return<sup>1</sup></b>	<b>Benefit payments<sup>2</sup></b>	<b>Actuarial value of assets at end of year</b>
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
2003	29,727	70,402	39,952	1,159,168
2004	33,126	75,012	45,176	1,222,130

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

<sup>2</sup> 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**

<b>Year</b>	<b>Regular interest</b>	<b>Excess<sup>1</sup> interest</b>	<b>Total credited interest</b>	<b>Market<sup>2</sup> yield</b>
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)
2003	6.5	0.00	6.50	22.90
2004	6.5	0.00	6.50	12.68
Average for the period	6.5%	4.25%	10.75%	11.40%

<sup>1</sup> Awarded at the end of the following year.

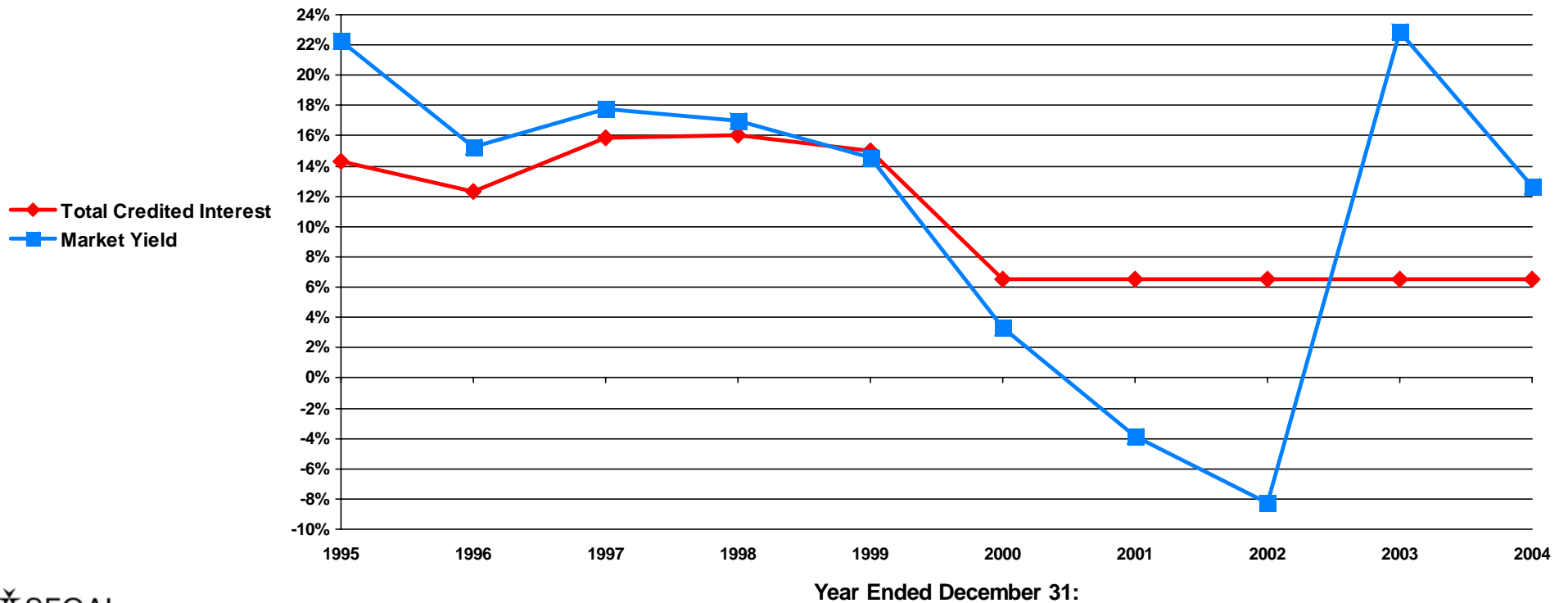
<sup>2</sup> Estimated, assuming non-investment income and expenses occur uniformly throughout the year.

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

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### 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% through December 31, 2004 and 6.0% beginning January 1, 2005) 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, 2004, two of the pooled components (Disability and Retirement) had a margin against future adverse experience, while the Retiree Reserve Account has a very small deficit.

