**Pennsylvania Municipal Retirement System**

**Actuarial Valuation as of January 1, 2007**

**Produced by Cheiron**

**May 2008**

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May 12, 2008

Pennsylvania Municipal Retirement Board of the
Pennsylvania Municipal Retirement System
c/o James B. Allen, Secretary
P.O. Box 1165
Harrisburg, PA 17108-1165

Dear Members of the Board:

At your request, we have conducted the annual actuarial valuation of the Pennsylvania Municipal Retirement System (the System) as of January 1, 2007. The results of the valuation are contained in this report. The purpose of the valuation is discussed in the Foreword.

This report contains information on System assets, as well as analyses which combine asset and liability performance and projections. As a single retirement system made up of plans for participating municipalities and counties in which assets and liabilities are separately accounted for, this report reflects aggregate valuation results for the System which is considered a multiple employer plan. The report provides statistics on employer contribution levels for the defined benefit portion of the municipal plans participating in the system as of the valuation date as well as required disclosures under the Governmental Accounting Standards Board Statement #25 for the entire System.

Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions on which our findings are based. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief. The results of this report are only applicable for the defined benefit municipal plans which were reported to the State for the Act 205 2007 System Year and rely on future System experience conforming to the underlying assumptions. To the extent that actual System experience deviates from the underlying assumptions, the results would vary accordingly.

We hereby certify that, to the best of our knowledge, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. The undersigned as Members of the American Academy of Actuaries and/or Society of Actuaries, meet the Qualification Standards to render the opinions contained herein.

Sincerely,
Cheiron

Kenneth A. Kent, FSA, FCA
Consulting Actuary

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Actuary



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## PENNSYLVANIA MUNICIPAL RETIREMENT SYSTEM

## FOREWORD

Cheiron has performed the actuarial valuation of the Pennsylvania Municipal Retirement System (System) as of January 1, 2007. The purpose of this report is to:

1) **Measure and disclose**, as of the valuation date, the financial condition of the System;

2) **Indicate trends** in the financial progress of the System;

3) **Determine the average contribution rate** to be paid by the System's individual municipalities; and

4) **Provide specific information** and documentation required by the Governmental Accounting Standards Board (GASB).

An actuarial valuation establishes and analyzes System assets and liabilities on a consistent basis, and traces the progress of both from one year to the next. It includes measurement of the System's investment performance as well as an analysis of actuarial liability gains and losses.

**Section I** presents a summary containing our findings and disclosing important trends experienced by the System in recent years.

**Section II** contains details on various asset measures, together with pertinent performance measurements.

**Section III** shows similar information on System liabilities, measured for actuarial, accounting, and government reporting purposes.

**Section IV** shows the distribution of the municipalities' contribution rates by component.

**Section V** includes the required disclosures under GASB Statement Number 25.

The appendices to this report contain a summary of the System's membership at the valuation date, and the actuarial methods and assumptions used in the valuations.

As this System is a multiple employer plan in which each of the participating municipalities are entitled to define and submit to the Board for amendment the benefit provisions for their respective employees, the actual plan provisions are not included in this report. For individual participating employer plan provisions we based our results on the provisions defined and submitted to the State under the 2007 Act 205 filings in preparing this valuation. For estimation of liabilities for County participating plans, we used the provisions provided to us by the System.

In preparing our report, we relied without audit, on information (some oral and some written) supplied by the Office of System's staff. This information includes, but is not limited to, plan provisions, employee data, and financial information.

## FOREWORD

The actuarial assumptions reflect our understanding of the likely future experience of the System and the assumptions as a whole represent our best estimate for the future experience of the System. The results of this report are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the true cost of the System could vary from our results.

Finally, in preparing this report, we have conformed to generally accepted actuarial principles and practices which are consistent with the Code of Professional Conduct, and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board.

**SECTION I**
**BOARD SUMMARY**

## General Comments

The primary purpose of the actuarial valuation and this report is to disclose the following as of the valuation date:

- The overall financial condition of the Pennsylvania Municipal Retirement System,
- Past trends and expected future trends in the System's financial condition, and
- Information required by the Governmental Accounting Standards Board (GASB).

In this Section, we present a summary of the principal valuation results. This includes the basis upon which the January 1, 2007 valuation was completed and an examination of the current financial condition of the System. In addition, we present a review of the key historical trends followed by the System's projected financial outlook.

## A. Valuation Basis

This valuation is the first Cheiron has performed for the Pennsylvania Municipal Retirement System. The January 1, 2007 valuation results are based on the same actuarial assumptions used in the January 1, 2005 valuation, prepared by your prior actuary. All prior results presented as of January 1, 2005 and January 1, 2006 are based on the valuation report prepared by the prior actuary. In our valuation process we replicated their results within generally accepted margins, but we do not certify the results presented for January 1, 2005 and January 1, 2006 for our comparisons.

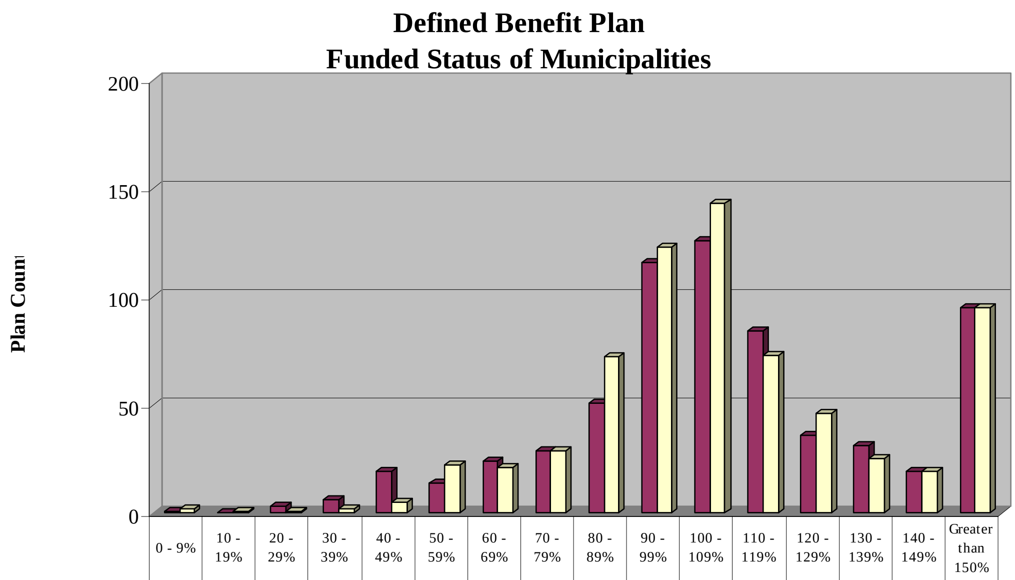
As Cheiron's first valuation report for the System, below we identify two key results of this valuation.

- *Unfunded Actuarial Liability (UAL):* The UAL is the excess of the System's actuarial liability (AL) over the actuarial value of assets (AVA). Because the System is made up of many plans some with UAL and others with surplus (when the AVA is greater than the AL), it is interesting to note the aggregate change of each of these values that combined provide the net funded level of the System. In aggregate the System has been in a net surplus, but that surplus has decreased from $64.3 million as of January 1, 2005 to $54.0 million as of January 1, 2007.

- *Funding Ratio:* This is the ratio of the System's AVA to AL. The funding ratio decreased from 105.6% as of January 1, 2005 to 104.2% as of January 1, 2007.

## SECTION I
## BOARD SUMMARY

The following chart shows a distribution of the funded status of the plans covered by the System in 2005 and 2007.




| | 0 - 9% | 10 - 19% | 20 - 29% | 30 - 39% | 40 - 49% | 50 - 59% | 60 - 69% | 70 - 79% | 80 - 89% | 90 - 99% | 100 - 109% | 110 - 119% | 120 - 129% | 130 - 139% | 140 - 149% | Greater than 150% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2005 | 1 | 0 | 3 | 6 | 19 | 14 | 24 | 29 | 51 | 116 | 126 | 84 | 36 | 31 | 19 | 95 |
| 2007 | 2 | 1 | 1 | 2 | 5 | 22 | 21 | 29 | 72 | 123 | 143 | 73 | 46 | 25 | 19 | 95 |

## B. Current Financial Condition

On the following pages, we summarize the key results of the January 1, 2007 valuation and how they compare to the results from the January 1, 2005 and January 1, 2006 valuations.

1. System Membership:

As shown in Table I-1 below, total membership in the Retirement System increased by 0.4% from 2006 to 2007. The net growth in active participation is attributable to a 2.5% growth in the defined contribution plans while there was an actual decline in active participation among the defined benefit plans of 0.7%. The aggregate covered payroll of the System increased this year by 7.1% while the average salary per active member increased by 7.5%. In Table 1-2, however, the average salary per active defined benefit participant grew at the rate of 8.39%.

**Table I-1**
**Membership Total**

| | January 1, 2007 | January 1, 2006 | % Change |
|---|---|---|---|
| Defined Benefit Actives | 8,314 | 8,374 | -0.7% |
| Defined Contribution Actives | 918 | 896 | 2.5% |
| Terminated Vesteds | 756 | 741 | 2.0% |
| Participants Receiving Benefit Payments | 2,965 | 2,941 | 0.8% |
| Beneficiaries | 494 | 436 | 13.3% |
| Total System Members | 13,447 | 13,388 | 0.4% |
| | | | |
| Annual Salaries* | $ 386,904,315 | $ 361,271,328 | 7.1% |
| Average Salary per Active Member | 41,909 | 38,972 | 7.5% |

## SECTION I
## BOARD SUMMARY

Table I-2 is a summary of the demographic make-up of the defined benefit and defined contribution plans in the System.

