# Pennsylvania Municipal Retirement System

## Actuarial Valuation as of January 1, 2010

**Produced by Cheiron**

**May 2011**

Classic Values, Innovative Advice

# Table of Contents

May 4, 2011

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 (System) as of January 1, 2010. This report includes the valuation of the five county plans and reflects a roll forward of all other plans administered by the System. 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. All municipalities that were required to file an Act 205 form as of January 1, 2009, had their liabilities actuarially adjusted and included in this report to maintain a true valuation of the System from year to year. All county plans reported to the State for the Act 293 2010 System Year are the actual values. Additionally, we 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.

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

We hereby certify that, to the best of our knowledge, this report and its contents, which are work products of Cheiron, Inc., are complete and accurate and have been prepared in accordance with generally recognized and accepted actuarial principles and practices, except as noted in our report, which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board.

Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Sincerely,
Cheiron

Kenneth A. Kent, FSA, FCA
Principal Consulting Actuary

Karen Zangara

Karen M. Zangara, FSA
Consulting Actuary

cc: Anthony J. Bucci, Jr.
Kristine Cline

## FOREWORD

Cheiron has performed the actuarial valuation of the Pennsylvania Municipal Retirement System (System) as of January 1, 2010. 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 of the benefit provisions for their respective employees, the actual plan provisions are not included in this report. We based our results on the plan provisions defined and submitted to the State under the 2009 Act 205 filings and 2010 Act 293 filings in preparing this valuation. Because the System is bound by Act 205 to complete a biennial valuation for each employer, we have developed liabilities for 2010 for all county plans required to submit a valuation as of January 1, 2010. For the municipalities valued as of January 1, 2009 we used the 2009 results and current active counts to estimate the liabilities for these plans to provide an overall measure of the funded status of the System. This method is referred to as a "roll forward" and is used throughout this report in all 2010 calculations for the municipalities to provide a reasonable estimate of the aggregate System results.

## FOREWORD

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.

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.

To the extent the laws of the Commonwealth of Pennsylvania and/or the administrative practices of the System differ from Actuarial Standards of Practice, we have identified such deviations within the assumption section of this report.

**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,
- Biennial valuation of the county plans participating in the 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, 2010 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 second that Cheiron has performed for the Pennsylvania Municipal Retirement System county systems and the fourth valuation over all. The January 1, 2010 valuation results are based on the same actuarial assumptions used in the January 1, 2009 valuation.

Below we identify a number of 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, and that surplus has decreased from $88.5 million as of January 1, 2009 to $59.8 million as of January 1, 2010. This surplus condition in large part is a function of the definition of the AVA as equal to the reserves or AL held for each of the plans covered by the System plus any surplus they hold.

- On a snap shot basis comparing the market value of assets (MVA) to AL provides information of the progress of the System funding after the 2008 dramatic market decline that resulted in the Systems assets dropping below the total reserves. As of January 1, 2010 the AL exceeded the MVA resulting in an unfunded of $193.8 million. However this represents a significant improvement compared to the same measurement of AL to MVA as of January 1, 2009 of $281.0 million or a net $87.2 million dollar improvement.

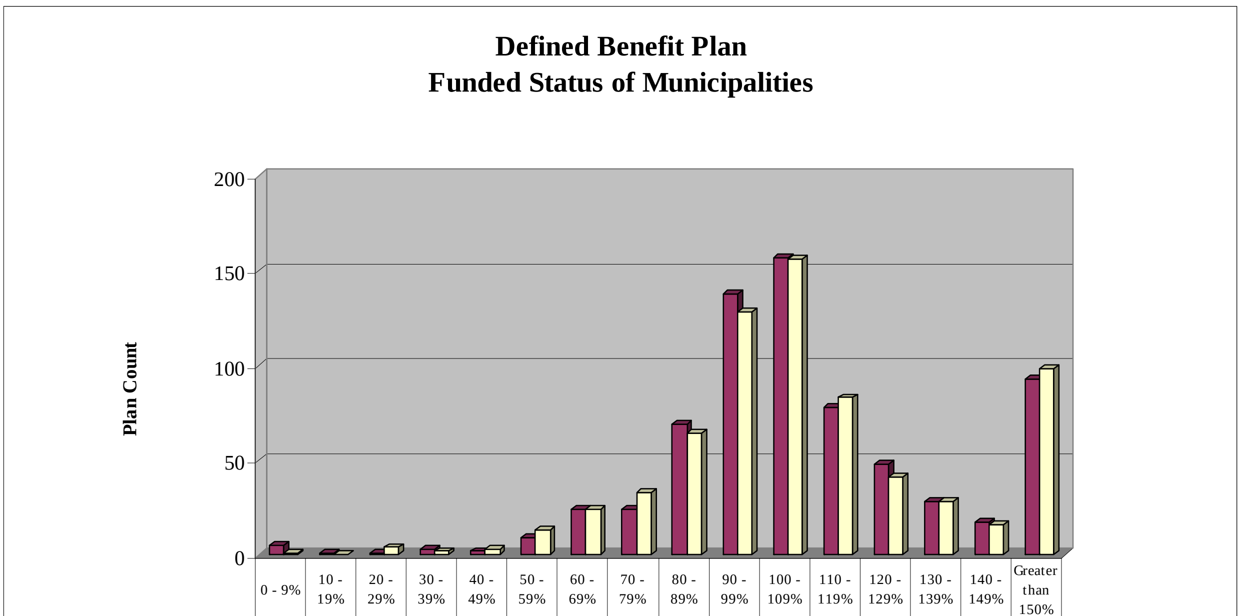
- *Funding Ratio:* This is the ratio of the System's AVA to AL. The funding ratio decreased from 106.1% as of January 1, 2009 to 103.8% as of January 1, 2010. Similarly comparing MVA to AL, the funding ratio increases from 80.6% as of January 1, 2009 to 87.6% as of January 1, 2010. Supporting values for these figures is provided in Table I-3 on page 6.

## SECTION I
## BOARD SUMMARY

- This report includes one new county, Sullivan County, that joined PMRS since the last valuation of the participating county systems in 2008.

The following chart shows a distribution of the funded status of the plans covered by the System in 2009 and 2010. From this comparison it would appear that those plans that were well funded, over 100%, tended to decrease in funded status from 2009 to 2010. This reflects the use of surplus to offset the annual cost of benefits. Therefore, when rolling forward the liabilities for these plans the funded status is anticipated to decline.

For the county plans valued, the funded status on average decreased from 101.3% for the four plans in the system as of January 1, 2008 to 98.7% for the five plans as of January 1, 2010. This is primarily due to the inclusion of a new county plan that joined the System with an unfunded liability.




| | 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% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | 5 | 1 | 1 | 3 | 2 | 9 | 24 | 24 | 69 | 138 | 157 | 78 | 48 | 28 | 17 | 93 |
| 2009 | 1 | 0 | 4 | 2 | 3 | 13 | 24 | 33 | 64 | 128 | 156 | 83 | 41 | 28 | 16 | 98 |

The 2009 information provided in the graph above reflects any additional changes to the individual Municipal valuations due to updated information provided after the 2009 report was published.

## B. Current Financial Condition

On the following pages, we summarize the key results of the January 1, 2010 valuation and how they compare to the results from the January 1, 2009 valuation.

1. System Membership:

As shown in Table I-1 below, total membership in the Retirement System increased by 0.9% from 2009 to 2010. The active participant counts reported for the Defined Benefit Plans decreased by 0.6%. This is the first decrease in this active population since 2007 and may be showing some contraction of employment resulting form the recession. The aggregate covered payroll of the System increased by 1.9% and the average salary increased by 2.4%. This is due in part by a methodology change to annualize the pay for partial years of service.

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

| | January 1, 2010 | January 1, 2009 | % Change |
|---|---|---|---|
| Defined Benefit Actives | 8,357 | 8,411 | -0.6% |
| Defined Contribution Actives | 994 | 978 | 1.6% |
| Terminated Vesteds | 857 | 847 | 1.2% |
| Participants Receiving Benefit Payments | 3,449 | 3,289 | 4.9% |
| Beneficiaries | 460 | 461 | -0.2% |
| Total System Members | 14,117 | 13,986 | 0.9% |
| | | | |
| Annual Salaries* | $ 413,065,016 | $ 405,181,956 | 1.9% |
| Average Salary per Active Member | 44,173 | 43,155 | 2.4% |

* Annualized salary for Defined Benefit plan participants and actual salary for Cash balance participants.