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. Investment experience improved in 2003 and 2004 and there is now an investment surplus of \$15,431,000. No excess interest was applied to accounts as of December 31,

2004 at the end of 2005. This surplus in the Reserve represents 1.25% of the market value of assets as of December 31, 2004 compared to a (4.19)% 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 \$504,300 as of December 31, 2004, that can be considered a reserve for possible adverse future disability experience. We note that the balance changed from \$760,400 as of December 31, 2003. Transfers out of disability reserves were \$829,700, compared to 2004 contribution allocations of \$533,800. Stated as a percent of municipal reserves, the Disability Reserves are 0.09%. The ratio at December 31, 2003 was 0.14%.

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. This cap was not applicable this year, but was applied at the end of 2003.



## SECTION 6: Actuarial Experience for the Pennsylvania Municipal Retirement System

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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, 2004, the account had a balance of \$361,653,000. Based on our actuarial calculations, \$361,683,000 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 6.0% per year on System assets.

2004 represents the first year in which there was a deficit in the retirement reserves. The amount of this deficit was only \$30,000 or (0.01)% of the actuarial liability. This reserve is approximately \$11.1 million lower than it was a year ago and decreased (from 3.4% 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 gradual development of a margin as desirable.

These Retirement Reserve numbers are based on new assumptions adopted by the Board in November 2004 and effective January 1, 2005. The reserve surplus and margin would have been \$14.0 million and 4.0%, respectively, under the old assumptions.

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

**EXCESS INTEREST ALLOCATION**

Each year, municipalities are eligible to receive a supplemental allocation of investment monies beyond the regular 6.5% interest rate (the regular rate was 6.5% through 2004 and is 6.0% in 2005). 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, 2004, there was a new surplus of \$15.4 million that could potentially be allocated to excess interest.

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

	<b>12/31/2004 (Preliminary)</b>	<b>12/31/2003 (Final)</b>
Market value	\$1,237,561	\$1,112,541
Actuarial value	<u>1,222,130</u>	<u>1,159,168</u>
Surplus/(deficit)	\$15,431	\$(46,627)
New Surplus		\$15,431
Margin [= 15,431 ÷ 1,237,561]		1.25% = ‘m’
New Margin [= 15,431 ÷ 1,237,561]		1.25% = ‘n’
Excess Interest Portion [= (.10 + 8m) ÷ (1.0+8n)]		18.18% = ‘e’

No further adjustment is required as long as ‘e’ is between 10% and 90%; therefore, 18.18% of the new surplus of \$15,431,000 would generally be allocated to excess interest. This amount is \$2,805,000 which is 0.23% of the eligible reserves of \$1,218,655,000. However, since this is below the 0.50% threshold adopted by the Board, no excess interest is payable and nothing is added to the preliminary actuarial asset value and the final actuarial asset value is also \$1,222,130.

The final surplus is now determined as:

Market value	\$1,237,561
Actuarial value	<u>1,222,130</u>
Surplus/(deficit)	\$15,431
Percent of market value	1.25%

(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 2005 and would not yet be reflected in account balances as of December 31, 2004. The determination of the allocation percentage (the “excess interest rate”) is as follows (all dollar amounts are in \$1,000s):

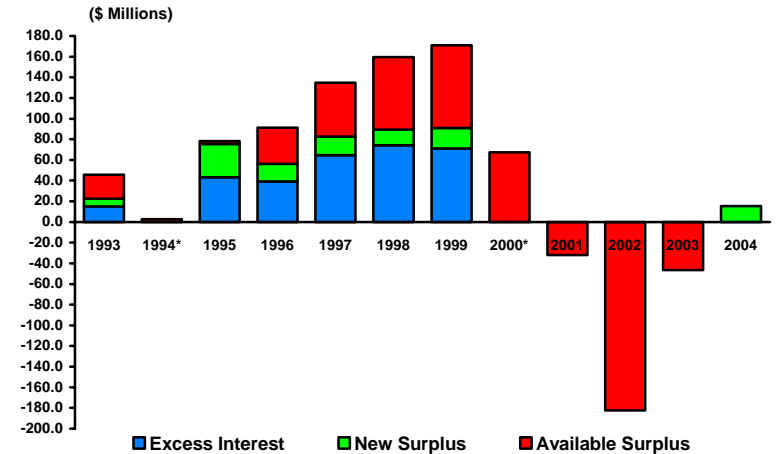
Assets as of December 31, 2004:

