



**City of Pittsburgh  
Retirement Systems**

**Special Study on the  
Pennsylvania Municipal  
Retirement System's  
Integration of Administrative  
Services**

**Projected Effective  
January 1, 2011  
Actuarial Valuation**

**Produced by [Cheiron](#)**

## Table of Contents

Letter of Transmittal .....	i
Section I – Board Summary .....	1
Section II – Assets, Liabilities and MMO by System.....	17
Section III – Amortization Charges and Other MMO Supporting Details .....	27
Appendix A – Summary of Plan Provisions .....	31
Appendix B – Assumptions and Methods .....	42

**LETTER OF TRANSMITTAL**

November 3, 2010

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

Dear Board Members:

At your request, we have prepared this study of the implications of entry by the three retirement systems (Systems) sponsored by the City of Pittsburgh (the City) into the Pennsylvania Municipal Retirement System. The study reflects a potential entry date of January 1, 2011 and is based on the January 1, 2009 valuation without reflection of any specific experience since that date. This is in response to application of Chapter 9, Section 902(c) of Act 205 which provides that if the City's systems in the aggregate do not achieve a minimum of 50% funding by that date the Pennsylvania Municipal Retirement System is to assume ongoing administrative responsibility for the City's retirement systems.

The study has been requested and prepared on behalf of the City to demonstrate the implications of the Act 205 provisions, applicable legislation, and any other alternatives for consideration.

In preparing our report, we relied without audit, on information (some oral and some written) supplied by the City's staff, each of the three retirement Systems' staff and Mockenhaupt Benefits Group, the consulting actuary for the Systems. This information includes, but is not limited to, plan provisions, employee data, and financial information. The results of this report are only applicable to the System's estimated minimum municipal obligations (MMO) determinations as of January 1, 2011 which would be applicable for Fiscal Years 2013 and 2014. We note that Section 902(c) of Act 205 does not provide for the possible transfer of responsibility for the administration of the City's Systems until late 2011. We also understand that the first time the City's Systems could possibly be valued by the Pennsylvania Municipal Retirement System (PMRS) would be January 1, 2013. We were asked to provide scenarios comparing the MMO as of January 1, 2011 given the possible assumption by PMRS of the responsibility for administering the Systems.

We also provide projections to demonstrate the possible implications in the future and the degree the considered alternatives may bring the City's Systems into full funding after 30 years. For these projections we rely on future plan experience conforming to the underlying assumptions. To the extent that actual plan experience deviates from the underlying assumptions, the results will vary accordingly.

We hereby certify that, to the best of my knowledge, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles



Board of Trustees  
November 3, 2010  
Page ii

and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board, and that the undersigned meets the Qualification Standards, as defined by the American Academy of Actuaries, to render the opinion contained in this report.

Finally, in preparation of this report we have accepted the assumptions and methodologies used by the Systems' actuary except where specifically identified. To the extent that additional assumptions were used to replicate results, they have been disclosed as has any variance with the actuary's results that have not been reconciled at the time this report is being submitted. However such reconciliations are immaterial to the general results. We would like to thank the Staff of the City, retirement system staff and their actuary at Mockenhaupt Benefits Group for their assistance and responsiveness in the reconciliation process.

Sincerely,  
Cheiron



Kenneth A. Kent, FSA, FCA, EA, MAAA  
Consulting Actuary

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION I  
BOARD SUMMARY

The purpose of this actuarial study is to illustrate four alternative valuations of the City of Pittsburgh's three retirement systems in consideration of the potential transfer of their administration to the Pennsylvania Municipal Retirement System (PMRS) as possibly required under Chapter 9, Section 902(c) of Act 205.

**Background**

The City of Pittsburgh sponsors three retirement systems, the Municipal Pension Fund, the Policemen's Relief and Pension Fund, and the Firemen's Relief and Pension Fund, referred to collectively as the Retirement Systems. Under Chapter 9 of Act 205 which was amended by Act 44 enacted on September 18, 2009, Section 902(c) provides:

*(c) Mandatory administration by Pennsylvania Municipal Retirement Board.--A city of the second class that is determined to be in level III distress based upon the required actuarial valuation reports for a plan year beginning on January 1, 2011, shall transfer all existing benefit plans established by the city to the Pennsylvania Municipal Retirement Board solely for administration. The biennial actuarial valuation reports for the plan year beginning on January 1, 2011, shall be filed by the city with the commission by September 1, 2011. The transfer, if applicable, shall be accomplished within two years of the effective date of this subsection. Pension benefits and eligibility requirements shall continue to be subject to collective bargaining, if applicable. Such plans shall not be subject to the control or input of the board. No prior determination of level III distress based upon the required actuarial valuation reports for prior plan years shall result in transfer of the administration to the board. From and after a determination of level III distress based upon the required actuarial valuation reports for a plan year beginning on January 1, 2011, the biennial actuarial valuation report filed on behalf of the city shall utilize an actuarial assumption as to investment earnings equal to the regular interest rate fixed by the board plus 1.5%.*

The highlighted portions identify the City of Pittsburgh because this is the only city of the second class in the state and defines the level III distress. Level III distress means after aggregation of all three plans, the funded ratio (actuarial value of assets divided by actuarial liabilities) is less than 50%. This section also specifies that PMRS will use the investment earnings assumption equal to the regular interest rate fixed by the PMRS Board (currently 6.0%) plus 1.5% or 7.5%. The current rate used by the Systems is 8.0%.

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**SECTION I  
BOARD SUMMARY**

**The Study**

We have been requested, in cooperation with the requests of the City of Pittsburgh (the City) through the Secretary of the PMRS Board, to perform four valuations to demonstrate the prospective minimum municipal obligations (MMO) alternatives available for the City under the likelihood of implementation of Section 902(c) of Act 205. Each of the scenarios described below demonstrate the required City contributions under alternative assumptions and methods. The following table is a summary of each scenario:

<b>Scenario</b>	<b>Description</b>
Replication 1/1/2009	Current assumptions in 2009 valuation
1. Estimated 1/1/2011	Roll forward of replication to 2011
2. Utilization of Act 44 relief	Applying 25% amortization relief
3. Implementation of Section 902(c) of Act 205	Pittsburgh is required to be administered by PMRS
4. Voluntary PMRS entry	Pittsburgh joins PMRS voluntarily

**Reconciliation of Results (Baseline Scenario)**

Before performing these four alternative scenarios' we first performed what is typically called a reconciliation valuation. Using all the assumptions and data applied by the Systems' actuary we programmed all of the existing benefits and to replicate the results of the January 1, 2009 valuation. By comparing our results we are assured that our understanding of the benefits, assumptions and methods are comparable and therefore any study performed on this same population will accurately reflect the current benefit structure and member demographics.

The following table reflects the results of our replication valuation. This table presents the required contribution, the MMO, which is made up of two components, the normal cost which is a proxy for the cost of benefits being earned for the year, and the amortization payment which is defined under Act 205 as a means of paying down different components that make up the unfunded liability based on the source. The normal cost is typically defined as a percent of pay and applied to annual payroll. The unfunded liability is the difference between the actuarial liability and the actuarial value of assets. In addition there are annual administrative expenses. The City cost is offset by employee contributions.

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION I  
BOARD SUMMARY

<b><u>Employer Minimum Municipal Obligation Base Scenario - Replication 1/1/2009</u></b>				
	Current Actuary's Results	Cheiron's Results	Net Change	Percent Change
<b>A. Estimated covered payroll</b>	\$ 184,369,193	\$ 184,369,193	\$ -	0.0%
<b>B. Net employer normal cost rate</b>	4.37%	4.29%	(0.08%)	(1.8%)
<b>C. Normal cost (AxB)</b>	\$ 8,049,029	\$ 7,918,024	\$ (131,005)	(1.6%)
<b>D. Administration cost</b>	3,466,843	3,466,843	-	0.0%
<b>E. Current amortization</b>	46,944,760	46,944,760	-	0.0%
<b>F. Additional amortization charge</b>	-	(204,435)	(204,435)	0.0%
<b>G. Act 44 Amortization Reduction</b>	-	-	-	0.0%
<b>H. Amortization of delayed payment charges to 2013</b>	-	-	-	0.0%
<b>I. Total employer charges (C+D+E+F+G+H)</b>	\$ 58,460,632	\$ 58,125,192	\$ (335,440)	(0.6%)
<b><u>Employee Cost</u></b>				
<b>J. Member contribution rate</b>	5.33%	5.33%	0.00%	0.0%
<b>K. Estimated member contribution (A x J)</b>	\$ 9,824,059	\$ 9,824,059	\$ -	0.0%

Based on the results above we are well within the industry benchmarks (5.0%) to support the accuracy of results, reflecting the provisions, assumptions, and methods in our development of the actuarial liabilities, normal cost, and present value of benefits. Our liabilities are slightly lower in the aggregate which results in an approximately 0.6% decrease in cost using our programming.

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**SECTION I  
BOARD SUMMARY**

This next table displays the aggregate liabilities for comparison:

<b><u>Assets Liabilities and Funded Status 1/1/2009</u></b>				
	<b>Current Actuary's Results</b>	<b>Cheiron's Results</b>	<b>Net Change</b>	<b>Percent Change</b>
<b>A. Actuarial Liability</b>				
<b>Actives</b>	\$ 346,748,650	\$ 342,926,123	\$ 3,822,527	(1.1%)
<b>Inactives</b>	642,784,298	644,717,013	(1,932,715)	0.3%
<b>Total</b>	<b>\$ 989,532,948</b>	<b>\$ 987,643,136</b>	<b>\$ 1,889,812</b>	<b>(0.2%)</b>
<b>B. Market Value of Assets (MVA)</b>	\$ 260,907,622	\$ 260,907,622	\$0	0.0%
<b>C. Actuarial Value of Assets (AVA)</b>	\$ 339,179,908	\$ 339,179,908	\$0	0.0%
<b>D. Net Unfunded Liability using AVA</b>	<b>\$ 650,353,040</b>	<b>\$ 648,463,228</b>	\$1,889,812	(0.3%)
<b>E. Funded Ratio on MVA</b>	26.4%	26.4%	(0.1%)	0.2%
<b>F. Funded Ratio on AVA</b>	<b>34.3%</b>	<b>34.3%</b>	(0.1%)	0.2%

As shown in the table above, the liabilities that we have developed are different by 0.2%.