**Table I-2**
**Demographic Make-up of the System**

| Category | Valuation as of January 1 2007 | 2006 | Percent Change |
|---|---|---|---|
| Number of plans: | | | |
| Defined Benefit Plans | 683 | 684 | -0.15% |
| Defined Contribution Plans | 177 | 172 | 2.91% |
| Active Employees in Defined Benefit Plans: | | | |
| Count | 8,314 | 8,374 | -0.72% |
| Average Age | 46.5 | 46.2 | 0.65% |
| Average Service | 11.8 | 11.6 | 1.72% |
| Total Payroll* | $ 358,690,830 | $ 333,300,000 | 7.62% |
| Average Pay | $ 43,143 | $ 39,802 | 8.39% |
| Active Employees in Defined Contribution Plans: | | | |
| Count | 918 | 896 | 2.46% |
| Average Age | 47.9 | 47.6 | 0.63% |
| Average Service | 10.2 | 9.8 | 4.08% |
| Average Pay** | $ 30,734 | $ 31,218 | -1.55% |
| Inactive Participants in Defined Benefit Plans with Rights to: | | | |
| Deferred Pension | 561 | 525 | 6.86% |
| Return of Contributions | 33 | 66 | -50.00% |
| Inactive Participants in Defined Contribution Plans | 162 | 150 | 8.00% |
| Pensioners: | | | |
| Count | 2,965 | 2,941 | 0.82% |
| Average Age | 69.9 | 69.8 | 0.14% |
| Average Monthly Benefit | $ 993 | $ 976 | 1.74% |
| Number of New Awards | 252 | 264 | -4.55% |
| Average New Monthly Benefit | $ 1,069 | $ 1,270 | -15.83% |
| Number Receiving Legislated COLA | 185 | 149 | 24.16% |
| Survivor Beneficiaries: | | | |
| Count | 494 | 436 | 13.30% |
| Average Age | 72.3 | 75.5 | -4.24% |
| Average Monthly Benefit | $ 766 | $ 671 | 14.16% |

* *Projected salaries for the current Plan year.*
** *Actual salaries paid during the prior Plan year.*

# SECTION I
# BOARD SUMMARY

2. System Assets and Liabilities:

Table I-3 presents a comparison between the January 1, 2007 and January 1, 2005 System assets, liabilities, UAL, and funding ratios for defined benefit non-county, defined benefit county, and defined contribution only plans. While this valuation was prepared to support the non-county plans, we were provided county participant data and determined their liabilities for estimation purposes. The total funding ratio decreased from 105.6% as of January 1, 2005 to 104.2% as of January 1, 2007

**Table I-3**
**Total Plan Assets and Liabilities**
**($ thousands)**

| | January 1, 2007 | January 1, 2005 | % Change |
|---|---|---|---|
| **Defined Benefit (Non-county) Plans:** | | | |
| Actives | $ 746,622 | N/A | N/A |
| Terminated Vesteds | 39,336 | N/A | N/A |
| In Pay | 404,054 | N/A | N/A |
| Total Actuarial Liability | $ 1,190,012 | N/A | N/A |
| Actuarial Value of Assets* | 1,231,958 | N/A | N/A |
| Unfunded/(Surplus) of Actuarial Liability | $ (41,946) | N/A | N/A |
| **Defined Benefit (County) Plans:** | | | |
| Actives | $ 32,641 | N/A | N/A |
| Terminated Vesteds | 4,335 | N/A | N/A |
| In Pay | 15,198 | N/A | N/A |
| Total Actuarial Liability** | $ 52,174 | N/A | N/A |
| Actuarial Value of Assets* | 64,215 | N/A | N/A |
| Unfunded/(Surplus) of Actuarial Liability | $ (12,041) | N/A | N/A |
| **Defined Contribution Plans:** | | | |
| Actives | $ 30,988 | N/A | N/A |
| Terminated Vesteds | 5,080 | N/A | N/A |
| In Pay | 3,768 | N/A | N/A |
| Total Actuarial Liability | $ 39,836 | N/A | N/A |
| Actuarial Value of Assets* | 39,836 | N/A | N/A |
| Unfunded/(Surplus) of Actuarial Liability | $ - | N/A | N/A |
| **Total Plans** | | | |
| Actives | $ 810,251 | N/A | N/A |
| Terminated Vesteds | 48,751 | N/A | N/A |
| In Pay | 423,020 | N/A | N/A |
| Total Actuarial Liability | $ 1,282,022 | $ 1,154,858 | 11.0% |
| Market Value of Assets | $ 1,455,869 | $ 1,237,561 | 17.6% |
| Actuarial Value of Assets* | 1,336,009 | 1,219,130 | 9.6% |
| Unfunded/(Surplus) of Actuarial Liability | $ (53,987) | $ (64,272) | -16.0% |
| Funding Ratio | 104.2% | 105.6% | -1.4% |

* *The assets shown here are attributable to the defined benefit, defined contribution only, non-county, and estimated county plans. They exclude one year of administration expense reserve and excess interest allocation, if any, to be credited at year end.*

** *County Plan liabilities are estimated in odd years based on unaudited data received from the System.*

## SECTION I
## BOARD SUMMARY

Table I-4 presents a summary of the January 1, 2007 non-county defined benefit plans that are in a surplus or underfunded position.

**Table I-4**
**Funded Status of Municipalities as of January 1, 2007**

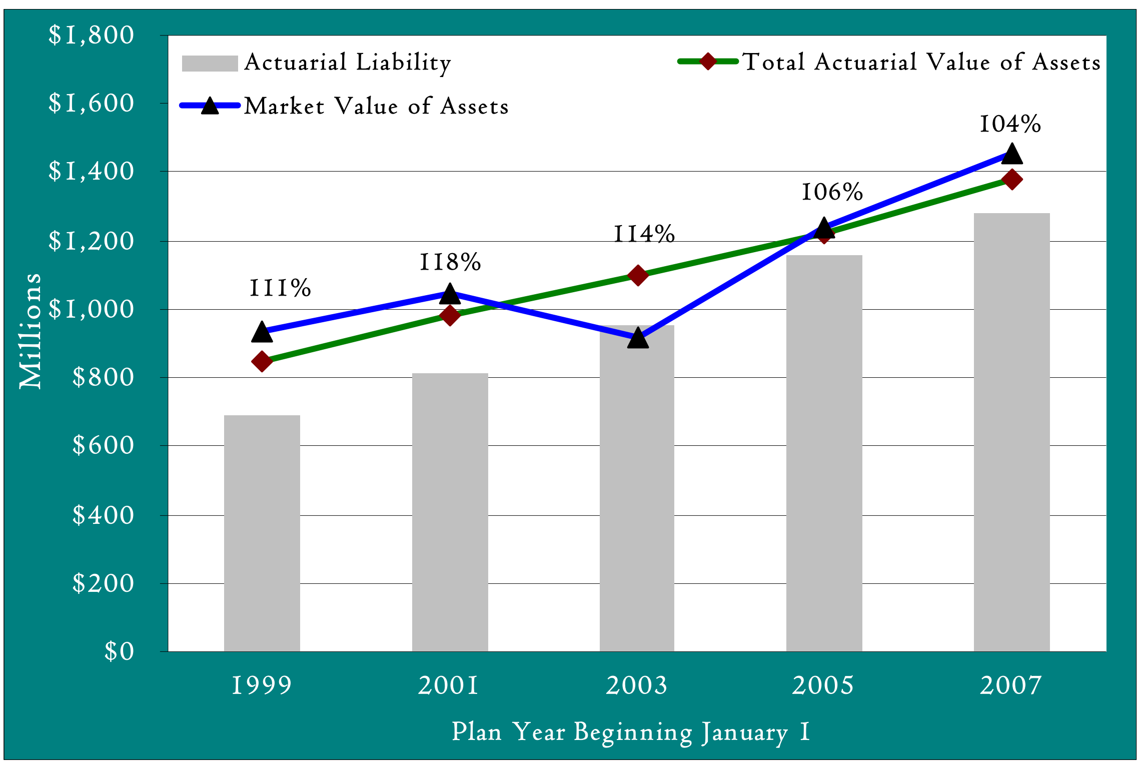
| | |
|---|---|
| **A. Non-county Plans in a surplus position** | |
| 1. Number of plans with a surplus | 401 |
| 2. Assets in plans with a surplus | $812,621,122 |
| 3. Actuarial Liability in plans with a | 704,632,621 |
| 4. Amount of surplus (2. – 3.) | $107,988,501 |
| **B. Non-county Plans in an underfunded position** | |
| 1. Number of underfunded plans | 278 |
| 2. Assets in underfunded plans | $419,336,764 |
| 3. Actuarial Liability in underfunded plans | 485,379,620 |
| 4. Amount of (unfunded) liability (2. – 3.) | ($66,042,857) |

## C. Historical Trends

Even though most of the attention given to the valuation reflects the most recently computed actuarial liability and funding ratio, it is important to remember that each valuation is merely a snapshot of the long-term progress of the System. It is equally important to judge a current year's valuation result relative to historical trends, as well as trends expected into the future.

In the chart below, we present the historical trends for the total System (defined benefit, defined contribution, county and non-county) market and actuarial value of assets compared to the total System (defined benefit, defined contribution, county and non-county) actuarial liabilities. Additionally, we have included the funding ratio to show the progress of the Retirement System since 1999.