## SECTION I
## BOARD SUMMARY

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

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

| Category | Valuation as of January 1 2010 | 2009 | Percent Change |
|---|---|---|---|
| Number of plans: | | | |
| Defined Benefit Plans | 697 | 696 | 0.14% |
| Defined Contribution Plans | 202 | 203 | -0.49% |
| Active Employees in Defined Benefit Plans: | | | |
| Count | 8,357 | 8,411 | -0.64% |
| Average Age | 47.6 | 47.2 | 0.85% |
| Average Service | 12.4 | 12.1 | 2.48% |
| Total Payroll* | $ 377,960,930 | $ 372,370,037 | 1.50% |
| Average Pay | $ 45,227 | $ 44,272 | 2.16% |
| Active Employees in Defined Contribution Plans: | | | |
| Count | 994 | 978 | 1.64% |
| Average Age | 49.5 | 49.2 | 0.61% |
| Average Service | 11.3 | 10.8 | 4.63% |
| Average Pay* | $ 35,316 | $ 33,550 | 5.26% |
| Inactive Participants in Defined Benefit Plans with Rights | | | |
| Deferred Pension | 647 | 650 | -0.46% |
| Return of Contributions | 23 | - | 0.00% |
| Inactive Participants in Defined Contribution Plans | 187 | 197 | -5.08% |
| Pensioners: | | | |
| Count | 3,449 | 3,289 | 4.86% |
| Average Age | 69.9 | 70.0 | -0.14% |
| Average Monthly Benefit | $ 1,081 | $ 1,044 | 3.54% |
| Number of New Awards | 296 | 271 | 9.23% |
| Average New Monthly Benefit | $ 1,336 | $ 1,157 | 15.45% |
| Number Receiving Legislated COLA | 153 | 176 | -13.07% |
| Survivor Beneficiaries: | | | |
| Count | 460 | 461 | -0.22% |
| Average Age | 74.1 | 74.1 | -0.06% |
| Average Monthly Benefit | $ 756 | $ 758 | -0.26% |

*Annualized 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, 2010 and January 1, 2009 System assets, liabilities, unfunded actuarial liability, and funding ratios for defined benefit non-county, defined benefit county, and cash balance only plans. While this valuation was prepared to support the county plans, we were provided non-county participant data and *rolled forward* the active and vested terminated liabilities for estimation purposes. The retiree liabilities were explicitly valued based upon the retiree data provided. The roll forward of the active liabilities reflects participant status changes for new pensioners. The total funding ratio decreased from 106.1% as of January 1, 2009 to 103.8% as of January 1, 2010.

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

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

| | January 1, 2010 | January 1, 2009 | % Change |
|---|---|---|---|
| **Defined Benefit (Non-county) Plans:** | | | |
| Actives | $ 873,031 | $ 836,136 | 4.4% |
| Terminated Vesteds | 50,918 | 48,115 | 5.8% |
| In Pay | 497,144 | 452,904 | 9.8% |
| Total Actuarial Liability | $ 1,421,093 | $ 1,337,155 | 6.3% |
| Actuarial Value of Assets* | 1,481,919 | 1,414,237 | 4.8% |
| Unfunded/(Surplus) of Actuarial Liability | $ (60,826) | $ (77,082) | |
| **Defined Benefit (County) Plans:** | | | |
| Actives | $ 55,518 | $ 38,779 | 43.2% |
| Terminated Vesteds | 6,036 | 5,672 | 6.4% |
| In Pay | 20,454 | 19,107 | 7.0% |
| Total Actuarial Liability** | $ 82,008 | $ 63,558 | 29.0% |
| Actuarial Value of Assets* | 80,975 | 74,992 | 8.0% |
| Unfunded/(Surplus) of Actuarial Liability | $ 1,033 | $ (11,434) | |
| **Defined Contribution Plans:** | | | |
| Actives | $ 42,446 | $ 37,988 | 11.7% |
| Terminated Vesteds | 6,751 | 6,598 | 2.3% |
| In Pay | 8,060 | 6,338 | 27.2% |
| Total Actuarial Liability | $ 57,257 | $ 50,924 | 12.4% |
| Actuarial Value of Assets* | 57,257 | 50,924 | 12.4% |
| Unfunded/(Surplus) of Actuarial Liability | $ - | $ - | 0.0% |
| **Total Plans** | | | |
| Actives | $ 970,995 | $ 912,903 | 6.4% |
| Terminated Vesteds | 63,705 | 60,385 | 5.5% |
| In Pay | 525,658 | 478,349 | 9.9% |
| Total Actuarial Liability | $ 1,560,358 | $ 1,451,637 | 7.5% |
| Market Value of Assets | $ 1,366,586 | $ 1,170,632 | 16.7% |
| Actuarial Value of Assets* | $ 1,620,151 | 1,540,153 | 5.2% |
| Unfunded/(Surplus) of Actuarial Liability | $ (59,793) | $ (88,516) | -32.4% |
| Funding Ratio | 103.8% | 106.1% | -2.3% |

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

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

## SECTION I
## BOARD SUMMARY

Table I-4 presents a summary of the January 1, 2010 County defined benefit plans that are in a surplus or underfunded position.

**Table I-4**
**Funded Status of County Plans as of January 1, 2010**

| | | |
|---|---|---|
| **A. County Plans in a surplus position** | | |
| 1. Number of plans with a surplus | | 3 |
| 2. Assets in plans with a surplus | $ | 42,059,754 |
| 3. Actuarial Liability in plans with a surplus | | 41,082,681 |
| 4. Amount of surplus (2. – 3.) | $ | 977,073 |
| **B. County Plans in an underfunded position** | | |
| 1. Number of underfunded plans | | 2 |
| 2. Assets in underfunded plans | $ | 38,914,752 |
| 3. Actuarial Liability in underfunded plans | | 40,924,549 |
| 4. Amount of (unfunded) liability (2. – 3.) | $ | (2,009,797) |