When we look at this baseline scenario and the other scenarios in this study we are not just focused on the current results but also on what the implications are for the future funded status of the Retirement Systems and what the future City costs will be under each scenario.

The first graph below shows a comparison of the liabilities and assets as well at the projected funded ratio (actuarial asset value divided by liabilities) based on the current funding methods, assumptions, and data that produced the 2009 actuarial valuation results. This type of projection provides insight into the effectiveness of the funding approach in meeting the future obligations of the Systems. The grey bars represent the actuarial liability which is the value of all benefits earned to date including expected future payroll growth for those members in active status. The orange line represents the actuarial asset value and the blue line the market value of assets projected for the next 30 years. The numbers across the top of the bars is the funded ratio, actuarial asset value divided by actuarial liability. For example in 2013 the fund is projected to be 30% funded. There are additional losses with each year due to Act 82 of 1998. Act 82 of 1998 allowed the City to determine the cost of paying down the unfunded liability as of January 1, 1998 at a rate of 10% over 40 years even though the investment assumption was 8.75% at the time. To the extent assets return under 10% each year a loss is defined and funded. This projection assumes an 8.0% return each year (the current assumption).

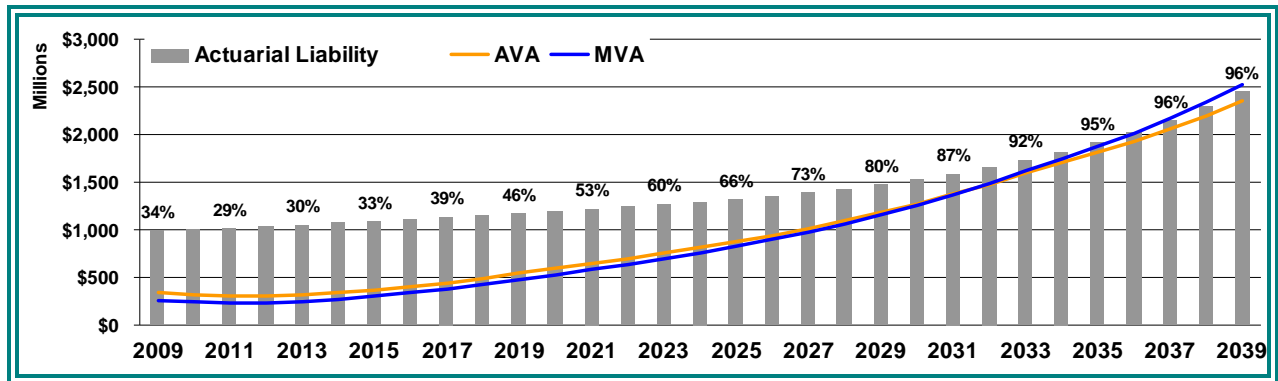


**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**SECTION I  
BOARD SUMMARY**

Act 82 is specific to the City and if PMRS administers the System’s plans, the unfunded liability will be re-amortized at the discount rate defined by Act 44 and the Pennsylvania Municipal Retirement Law.

It is also important to understand any funding projection drives the level of contribution. Therefore the fund gets to full funding by the end of the period **only** if the level of contributions are met and the fund earns an 8.0% return each year.



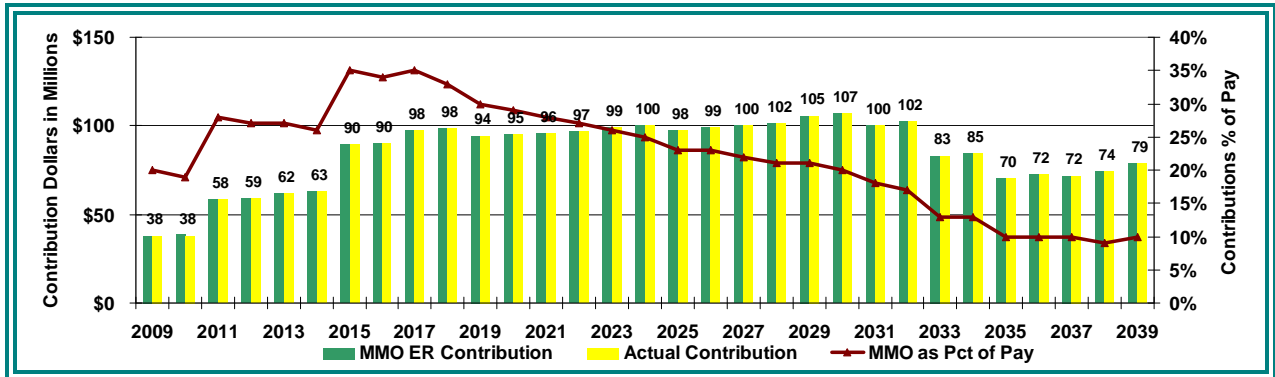
This next graph shows the amount of contributions projected over the next 30 years based on the current funding methods, assumptions and requirements under Act 205. This projection includes two aspects of funding relief under Act 44, the application of the 130% corridor which allows using an actuarial asset value that is up to 130% of market value instead of 120% and the tabular asset valuation method the is defined in Act 44 all based on the System’s 2009 actuarial valuation report.

The dark red line shows the costs as a percent of payroll which is shown on the right hand side of the graph. The green bar is the estimated MMO required contribution and the yellow bar is the actual contribution (added to our projection to model the impact of contributions made in addition to the MMO). These contribution amounts include employee and employer contributions.

Note – the costs developed as of January 1, 2009 are first applicable for the 2011 plan year MMO. It is also important to identify that because of the complexity of the funding of the 1998 unfunded liability method provided under Act 82 we approximated the impact in making our cost projections. The cost as a percent of pay generally declines because the amortization of the unfunded liability is on fixed dollar amounts which decline as a percent of pay. Also changes in the MMO are a function of portions of past increases or decreases in the unfunded liability being fully paid up or amortized such that the year after they have been fully paid down the MMO will increase or decrease.

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION I  
BOARD SUMMARY



Similar projections are shown for the scenarios. It is important to recognize that the required MMO will typically force the Systems to become fully funded over a 30 year period. The issue then becomes one of whether the assumptions can be achieved and whether the City can make the level of contribution required.

**Scenario 1** – The next step in the study after confirmation of the replication of the January 1, 2009 valuation results of the three Retirement Systems is to then project the assets and liabilities to January 1, 2011, the date the Act 205 Chapter 9, Section 902(c) defines as the measurement date for the potential assumption of administration of the plans by PMRS. In terms of projecting liabilities the populations are relatively large enough that rolling this number forward is a fairly accurate reflection of future liabilities. While there could be concern that rolling the assets forward is less accurate, the method being used to calculate the actuarial asset value defined in Act 44 is relatively independent of the actual returns experienced through December 31, 2010 because the actuarial asset value is materially greater than market value and should remain so through the end of this year.

The table on the next page shows a comparison of our calculation of the estimated MMO determined as of January 1, 2009 to the projected MMO as of January 1, 2011.

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION I  
BOARD SUMMARY

<b><u>Employer Minimum Municipal Obligation Base Scenario 1 - Estimated 1/1/2011</u></b>				
	Cheiron 1/1/2009 Results	Cheiron 1/1/2011 Results	Net Change	Percent Change
<b>A. Estimated covered payroll</b>	\$ 184,369,193	\$ 203,499,006	\$ 19,129,813	10.4%
<b>B. Net employer normal cost rate</b>	4.29%	4.33%	0.04%	0.9%
<b>C. Normal cost (A x B)</b>	\$ 7,918,024	\$ 8,808,267	\$ 890,243	11.2%
<b>D. Administration cost</b>	3,466,843	3,831,394	364,551	10.5%
<b>E. Current amortization</b>	46,944,760	46,740,325	(204,435)	(0.4%)
<b>F. Additional amortization charge</b>	(204,435)	2,656,627	2,861,062	(1399.5%)
<b>G. Act 44 Amortization Reduction</b>	-	-	-	0.0%
<b>H. Amortization of delayed payment charges to 2013</b>	-	-	-	0.0%
<b>I. Total employer charges (C+D+E+F+G+H)</b>	\$ 58,125,192	\$ 62,036,613	\$ 3,911,421	6.7%
<b><u>Employee Cost</u></b>				
<b>J. Member contribution rate</b>	5.33%	5.33%	0.00%	0.0%
<b>K. Estimated member contribution (A x J)</b>	\$ 9,824,059	\$ 10,871,282	\$ 1,047,223	10.7%