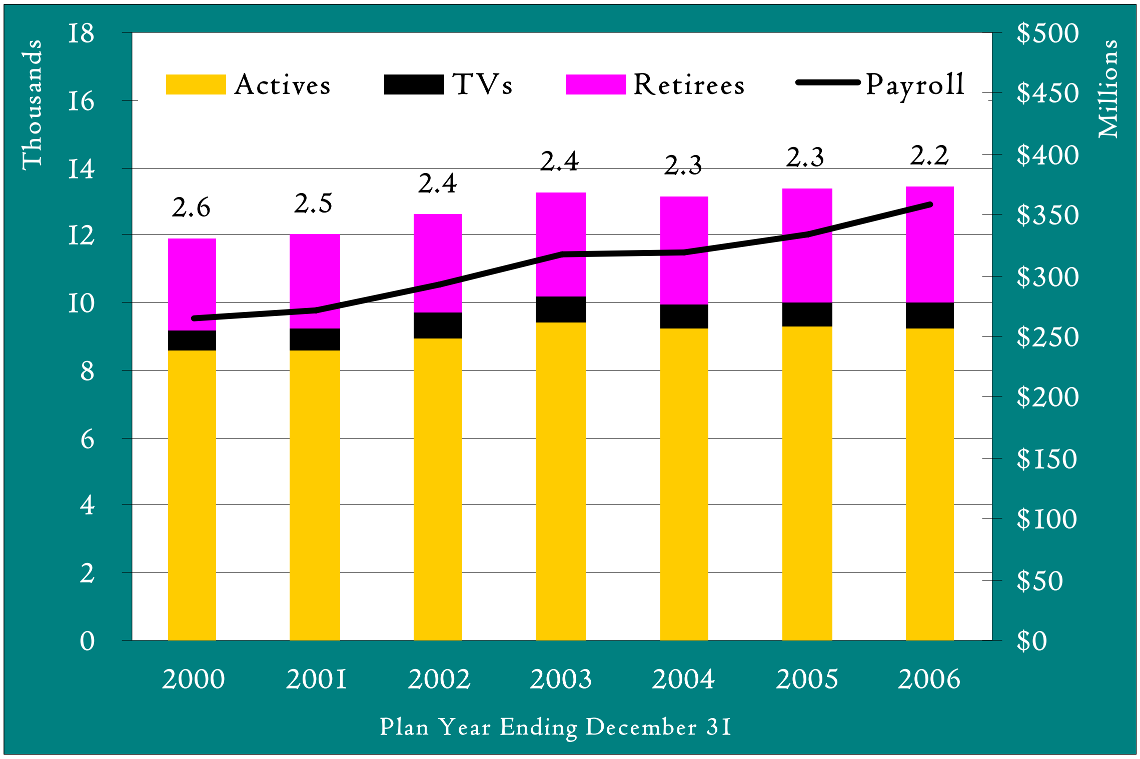
**Pennsylvania Municipal Retirement System Assets and Liabilities – 1999 to 2007 (odd years)**




The System's funding ratio has remained over 100% even during the difficult investment markets, however, the ratio has decreased as liabilities have been growing at a faster rate than assets in recent years.

**SECTION I**
**BOARD SUMMARY**

**Pennsylvania Municipal Retirement System Participant Counts – 2000 to 2007**




The chart above shows a comparison of the demographic makeup of the System over the last seven years. The number above the bar graph represents the ratio of active to inactive employees which is decreasing at a steady pace. A retirement system has a life cycle of its own, reaching maturity when as many or more of the covered participants are non-active (retirees and terminated vesteds (TVs)). When this occurs the ratio moves closer to and sometimes below 1.0. For the System the fact that this ratio is still relatively high indicates that contribution income is significant and net negative cash flows are relatively modest at around 2.0% of assets.

## D. Projected Financial Trends

Our analysis of the Pennsylvania Municipal Retirement System's projected financial trends is an important part of this valuation. In this section, we present our assessment of the implications of the January 1, 2007 valuation results on the future outlook in terms of benefit security (assets over liabilities) and the System's expected funding progression.

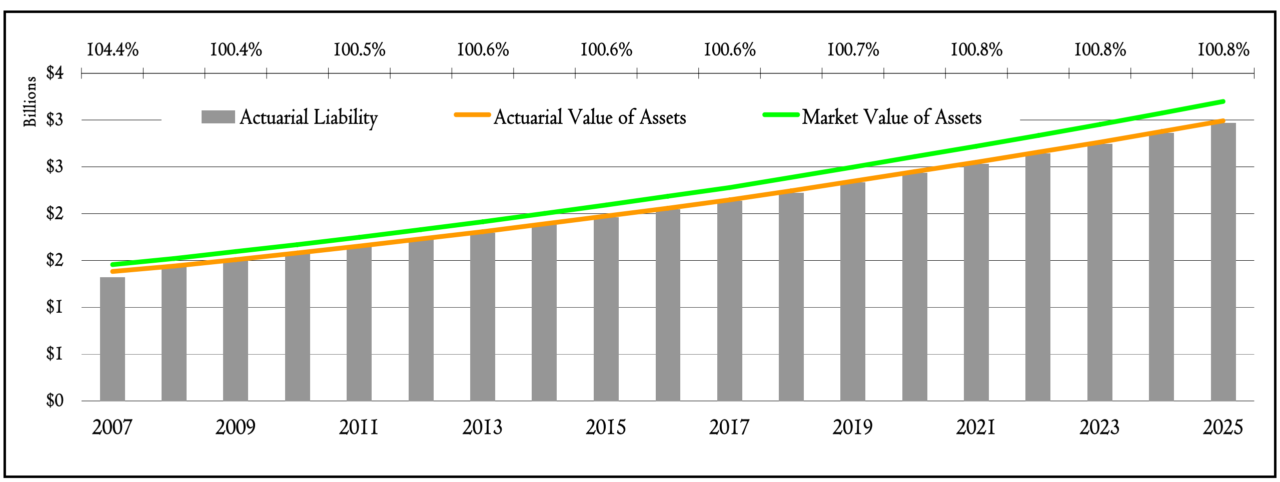
In the charts that follow, we project the Retirement System's assets and liabilities. We assume the Act 205 Minimum Municipal Obligations are made each year. The projections are provided on two different bases:

1) Assuming 6.00% returns each and every year, and

2) Assuming returns shown in the table below. These are rates of return which vary each year but over the projection period equal on average the assumed 6.00% return. We do this to illustrate potential future results as the Systems' return will never be level from year to year.

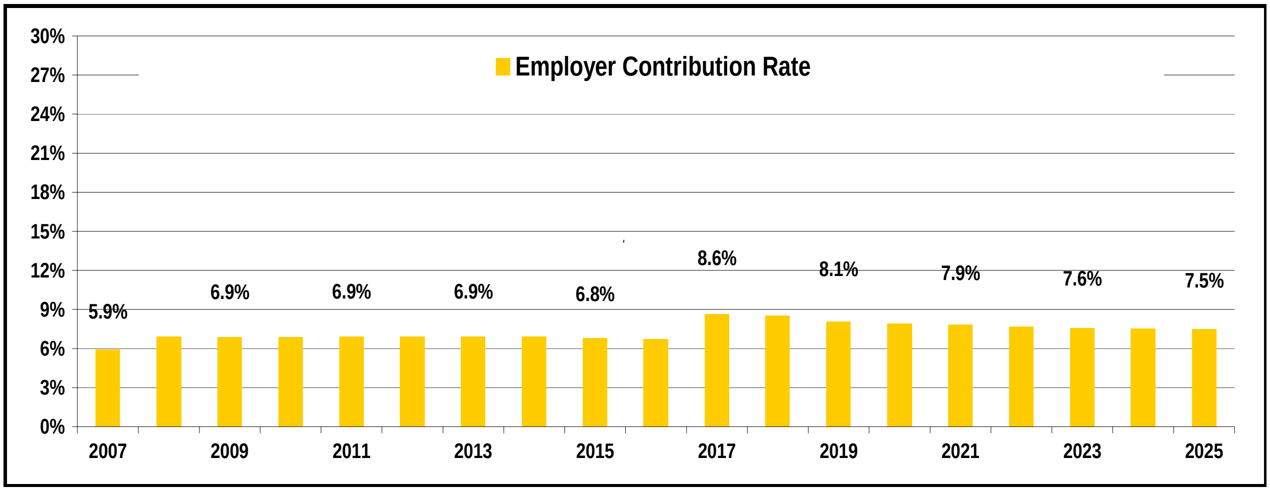
| Fiscal Year | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| Return | 2.0% | 12.0% | 10.0% | 9.0% | 12.0% | 8.5% | 6.0% | 3.0% | -1.0% | -6.0% |
| Fiscal Year | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | |
| Return | -2.5% | 5.0% | 4.5% | 5.0% | 9.0% | 10.0% | 12.0% | 7.5% | 10.5% | |

This first chart shows how the actuarial assets are defined as equal to the liabilities and given the current surplus margins the market value of assets is anticipated to stay above the AVA and liabilities.