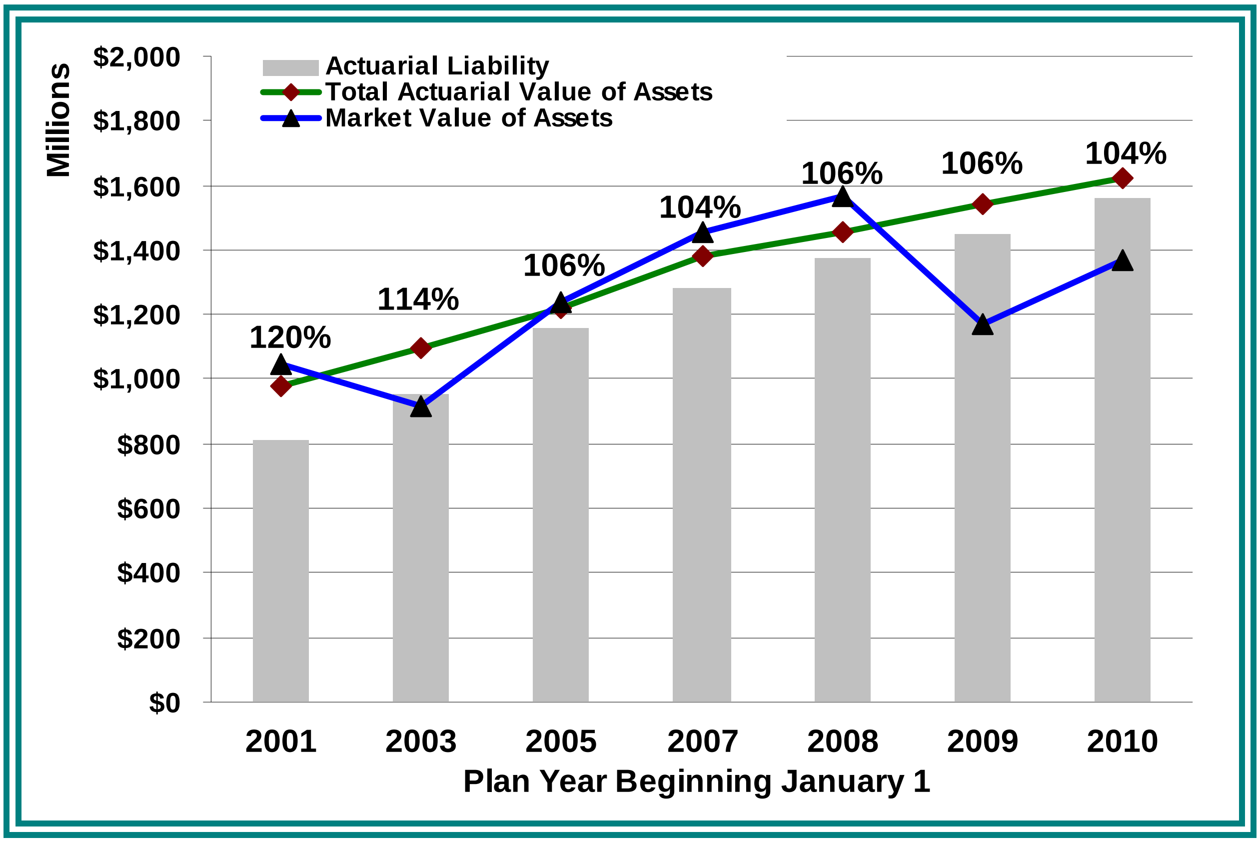
**SECTION I**
**BOARD SUMMARY**

## 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.

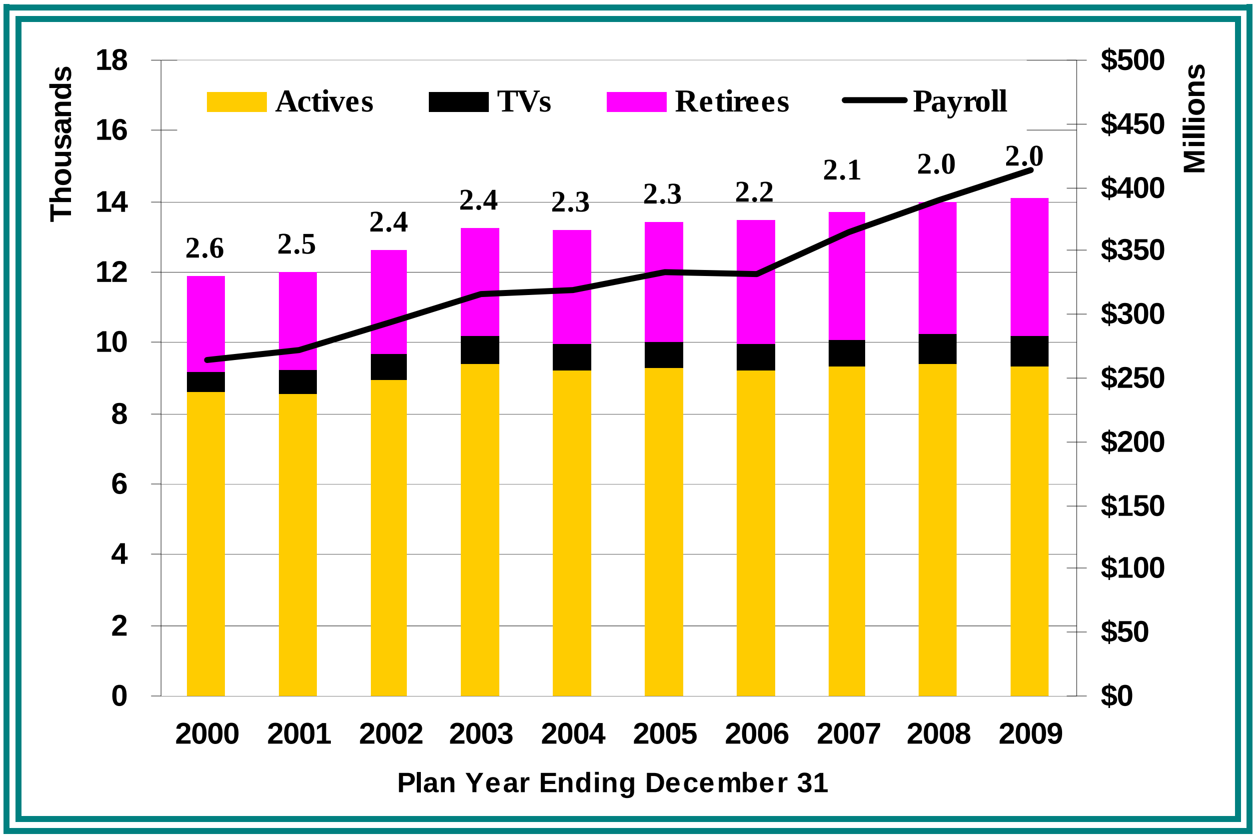
In the chart below, we present the historical trends for the total System (defined benefit, cash balance, county and non-county) market and actuarial value of assets compared to the total System (defined benefit, cash balance, county and non-county) actuarial liabilities. We have included the funding ratio to show the progress of the Retirement System since 2001.

**Pennsylvania Municipal Retirement System Assets and Liabilities – 2001 to 2010**



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

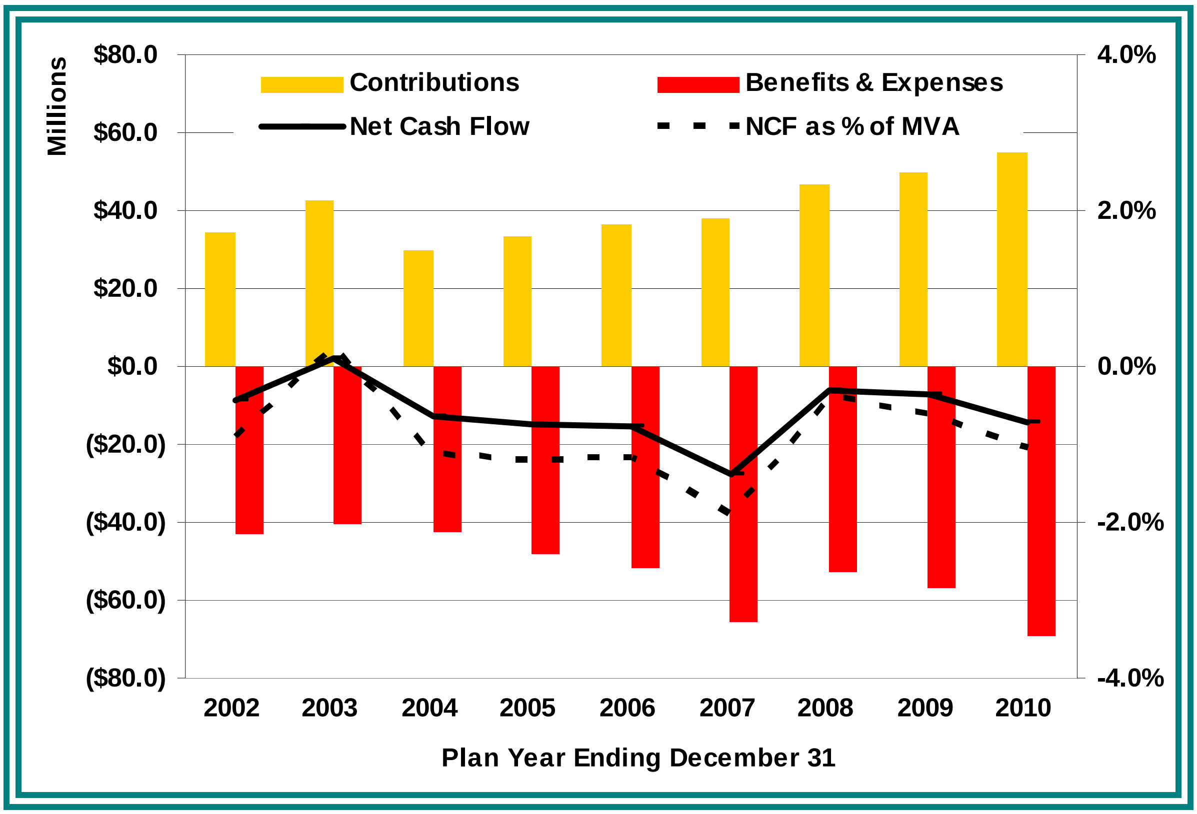
**Pennsylvania Municipal Retirement System Participant Counts – 2000 to 2010**




The chart above shows a comparison of the demographic makeup of the System over the last ten years. The number above the bars 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 vested participants (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 very small, at 1.0% of assets as illustrated in the next chart.

## SECTION I
## BOARD SUMMARY

This next graph tracks the cash flow since 2002. An important risk element of a retirement system is the implication of cash flow and resources for paying benefits. If the level of benefit payments exceeds expected contributions plus expenses, then additional cash from existing assets are needed to make the benefit payments. This is referred to as negative cash flow which is typical among mature public retirement systems. On the right hand side we show the net cash flow as a percent of assets. As the graph below illustrates there is a net negative cash flow that ranges between 0.5% to 2.0% of total assets over this time period. This implies that along with proceeds from contributions an additional amount of cash generated from asset investments must be identified to pay benefits. Another way to consider this is that for the total value of assets to grow you need a minimum return between 0.5% to 2.0% for your total assets to grow from year to year.



## 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, 2010 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 contributions 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 because the System's return will never be level from year to year.

**Table I-5**
**Projected Returns Equal to the Valuation Rate**

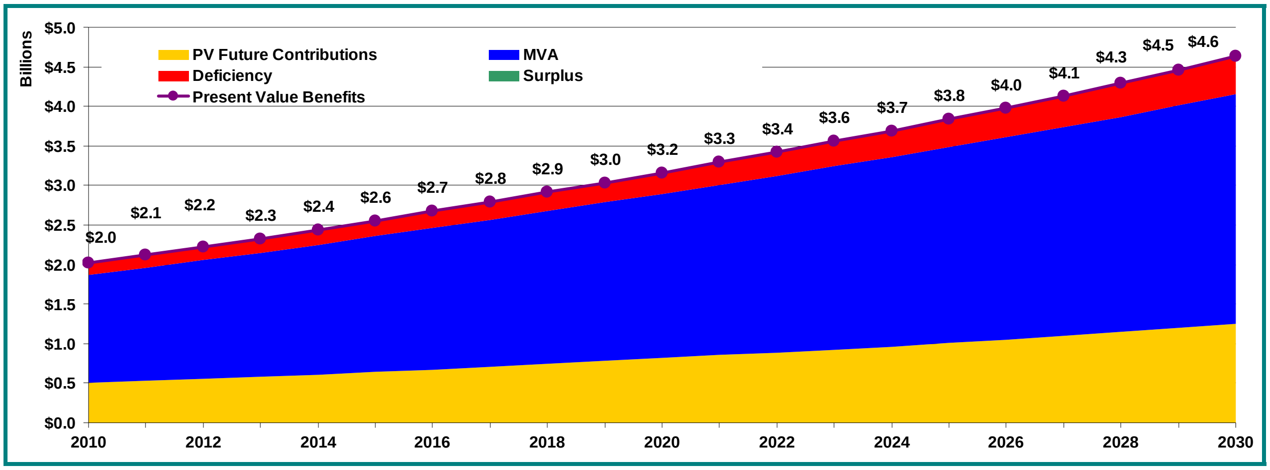
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Fiscal Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Return | 12.00% | 3.00% | -10.00% | 15.00% | 11.00% | 8.00% | 2.00% | 4.00% | 14.00% | 8.00% |
| Fiscal Year | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | |
| Return | 6.00% | -10.50% | 4.00% | 5.00% | 9.00% | 10.00% | 12.00% | 7.00% | 8.75% | |

The following projection shows how the total obligations of the System, assuming the current active population remain constant (shown by the purple line). That means when an active participant is expected to change status, they are assumed to be replaced. The area under the curve represents the *Present Value of Benefits.* This amount takes into account the value of all benefits earned up to this point of time – actuarial liability – plus benefits assumed to be earned into the future. This then represents the total PMRS obligation over time.