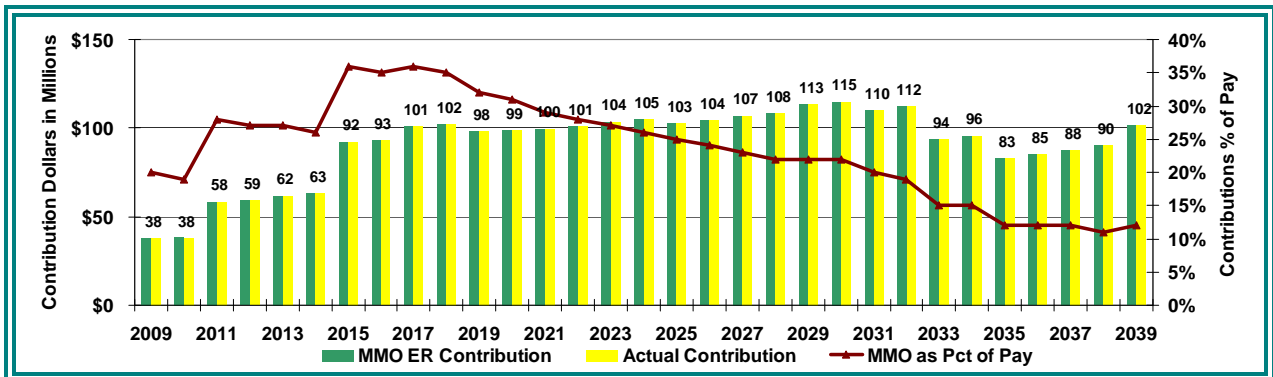
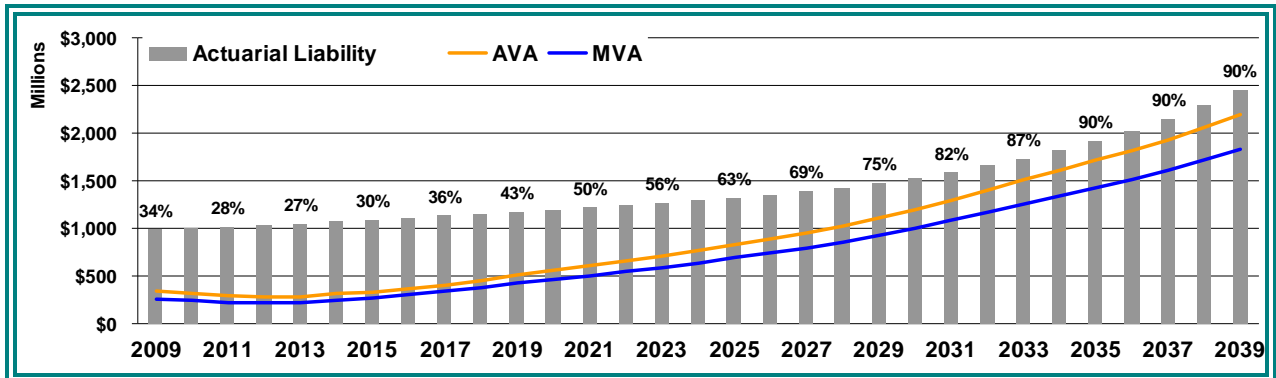
The projections of Scenario 1 are the same as those shown in the above replication scenario graphs as they are simply reflecting the rolled forward results to January 1, 2011 which produce the estimated MMO amounts required for the plan years 2013 and 2014. The estimated payroll reflects two years of assumed payroll growth from 2009 through 2010. The Normal Cost is 0.04% higher in 2011 as a result of different salary scale assumptions by plan, and not due to any other adjustment.

Additionally, we have provided an amortization of the delayed payment charge as a result of entering into the new assumptions on plan provisions immediately, and delaying payment of the cost for up to 3 years.

**Alternative projection of Scenario 1** – Scenario 1 applies an 8% return on asset assumption for all years. We have created an additional set of charts below, projecting assets at a 6% rate, holding all other assumptions constant for comparison with later projections of funded status and MMO levels similar to PMRS.

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION I  
BOARD SUMMARY



**Scenario 2** – Act 44 provides utilization of all specific funding relief measures for *level III distress*. Two components already being utilized by the Systems are the use of, as the Systems’ actuary refers to as the *tabular method* which rolls-forward the actuarial asset value plus cashflows at the assumed return rate minus 1.0% and raising the corridor to 130% as outlined below.

- Actuarial asset methods are used to smooth out the volatility of market asset values. There are various methods available. The method provided by Act 44 provides for rolling forward the actuarial asset method each year, accounting for cash flows in and out of the fund and assuming the expected return rate less 1.0%. This can provide a higher asset value immediately following a recession but also creates a 1.0% loss on investments while actuarial assets are greater than market value as it assumes assets grow at 7.0% while your assumption is they grow at 8.0%
- The 130% corridor means that you can use an actuarial asset value that is not more than 130% of market value. Typically this limit is set at 120% but the Act 44 raised it to allow for a higher asset value for the calculation of required funding, called the minimum municipal obligation or MMO, to provide relief.

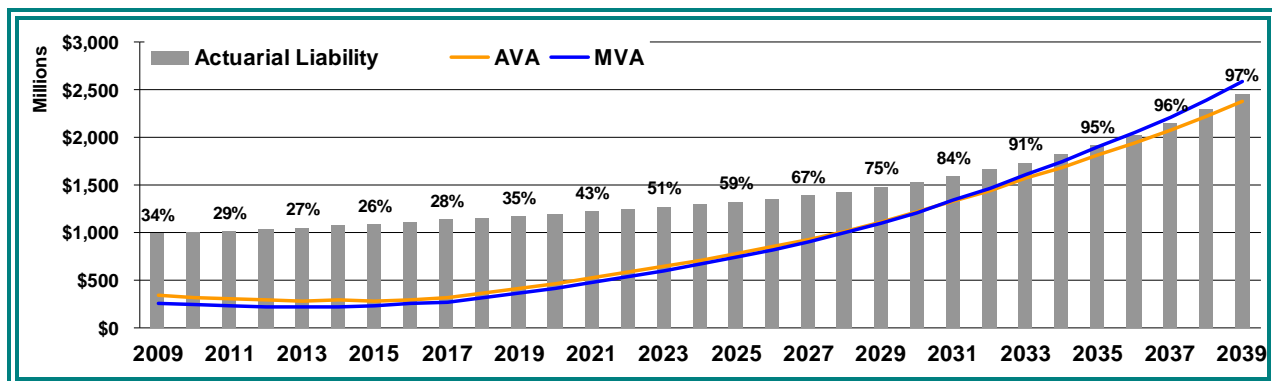
**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**SECTION I  
BOARD SUMMARY**

In addition to these two provisions, Act 44 provides that for up to 6 years a level III distressed municipality can reduce the amount of contribution attributable to the portion of the MMO that is required in paying down the unfunded liability (the amount the actuarial liability exceeds actuarial asset value) by 25%. In this scenario we compare the projection of the 1/1/2011 results to the costs after reflecting the reduced amortization by 25%.

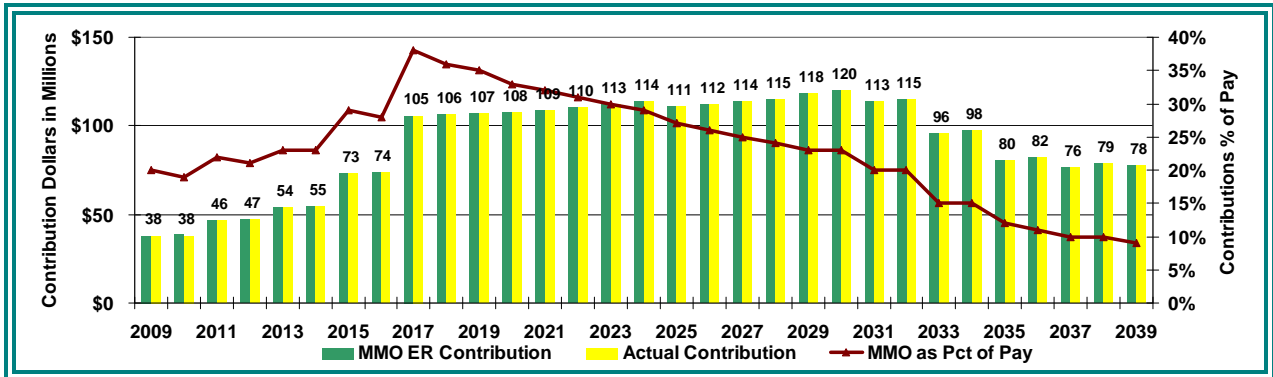
<b><u>Employer Minimum Municipal Obligation Scenario 2 - Utilization of Act 44 Relief</u></b>				
	<b>Cheiron 1/1/2011 Results</b>	<b>Cheiron's Act 44 Results</b>	<b>Net Change</b>	<b>Percent Change</b>
<b>A. Estimated covered payroll</b>	\$ 203,499,006	\$ 203,499,006	\$ -	0.0%
<b>B. Net employer normal cost rate</b>	4.33%	4.33%	0.00%	0.0%
<b>C. Normal cost (A x B)</b>	\$ 8,808,267	\$ 8,808,267	\$ -	0.0%
<b>D. Administration cost</b>	3,831,394	3,831,394	-	0.0%
<b>E. Current amortization</b>	46,740,325	52,449,925	5,709,599	12.2%
<b>F. Additional amortization charge</b>	2,656,627	2,656,627	-	0.0%
<b>G. Act 44 Amortization Reduction</b>	-	(13,776,638)	(13,776,638)	0.0%
<b>H. Amortization of delayed payment charges to 2013</b>	-	-	-	0.0%
<b>I. Total employer charges (C+D+E+F+G+H)</b>	\$ 62,036,613	\$ 53,969,575	\$ (8,067,039)	(13.0%)
<b><u>Employee Cost</u></b>				
<b>J. Member contribution rate</b>	5.33%	5.33%	(0.00%)	(0.0%)
<b>K. Estimated member contribution (A x J)</b>	\$ 10,871,282	\$ 10,871,282	\$ -	0.0%