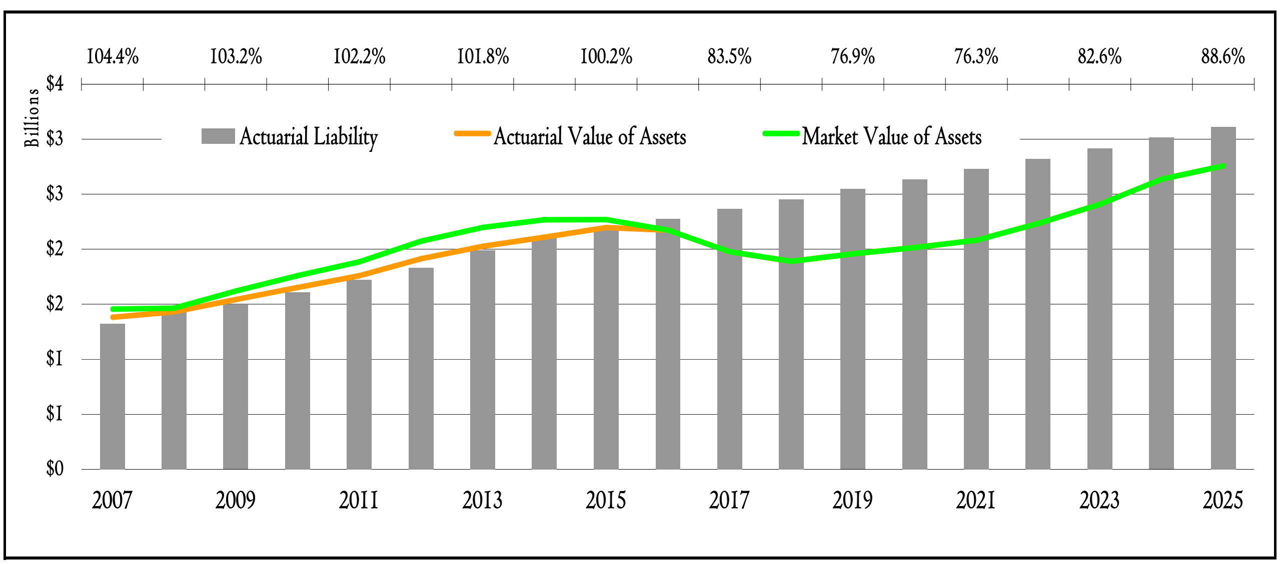

The gray bars represent the liabilities each year with the orange line representing the actuarial asset value and green line the market value of assets. Along the top of the graph is the funded ratio of actuarial asset value to liabilities which is projected to remain just above 100% if the fund returns 6.0% each year into the future.

The next graph shows what the aggregate average net employer cost as a percent of pay is projected to be. The increase in cost reflects the fact that those municipalities with surplus are projected to run out after 10 years causing their cost to increase. For those municipalities with unfunded liability we have amortized the unfunded based on actual reported amounts due in the future.



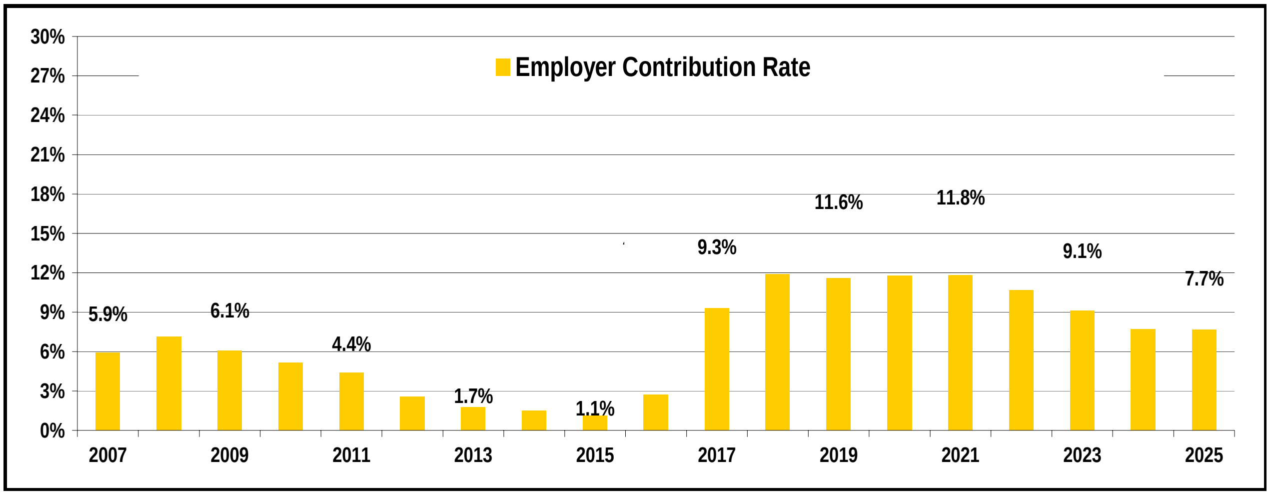

The values above the bars represent the net employer contribution rates as a percent of covered pay.

What we know for certain is the Systems return on assets each year will not equal exactly 6.0% but will over the long run have a high likelihood of achieving this rate of return. Based on the hypothetical future return rates in the table above which average 6.0% over this projected period of time the projected funded status could be similar to the graph below.



## SECTION I
## BOARD SUMMARY

As illustrated there is the potential for the assets to fall below the liabilities even with a conservative investment assumption. It also shows that the funding method, even after a significant downturn in the market will bring the funded status back up. However, under this same scenario the future employer costs as a percent of payroll could look like the following, which represents the potential volatility of cost.




Based on this at one time the plans would almost reach full funding before a serious of difficult investment period, causing cost to increase significantly. The point of these illustrations is to demonstrate that the Systems future funded status can be volatile.

# SECTION II
# ASSETS

The System's assets play a key role in the financial operation and in the decisions the Board may make with respect to future investment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact upon benefit levels, Municipal and County contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on total (county & non-county) System assets including:

- **Disclosure** of System assets at December 31, 2006 and December 31, 2005;
- Statement of the **changes** in market values during the year;
- Development of the **actuarial value of assets**; and
- Allocation of **excess interest**.

## Disclosure

The market value of assets represents a "snap-shot" or "cash-out" value, which provides the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are usually not suitable for long-range planning.

The actuarial values are market values which have been smoothed and are the actuary's best estimate of long-term asset values. They are used for evaluating the System's ongoing liability to meet its obligations. Table II-1 summarizes assets at market value by asset class.

**Table II-1**
**Statement of Assets at Market Value December 31 ($ Thousands)**

| | **2006** | **2005** |
|---|---|---|
| **Assets** | | |
| Equity Investments | $1,007,092 | $888,773 |
| Accounts Receivable | 6,759 | 5,353 |
| Fixed Income Investments | 348,982 | 348,045 |
| Real Estate Investments | 97,025 | 85,338 |
| Fixed Assets | 282 | 351 |
| Accounts Payable | (1,829) | (1,619) |
| Investment Purchases Payable | (2,442) | (3,849) |
| **Total Market Value of Assets** | **$1,455,869** | **$1,322,392** |

## SECTION II
## ASSETS

Table II-2 summarizes the transaction of the assets during the year leading up to our valuation.

**Table II-2**
**Changes in Market Value in ($ Thousands)**

| | | |
|---|---|---|
| **Market Value of Assets – January 1, 2006** | | **$1,322,392** |
| | | |
| **Additions** | | |
| Contributions: | | |
| Plan Members | $16,316 | |
| Municipal Employers | 21,148 | |
| Assessments | 285 | |
| Total Contributions | | $37,749 |
| | | |
| Investment Income: | | |
| Net Appreciation In Fair Value Of Investments | 141,876 | |
| Short-Term And Other Investments | 1,865 | |
| U. S. Government Bonds | 0 | |
| Corporate Bonds | 0 | |
| Common And Preferred Stock | 11,906 | |
| Real Estate Equity | 4,887 | |
| International Equities | 4,776 | |
| Miscellaneous Income | 371 | |
| Securities Lending Income | 4,080 | |
| Less Securities Lending Expenses | (3,515) | |
| Less Investment Expenses | (5,106) | |
| Net Investment Income | | $161,140 |
| | | |
| **Total Additions** | | **$198,889** |
| | | |
| **Deductions** | | |
| Annuity Benefits | (42,757) | |
| Disability Benefits | (1,380) | |
| Terminations | (18,354) | |
| Administrative Expenses | (2,921) | |
| | | |
| **Total Deductions** | | **($65,412)** |
| | | |
| **Market Value of Assets – January 1, 2007** | | **$1,455,869** |

From the above table it is important to recognize that benefit payouts plus expenses of $65.4 million exceeds contribution income of $37.7 million for a net negative cash flow of $27.7 million which must be met though cash income from investments or sales of securities.

## Actuarial Value of Assets

The actuarial value of assets represents a "smoothed" value developed by the actuary to reduce, or eliminate, erratic results which could develop from short-term fluctuations in the market value of assets. This asset valuation method also takes into account the calculation of *excess interest* which is derived from income in excess of the long-term investment return assumption. The steps in the determination of the actuarial asset value as of December 31, 2006 are shown below. The difference between the market value of assets and the actuarial value of assets is considered the trial surplus. The amount of assets not recognized for funding purposes as of December 31, 2006 is $73,764,390 which is 5.07% of the market value and is reserved against a future year when investment returns fail to meet the long-term 6.0% investment assumption.

**Table II-3**
**Development of Actuarial Value of Assets ($ Thousands)**

| | |
|---|---|
| 1. Prior Year Actuarial Value: | $1,289,520 |
| 2. Total Audited Reserve Accounts: | 1,337,280 |
| 3. Expected Administrative Expenses: | 3,050 |
| 4. Preliminary Actuarial Value (2+3): | 1,340,330 |
| 5. Current Year Market Value of Assets: | 1,455,869 |
| 6. Prior Year Market Value of Assets: | 1,322,392 |
| 7. New Surplus {Minimum of [(5-4) & (5-4) - (6-1)]}: | 82,667 |
| 8. Percentage of New Surplus Credited as Excess Interest: | 50.534% |
| 9. Excess Interest (Maximum of 0 and (7x8)): | 41,775 |
| **10. Current Year Actuarial Value of Assets (4+9):** | **$1,382,105** |
| **11. Target Surplus (5-10)** | **$73,763.89** |

## Excess Interest Allocation

Each year, municipalities are eligible to receive a supplemental allocation of investment monies beyond the regular 6.0% 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, a formula is used to determine the new surplus. Depending on the relative size of surplus to market value "margin", between 10% and 90% of new surplus will be designated as "excess interest".