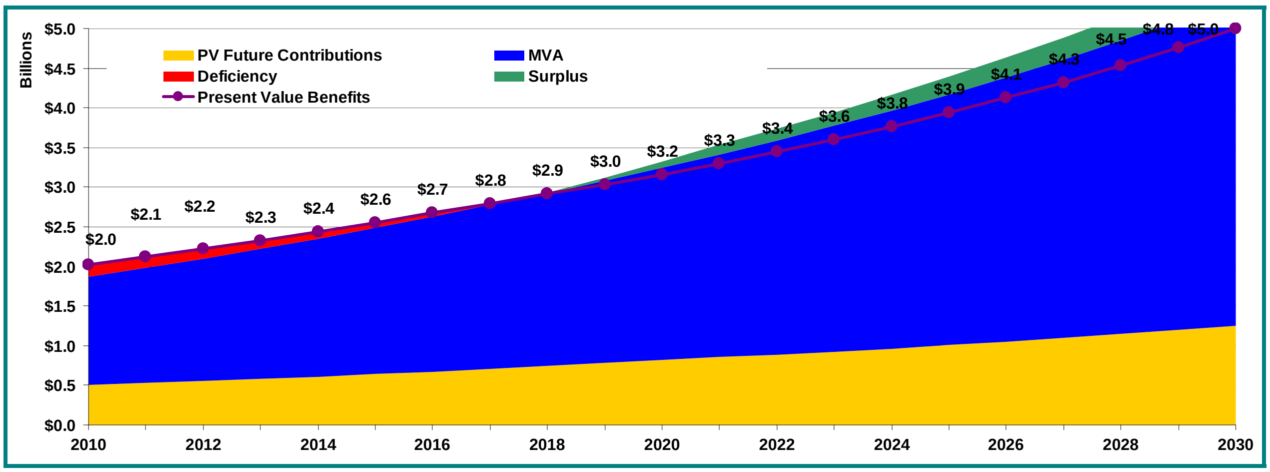
To meet this obligation we have resources which include the market value of assets (in blue) and the present value of future contributions (in gold). To the extent these two sources are insufficient to meet the obligations today or in the future, the result will be a deficit (in red). If the resources are more than enough, the result will be a surplus (green).

To the extent you have a deficit, under the PMRS system the only additional resource to meet the obligation is through additional investment earnings above the 6.0% crediting rate. Investing to bridge this current gap, which is over $150 million, is a reflection of the risk of the system and defines the level of investment risk of the past as well the future risk.

## SECTION I
## BOARD SUMMARY

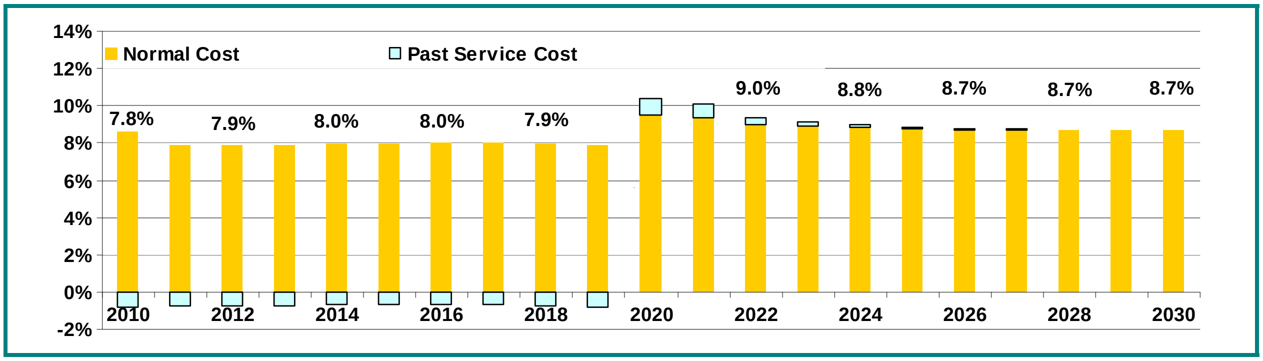



This next graph shows the implications if the assets are projected to grow at the rate of 7.5%, based on this projection the System returns to a fully funded position by 2018.

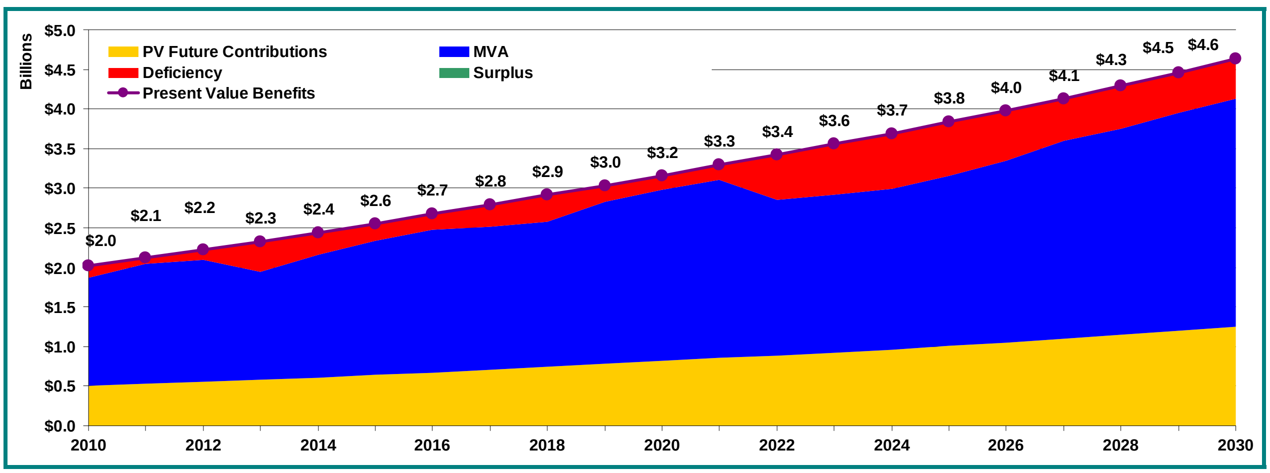



This next graph shows the projected aggregate average employer cost as a percent of pay. The values above the bars represent the net employer contribution rates as a percent of covered pay. The increase in cost in 2020 reflects the fact that those municipalities with surplus get an offset of 10% each year. While this reflects one projected view of the future aggregate cost of the System, in reality every two years the 10% surplus amounts are reset and credited such that the aggregate surplus in theory may never get fully applied. Once the municipalities with surplus are fully funded on a projected basis only funds amortizing underfunded liabilities are left. The light blue bars that show up above or below the yellow bars reflect additional amortization of costs (or surplus) that increases (or offsets) the normal cost of benefits. Unfunded liabilities for applicable municipalities have been amortized based on actual reported amounts due.

## SECTION I
## BOARD SUMMARY




Clearly the System's 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 Table I-5 above, which yield an average 6.0% rate of return over the projection period, the projected funded status will show higher and lower levels of funding based upon the market value of assets.




Based on this illustration, there is potential for the plans to fall out of full funding which reflects some of the real expectations for 2010 returns. It also shows that it may take some time for the fund to return to full funding even though the average returns over this period will equal the assumption. The period of time to return to full funding is in part a function of the relative net negative cash flow of the system which is currently relatively low but anticipated to increase over time.

# 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 deployment 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, 2009 and December 31, 2008;
- 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 a reflection of the market values and the aggregate reserves being credited to each participating employer. They are used for evaluating the System's ongoing liability to meet its obligations.

Table II-1 summarizes at the market value of assets by asset class.