The projection utilizing this additional relief produces the following:



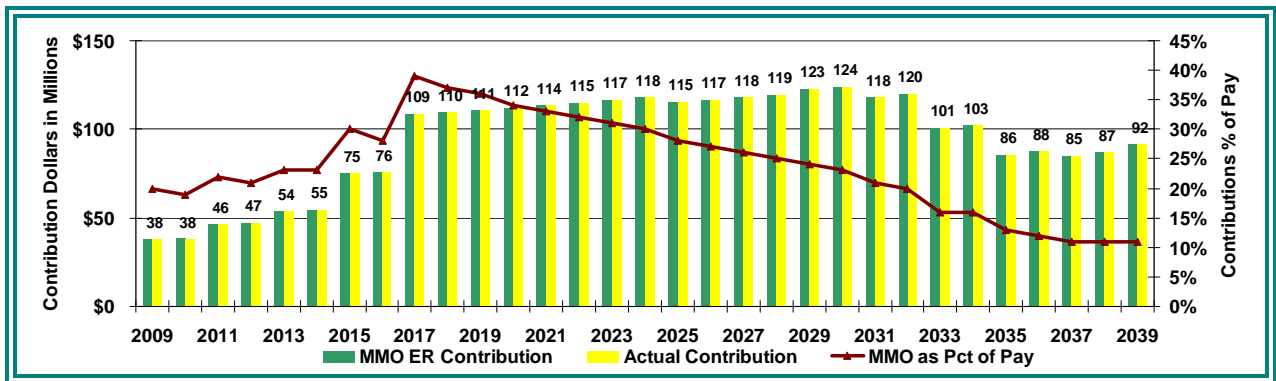
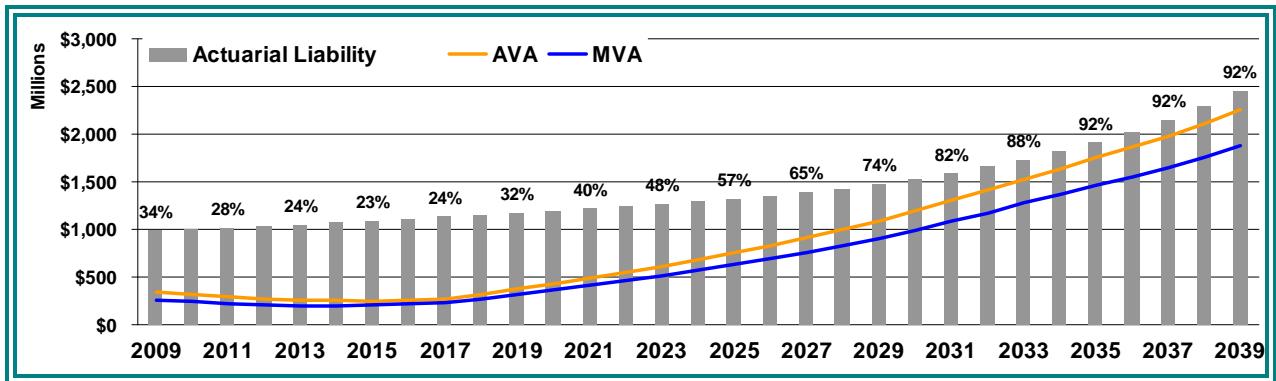
CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION I  
BOARD SUMMARY



It is our understanding that if this additional relief was adopted, it could be used to reduce costs immediately. The decreased costs in this scenario through 2016 will result in increased future costs. The increase in 2017 and later reflects the end of the relief period during which only 75% of the amortization charge is included in the MMO.

**Alternative projection of Scenario 2** – Scenario 2 applies an 8% return on asset assumption for all years. We have created an additional set of charts below, projecting assets at a 6% rate, holding all other assumptions constant for comparison with later projections of funded status and MMO levels similar to PMRS.



**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**SECTION I  
BOARD SUMMARY**

**Scenario 3** – This scenario builds on Scenario 2 by applying the prior mentioned Act 44 relief options and demonstrates the MMO under the Section 902(c) mandatory investment assumption (7.5% instead of 8.0%) pre-retirement assumption and the balance of the PMRS actuarial assumptions for all other economic and demographic expectations on the basis of a transfer of all administration, assets and liabilities. For post retirement PMRS’s 6.0% assumption is applied.

Under this scenario and Scenario 4 assets will be assumed at market value PMRS is required to value assets at their transfer value when they assume the administration responsibility. Prospectively assets are assumed to grow under this scenario at 7.5% but will be required to be valued by PMRS at the current interest crediting rate applicable to all participating municipalities of 6.0%. This will result in annual investment losses that will cause cost to increase over time. This is intended under Act 44 and is referred to as a “structural” loss.

One final aspect of the PMRS structure is that while they credit 6.0% on assets each year for all member municipalities, when PMRS assets are equal to or greater than all reserves, excess investment earnings are proportionately allocated to provide investment return margin and allocated to participating municipalities to reduce funding, or if over 95% funded, provide benefit enhancements. At this point we do not factor in to Scenario 3 and 4 the impact of distribution of excess interest in defraying the future cost of the Systems.

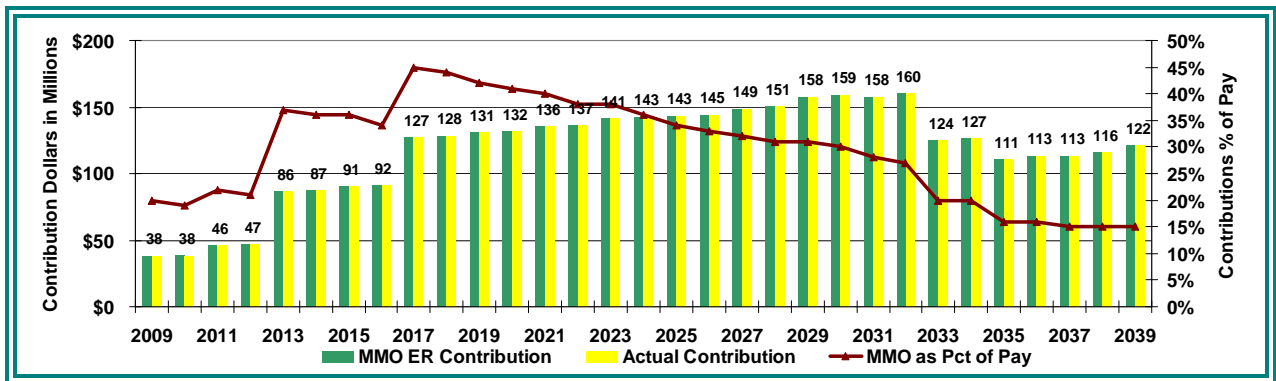
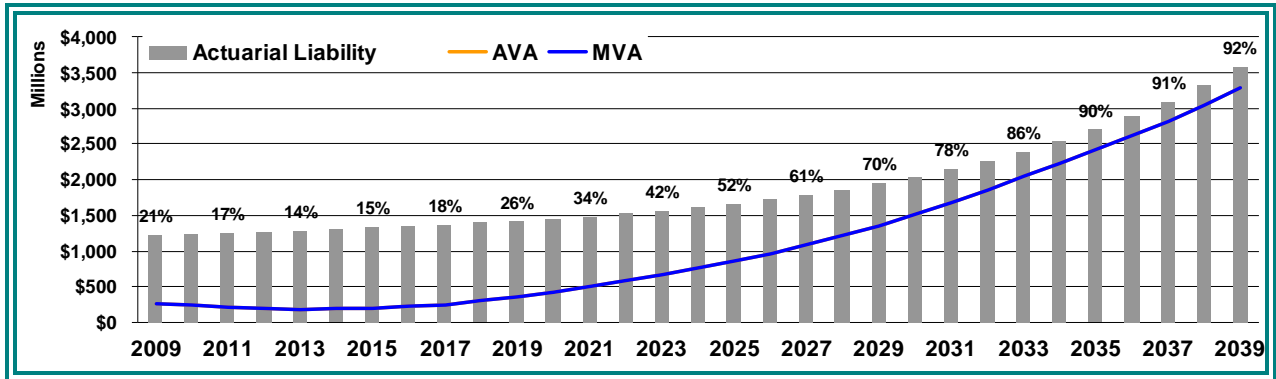
**Employer Minimum Municipal Obligation Scenario 3 - Section 902(c) of Act 205 Implementation**

	Cheiron 1/1/2011 Results	Cheiron's Implementation Results	Net Change	Percent Change
<b>A. Estimated covered payroll</b>	\$ 203,499,006	\$ 203,499,006	\$ -	0.0%
<b>B. Net employer normal cost rate</b>	4.33%	5.37%	1.04%	24.0%
<b>C. Normal cost (A x B)</b>	\$ 8,808,267	\$ 10,922,290	\$ 2,114,023	24.0%
<b>D. Administration cost (Sum of Curr Costs   \$20/part)</b>	3,831,394	155,300	(3,676,094)	(95.9%)
<b>E. Current amortization</b>	46,740,325	57,804,442	11,064,116	23.7%
<b>F. Additional amortization charge</b>	2,656,627	34,198,148	31,541,521	1187.3%
<b>G. Act 44 Amortization Reduction</b>	-	(23,000,647)	(23,000,647)	0.0%
<b>H. Amortization of delayed payment charges to 2013</b>	-	6,228,564	6,228,564	0.0%
<b>I. Total employer charges (C+D+E+F+G+H)</b>	\$ 62,036,613	\$ 86,308,096	\$ 24,271,483	39.1%
<b><u>Employee Cost</u></b>				
<b>J. Member contribution rate</b>	5.33%	5.33%	0.00%	0.0%
<b>K. Estimated member contribution (A x J)</b>	\$ 10,871,282	\$ 10,871,282	\$ -	0.0%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION I  
BOARD SUMMARY

Scenario 3 produces the following projections based on asset growth rate of 6.0%:



**Scenario 4** – This scenario illustrates the implications of voluntary entry into PMRS. In this scenario we use a 6.0% assumption as the investment and discount assumption pre and post retirement, as well as all other assumptions and methods used for PMRS member defined benefit retirement plans. Additionally, we have included the 25% reduction in the amortization payment in this scenario. Under this scenario as mentioned above assets will initially be recognized at market value and will be assumed to grow at 6.0% and credited at 6.0% regardless of actual investment returns. This approach removes the future investment risk for the City.



CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION I  
BOARD SUMMARY

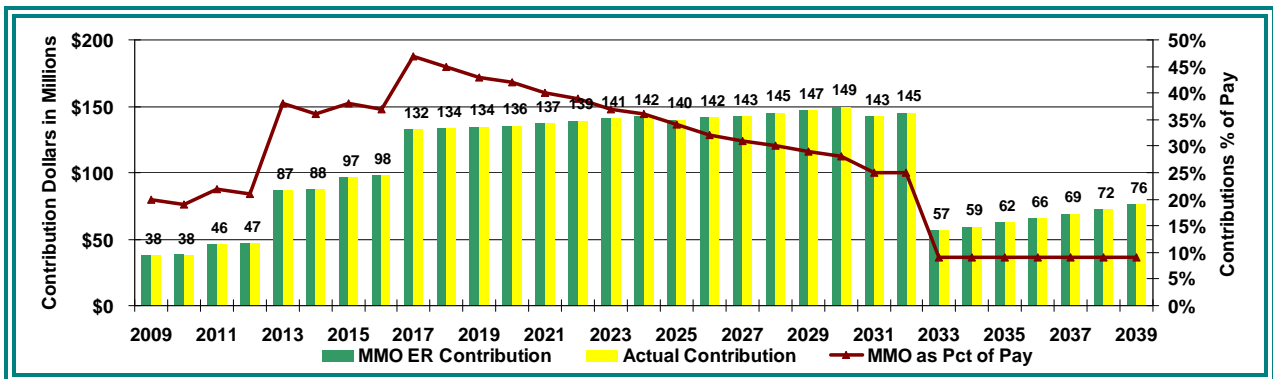
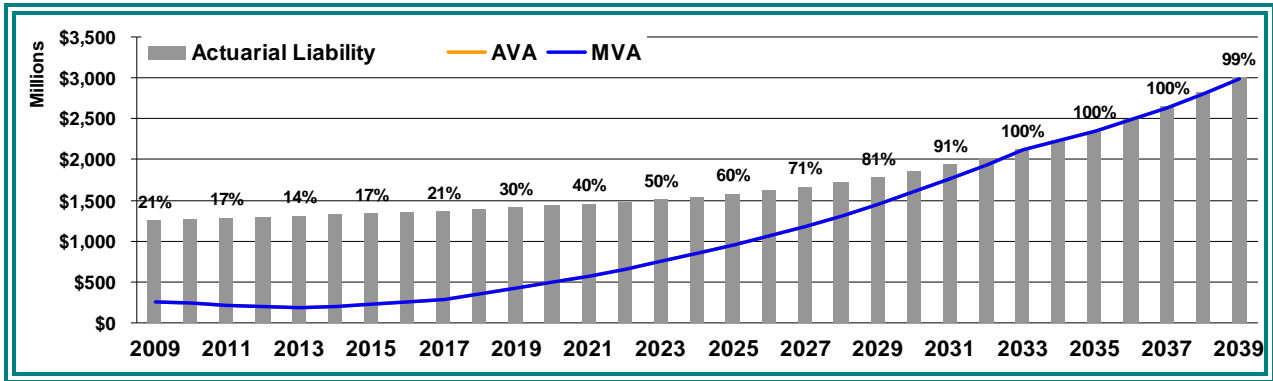
<b><u>Employer Minimum Municipal Obligation Scenario 4 - Voluntary PMRS Entry</u></b>				
	Cheiron 1/1/2011 Results	Cheiron's Voluntary Results	Net Change	Percent Change
<b>A. Estimated covered payroll</b>	\$ 203,499,006	\$ 203,499,006	\$ -	0.0%
<b>B. Net employer normal cost rate</b>	4.33%	7.53%	3.20%	73.9%
<b>C. Normal cost (A x B)</b>	\$ 8,808,267	\$ 15,327,435	\$ 6,519,168	74.0%
<b>D. Administration cost (Sum of Curr Costs   \$20/part)</b>	3,831,394	155,300	(3,676,094)	(95.9%)
<b>E. Current amortization</b>	46,740,325	51,460,042	4,719,716	10.1%
<b>F. Additional amortization charge</b>	2,656,627	34,840,238	32,183,611	1211.4%
<b>G. Act 44 Amortization Reduction</b>	-	(21,575,070)	(21,575,070)	0.0%
<b>H. Amortization of delayed payment charges to 2013</b>	-	6,265,434	6,265,434	0.0%
<b>I. Total employer charges (C+D+E+F+G+H)</b>	\$ 62,036,613	\$ 86,473,379	\$ 24,436,765	39.4%
<b><u>Employee Cost</u></b>				
<b>J. Member contribution rate</b>	5.33%	5.33%	0.00%	0.0%
<b>K. Estimated member contribution (A x J)</b>	\$ 10,871,282	\$ 10,871,282	\$ -	0.0%

In comparing Scenario 3 and Scenario 4 the total costs are relatively the same as of January 1, 2011. As explained in Scenario 3, the amortization of the unfunded liability is being financed at 7.5%. In Scenario 4, the unfunded liability is financed at 6.0%. Similar to a mortgage transaction, when you reduce the rate used to finance a loan, you decrease the payment. This decrease in the payment covers the increase in normal cost and additional liability.

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**SECTION I  
BOARD SUMMARY**

For Scenario 4, the projections show that by 2033 the plan is fully funded. Future costs are constant as a percent of pay, representing just the normal cost, as the unfunded liability has been paid off.



**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**SECTION I  
BOARD SUMMARY**

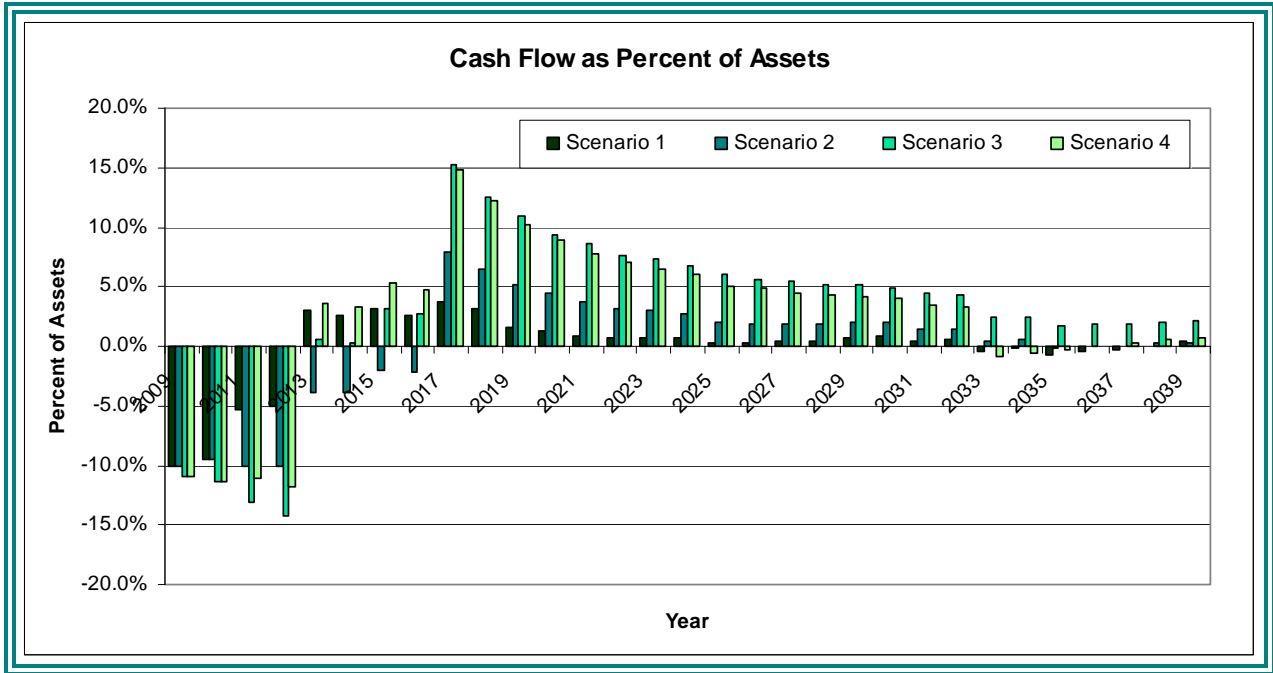
This next table summarizes the projected MMO by Scenario including the alternative investment return rate of 8.0% for Scenario 1 and 2 and 6.0% for Scenario 1b and 2b.