For the year ended December 31, 2006 there was a new surplus of $82.7 million that could potentially be allocated as excess interest. The calculation below details the final excess interest awarded in 2007.

**Table II-4a**
**Determination of Excess Interest ($ Thousands)**

| | | |
|---|---|---|
| 1. Assets | | |
| a. Market value | $ | 1,455,869 |
| b. Preliminary Actuarial Value | | 1,340,330 |
| c. Available Surplus (1a. - 1b.) | **$** | **115,539** |
| 2. Reserves | | |
| a. Members | $ | 322,229 |
| b. Municipal | | 593,510 |
| c. Disability | | (126) |
| d. Retired | | 421,667 |
| e. Total (2a. + 2b. + 2c. + 2d.) | **$** | **1,337,280** |
| 3. Last year's surplus | $ | 32,872 |
| 4. New surplus (1c. - 3.) | $ | 82,667 |
| 5. Excess percent of New Surplus (see Table II-4b) | | 50.534% |
| 6. Excess Interest (Maximum of 0 and (4 .x 5.)): | $ | 41,775 |
| 7. Percent of reserve {6. / (2e. - 2c.)} | | 3.12% |
| 8. Trial Surplus (1c. - 6.) | $ | 73,764 |
| 9. Trial margin percent {8. / 1a.} | | 5.07% |

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## SECTION II
## ASSETS

**Table II-4b**
**Determination of Excess Percent of New Surplus ($ Thousands)**

| | |
|---|---|
| 1. Market Value of Assets | $ 1,455,869 |
| 2. Available Surplus | $ 115,539 |
| 3. Margin (2. / 1.) | 7.94% |
| 4. New Surplus | 82,667 |
| 5. New Margin (4. / 1.) | 5.68% |
| 6. Excess Percent (10% + 8*3.) / (100% + 8*5.) | 50.534% |

Because "excess percent of new surplus" is between 10% and 90%, the new surplus of $82,667,000 multiplied by 50.534% can be allocated as excess interest and equals $41,775,000.

**SECTION III**
**LIABILITIES**

## Disclosure

The actuarial liabilities are used for funding calculations and GASB disclosures. This liability is calculated taking the present value of benefits and future normal costs under an acceptable actuarial funding method. This method is referred to as the **Entry Age Normal** funding method.

The following table presents the defined benefit non-county plan liabilities for the 2007 valuation. Of the 683 defined benefit plans covered by the System, **679 represent non-county/municipal plans**. By subtracting the value of non-county plan assets we arrive at the net surplus attributable to the aggregate of all non-county plans covered by the System of $41.9 million.

**Table III-1**
**Liabilities/Net Unfunded/(Surplus) of Defined Benefit Municipal Plans**

| | **January 1, 2007** |
|---|---|
| **Present Value of Benefits** | |
| Active Participant Benefits | $1,216,539,800 |
| Retiree and Inactive Benefits | 443,390,605 |
| **Present Value of Benefits (PVB)** | **$1,659,930,405** |
| | |
| **Actuarial Liability** | |
| Present Value of Benefits (PVB) | $1,659,930,405 |
| Present Value of Future Normal Costs (PVFNC) | 469,918,164 |
| **Actuarial Liability (AL = PVB – PVFNC)** | **$1,190,012,241** |
| Municipal Actuarial Value of Assets (AVA)* | 1,231,957,886 |
| **Net Unfunded/(Surplus) (AL – AVA)** | **($41,945,645)** |

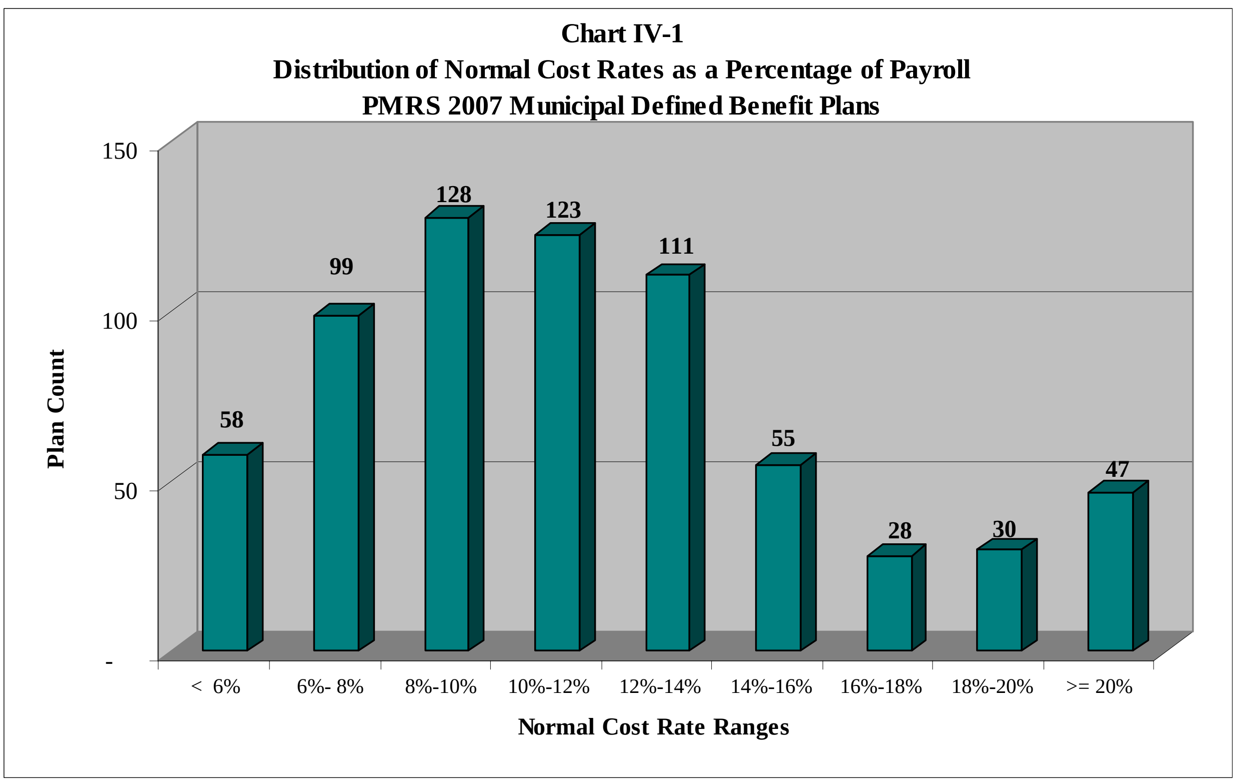
* *Non-county Defined Benefit Plan assets used for the 2007 Act 205 reports. They exclude one-year of administration expense reserve and excess interest allocation, if any, to be credited at year end.*

# SECTION IV
# CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the Plan. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

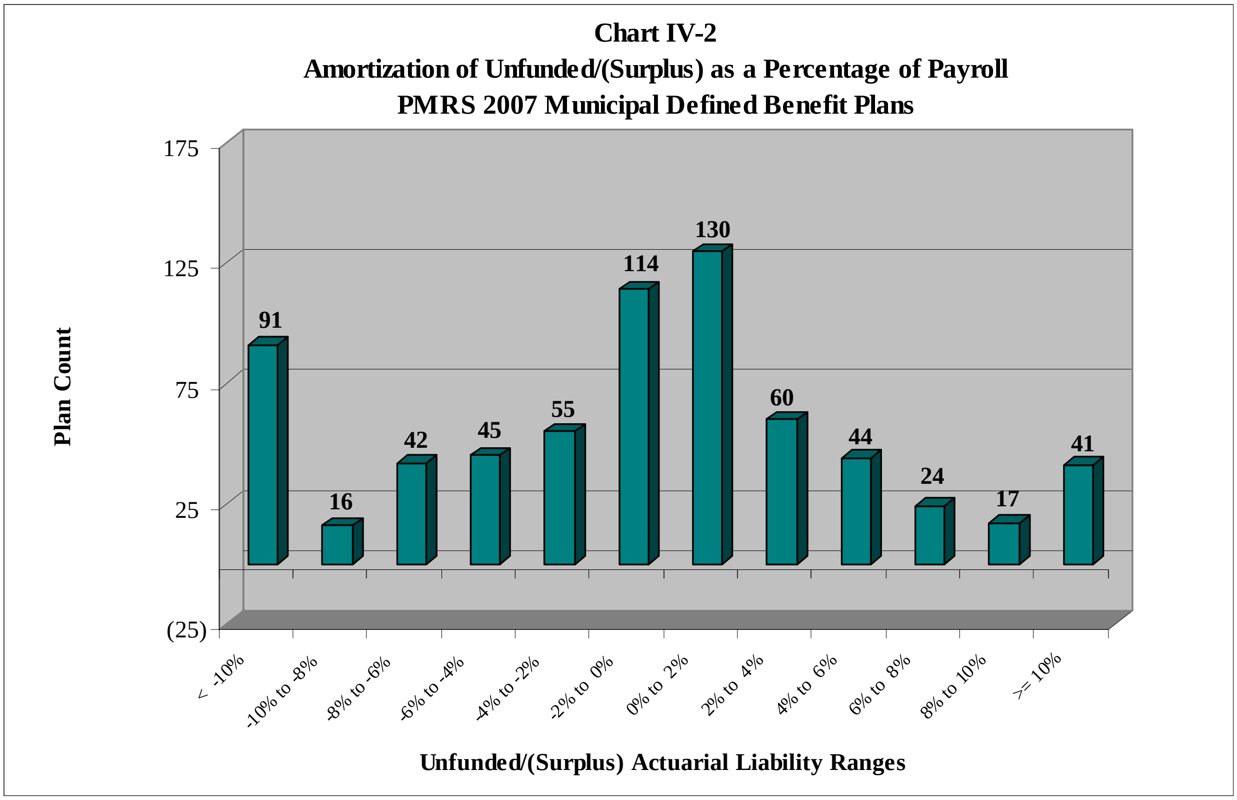
For each of the plans covered by the System, the funding method employed is the **Entry Age Actuarial Cost Method**. Under this method, there are three components to the total contribution: the **normal cost rate**, the **initial unfunded actuarial liability rate**, any **increases/decreases in the unfunded actuarial liability rate / or adjustment for surplus**. For plans with a surplus, 10% of the surplus is deducted from the necessary contribution for the year.