Member Accounts	\$298,043
Municipal Accounts	558,929
Retired Members (Actuarial basis)	<u>361,683</u>
Total eligible assets	\$1,218,655
Total excess interest to be allocated	\$0
Ratio of total excess interest to eligible assets	0%

Therefore, each municipality’s 2004 excess interest allocation is equal to 0% of its total asset accounts as of December 31, 2004. **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.

**TABLE 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)
2003	(46.6)	(4.2)	135.7	12.2	N/A	-0-	-0-	(46.6)	(4.2)
2004	15.4	1.2	15.4	1.2	N/A	-0-	-0-	15.4	1.2

## SECTION 8: Accounting Information for the Pennsylvania Municipal Retirement System

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### 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.

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

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### 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 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 (through 2002) 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**

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) Entry Age (b)</b>	<b>Unfunded/ (Surplus) AAL (UAAL) (b)-(a)</b>	<b>Funded Ratio (a)/(b)</b>	<b>Covered Payroll* (c)</b>	<b>UAAL as a Percentage of Covered Payroll [(b)-(a)]/(c)</b>
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
1/1/2004	54,024,200	45,580,700	(8,443,500)	118.5	22,249,300	0.00
1/1/2005	1,219,130,000	1,154,858,200	(64,271,800)	105.6	319,004,900	0.00

*Notes: For 1998, 2000, 2002 and 2004, 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.*

*\* Covered payroll is projected salary for defined benefit participants (below the assumed retirement age) for the year following the valuation date.*

## SECTION 8: Accounting Information for the Pennsylvania Municipal Retirement System

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### 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.

**July 7, 2006**

**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, 2005, in accordance with generally accepted actuarial principles and practices. This certificate includes the following attached exhibits:

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**Certificate Contents**

<b>EXHIBIT I</b>	Funded Status of Actuarial Accrued Liabilities
<b>EXHIBIT II</b>	Actuarial Accrued Liability
<b>EXHIBIT III</b>	Schedule of Retirees and Beneficiaries
<b>EXHIBIT IV</b>	Actuarial Assumptions
<b>EXHIBIT V</b>	Actuarial Methods

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Individual municipality actuarial valuation results as of January 1, 2005, have been provided separately for 674 defined benefit plans that are required to redetermine contribution levels as of January 1, 2005 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, 2004.

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, and comply with the parameters set forth in Government Accounting Standard No. 25.

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.



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Eli Greenblum, FSA, MAAA, EA  
Senior Vice President & Actuary  
Enrolled Actuary No. 05-3636



**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, 2005 are shown in Exhibit II. The information below was derived from the following membership data, as provided by the System, regarding:

- 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;
- 4 defined benefit plans required to redetermine contribution levels as of January 1, 2004;
- 678 defined benefit plans and 169 defined contribution-only plans as of January 1, 2005.

Actuarial Valuation Date	Actuarial Value of Assets <sup>1</sup> (a)	Actuarial Accrued Liability (AAL) — Entry Age (b)	Unfunded AAL (Surplus) (b-a)	Funded Ratio (a/b)
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
1/1/2004	54,024,249	45,580,670	(8,443,579)	118.5
1/1/2005	1,219,130,000	1,154,858,200	(64,271,800)	105.6

<sup>1</sup> According to method described in Exhibit V, 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,			
	2005	2004	2003	2002
a. Retirees currently receiving benefits	2,768	194	2,534	487
b. Beneficiaries currently receiving benefits	424	8	393	112
c. Terminated vested employees entitled to future benefits - defined benefit plans	464	37	473	73
d. Terminated non-vested employees entitled to contribution refunds - defined benefit plans	165	4	177	57
e. Active employees in defined benefit plans	8,341	731	8,142	1,900
i. aggregate salary*	\$319,004,918	\$22,249,329	\$293,388,800	\$67,861,900
ii. vested	4,603	259	4,189	9155
iii. non-vested	3,738	472	3,953	985
f. Participants in defined contribution-only plans	1,005	--	897	--
i. aggregate salary**	\$26,807,519	--	\$21,459,225	--
ii. active	867	--	797	--
iii. inactive	138	--	100	--

\* Projected salary for actives under the latest retirement age for year following valuation date.