<b>Minimum Municipal Obligation (in millions)</b>						
<b>Year</b>	<b>Scenario 1</b>	<b>Scenario 1b</b>	<b>Scenario 2</b>	<b>Scenario 2b</b>	<b>Scenario 3</b>	<b>Scenario 4</b>
2009	\$38.1	\$38.1	\$38.1	\$38.1	\$38.1	\$38.1
2010	\$38.5	\$38.5	\$38.5	\$38.5	\$38.5	\$38.5
2011	\$58.1	\$58.1	\$46.4	\$46.4	\$46.4	\$46.4
2012	\$58.8	\$58.8	\$46.9	\$46.9	\$46.9	\$46.9
2013	\$62.0	\$62.0	\$54.0	\$54.0	\$86.3	\$86.5
2014	\$62.7	\$62.7	\$54.6	\$54.6	\$87.3	\$87.5
2015	\$89.5	\$92.0	\$73.3	\$75.1	\$90.6	\$96.7
2016	\$90.2	\$92.8	\$74.0	\$75.9	\$91.5	\$97.9
2017	\$97.5	\$101.2	\$105.3	\$108.8	\$127.3	\$132.4
2018	\$98.4	\$102.1	\$106.2	\$109.7	\$128.3	\$133.7
2019	\$94.3	\$98.2	\$106.8	\$111.1	\$130.8	\$134.3
2020	\$95.2	\$99.2	\$107.8	\$112.1	\$131.9	\$135.7
2021	\$95.7	\$99.7	\$109.1	\$113.5	\$135.5	\$136.9
2022	\$96.8	\$100.7	\$110.1	\$114.6	\$136.7	\$138.5
2023	\$99.1	\$103.5	\$112.5	\$116.9	\$141.4	\$140.6
2024	\$100.2	\$104.7	\$113.6	\$118.1	\$142.8	\$142.4
2025	\$97.6	\$102.9	\$110.9	\$115.3	\$143.1	\$139.7
2026	\$98.8	\$104.1	\$112.1	\$116.5	\$144.6	\$141.6
2027	\$100.3	\$106.7	\$113.5	\$117.9	\$149.1	\$142.5
2028	\$101.7	\$108.1	\$114.9	\$119.3	\$150.7	\$144.7
2029	\$105.2	\$113.3	\$118.3	\$122.7	\$157.5	\$147.0
2030	\$106.8	\$114.8	\$119.9	\$124.2	\$159.3	\$149.4
2031	\$100.3	\$110.3	\$113.3	\$118.2	\$157.9	\$142.5
2032	\$102.0	\$112.0	\$115.0	\$119.9	\$159.9	\$145.1
2033	\$82.7	\$93.8	\$95.6	\$100.6	\$124.4	\$56.6
2034	\$84.6	\$95.7	\$97.5	\$102.5	\$126.6	\$59.4
2035	\$70.3	\$83.0	\$80.1	\$85.9	\$111.0	\$62.4
2036	\$72.3	\$85.1	\$82.2	\$87.9	\$113.4	\$65.6
2037	\$71.8	\$87.9	\$76.4	\$84.9	\$113.4	\$68.9
2038	\$74.1	\$90.2	\$78.7	\$87.2	\$116.1	\$72.4
2039	\$79.3	\$101.8	\$77.7	\$91.5	\$121.6	\$76.1
<b>Total</b>	<b>\$2,622.90</b>	<b>\$2,822.00</b>	<b>\$2,803.30</b>	<b>\$2,928.80</b>	<b>\$3,648.90</b>	<b>\$3,246.90</b>

Another concern is the significant risk of the Systems during the period that contributions are lowered if Act 44 relief is used. As the graph below shows, under all four of the Scenarios the negative cash flow – defined as contributions minus benefits and expenses – are in excess of 10% of assets. This means that until the significantly larger MMOs are contributed, the Systems will be in a high risk period for the potential of running out of money because of funding relief and delay in MMO application.

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION I  
BOARD SUMMARY



**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**SECTION II  
ASSETS, LIABILITIES AND MMO BY SYSTEM**

The following tables provide the summary of assets and liabilities first in the aggregate for the combined Systems followed by the reconciliation and four scenarios for each of the three systems separately.

<b><u>Assets Liabilities and Funded Status Projected to 1/1/2011</u></b>				
	<b>Scenario 1 Current Funding</b>	<b>Scenario 2 Using Distress Level 3 Funding Relief</b>	<b>Scenario 3 Section 902(c) of Act 205 Implementation</b>	<b>Scenario 4 Voluntary Entry into PMRS</b>
<b>A. Actuarial Liability</b>				
Actives	\$ 430,255,451	\$ 430,255,451	\$ 543,346,118	\$ 567,481,989
Inactives	<u>586,014,210</u>	<u>586,014,210</u>	<u>710,641,155</u>	<u>710,641,155</u>
<b>Total</b>	<b>\$ 1,016,269,661</b>	<b>\$ 1,016,269,661</b>	<b>\$ 1,253,987,273</b>	<b>\$ 1,278,123,144</b>
<b>B. Market Value of Assets (MVA)</b>	\$ 249,690,107	\$ 249,690,107	\$ 233,184,763	\$ 233,184,763
<b>C. Actuarial Value of Assets (AVA)</b>	\$ 324,559,792	\$ 324,559,792	\$ 233,184,763	\$ 233,184,763
<b>D. Net Unfunded Liability using AVA</b>	<b>\$ 691,709,869</b>	<b>\$ 691,709,869</b>	<b>\$ 1,020,802,510</b>	<b>\$ 1,044,938,381</b>
<b>E. Funded Ratio on MVA</b>	24.6%	24.6%	18.6%	18.2%
<b>F. Funded Ratio on AVA</b>	<b>31.9%</b>	<b>31.9%</b>	<b>18.6%</b>	<b>18.2%</b>

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION II  
ASSETS, LIABILITIES AND MMO BY SYSTEM-FIRE

Firemen's Relief and Pension Fund

<u>Assets Liabilities and Funded Status Projected to 1/1/2011</u>				
	Scenario 1 Current Funding	Scenario 2 Using Distress Level 3 Funding Relief	Scenario 3 Section 902(c) of Act 205 Implementation	Scenario 4 Voluntary Entry into PMRS
<b>A. Actuarial Liability</b>				
Actives	\$ 121,024,330	\$ 121,024,330	\$ 171,201,463	\$ 178,016,503
Inactives	219,370,872	219,370,872	269,934,383	269,934,383
<b>Total</b>	<b>\$ 340,395,202</b>	<b>\$ 340,395,202</b>	<b>\$ 441,135,846</b>	<b>\$ 447,950,886</b>
<b>B. Market Value of Assets (MVA)</b>	\$ 74,380,672	\$ 74,380,672	\$ 67,233,951	\$ 67,233,951
<b>C. Actuarial Value of Assets (AVA)</b>	\$ 96,694,874	\$ 96,694,874	\$ 67,233,951	\$ 67,233,951
<b>D. Net Unfunded Liability using AVA</b>	<b>\$ 243,700,328</b>	<b>\$ 243,700,328</b>	<b>\$ 373,901,895</b>	<b>\$ 380,716,935</b>
<b>E. Funded Ratio on MVA</b>	21.9%	21.9%	15.2%	15.0%
<b>F. Funded Ratio on AVA</b>	<b>28.4%</b>	<b>28.4%</b>	<b>15.2%</b>	<b>15.0%</b>

<u>Employer Minimum Municipal Obligation Base Scenario - Replication 1/1/2009</u>				
	Current Actuary's Results	Cheiron's Results	Net Change	Percent Change
<b>A. Estimated covered payroll</b>	\$ 47,509,475	\$ 47,509,475	\$ -	0.0%
<b>B. Net employer normal cost rate</b>	5.37%	5.37%	(0.00%)	(0.03%)
<b>C. Normal cost (A x B)</b>	\$ 2,549,726	\$ 2,548,952	\$ (774)	(0.03%)
<b>D. Administration cost (2.4% of pay)</b>	1,140,227	1,140,227	-	0.0%
<b>E. Current amortization</b>	16,021,969	16,021,969	-	0.0%
<b>F. Additional amortization charge</b>	-	59,750	59,750	0.0%
<b>G. Act 44 Amortization Reduction</b>	-	-	-	0.0%
<b>H. Amortization of delayed payment charges to 2013</b>	-	-	-	0.0%
<b>I. Total employer charges (C+D+E+F+G+H)</b>	<b>\$ 19,711,922</b>	<b>\$ 19,770,898</b>	\$ 58,976	0.3%
<b><u>Employee Cost</u></b>				
<b>J. Member contribution rate</b>	6.71%	6.71%	0.00%	0.0%
<b>K. Estimated member contribution (A x J)</b>	<b>\$ 3,189,198</b>	<b>\$ 3,189,198</b>	\$ -	0.0%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION II  
ASSETS, LIABILITIES AND MMO BY SYSTEM-FIRE

<b><u>Employer Minimum Municipal Obligation Base Scenario 1 - Estimated 1/1/2011</u></b>				
	Cheiron 1/1/2009 Results	Cheiron 1/1/2011 Base Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 47,509,475	\$ 53,130,143	\$ 5,620,668	11.8%
B. Net employer normal cost rate	5.37%	5.37%	0.00%	0.0%
C. Normal cost (A x B)	\$ 2,548,952	\$ 2,850,509	\$ 301,557	11.8%
D. Administration cost (2.4% of pay)	1,140,227	1,275,123	134,896	11.8%
E. Current amortization	16,021,969	16,081,719	59,750	0.4%
F. Additional amortization charge	59,750	1,169,989	1,110,239	1858.1%
G. Act 44 Amortization Reduction	-	-	-	0.0%
H. Amortization of delayed payment charges to 2013	-	-	-	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 19,770,898	\$ 21,377,340	\$ 1,606,442	8.1%
<b><u>Employee Cost</u></b>				
J. Member contribution rate	6.71%	6.71%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,189,198	\$ 3,566,500	\$ 377,302	11.8%