The normal cost rate is determined in the following steps. First, for a typical new entrant an individual normal cost rate is determined by taking the value, as of entry age into the plan, of that member's projected future benefits. This value is then divided by the value, also at entry age, of the member's expected future salary. Finally, the total normal cost rate is reduced by the member contribution rate to produce the employer normal cost rate. The chart below is a summary of the normal cost rates determined for the 679 defined benefit municipal plans as of January 1, 2007.



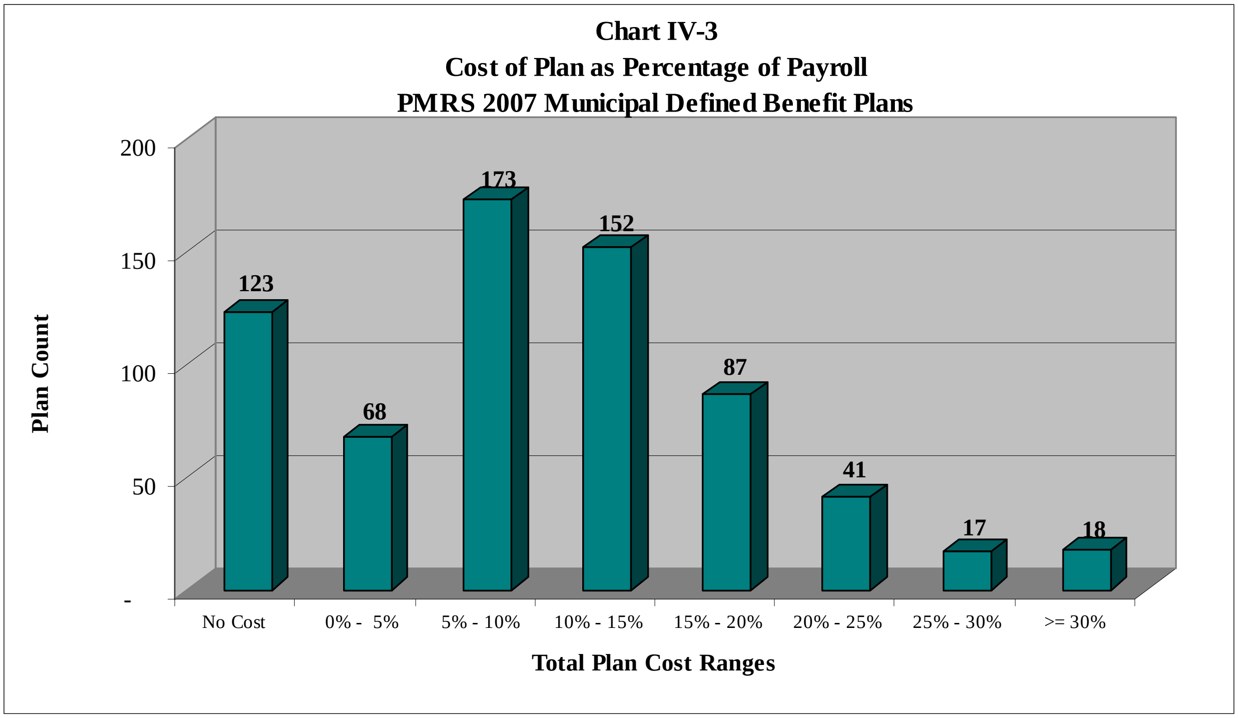
## SECTION IV
## CONTRIBUTIONS

Chart IV-2 below is a summary of the unfunded/(surplus) actuarial liability amortization costs defined as a percent of covered payroll of each plan's active members, determined for the 679 defined benefit municipal plans as of January 1, 2007.



## SECTION IV
## CONTRIBUTIONS

Chart IV-3 below is a summary of the total costs as a percentage of covered payroll, representing the sum of the normal cost and amortization of unfunded/(surplus) offset determined for the 679 defined benefit municipal plans as of January 1, 2007.



# SECTION V
# ACCOUNTING STATEMENT INFORMATION

Statement No. 25 of the Governmental Accounting Standards Board (GASB) establishes standards for disclosure of pension information by public employee retirement systems (PERS) and governmental employers in notes to financial statements and supplementary information.

The GASB-25 actuarial liability is the same as the actuarial liability amount calculated for funding purposes.

The actuarial liability (GASB-25) is determined assuming that the System is on-going and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities are discounted at the assumed valuation interest rate of 6.0% per annum.

GASB Statement No. 25 requires the actuarial liability be compared with the actuarial value of assets for funding purposes. The relevant amounts as of January 1, 2007 are exhibited in Table V-1.

Tables V-2 through V-7 are exhibits to be used with the System's CAFR report:

- Table V-2 is the Note to Required Supplementary Information;
- Table V-3 is the Solvency Test which shows the portion of Actuarial Liability covered by Assets;
- Table V-4 is the Funded Status of Actuarial Liabilities;
- Table V-5 is the Schedule of Retirees and Beneficiaries;
- Table V-6 is the Schedule of Total Membership; and
- Table V-7 is the Schedule of Total Membership Funded Status of Actuarial Liabilities.

## SECTION V
## ACCOUNTING STATEMENT INFORMATION

**Table V-1**
**Accounting Statement Information**

| | January 1, 2007 | January 1, 2005* |
|---|---|---|
| **A. GASB No. 25 Basis** | | |
| 1. Actuarial Liabilities for retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits | $471,770,821 | N/A |
| 2. Actuarial Liabilities for current employees | 810,251,177 | N/A |
| 3. Total Actuarial Liability (1. + 2.)** | $1,282,021,998 | $1,154,858,200 |
| 4. Net Actuarial Assets available for benefits*** | 1,336,009,295 | 1,219,130,000 |
| 5. Unfunded/(Surplus) Actuarial Liability (3. - 4.) | ($53,987,297) | ($64,271,800) |

* *Results from this column were developed by the prior actuary and are presented for comparison purposes.*

** *The liabilities shown here are attributable to the defined benefit, defined contribution only, non-county, and estimated county plans.*

*** *The assets shown here are attributable to the defined benefit, defined contribution only, non-county, and estimated county plans. They exclude one year of administration expense reserve and excess interest allocation, if any, to be credited at year end.*

## SECTION V
## ACCOUNTING STATEMENT INFORMATION

### Table V-2
### NOTE TO REQUIRED SUPPLEMENTARY INFORMATION

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the date indicated. Additional information as of the latest actuarial valuation follows.

| | |
|---|---|
| Valuation date | January 1, 2007 |
| Actuarial cost method | Entry age |
| Amortization method | Level dollar for Plan Bases and open for Aggregate Gain/Loss |
| Actuarial assumptions: | |
| Investment rate of return* | 6.0% |
| Projected salary increases* | 3.0%-7.8% |
| *Includes inflation at | 3.0% |
| Cost-of-living adjustments | ad hoc |

The actuarial assumptions used have been recommended by the actuary and adopted by the System's Board based on the most recent review of the System's experience completed in 2003.

The rate of employer contributions to the System is composed of the normal cost, amortization of the unfunded actuarial liability and an allowance for administrative expenses. The normal cost is a level percent of payroll cost which, along with member contributions, will pay for projected benefits at retirement for the average plan participant. The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and the funds accumulated as of the same date is the unfunded actuarial liability. The allowance for administrative expenses is based upon the System's actual administrative expenses.

## SECTION V
## ACCOUNTING STATEMENT INFORMATION

**Table V-3**
**SOLVENCY TEST**
**Aggregate Accrued Liabilities for**

| Valuation Date January 1, | Active Member Contributions (1)* | Retirees & Beneficiaries (2) | Active Member Employer Financed Contributions (3) | Actuarial Value of Reported Assets | Portion of Accrued Liabilities Covered by Reported Assets (1) | (2) | (3) |
|---|---|---|---|---|---|---|---|
| 2007 | $293,593,948 | $471,770,821 | $516,657,229 | $1,336,009,295 | 100% | 100% | 110% |
| 2005 | 231,122,200 | 395,061,900 | 528,674,100 | 1,219,130,000 | 100% | 100% | 112% |
| 2003 | 213,174,400 | 329,766,100 | 412,318,900 | 1,084,828,900 | 100% | 100% | 131% |
| 2001 | 201,814,300 | 263,171,300 | 347,659,500 | 976,868,000 | 100% | 100% | 147% |
| 1999 | 170,495,100 | 224,089,800 | 297,499,500 | 773,062,000 | 100% | 100% | 127% |

* *This includes the sum of the active member employee contribution balances, the member separate annuity account balances, the municipal for separate annuity account balances, and the excess interest allocations.*

**Table V-4**
**Funded Status of Actuarial Liabilities**
**GASB Statement No. 25 Disclosure**

| Valuation Date January 1, | Actuarial Value of Assets (A) | Actuarial Liability (AL) Entry Age (B) | Unfunded AL (Surplus) (B-A) | Funded Ratio (A/B) |
|---|---|---|---|---|
| 2007 | 1,336,009,295 | 1,282,021,998 | (53,987,297) | 104.2% |
| 2006 | 60,678,307 | 55,251,080 | (5,427,227) | 109.8% |
| 2005 | 1,219,130,000 | 1,154,858,200 | (64,271,800) | 105.6% |
| 2004 | 54,024,249 | 45,580,670 | (8,443,579) | 118.5% |
| 2003 | 1,084,828,900 | 955,259,400 | (129,569,500) | 113.6% |
| 2002 | 242,905,700 | 196,473,500 | (46,432,200) | 123.6% |

The actuarial assumptions as of January 1, 2007 are shown in the assumptions and methods section. The above information was derived from the following membership data, as provided by the System, regarding:

- 683 defined benefit county and non-county plans and 177 defined contribution only plans as of January 1, 2007;
- 4 defined benefit plans required to re-determine contribution levels as of January 1, 2006;
- 678 defined benefit county and non-county plans and 169 defined contribution only plans as of January 1, 2005;
- 4 defined benefit plans required to re-determine contribution levels as of January 1, 2004;
- 656 defined benefit county and non-county plans and 163 defined contribution only plans as of January 1, 2003; and
- 14 defined benefit plans required to re-determine contribution levels as of January 1, 2002.