\*\* Actual salary for year preceding valuation date.

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

**EXHIBIT II  
Actuarial Accrued Liability**

<b>Valuation</b>	<b>(A) Active Member Contributions</b>	<b>(B) Retirees and Beneficiaries<sup>1</sup></b>	<b>(C) Active Members (Employer Financed Portion)</b>	<b>Valuation Assets<sup>2</sup></b>	<b>Portion of Actuarial Accrued Liability Covered by Assets</b>		
2005	\$231,122,200	\$395,061,900	\$528,674,100	\$1,219,130,000	100%	100%	100%
2003	213,174,400	329,766,100	412,318,900	1,084,828,900	100%	100%	100%
2001	201,814,300	263,171,300	347,659,500	976,868,000	100%	100%	100%
1999	170,495,100	224,089,800	297,499,500	773,062,000	100%	100%	100%

<sup>(1)</sup> Includes terminated employees not yet receiving benefits.

<sup>(2)</sup> Sum of member, Municipal, Retirement, and Disability Reserve Accounts as shown in audited financial statements.

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

**EXHIBIT III**

**Schedule of Retirees and Beneficiaries Added to and Removed from Rolls for Last Six Years**

<b>Valuation Date 1/1</b>	<b>Added to Roll</b>	<b>Deleted from Roll</b>	<b>Number on Roll</b>	<b>Annual Annuities</b>	<b>Percentage Increase in Annuities</b>	<b>Average Annual Annuities</b>	<b>Percentage Increase in Average Annual Annuities</b>
2005	251	116	3,192	\$34,691,928	8.4%	\$10,868	3.8%
2004	214	84	3,057	32,010,035	7.4	10,471	2.8
2003	199	71	2,927	29,816,676	8.2	10,187	3.4
2002	250	138	2,799	27,566,700	11.4	9,849	6.9
2001	209	100	2,687	24,748,000	17.4	9,210	12.6
2000	179	241	2,578	21,087,300	0.2	8,180	2.6

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

**EXHIBIT IV**

**Actuarial Assumptions**

The following actuarial assumptions were adopted by the PMRS Board in November 2004, for first use in the January 1, 2005 actuarial valuation. (Actuarial assumptions for the prior valuation were adopted by the PMRS Board in November 1999.)

**Healthy life mortality rates:** For those retired before January 1, 2005, the 1983 Group Annuity Mortality Table for Males, with ages set back 6 years for females. For new retirees on or after January 1, 2005, the 1994 Group Annuity Mortality Static Table for males and females. The sample rates are given below.

<b>Age</b>	<b>Retirees Prior to January 1, 2005*</b>		<b>New Retirees on or After January 1, 2005</b>	
	<b>Male</b>	<b>Female</b>	<b>Male</b>	<b>Female</b>
50	0.39%	0.19%	<b>0.26%</b>	<b>0.14%</b>
55	0.61	0.35	<b>0.44</b>	<b>0.23</b>
60	0.92	0.57	<b>0.80</b>	<b>0.44</b>
65	1.56	0.84	<b>1.45</b>	<b>0.86</b>
70	2.75	1.39	<b>2.37</b>	<b>1.37</b>
75	4.46	2.48	<b>3.72</b>	<b>2.27</b>
80	7.41	4.04	<b>6.20</b>	<b>3.94</b>
85	11.48	6.71	<b>9.72</b>	<b>6.77</b>

**Disabled life mortality rates:** Mortality under healthy life table for a life 10 years older.

\* This table was used for all participants in the prior valuation.