<b><u>Employer Minimum Municipal Obligation Scenario 2 - Utilization of Act 44 Relief</u></b>				
	Cheiron 1/1/2011 Base Results	Cheiron's Act 44 Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 53,130,143	\$ 53,130,143	\$ -	0.0%
B. Net employer normal cost rate	5.37%	5.37%	0.00%	0.0%
C. Normal cost (A x B)	\$ 2,850,509	\$ 2,850,509	\$ -	0.0%
D. Administration cost (2.4% of pay)	1,275,123	1,275,123	-	0.0%
E. Current amortization	16,081,719	16,081,719	-	0.0%
F. Additional amortization charge	1,169,989	1,169,989	-	0.0%
G. Act 44 Amortization Reduction	-	(4,312,927)	(4,312,927)	0.0%
H. Amortization of delayed payment charges to 2013	-	-	-	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 21,377,340	\$ 17,064,413	\$ (4,312,927)	(20.2%)
<b><u>Employee Cost</u></b>				
J. Member contribution rate	6.71%	6.71%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,566,500	\$ 3,566,500	\$ -	0.0%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION II  
ASSETS, LIABILITIES AND MMO BY SYSTEM-FIRE

<b><u>Employer Minimum Municipal Obligation Scenario 3 - Section 902(c) of Act 205 Implementation</u></b>				
	Cheiron 1/1/2011 Base Results	Cheiron's Implementation Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 53,130,143	\$ 53,130,143	\$ -	0.0%
B. Net employer normal cost rate	5.37%	6.67%	1.30%	24.3%
C. Normal cost (A x B)	\$ 2,850,509	\$ 3,542,610	\$ 692,101	24.3%
D. Administration cost (2.4% of pay   \$20/part)	1,275,123	36,160	(1,238,963)	(97.2%)
E. Current amortization	16,081,719	19,094,835	3,013,116	18.7%
F. Additional amortization charge	1,169,989	13,852,129	12,682,141	1084.0%
G. Act 44 Amortization Reduction	-	(8,236,741)	(8,236,741)	0.0%
H. Amortization of delayed payment charges to 2013	-	2,501,615	2,501,615	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 21,377,340	\$ 30,790,608	\$ 9,413,268	44.0%
<b><u>Employee Cost</u></b>				
J. Member contribution rate	6.71%	6.71%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,566,500	\$ 3,566,500	\$ -	0.0%

<b><u>Employer Minimum Municipal Obligation Scenario 4 - Voluntary PMRS Entry</u></b>				
	Cheiron 1/1/2011 Base Results	Cheiron's Voluntary Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 53,130,143	\$ 53,130,143	\$ -	0.0%
B. Net employer normal cost rate	5.37%	9.46%	4.09%	76.3%
C. Normal cost (A x B)	\$ 2,850,509	\$ 5,025,011	\$ 2,174,502	76.3%
D. Administration cost (2.4% of pay   \$20/part)	1,275,123	36,160	(1,238,963)	(97.2%)
E. Current amortization	16,081,719	17,048,179	966,460	6.0%
F. Additional amortization charge	1,169,989	13,605,167	12,435,178	1062.8%
G. Act 44 Amortization Reduction	-	(7,663,336)	(7,663,336)	0.0%
H. Amortization of delayed payment charges to 2013	-	2,421,509	2,421,509	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 21,377,340	\$ 30,472,689	\$ 9,095,349	42.5%
<b><u>Employee Cost</u></b>				
J. Member contribution rate	6.71%	6.71%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,566,500	\$ 3,566,500	\$ -	0.0%



CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION II  
ASSETS, LIABILITIES AND MMO BY SYSTEM - MUNICIPAL

**Municipal Pension Fund**

<b><u>Assets Liabilities and Funded Status Projected to 1/1/2011</u></b>				
	Scenario 1 Current Funding	Scenario 2 Using Distress Level 3 Funding Relief	Scenario 3 Section 902(c) of Act 205 Implementation	Scenario 4 Voluntary Entry into PMRS
<b>A. Actuarial Liability</b>				
<b>Actives</b>	\$ 154,739,721	\$ 154,739,721	\$ 182,549,247	\$ 189,222,872
<b>Inactives</b>	123,239,529	123,239,529	143,460,725	143,460,725
<b>Total</b>	<b>\$ 277,979,250</b>	<b>\$ 277,979,250</b>	<b>\$ 326,009,972</b>	<b>\$ 332,683,597</b>
<b>B. Market Value of Assets (MVA)</b>	\$ 95,573,468	\$ 95,573,468	\$ 90,847,837	\$ 90,847,837
<b>C. Actuarial Value of Assets (AVA)</b>	\$ 124,208,161	\$ 124,208,161	\$ 90,847,837	\$ 90,847,837
<b>D. Net Unfunded Liability using AVA</b>	<b>\$ 153,771,089</b>	<b>\$ 153,771,089</b>	<b>\$ 235,162,135</b>	<b>\$ 241,835,760</b>
<b>E. Funded Ratio on MVA</b>	34.4%	34.4%	27.9%	27.3%
<b>F. Funded Ratio on AVA</b>	<b>44.7%</b>	<b>44.7%</b>	<b>27.9%</b>	<b>27.3%</b>

<b><u>Employer Minimum Municipal Obligation Base Scenario - Replication 1/1/2009</u></b>				
	Current Actuary's Results	Cheiron's Results	Net Change	Percent Change
<b>A. Estimated covered payroll</b>	\$ 73,072,430	\$ 73,072,430	\$ -	0.0%
<b>B. Net employer normal cost rate</b>	1.91%	1.73%	(0.18%)	(9.3%)
<b>C. Normal cost (A x B)</b>	\$ 1,396,477	\$ 1,267,057	\$ (129,420)	(9.3%)
<b>D. Administration cost (1.7% of pay)</b>	1,242,231	1,242,231	-	0.0%
<b>E. Current amortization</b>	11,168,516	11,168,516	-	0.0%
<b>F. Additional amortization charge</b>	-	(396,914)	(396,914)	0.0%
<b>G. Act 44 Amortization Reduction</b>	-	-	-	0.0%
<b>H. Amortization of delayed payment charges to 2013</b>	-	-	-	0.0%
<b>I. Total employer charges (C+D+E+F+G+H)</b>	<b>\$ 13,807,224</b>	<b>\$ 13,280,890</b>	\$ (526,334)	(3.8%)
<b><u>Employee Cost</u></b>				
<b>J. Member contribution rate</b>	4.29%	4.29%	0.00%	0.0%
<b>K. Estimated member contribution (A x J)</b>	<b>\$ 3,133,640</b>	<b>\$ 3,133,640</b>	\$ -	0.0%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION II  
ASSETS, LIABILITIES AND MMO BY SYSTEM - MUNICIPAL

<b><u>Employer Minimum Municipal Obligation Base Scenario 1 - Estimated 1/1/2011</u></b>				
	Cheiron 1/1/2009 Results	Cheiron 1/1/2011 Base Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 73,072,430	\$ 79,035,140	\$ 5,962,710	8.2%
B. Net employer normal cost rate	1.73%	1.73%	0.00%	0.0%
C. Normal cost (A x B)	\$ 1,267,057	\$ 1,370,449	\$ 103,392	8.2%
D. Administration cost (1.7% of pay)	1,242,231	1,343,597	101,366	8.2%
E. Current amortization	11,168,516	10,771,602	(396,914)	(3.6%)
F. Additional amortization charge	(396,914)	366,244	763,158	(192.3%)
G. Act 44 Amortization Reduction	-	-	-	0.0%
H. Amortization of delayed payment charges to 2013	-	-	-	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 13,280,890	\$ 13,851,892	\$ 571,002	4.3%
<b><u>Employee Cost</u></b>				
J. Member contribution rate	4.29%	4.29%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,133,640	\$ 3,389,345	\$ 255,705	8.2%

<b><u>Employer Minimum Municipal Obligation Scenario 2 - Utilization of Act 44 Relief</u></b>				
	Cheiron 1/1/2011 Base Results	Cheiron's Act 44 Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 79,035,140	\$ 79,035,140	\$ -	0.0%
B. Net employer normal cost rate	1.73%	1.73%	0.00%	0.0%
C. Normal cost (A x B)	\$ 1,370,449	\$ 1,370,449	\$ -	0.0%
D. Administration cost (1.7% of pay)	1,343,597	1,343,597	-	0.0%
E. Current amortization	10,771,602	10,771,602	-	0.0%
F. Additional amortization charge	366,244	366,244	-	0.0%
G. Act 44 Amortization Reduction	-	(2,784,461)	(2,784,461)	0.0%
H. Amortization of delayed payment charges to 2013	-	-	-	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 13,851,892	\$ 11,067,431	\$ (2,784,461)	(20.1%)
<b><u>Employee Cost</u></b>				
J. Member contribution rate	4.29%	4.29%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,389,345	\$ 3,389,345	\$ -	0.0%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION II  
ASSETS, LIABILITIES AND MMO BY SYSTEM - MUNICIPAL