## SECTION V
## ACCOUNTING STATEMENT INFORMATION

The table below is a schedule of the changes to the retiree and beneficiary rolls over the last six years.

**Table V-5**
**Schedule of Retirees and Beneficiaries**
**Added to and Removed from Rolls in Last Six Years**

| Valuation Date January 1, | Added to roll | Deleted from roll | Number on roll | Annual Annuities | Percentage Increase in annuities | Average Annual Annuities | Percent increase in Average Annual Annuities |
|---|---|---|---|---|---|---|---|
| 2007 | 252 | 170 | 3,459 | 39,870,509 | 5.1% | 11,527 | 2.6% |
| 2006 | 268 | 83 | 3,377 | 37,943,181 | 9.4% | 11,236 | 3.4% |
| 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% |

The table below is a summary of the total membership over the last six years.

**Table V-6**
**Schedule of Total Membership**
**Six Year Trend**

| Valuation Date January 1, | Active Members Defined Benefit Plans | Active Members Defined Contribution Plans | Retirees | Beneficiaries | Deferred Pensions | Inactive Members | Total |
|---|---|---|---|---|---|---|---|
| 2007 | 8,314 | 918 | 2,965 | 494 | 723 | 33 | 13,447 |
| 2006 | 8,374 | 896 | 2,941 | 436 | 675 | 66 | 13,388 |
| 2005 | 8,341 | 867 | 2,768 | 424 | 602 | 165 | 13,167 |
| 2004 | 8,491 | 902 | 2,657 | 416 | 546 | 230 | 13,242 |
| 2003 | 8,142 | 797 | 2,534 | 393 | 573 | 177 | 12,616 |
| 2002 | 7,834 | 739 | 2,428 | 371 | 453 | 182 | 12,007 |

## SECTION V
## ACCOUNTING STATEMENT INFORMATION

The table below is a schedule of the total membership over the last four years.

**Table V-7**
**Schedule of Total Membership**
**Funded Status of Actuarial Liabilities**

| | As of January 1* | | | |
|---|---|---|---|---|
| | **2007** | **2006** | **2005** | **2004** |
| a. Retirees currently receiving benefits | 2,965 | 218 | 2,768 | 194 |
| b. Beneficiaries currently receiving benefits | 494 | 8 | 424 | 8 |
| c. Terminated vested employees entitled to future benefits from DB Plans | 561 | 53 | 464 | 37 |
| d. Terminated non-vested employees entitled to contribution refunds from DB Plans | 33 | 7 | 165 | 4 |
| e. Active employees in defined benefit plans | 8,314 | 717 | 8,341 | 731 |
| i. Aggregate Salary** | $358,690,830 | $23,905,899 | $319,004,918 | $22,249,329 |
| ii. Vested | 4,430 | 358 | 4,603 | 259 |
| iii. Non-vested | 3,884 | 359 | 3,738 | 472 |
| f. Participants in defined contribution-only plans | 1,080 | - | 1,005 | - |
| i. Aggregate Salary*** | $28,213,485 | - | $26,807,519 | - |
| ii. Active | 918 | - | 867 | - |
| iii. Inactive | 162 | - | 138 | - |

* *The odd years include defined benefit non-county plans, defined benefit county plans, and defined contribution only plans. The even years are for defined benefit county plans only.*

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

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

PENNSYLVANIA MUNICIPAL RETIREMENT SYSTEM

# APPENDIX A
# MEMBERSHIP INFORMATION

## Pennsylvania Municipal Retirement System Distribution of Active Members by Age and Service as of January 1, 2007

COUNTS BY AGE/SERVICE

| | Service | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 1 year or less | 1 to 2 | 2 to 3 | 3 to 5 | 5 to 10 | 10 to 15 | 15 to 20 | 20 to 25 | 25 to 30 | 30 & up | Total |
| Under 20 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 20 to 24 | 69 | 53 | 18 | 28 | 5 | 0 | 0 | 0 | 0 | 0 | 173 |
| 25 to 29 | 130 | 90 | 57 | 139 | 97 | 2 | 0 | 0 | 0 | 0 | 515 |
| 30 to 34 | 75 | 81 | 39 | 117 | 248 | 62 | 1 | 0 | 0 | 0 | 623 |
| 35 to 39 | 77 | 83 | 64 | 137 | 281 | 188 | 109 | 2 | 0 | 0 | 941 |
| 40 to 44 | 86 | 78 | 73 | 135 | 280 | 204 | 222 | 90 | 14 | 0 | 1,182 |
| 45 to 49 | 91 | 57 | 84 | 132 | 271 | 205 | 248 | 196 | 174 | 18 | 1,476 |
| 50 to 54 | 70 | 57 | 70 | 115 | 258 | 201 | 264 | 148 | 188 | 171 | 1,542 |
| 55 to 59 | 40 | 33 | 40 | 66 | 179 | 144 | 202 | 105 | 105 | 159 | 1,073 |
| 60 to 64 | 16 | 13 | 24 | 38 | 101 | 101 | 90 | 56 | 56 | 71 | 566 |
| 65 & up | 10 | 1 | 11 | 18 | 36 | 32 | 34 | 22 | 20 | 31 | 215 |
| Total | 670 | 548 | 480 | 925 | 1,756 | 1,139 | 1,170 | 619 | 557 | 450 | 8,314 |

# PENNSYLVANIA MUNICIPAL RETIREMENT SYSTEM

## APPENDIX A
## MEMBERSHIP INFORMATION

## Pennsylvania Municipal Retirement System Distribution of Active Members by Age and Service as of January 1, 2007

**AVERAGE SALARY BY AGE/SERVICE***

| | Service | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 1 year or less | 1 to 2 | 2 to 3 | 3 to 5 | 5 to 10 | 10 to 15 | 15 to 20 | 20 to 25 | 25 to 30 | 30 & up | Total |
| Under 20 | $21,135 | $27,548 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $22,739 |
| 20 to 24 | $28,854 | $32,161 | $33,212 | $36,123 | $40,137 | $0 | $0 | $0 | $0 | $0 | $31,823 |
| 25 to 29 | $31,188 | $33,739 | $36,901 | $41,714 | $40,292 | $36,886 | $0 | $0 | $0 | $0 | $36,844 |
| 30 to 34 | $29,570 | $35,770 | $34,973 | $40,983 | $44,004 | $43,735 | $35,483 | $0 | $0 | $0 | $40,023 |
| 35 to 39 | $32,385 | $37,041 | $36,995 | $38,810 | $43,908 | $45,221 | $48,662 | $43,628 | $0 | $0 | $41,959 |
| 40 to 44 | $34,648 | $33,559 | $34,947 | $37,592 | $39,154 | $44,801 | $49,023 | $47,322 | $43,730 | $0 | $41,523 |
| 45 to 49 | $35,376 | $34,323 | $34,185 | $39,701 | $40,063 | $42,139 | $46,342 | $48,275 | $46,462 | $46,912 | $42,457 |
| 50 to 54 | $33,100 | $32,246 | $30,837 | $38,207 | $38,544 | $40,056 | $43,673 | $47,434 | $49,822 | $49,614 | $42,220 |
| 55 to 59 | $34,788 | $36,892 | $36,520 | $35,572 | $37,768 | $39,602 | $41,667 | $45,126 | $48,924 | $55,170 | $42,819 |
| 60 to 64 | $27,973 | $30,320 | $31,660 | $35,570 | $37,030 | $37,993 | $39,626 | $42,285 | $50,055 | $47,511 | $40,002 |
| 65 & up | $16,358 | $29,770 | $19,131 | $22,737 | $26,546 | $36,280 | $34,882 | $38,100 | $43,076 | $45,068 | $33,547 |
| Total | $31,943 | $34,345 | $34,261 | $38,638 | $40,194 | $41,982 | $44,798 | $46,483 | $48,231 | $50,824 | $41,103 |