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

| | 2009 | 2008 |
|---|---|---|
| **Assets** | | |
| Equity Investments | $ 913,247 | $ 697,235 |
| Accounts Receivable | 7,737 | 12,389 |
| Fixed Income Investments | 299,516 | 294,750 |
| Real Estate Investments | 151,565 | 173,048 |
| Fixed Assets | 209 | 229 |
| Accounts Payable | (1,697) | (1,604) |
| Investment Purchases Payable | (3,990) | (5,415) |
| **Total Market Value of Assets** | **$ 1,366,586** | **$ 1,170,632** |

## 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, 2009** | | **$ 1,170,632** |
| | | |
| **Additions** | | |
| Contributions: | | |
| Plan Members | $ 19,332 | |
| Municipal Employers | 35,309 | |
| Assessments | 293 | |
| Total Contributions | | $ 54,934 |
| | | |
| Investment Income: | | |
| Net Appreciation In Fair Value Of Investments | 200,069 | |
| | | |
| Short-Term And Other Investments | 426 | |
| Common And Preferred Stock | 7,835 | |
| Real Estate Equity | 2,315 | |
| International Equities | 4,273 | |
| Miscellaneous Income | 425 | |
| Securities Lending Income | - | |
| Less Securities Lending Expenses | - | |
| Less Investment Expenses | (5,070) | |
| Net Investment Income | | $ 210,273 |
| | | |
| **Total Additions** | | **$ 265,207** |
| | | |
| **Deductions** | | |
| Annuity Benefits | $ (52,267) | |
| Terminations | (13,782) | |
| Administrative Expenses | (3,204) | |
| | | |
| **Total Deductions** | | **$ (69,253)** |
| | | |
| **Market Value of Assets – January 1, 2010** | | **$ 1,366,586** |

**SECTION II**
**ASSETS**

From Table II-2 it is important to recognize that benefit payouts plus expenses of $69.3 million exceeds contribution income of $54.9 million for a net negative cash flow of $14.3 million which is best met through cash income from investments. This net negative cash flow has doubled over last year when it was at $7.1 million primarily due to a significant increase in retirees and terminated vested participant in pay status. This could be a direct reflection of the economy and the actions taken by participating municipalities to manage their budgets.

## Actuarial Value of Assets

The actuarial value of assets is developed based upon the individual municipal account balances maintained by PMRS. 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, 2009 are shown below. The difference between the market value of assets and the actuarial value of assets is considered the surplus. However the market value of assets is less than the reserves by $253.6 million as of December 31, 2009. This represents 18.6% of the market value which is a decrease from 31.6% as of December 31, 2008. Based on the funding structure of the System, it is currently anticipated that this difference will be made up by future investment returns in excess of the long-term 6.0% investment assumption.

**SECTION II**
**ASSETS**

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

| | | |
|---|---|---|
| 1. Prior Year Actuarial Value: | $ | 1,540,153 |
| 2. Total Audited Reserve Accounts: | | 1,616,776 |
| 3. Expected Administrative Expenses: | | 3,375 |
| 4. Preliminary Actuarial Value (2+3): | | 1,620,151 |
| 5. Current Year Market Value of Assets: | | 1,366,586 |
| 6. Prior Year Market Value of Assets: | | 1,170,632 |
| 7. New Surplus {Minimum of [(5-4) & (5-4) - (6-1)]}: | | (253,565) |
| 8. Percentage of New Surplus Credited as Excess Interest:[1] | | 0.000% |
| 9. Excess Interest (Maximum of 0 and (7x8)) available: | | 0 |
| 10. Excess Interest awarded | | 0 |
| **11. Current Year Actuarial Value of Assets (4+10):** | **$** | **1,620,151** |

[1] See Table II-4b

## Excess Interest Allocation

Each year, municipalities may be 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, 2009 there was no surplus because the market value of assets is less than the actuarial value of assets. The calculation in Table II-4a details the calculation leads to no excess interest for this year.

## SECTION II
## ASSETS

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

| | | |
|---|---|---|
| 1. Assets | | |
| a. Market value | $ | 1,366,586 |
| b. Preliminary Actuarial Value | | 1,620,151 |
| **c. Available Surplus (1a. - 1b.)** | **$** | **(253,565)** |
| 2. Reserves | | |
| a. Members | $ | 384,265 |
| b. Municipal | | 712,687 |
| c. Disability | | 374 |
| d. Retired | | 519,450 |
| e. Total (2a. + 2b. + 2c. + 2d.) | **$** | **1,616,776** |
| 3. Last year's surplus | $ | (369,521) |
| 4. New surplus (1c. - 3.; if 1c. > 0) | $ | - |
| 5. Excess percent of New Surplus (see Table II-4b) | | 0.000% |
| 6. Excess Interest Awarded | $ | - |
| 7. Percent of reserve {6. / (2e. - 2c.)} | | 0.00% |
| 8. Trial Surplus (1c. - 6.) | $ | (253,565) |
| 9. Trial margin percent {8. / 1a., not less than zero} | | 0.00% |

.

## SECTION II
## ASSETS

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

| | | |
|---|---|---|
| 1. Market Value of Assets | $ | 1,366,586 |
| 2. Available Surplus, not less than zero | $ | - |
| 3. Margin (2. / 1.) | | 0.00% |
| 4. New Surplus, not less than zero | $ | - |
| 5. New Margin (4. / 1.) | | 0.00% |
| 6. Excess Percent (10% + 8*3.) / (100% + 8*5.) | | 0.000% |

Because there is a net deficit, there is no excess interest to award to participating municipalities.

**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 less the present value of future normal costs under the **Entry Age Normal** funding method.

The following table presents the defined benefit County plan liabilities for the 2010 valuation.

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

| | | January 1, 2010 |
|---|---|---|
| **Present Value of Benefits** | | |
| Active Participant Benefits | $ | 81,942,237 |
| Retiree and Inactive Benefits | | 26,489,718 |
| **Present Value of Benefits (PVB)** | **$** | **108,431,955** |
| | | |
| **Actuarial Liability** | | |
| Present Value of Benefits (PVB) | $ | 108,431,955 |
| Present Value of Future Normal Costs (PVFNC) | | 26,424,725 |
| **Actuarial Liability (AL = PVB – PVFNC)** | **$** | **82,007,230** |
| Municipal Actuarial Value of Assets (AVA) | | 80,974,506 |
| **Net Unfunded/(Surplus) (AL – AVA)** | **$** | **1,032,724** |

## SECTION IV
## CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the analysis of the assets and liabilities is performed to determine what contributions are needed based upon the funding policy established for 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 cost method as stipulated by law is the **Entry Age Actuarial Cost Method**. Based upon this cost method, the statutory methods for funding any unfunded liability, there are three components that are used to determine the total contribution: the **normal cost**, the amortization of **initial unfunded actuarial liability**, and any amortizations of **increases/decreases in the unfunded actuarial liability / or adjustment for surplus** expressed as a percent of payroll.

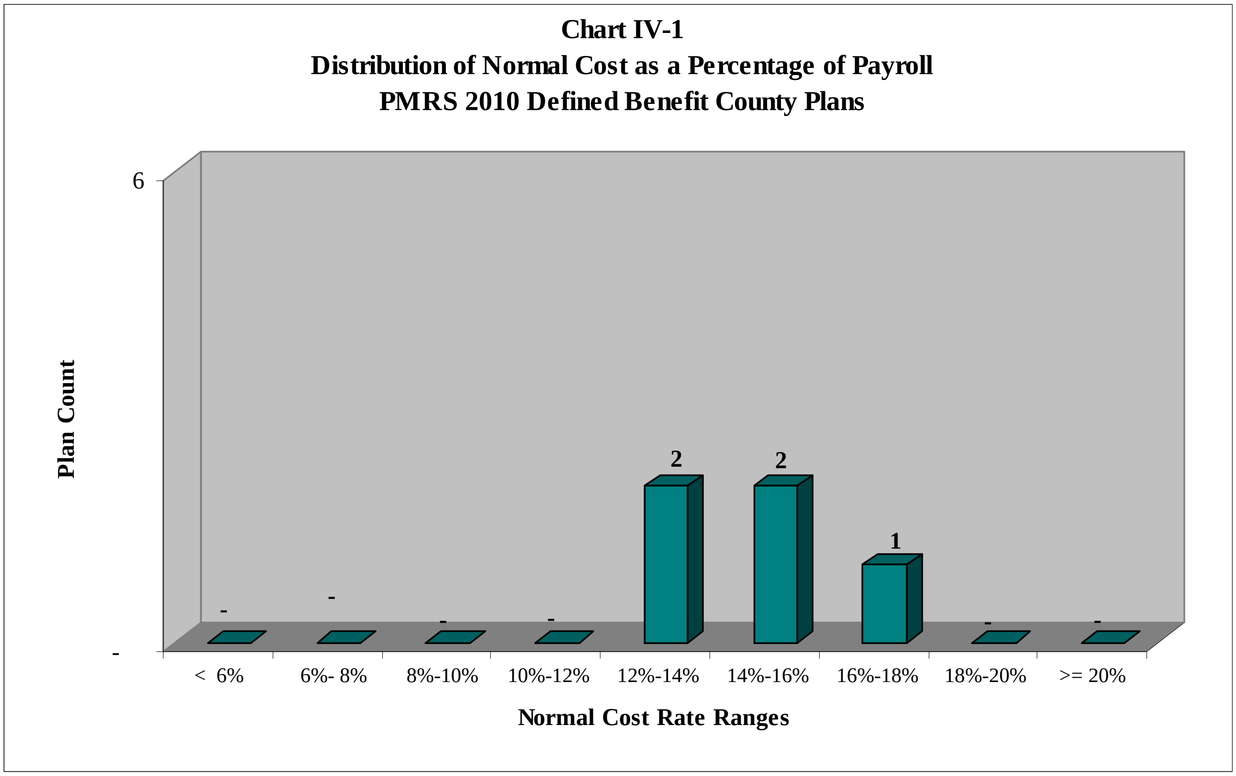
For plans with a surplus, the contribution rate is the normal cost offset by 10% of the surplus again expressed as a percent of payroll. This report provides an analysis of the aggregate assets and liabilities but not the aggregation of the Minimum Municipal Obligations required for each participating municipality covered by 2009 Act 205 forms as the combination of underfunded and surplus plans would not necessarily be informative in reviewing the overall funded status of the System.