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

**EXHIBIT IV (Continued)  
Actuarial Assumptions**

**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. The prior and current valuation rates are shown below.

Years of Service	Prior Valuation Rate <sup>1</sup>			Current Valuation Rate <sup>1</sup>		
	Uniformed Members	Municipal Members		Uniformed Members	Municipal Members	
	Male and Female	Male	Female	Male and Female	Male	Female
less than 1	10%	12%	16%	13%	13%	16%
1 but less than 2	8	10	14	10	12	15
2 but less than 3	8	9	12	7	10	13
3 but less than 4	7	8	10	7	9	11
4 but less than 5	6	7	9	6	6	9
5 but less than 6	5	7	8	5	6	8
6 but less than 7	4	6	7	4	6	7
7 but less than 8	3	5	6	3	5	7
8 but less than 9	3	4	5	3	4	6
9 but less than 10	2	3	4	3	3	5
10 or more	2	2	3	3	2	4

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

**EXHIBIT IV (Continued)**  
**Actuarial Assumptions**

**Disability incidence rates:**

(a) 40% of 1964 OASDI (Social Security) Experience for Males for municipal plans (formerly, 50% of those rates were used). Sample rates for the prior and current valuation assumptions are as follows:

Age	Prior Valuation Rate (%)	Current Valuation Rate (%)
25	0.043%	0.034%
35	0.074	0.059
45	0.180	0.144
55	0.504	0.404
65	1.160	0.928

(b) Uniformed plans -- 60% of 1964 OASDI (Social Security) Experience for Males (formerly, 100% of those rates were used). Sample rates for the prior and current assumptions are as follows:

Age	Prior Valuation Rate (%)	Current Valuation Rate (%)
25	0.085%	0.051%
35	0.147	0.088
45	0.360	0.216
55	1.009	0.605
65	2.321	1.393

EXHIBIT IV (Continued)

Actuarial Assumptions

**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

**Salary scale:**

3.0% inflation (3.5% for prior valuation) 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. Beginning with the 2005 valuation, 2% is added to the rate shown below for each of the first 3 years of service.

Sample rates are as follows:

Age	Total Rate (%)* (including inflation)
25	7.8%
30	5.9
35	5.1
40	4.5
45	4.2
50	4.1
55	3.9
60	3.7
65	3.0

\* Add 2% for each of the first 3 years of service.



EXHIBIT IV (Continued)

Actuarial Assumptions

**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.
- (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	Prior Rate of Normal Retirement <sup>2</sup>	Current Rate of Normal Retirement <sup>2</sup>
Under 46	10%	5%
46 - 54	10	15
55 - 59	10	10
60 - 61	10	10
62	35	30
63 - 64	20	20
65	45	35
66 - 74	20	15
75	100	100

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

<sup>2</sup> Rates indicated are adjusted by adding 5% (and 10% for ages 60-62 under current rate assumptions) for the year in which the member is first eligible for normal retirement.

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**EXHIBIT IV (Continued)**  
**Actuarial Assumptions**

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<b>Marital status and spouse's age:</b> <sup>3</sup>	85 percent of members will be married at time of retirement and females are four years younger than their spouses.
<b>Social Security projections:</b> <sup>3</sup>	<ul style="list-style-type: none"><li>a) The Social Security Taxable Wage Base will increase by 3.5% compounded annually. (4.0% in prior valuation)</li><li>b) The Consumer Price Index will increase by 3.0% compounded annually. (3.5% in prior valuation)</li><li>c) The Average Total Wages of All Workers will increase by 3.5% compounded annually. (4.0% in prior valuation )</li></ul>
<b>Post-retirement cost-of-living increases:</b> <sup>3</sup>	3.0% per year, subject to plan limitations (3.5% in prior valuation)
<b>Net investment return:</b>	6.0% compounded annually (net of investment and certain administration expenses) for funding purposes. (6.5% in prior valuation)

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<sup>3</sup> If applicable.

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**EXHIBIT IV**

**Actuarial Methods**

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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.

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**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 for 2004 because the new surplus was smaller than the minimum excess interest policy adopted by the Board.

**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 amount 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

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**EXHIBIT IV (Continued)**

**Actuarial Methods**

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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.

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**Actuarial cost method (continued):**

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

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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<sup>5</sup> *If there are no active employees, the unfunded liability is amortized in one year from the date that the liability was established.*