**Actual 2006 salary.*

**APPENDIX A**
**MEMBERSHIP INFORMATION**

# Pennsylvania Municipal Retirement System Distribution of Inactive Benefit Payments as of January 1, 2007

**COUNTS BY BENEFIT/AGE: RECEIVING PAYMENTS**

| Age | Monthly Benefit | Count |
|---|---|---|
| x < 30 | $0 | 0 |
| 30 <= x < 35 | $1,370 | 3 |
| 35 <= x < 40 | $3,035 | 6 |
| 40 <= x < 45 | $9,588 | 16 |
| 45 <= x < 50 | $39,612 | 51 |
| 50 <= x < 55 | $179,932 | 132 |
| 55 <= x < 60 | $433,564 | 309 |
| 60 <= x < 65 | $669,990 | 553 |
| 65 <= x < 70 | $640,436 | 646 |
| 70 <= x < 75 | $549,614 | 607 |
| 75 <= x < 80 | $405,259 | 516 |
| 80 <= x < 85 | $257,421 | 372 |
| 85 <= x | $132,708 | 248 |
| <Total> | $3,322,529 | 3,459 |

**COUNTS BY BENEFIT/AGE: DEFERRED PAYMENTS**

| Age | Monthly Benefit | Count |
|---|---|---|
| x < 30 | $1,202 | 4 |
| 30 <= x < 35 | $2,585 | 9 |
| 35 <= x < 40 | $28,076 | 54 |
| 40 <= x < 45 | $49,202 | 74 |
| 45 <= x < 50 | $90,908 | 131 |
| 50 <= x < 55 | $115,107 | 156 |
| 55 <= x < 60 | $54,102 | 96 |
| 60 <= x < 65 | $20,463 | 35 |
| 65 <= x < 70 | $55 | 1 |
| 70 <= x < 75 | $0 | 0 |
| 75 <= x < 80 | $0 | 0 |
| 80 <= x < 85 | $109 | 1 |
| 85 <= x | $0 | 0 |
| <Total> | $361,809 | 561 |

# APPENDIX A
# MEMBERSHIP INFORMATION

**Pensions in Payment on January 1, 2007 by Type and Amount**

| Monthly Amount | Total | Pension Type: Normal | Involuntary early | Voluntary early | Service disability | Non-service disability |
|---|---|---|---|---|---|---|
| Total | 3,459 | 2,809 | 183 | 361 | 31 | 75 |
| Under $100 | 166 | 142 | 11 | 11 | 1 | 1 |
| $ 100 - $199 | 220 | 166 | 34 | 18 | 2 | 0 |
| 200 - 299 | 260 | 201 | 32 | 26 | 0 | 1 |
| 300 - 399 | 259 | 210 | 21 | 27 | 0 | 1 |
| 400 - 499 | 209 | 162 | 13 | 27 | 3 | 4 |
| 500 - 599 | 261 | 210 | 17 | 26 | 0 | 8 |
| 600 - 699 | 213 | 164 | 13 | 27 | 0 | 9 |
| 700 - 799 | 202 | 152 | 7 | 31 | 0 | 12 |
| 800 - 899 | 193 | 150 | 6 | 24 | 2 | 11 |
| 900 - 999 | 177 | 142 | 8 | 17 | 3 | 7 |
| 1,000 - 1,199 | 323 | 253 | 8 | 46 | 4 | 12 |
| 1,200 - 1,399 | 193 | 158 | 5 | 23 | 4 | 3 |
| 1,400 - 1,599 | 187 | 159 | 4 | 17 | 6 | 1 |
| 1,600 - 1,799 | 134 | 120 | 2 | 10 | 2 | 0 |
| 1,800 - 1,999 | 114 | 100 | 2 | 9 | 0 | 3 |
| 2,000 - 2,199 | 76 | 68 | 0 | 7 | 1 | 0 |
| 2,200 - 2,399 | 57 | 54 | 0 | 3 | 0 | 0 |
| 2,400 - 2,599 | 57 | 50 | 0 | 5 | 1 | 1 |
| 2,600 - 2,799 | 46 | 45 | 0 | 0 | 1 | 0 |
| 2,800 - 2,999 | 29 | 26 | 0 | 2 | 0 | 1 |
| 3,000 - 3,499 | 42 | 38 | 0 | 3 | 1 | 0 |
| 3,500 - 3,999 | 24 | 22 | 0 | 2 | 0 | 0 |
| 4,000 and over | 17 | 17 | 0 | 0 | 0 | 0 |

## APPENDIX A
## MEMBERSHIP INFORMATION

### Pensions Awarded in Prior Ten Years, by Type and Monthly Amount

| Year Ended January 1: | Total Number | Total Average Monthly Amount | Normal Number | Normal Average Monthly Amount | Involuntary early Number | Involuntary early Average Monthly Amount | Voluntary early Number | Voluntary early Average Monthly Amount | Disability Number* | Disability Average Monthly Amount |
|---|---|---|---|---|---|---|---|---|---|---|
| 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 |
| 2006 | 264 | 1,270 | 217 | 1,290 | 23 | 1,257 | 11 | 639 | 13 (4) | 1,493 |
| 2007 | 252 | 1,069 | 192 | 1,082 | 19 | 572 | 32 | 1,196 | 9 (2) | 1,373 |

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

**APPENDIX B**
**ACTUARIAL ASSUMPTIONS AND METHODS**

## Actuarial Assumptions:

The current PMRS actuarial assumptions used in this study are as follows.

**A. Healthy Life Mortality:** Sample rates are**:**

| | Retirees Prior to January 1, 2005 (1983 GAM Males; females setback 6 years) | | New Retirees on or after January 1, 2005 (1994 GAM) | |
|---|---|---|---|---|
| **Age** | **Male** | **Female** | **Male** | **Female** |
| 50 | 0.39% | 0.19% | **0.26%** | **0.14%** |
| 55 | 0.61 | 0.35 | **0.44** | **0.23** |
| 60 | 0.92 | 0.57 | **0.80** | **0.44** |
| 65 | 1.56 | 0.84 | **1.45** | **0.86** |
| 70 | 2.75 | 1.39 | **2.37** | **1.37** |
| 75 | 4.46 | 2.48 | **3.72** | **2.27** |
| 80 | 7.41 | 4.04 | **6.20** | **3.94** |
| 85 | 11.48 | 6.71 | **9.72** | **6.77** |

(a) Type of Death:
(i) 15% of mortality is assumed to be service related for municipal plans, and
(ii) 50% of mortalities are assumed to be service related for uniform plans.

**B. Disabled Life Mortality Rates:** Mortality under healthy life table for a life 10 years older.

**C. 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.

| | Current Valuation Rate[1] | | |
|---|---|---|---|
| | **Uniformed** | **Municipal** | |
| **Years of Service** | **Male and Female** | **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** |

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

## APPENDIX B
## ACTUARIAL ASSUMPTIONS AND METHODS

**D. Disability Incidence Rates:**
**Municipal -** 40% of 1964 OASDI (Social Security) Experience for Males. Sample rates are:

| Age | Valuation Rate (%) |
|---|---|
| 25 | 0.034% |
| 35 | 0.059 |
| 45 | 0.144 |
| 55 | 0.404 |
| 65 | 0.928 |

**Uniformed plans –** 60% of 1964 OASDI (Social Security) Experience for Males. Sample rates are:

| Age | Valuation Rate (%) |
|---|---|
| 25 | 0.051% |
| 35 | 0.088 |
| 45 | 0.216 |
| 55 | 0.605 |
| 65 | 1.393 |

Type of Disability:
(i) 15% of disablements are assumed to be service related for municipal plans, and
(ii) 50% of disablements are assumed to be service related for uniform plans.

**E. Workers Compensation:** Service-related disability benefits payable from municipal plans are offset by 25% of final average salary.

**F. Salary Scale:** Three year select rates include 3.0% inflation and age-related scale for merit/seniority based on sample rates below plus 2% during the select period only then reverting to inflation and merit/seniority thereafter. Final actual salary plans assume an additional 6% at retirement.

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.*

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**G. Retirement Age:** The age at which unreduced benefits are available. No early retirement is assumed. Specific assumptions regarding retirement age are:

(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 as shown below:

| Age | Current Rate of Normal Retirement[2] |
|---|---|
| Under 46 | 5% |
| 46 – 54 | 15 |
| 55 – 59 | 10 |
| 60 – 61 | 10 |
| 62 | 30 |
| 63 – 64 | 20 |
| 65 | 35 |
| 66 – 74 | 15 |
| 75 | 100 |

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

**H. Marital Status and Spouse's Age:**[3] 85 percent of members will be married at time of retirement and females are four years younger than their spouses.

**I. Social Security Projections[3]:**

(a) The Social Security Taxable Wage Base will increase by 3.5% compounded annually;

(b) The Consumer Price Index will increase 3.0% compounded annually

(c) The Average Total Wages of All Workers will increase by 3.5% compounded annually.

(d)

**J. Post-Retirement Cost of Living Increases[3]:** 3.0% per year, subject to plan limitations.

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2 *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.*

3 *If applicable.*

K. **Net Investment Return:** 6.0% compounded annually (net of investment and certain administration expenses) for funding purposes.

L. **Administrative Expenses**: The reserve for non-investment related expenses of the system, net the $20 per participant annual assessment is based on expected expenses for the current year. The amount allocated for 2007 is $3,050,000 compared to $2,900,000 for 2006.

## Actuarial Methods:

Contribution requirements are individually determined for each participating municipality, on an actuarial basis as described below, at least biannually. The frequency of the 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:

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 the new surplus will become excess interest.

## 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 lesser than the previously determined actuarial level, are reflected by decreases (or increases) in the unfunded actuarial liability. Under Act 205 of 1984, the unfunded actuarial 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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(b) The average assumed working lifetime of active employees as of the date the liability was established.[4]

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

1) 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.)

2) A disabled member's pension is met in part 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 the accumulated municipal contributions to the Disability Reserve Account is determined on the one year term cost basis, i.e. the expected cost of disabilities in the coming year.

4 *If there are no active employees, the unfunded liability is amortized one year after the liability was established.*