Below we describe the cost components and provide graphically the distribution of costs among the participating municipalities.

The normal cost rate (i.e., normal cost as a percent of payroll) 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. If a plan provides for a Separate Member Annuity through required member contributions, this amount is then added to the total normal cost rate to determine the final total normal cost rate.

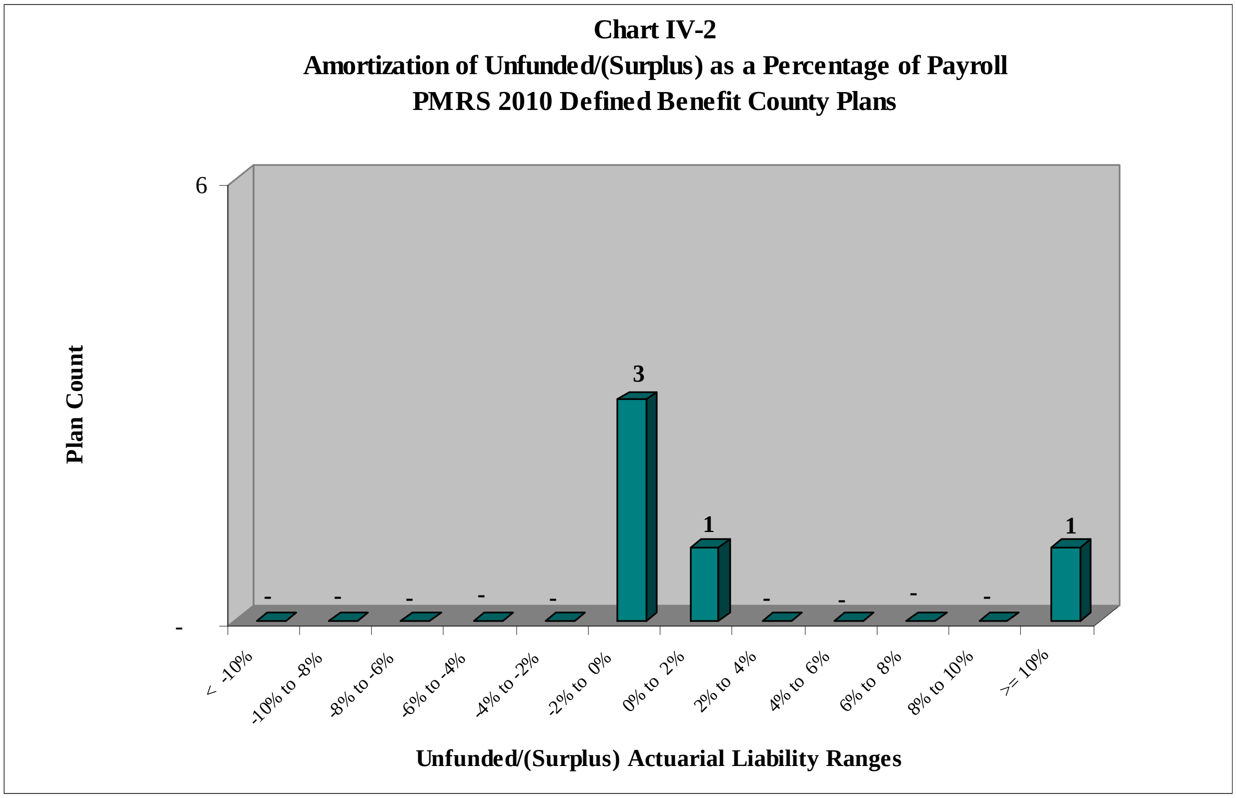
## SECTION IV
## CONTRIBUTIONS

The following chart is a summary of the normal cost rates determined for the five defined benefit County plans as of January 1, 2010.



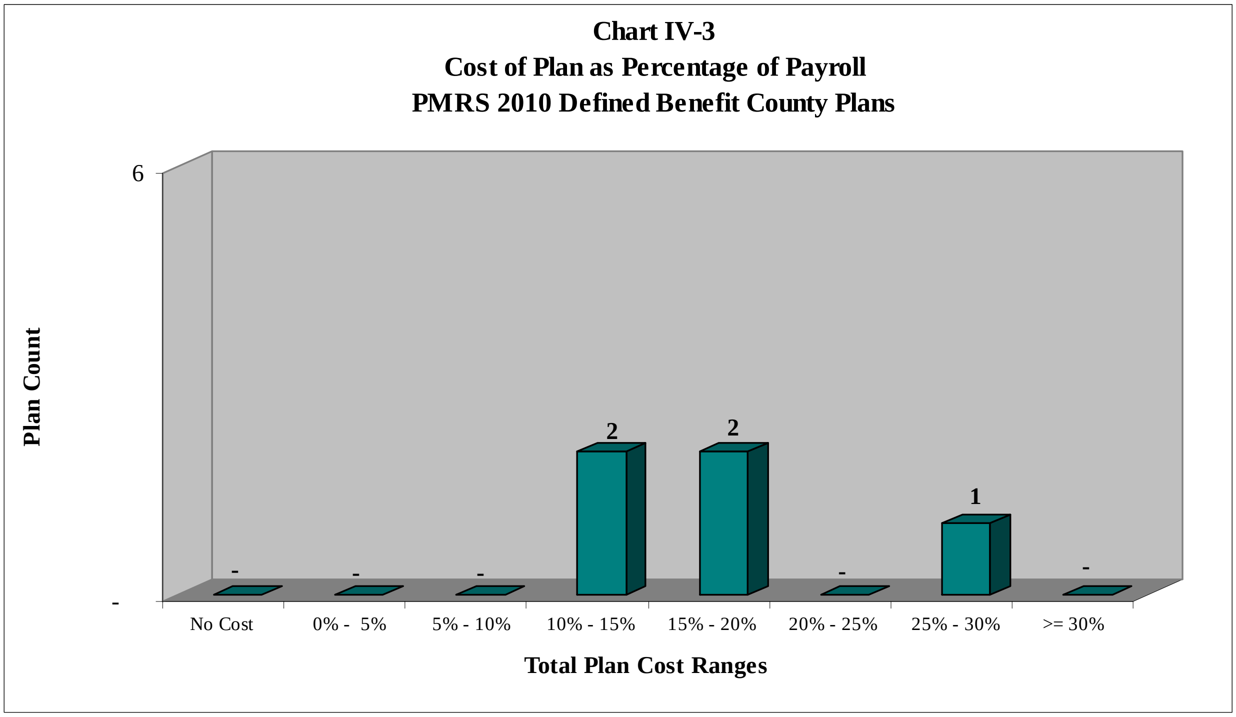
## SECTION IV
## CONTRIBUTIONS

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 five defined benefit County plans as of January 1, 2010.



## 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 five defined benefit County plans as of January 1, 2010.



## 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, 2010 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, 2010 | January 1, 2009 |
|---|---|---|
| **A. GASB No. 25 Basis** | | |
| 1. Actuarial Liabilities for retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits | $ 589,362,501 | $ 538,733,517 |
| 2. Actuarial Liabilities for current employees | 970,995,035 | 912,903,747 |
| 3. Total Actuarial Liability (1. + 2.) | $ 1,560,357,536 | $ 1,451,637,264 |
| 4. Net Actuarial Assets available for benefits | $ 1,620,150,779 | $ 1,540,152,742 |
| 5. Unfunded/(Surplus) Actuarial Liability (3. - 4.) | $ (59,793,243) | $ (88,515,478) |

## 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, 2010 |
| Actuarial cost method | Entry age |
| Amortization method | Level dollar for Plan Bases and an average for Aggregate Gain/Loss, 10% of surplus is credited against aggregate cost where applicable |
| 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 2004. A new experience study was performed in 2011 which will first be reflected in the January 1, 2011 Actuarial Valuation.

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) |
|---|---|---|---|---|---|---|---|
| 2010 | $ 348,126,106 | $ 589,362,501 | $ 622,868,929 | $ 1,620,150,779 | 100% | 100% | 110% |
| 2009 | 333,142,928 | 538,733,517 | 579,760,819 | 1,540,152,742 | 100% | 100% | 115% |
| 2008 | 321,567,969 | 461,965,617 | 593,667,414 | 1,458,148,442 | 100% | 100% | 114% |
| 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% |

* 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) |
|---|---|---|---|---|
| 2010 | $ 1,620,150,779 | $ 1,560,357,536 | $ (59,793,243) | 103.8% |
| 2009 | 1,540,152,742 | 1,451,637,264 | (88,515,478) | 106.1% |
| 2008 | 1,458,148,442 | 1,377,201,000 | (80,947,442) | 105.9% |
| 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% |

The actuarial assumptions as of January 1, 2010 are shown in the assumptions and methods section. The above information was derived from the following membership data, as provided by the System, regarding:

- Five defined benefit plans required to re-determine contribution levels as of January 1, 2010;
- 696 defined benefit county and non-county plans and 203 cash balance only plans as of January 1, 2009;
- Four defined benefit plans required to re-determine contribution levels as of January 1, 2008 (prior year non-county benefit plans estimated from the January 1, 2007 valuation);
- 679 defined benefit county and non-county plans and 177 cash balance only plans as of January 1, 2007;
- Four defined benefit plans required to re-determine contribution levels as of January 1, 2006;
- 678 defined benefit county and non-county plans and 169 cash balance only plans as of January 1, 2005.

## 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 | Average Annual Annuities Added | Annual Benefit Increase | Deleted From Roll | Average Annual Annuities Removed | Number on roll | Annual Annuities | Percentage Increase in annuities | Average Annual Annuities | Percent increase in Average Annual Annuities |
|---|---|---|---|---|---|---|---|---|---|---|
| 2010 | 296 | $16,030 | $623 | 137 | $9,458 | 3,909 | $48,897,954 | 7.7% | $12,509 | 3.3% |
| 2009 | 271 | 13,883 | 790 | 119 | 11,494 | 3,750 | 45,414,210 | 5.9% | 12,110 | 1.6% |
| 2008 | 236 | 12,780 | 362 | 97 | 8,921 | 3,598 | 42,895,559 | 7.6% | 11,922 | 3.4% |
| 2007 | 252 | 12,828 | N/A | 170 | N/A | 3,459 | 39,870,509 | 5.1% | 11,527 | 2.6% |
| 2006 | 268 | N/A | N/A | 83 | N/A | 3,377 | 37,943,181 | 9.4% | 11,236 | 3.4% |
| 2005 | 251 | N/A | N/A | 116 | N/A | 3,192 | 34,691,928 | 8.4% | 10,868 | 3.8% |

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 |
|---|---|---|---|---|---|---|---|
| 2010 | 8,357 | 994 | 3,449 | 460 | 834 | 23 | 14,117 |
| 2009 | 8,411 | 978 | 3,289 | 461 | 847 | 0 | 13,986 |
| 2008 | 8,383 | 950 | 3,173 | 425 | 744 | 7 | 13,682 |
| 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 |

## 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**

| | As of January 1[1] | | | |
|---|---|---|---|---|
| | **2010** | **2009** | **2008** | **2007** |
| a. Retirees currently receiving benefits | 3,449 | 3,289 | 3,173 | 2,965 |
| b. Beneficiaries currently receiving benefits | 460 | 461 | 425 | 494 |
| c. Terminated vested employees entitled to future benefits from DB Plans | 647 | 650 | 570 | 561 |
| d. Terminated non-vested employees entitled to contribution refunds from DB Plans | 23 | - | 7 | 33 |
| e. Active employees in defined benefit plans | 8,357 | 8,411 | 8,383 | 8,314 |
| i. Aggregate Salary[2] | $377,960,930 | $372,370,037 | $364,865,185 | $358,690,830 |
| ii. Vested[3] | 5,025 | 4,952 | 4,913 | 4,430 |
| iii. Non-vested | 3,333 | 3,459 | 3,470 | 3,884 |
| f. Participants in defined contribution-only plans | 1,181 | 1,175 | 1,124 | 1,080 |
| i. Aggregate Salary | $35,104,086 | $32,811,919 | $31,107,136 | $28,213,485 |
| ii. Active | 994 | 978 | 950 | 918 |
| iii. Inactive | 187 | 197 | 174 | 162 |

1 All information includes defined benefit non-county plans, defined benefit county plans, and cash balance only plans.
2 Projected salary at 5% for year following valuation date for 2008 only
3 Count of vested participants estimated based on service as of the valuation date

## APPENDIX A
## MEMBERSHIP INFORMATION

# Pennsylvania Municipal Retirement System Distribution of Active Members by Age and Service as of January 1, 2010

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 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 20 to 24 | 71 | 54 | 29 | 30 | 4 | 0 | 0 | 0 | 0 | 0 | 188 |
| 25 to 29 | 94 | 82 | 97 | 125 | 109 | 4 | 0 | 0 | 0 | 0 | 511 |
| 30 to 34 | 77 | 85 | 58 | 136 | 281 | 54 | 1 | 0 | 0 | 0 | 692 |
| 35 to 39 | 85 | 85 | 62 | 117 | 288 | 174 | 88 | 13 | 0 | 0 | 912 |
| 40 to 44 | 55 | 78 | 78 | 124 | 333 | 263 | 159 | 101 | 4 | 0 | 1,195 |
| 45 to 49 | 67 | 76 | 64 | 146 | 317 | 249 | 240 | 212 | 121 | 20 | 1,512 |
| 50 to 54 | 59 | 70 | 60 | 120 | 335 | 265 | 232 | 230 | 161 | 194 | 1,726 |
| 55 to 59 | 42 | 54 | 37 | 101 | 228 | 199 | 198 | 207 | 124 | 239 | 1,429 |
| 60 to 64 | 21 | 24 | 21 | 53 | 158 | 126 | 134 | 115 | 62 | 117 | 831 |
| 65 & up | 22 | 7 | 6 | 10 | 67 | 63 | 51 | 40 | 22 | 58 | 346 |
| Total | 597 | 620 | 512 | 962 | 2,120 | 1,397 | 1,103 | 918 | 494 | 628 | 9,351 |

## APPENDIX A
## MEMBERSHIP INFORMATION

# Pennsylvania Municipal Retirement System Distribution of Active Members by Age and Service as of January 1, 2010

**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 | $22,786 | $25,661 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $24,383 |
| 20 to 24 | $31,547 | $32,441 | $31,864 | $37,470 | $23,613 | $0 | $0 | $0 | $0 | $0 | $32,629 |
| 25 to 29 | $33,508 | $34,767 | $39,565 | $43,000 | $43,290 | $45,026 | $0 | $0 | $0 | $0 | $39,358 |
| 30 to 34 | $33,985 | $36,917 | $39,393 | $42,745 | $48,379 | $50,673 | $58,293 | $0 | $0 | $0 | $43,703 |
| 35 to 39 | $32,948 | $40,543 | $43,557 | $42,925 | $47,361 | $50,204 | $50,328 | $59,723 | $0 | $0 | $45,560 |
| 40 to 44 | $35,631 | $36,758 | $39,567 | $41,013 | $45,630 | $48,218 | $53,643 | $54,022 | $40,298 | $0 | $46,043 |
| 45 to 49 | $36,388 | $37,964 | $41,094 | $37,646 | $41,761 | $44,418 | $50,922 | $53,082 | $51,917 | $47,653 | $45,276 |
| 50 to 54 | $31,380 | $36,263 | $37,306 | $37,887 | $42,051 | $43,464 | $46,287 | $49,313 | $52,201 | $52,318 | $44,852 |
| 55 to 59 | $28,610 | $40,384 | $44,991 | $39,051 | $40,608 | $41,857 | $46,056 | $48,656 | $52,978 | $54,890 | $45,807 |
| 60 to 64 | $32,905 | $30,738 | $42,557 | $35,193 | $39,088 | $39,095 | $43,345 | $45,354 | $51,190 | $55,946 | $43,361 |
| 65 & up | $12,085 | $30,428 | $16,884 | $34,036 | $31,108 | $35,979 | $31,244 | $42,366 | $42,742 | $50,383 | $35,902 |
| Total | $32,338 | $36,673 | $39,768 | $40,138 | $43,437 | $44,691 | $47,595 | $49,902 | $51,682 | $53,645 | $44,173 |

* Actual 2010 salary.

## APPENDIX A
## MEMBERSHIP INFORMATION

# Pennsylvania Municipal Retirement System Distribution of Inactive Benefit Payments as of January 1, 2010

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

| Age | Monthly Benefit | Count |
|---|---|---|
| x < 30 | $0 | 0 |
| 30 <= x < 35 | $0 | 0 |
| 35 <= x < 40 | $490 | 3 |
| 40 <= x < 45 | $6,821 | 16 |
| 45 <= x < 50 | $23,314 | 33 |
| 50 <= x < 55 | $149,611 | 118 |
| 55 <= x < 60 | $470,556 | 298 |
| 60 <= x < 65 | $868,985 | 658 |
| 65 <= x < 70 | $922,542 | 808 |
| 70 <= x < 75 | $661,544 | 684 |
| 75 <= x < 80 | $475,154 | 550 |
| 80 <= x < 85 | $300,381 | 406 |
| 85 <= x | $195,432 | 335 |
| <Total> | $4,074,830 | 3,909 |

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

| Age | Monthly Benefit | Count |
|---|---|---|
| x < 30 | $0 | 0 |
| 30 <= x < 35 | $5,811 | 15 |
| 35 <= x < 40 | $21,667 | 46 |
| 40 <= x < 45 | $64,211 | 86 |
| 45 <= x < 50 | $111,665 | 140 |
| 50 <= x < 55 | $160,546 | 199 |
| 55 <= x < 60 | $98,966 | 138 |
| 60 <= x < 65 | $11,162 | 22 |
| 65 <= x < 70 | $47 | 1 |
| 70 <= x < 75 | $0 | 0 |
| 75 <= x < 80 | $0 | 0 |
| 80 <= x < 85 | $0 | 0 |
| 85 <= x | $0 | 0 |
| <Total> | $474,077 | 647 |

# APPENDIX A
# MEMBERSHIP INFORMATION

## Pensions in Payment on January 1, 2010 by Type and Amount

| | | Pension Type | | | | |
|---|---|---|---|---|---|---|
| Monthly Amount | Total | Normal | Involuntary early | Voluntary early | Service disability | Non-service disability |
| Total | 3,909 | 3,223 | 193 | 386 | 34 | 73 |
| Under $100 | 206 | 177 | 17 | 10 | 1 | 1 |
| $ 100 - $199 | 249 | 203 | 27 | 18 | 1 | 0 |
| 200 - 299 | 264 | 207 | 32 | 25 | 0 | 0 |
| 300 - 399 | 275 | 219 | 26 | 27 | 0 | 3 |
| 400 - 499 | 232 | 186 | 13 | 28 | 2 | 3 |
| 500 - 599 | 260 | 213 | 15 | 24 | 1 | 7 |
| 600 - 699 | 212 | 174 | 8 | 23 | 0 | 7 |
| 700 - 799 | 211 | 160 | 11 | 31 | 0 | 9 |
| 800 - 899 | 200 | 156 | 7 | 23 | 2 | 12 |
| 900 - 999 | 193 | 152 | 10 | 22 | 3 | 6 |
| 1,000 - 1,199 | 354 | 285 | 7 | 44 | 6 | 12 |
| 1,200 - 1,399 | 240 | 196 | 6 | 29 | 4 | 5 |
| 1,400 - 1,599 | 207 | 173 | 6 | 19 | 7 | 2 |
| 1,600 - 1,799 | 148 | 128 | 3 | 14 | 3 | 0 |
| 1,800 - 1,999 | 136 | 118 | 3 | 12 | 0 | 3 |
| 2,000 - 2,199 | 111 | 96 | 0 | 14 | 1 | 0 |
| 2,200 - 2,399 | 75 | 70 | 0 | 5 | 0 | 0 |
| 2,400 - 2,599 | 77 | 71 | 0 | 4 | 1 | 1 |
| 2,600 - 2,799 | 71 | 61 | 2 | 6 | 1 | 1 |
| 2,800 - 2,999 | 34 | 33 | 0 | 0 | 0 | 1 |
| 3,000 - 3,499 | 71 | 65 | 0 | 5 | 1 | 0 |
| 3,500 - 3,999 | 50 | 47 | 0 | 3 | 0 | 0 |
| 4,000 and over | 33 | 33 | 0 | 0 | 0 | 0 |

## APPENDIX A
## MEMBERSHIP INFORMATION

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

| | Total | | Normal | | Involuntary early | | Voluntary early | | Disability | |
|---|---|---|---|---|---|---|---|---|---|---|
| Year Ended December 31: | Number | Average Monthly Amount | Number | Average Monthly Amount | Number | Average Monthly Amount | Number | Average Monthly Amount | Number* | Average Monthly Amount |
| 1999 | 179 | 869 | 152 | 912 | 22 | 647 | 3 | 345 | 2 (0) | 850 |
| 2000 | 185 | 954 | 147 | 1,028 | 25 | 736 | 8 | 423 | 5 (1) | 702 |
| 2001 | 246 | 1,277 | 206 | 1,346 | 30 | 957 | 6 | 945 | 4 (0) | 655 |
| 2002 | 199 | 1,087 | 170 | 1,121 | 17 | 974 | 5 | 670 | 7 (2) | 837 |
| 2003 | 214 | 1,199 | 171 | 1,226 | 26 | 1,206 | 8 | 609 | 9 (4) | 1,199 |
| 2004 | 247 | 1,126 | 189 | 1,185 | 35 | 994 | 13 | 653 | 10 (1) | 1,100 |
| 2005 | 264 | 1,270 | 217 | 1,290 | 23 | 1,257 | 11 | 639 | 13 (4) | 1,493 |
| 2006 | 252 | 1,069 | 192 | 1,082 | 19 | 572 | 32 | 1,196 | 9 (2) | 1,373 |
| 2007 | 236 | 1,065 | 227 | 1,056 | 6 | 1,259 | - | - | 3 (0) | 1,350 |
| 2008 | 271 | 1,157 | 223 | 1,150 | 7 | 843 | 36 | 1,259 | 5 (3) | 1,162 |
| 2009 | 296 | 1,336 | 249 | 1,412 | 17 | 339 | 26 | 1,300 | 4 (0) | 1,067 |

* 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* | | New Retirees on or after January 1, 2005** | |
|---|---|---|---|---|
| **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** |

* 1983 GAM Males; females setback 6 years
** 1994 GAM

(i) Type of Death:
(a) 15% of mortality is assumed to be service related for municipal plans, and
(b) 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 ten 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 six and 24 members, a percentage of the indicated rates where such percentage equals 100% less 5% x (25 – number of members); for municipalities with five or fewer members, no terminations were assumed.

## APPENDIX B
## ACTUARIAL ASSUMPTIONS AND METHODS

| | Current Valuation Rate* | | |
|---|---|---|---|
| | 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 |

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

**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.

## APPENDIX B
## ACTUARIAL ASSUMPTIONS AND METHODS

**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 average salary plans approximates an additional 6% increase in final salary 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 three years of service.

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

(i) Uniformed Members:

(a) Members first eligible to retire at age 57 or younger will defer their retirement four years,
(b) Members first eligible to retire at ages 58, 59, 60 or 61 will retire at age 62, and
(c) Members first eligible to retire at ages 62 or older will retire when first eligible.

## APPENDIX B
## ACTUARIAL ASSUMPTIONS AND METHODS

(ii) Municipal Members:

Members are assumed to retire over a range of ages as shown below:

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

* 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.

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

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

**I. Social Security Projections (if applicable):**

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

(ii) The Consumer Price Index will increase 3.0% compounded annually; and

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

**J. Post-Retirement Cost of Living Increases (if applicable):** 3.0% per year, subject to plan limitations.

**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 2009 is $3,375,000.

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

## Actuarial Methods:

Contribution requirements are individually determined for each participating municipality, on an actuarial basis as described below, at least biennially. 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.

Based on the unique legislative structure of PMRS, because assets are set equal to reserves under the System, they do not necessarily relate directly or indirectly with the current market value of assets as required under Actuarial Standard of Practice Statement No. 44 which states under Section 3.3:

> *"…the actuary should select an asset valuation method that is designed to produce actuarial values of assets that bear a reasonable relationship to the corresponding market values. The qualities of such an asset valuation method include the following:*
> *a. The asset valuation method is likely to produce actuarial values of assets that are sometimes greater than and sometimes less than the corresponding market values.*
> *b. The asset valuation method is likely to produce actuarial values of assets that, in the actuary's professional judgment, satisfy both of the following:*
>    *1. The asset values fall within a reasonable range around the corresponding market values. For example, there might be a corridor centered at market value, outside of which the actuarial value of assets may not fall, in order to assure that the difference from market value is not greater than the actuary deems reasonable.*
>
>    *2. Any differences between the actuarial value of assets and the market value are recognized within a reasonable period of time. For example, the actuary might use a method where the actuarial value of assets converges toward market value at a pace that the actuary deems reasonable, if the investment return assumption is realized in future periods.*

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

> *In lieu of satisfying both (1) and (2) above, an asset valuation method could satisfy section 3.3(b) if, in the actuary's professional judgment, the asset valuation method either (i) produces values within a sufficiently narrow range around market value or (ii) recognizes differences from market value in a sufficiently short period."*

**On this basis, the administrative rules adopted by the PMRS Board, which are not subject to comply with Actuarial Standards of Practice (ASOP), when defining the Actuarial Value of Assets, does not necessarily meet the requirement of ASOP 44 Selection and Use of Asset Valuation Methods for Pension Valuation.**

**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 actuarial gains and losses;
(iii) 20 years, with respect to changes due to actuarial assumptions;
(iv) 20 years, with respect to changes due to plan provisions;
(v) 10 years, with respect to changes in benefits for currently retired members; or

(b) The average assumed working lifetime of active employees as of the date the liability was established. If there are no active employees, the unfunded liability is amortized one year after the liability was established.

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.)

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

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.

## Changes in Actuarial Assumptions and Methods:

There were no changes in the actuarial assumptions from last year to this year.

There was a change in the Actuarial Method for amortizing the unfunded gain/loss. The amortization period was extended from 15 years to 20 years in accordance with amendments to Act 205 by Act 44.