<b><u>Employer Minimum Municipal Obligation Scenario 3 - Section 902(c) of Act 205 Implementation</u></b>				
	Cheiron 1/1/2011 Base Results	Cheiron's Implementation Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 79,035,140	\$ 79,035,140	\$ -	0.0%
B. Net employer normal cost rate	1.73%	3.71%	1.97%	113.9%
C. Normal cost (A x B)	\$ 1,370,449	\$ 2,931,120	\$ 1,560,671	113.9%
D. Administration cost (1.7% of pay   \$20/part)	1,343,597	69,320	(1,274,277)	(94.8%)
E. Current amortization	10,771,602	13,113,003	2,341,401	21.7%
F. Additional amortization charge	366,244	8,022,514	7,656,270	2090.5%
G. Act 44 Amortization Reduction	-	(5,283,879)	(5,283,879)	0.0%
H. Amortization of delayed payment charges to 2013	-	1,612,390	1,612,390	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 13,851,892	\$ 20,464,467	\$ 6,612,575	47.7%
<b><u>Employee Cost</u></b>				
J. Member contribution rate	4.29%	4.29%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,389,345	\$ 3,389,345	\$ -	0.0%

<b><u>Employer Minimum Municipal Obligation Scenario 4 - Voluntary PMRS Entry</u></b>				
	Cheiron 1/1/2011 Base Results	Cheiron's Voluntary Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 79,035,140	\$ 79,035,140	\$ -	0.0%
B. Net employer normal cost rate	1.73%	5.19%	3.46%	199.5%
C. Normal cost (A x B)	\$ 1,370,449	\$ 4,104,779	\$ 2,734,330	199.5%
D. Administration cost (1.7% of pay   \$20/part)	1,343,597	69,320	(1,274,277)	(94.8%)
E. Current amortization	10,771,602	11,523,500	751,898	7.0%
F. Additional amortization charge	366,244	8,274,193	7,907,949	2159.2%
G. Act 44 Amortization Reduction	-	(4,949,423)	(4,949,423)	0.0%
H. Amortization of delayed payment charges to 2013	-	1,663,299	1,663,299	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 13,851,892	\$ 20,685,668	\$ 6,833,776	49.3%
<b><u>Employee Cost</u></b>				
J. Member contribution rate	4.29%	4.29%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,389,345	\$ 3,389,345	\$ -	0.0%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION II  
ASSETS, LIABILITIES AND MMO BY SYSTEM – POLICE

Police Pension and Relief Fund

<u>Assets Liabilities and Funded Status Projected to 1/1/2011</u>				
	Scenario 1 Current Funding	Scenario 2 Using Distress Level 3 Funding Relief	Scenario 3 Section 902(c) of Act 205 Implementation	Scenario 4 Voluntary Entry into PMRS
<b>A. Actuarial Liability</b>				
Actives	\$ 154,491,400	\$ 154,491,400	\$ 189,595,408	\$ 200,242,614
Inactives	243,403,809	243,403,809	297,246,047	297,246,047
<b>Total</b>	<b>\$ 397,895,209</b>	<b>\$ 397,895,209</b>	<b>\$ 486,841,455</b>	<b>\$ 497,488,661</b>
<b>B. Market Value of Assets (MVA)</b>	\$ 79,735,967	\$ 79,735,967	\$ 75,102,975	\$ 75,102,975
<b>C. Actuarial Value of Assets (AVA)</b>	\$ 103,656,757	\$ 103,656,757	\$ 75,102,975	\$ 75,102,975
<b>D. Net Unfunded Liability using AVA</b>	<b>\$ 294,238,452</b>	<b>\$ 294,238,452</b>	<b>\$ 411,738,480</b>	<b>\$ 422,385,686</b>
<b>E. Funded Ratio on MVA</b>	20.0%	20.0%	15.4%	15.1%
<b>F. Funded Ratio on AVA</b>	<b>26.1%</b>	<b>26.1%</b>	<b>15.4%</b>	<b>15.1%</b>

<u>Employer Minimum Municipal Obligation Base Scenario - Replication 1/1/2009</u>				
	Current Actuary's Results	Cheiron's Results	Net Change	Percent Change
<b>A. Estimated covered payroll</b>	\$ 63,787,288	\$ 63,787,288	\$ -	0.0%
<b>B. Net employer normal cost rate</b>	6.43%	6.43%	(0.00%)	(0.02%)
<b>C. Normal cost (A x B)</b>	\$ 4,102,826	\$ 4,102,015	\$ (811)	(0.02%)
<b>D. Administration cost (1.7% of pay)</b>	1,084,384	1,084,384	-	0.0%
<b>E. Current amortization</b>	19,754,275	19,754,275	-	0.0%
<b>F. Additional amortization charge</b>	-	132,730	132,730	0.0%
<b>G. Act 44 Amortization Reduction</b>	-	-	-	0.0%
<b>H. Amortization of delayed payment charges to 2013</b>	-	-	-	0.0%
<b>I. Total employer charges (C+D+E+F+G+H)</b>	\$ 24,941,485	\$ 25,073,403	\$ 131,919	0.5%
<b><u>Employee Cost</u></b>				
<b>J. Member contribution rate</b>	5.49%	5.49%	0.00%	0.0%
<b>K. Estimated member contribution (A x J)</b>	\$ 3,501,221	\$ 3,501,221	\$ -	0.0%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION II  
ASSETS, LIABILITIES AND MMO BY SYSTEM – POLICE

<b><u>Employer Minimum Municipal Obligation Base Scenario 1 - Estimated 1/1/2011</u></b>				
	Cheiron 1/1/2009 Results	Cheiron 1/1/2011 Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 63,787,288	\$ 71,333,723	\$ 7,546,435	11.8%
B. Net employer normal cost rate	6.43%	6.43%	(0.00%)	(0.02%)
C. Normal cost (A x B)	\$ 4,102,015	\$ 4,587,309	\$ 485,294	11.8%
D. Administration cost (1.7% of pay)	1,084,384	1,212,673	128,289	11.8%
E. Current amortization	19,754,275	19,887,005	132,730	0.7%
F. Additional amortization charge	132,730	1,120,394	987,665	744.1%
G. Act 44 Amortization Reduction	-	-	-	0.0%
H. Amortization of delayed payment charges to 2013	-	-	-	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 25,073,403	\$ 26,807,381	\$ 1,733,978	6.9%
<b><u>Employee Cost</u></b>				
J. Member contribution rate	5.49%	5.49%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,501,221	\$ 3,915,437	\$ 414,216	11.8%

<b><u>Employer Minimum Municipal Obligation Scenario 2 - Utilization of Act 44 Relief</u></b>				
	Cheiron 1/1/2011 Results	Cheiron's Act 44 Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 71,333,723	\$ 71,333,723	\$ -	0.0%
B. Net employer normal cost rate	6.43%	6.43%	0.00%	0.0%
C. Normal cost (A x B)	\$ 4,587,309	\$ 4,587,309	\$ -	0.0%
D. Administration cost (1.7% of pay)	1,212,673	1,212,673	-	0.0%
E. Current amortization	19,887,005	25,596,604	5,709,599	28.7%
F. Additional amortization charge	1,120,394	1,120,394	-	0.0%
G. Act 44 Amortization Reduction	-	(6,679,250)	(6,679,250)	0.0%
H. Amortization of delayed payment charges to 2013	-	-	-	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 26,807,381	\$ 25,837,731	\$ (969,650)	(3.6%)
<b><u>Employee Cost</u></b>				
J. Member contribution rate	5.49%	5.49%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,915,437	\$ 3,915,437	\$ -	0.0%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

SECTION II  
ASSETS, LIABILITIES AND MMO BY SYSTEM – POLICE

**Employer Minimum Municipal Obligation Scenario 3 - Section 902(c) of Act 205 Implementation**

	Cheiron 1/1/2011 Results	Cheiron's Implementation Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 71,333,723	\$ 71,333,723	\$ -	0.0%
B. Net employer normal cost rate	6.43%	6.24%	(0.19%)	(3.0%)
C. Normal cost (A x B)	\$ 4,587,309	\$ 4,448,561	\$ (138,748)	(3.0%)
D. Administration cost (1.7% of pay   \$20/part)	1,212,673	49,820	(1,162,853)	(95.9%)
E. Current amortization	19,887,005	25,596,604	5,709,599	28.7%
F. Additional amortization charge	1,120,394	12,323,505	11,203,110	999.9%
G. Act 44 Amortization Reduction	-	(9,480,027)	(9,480,027)	0.0%
H. Amortization of delayed payment charges to 2013	-	2,114,559	2,114,559	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 26,807,381	\$ 35,053,021	\$ 8,245,640	30.8%
<b><u>Employee Cost</u></b>				
J. Member contribution rate	5.49%	5.49%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,915,437	\$ 3,915,437	\$ -	0.0%

**Employer Minimum Municipal Obligation Scenario 4 - Voluntary PMRS Entry**

	Cheiron 1/1/2011 Results	Cheiron's Voluntary Results	Net Change	Percent Change
A. Estimated covered payroll	\$ 71,333,723	\$ 71,333,723	\$ -	0.0%
B. Net employer normal cost rate	6.43%	8.69%	2.26%	35.1%
C. Normal cost (A x B)	\$ 4,587,309	\$ 6,197,645	\$ 1,610,336	35.1%
D. Administration cost (1.7% of pay   \$20/part)	1,212,673	49,820	(1,162,853)	(95.9%)
E. Current amortization	19,887,005	22,888,362	3,001,358	15.1%
F. Additional amortization charge	1,120,394	12,960,878	11,840,484	1056.8%
G. Act 44 Amortization Reduction	-	(8,962,310)	(8,962,310)	0.0%
H. Amortization of delayed payment charges to 2013	-	2,180,626	2,180,626	0.0%
I. Total employer charges (C+D+E+F+G+H)	\$ 26,807,381	\$ 35,315,022	\$ 8,507,641	31.7%
<b><u>Employee Cost</u></b>				
J. Member contribution rate	5.49%	5.49%	0.00%	0.0%
K. Estimated member contribution (A x J)	\$ 3,915,437	\$ 3,915,437	\$ -	0.0%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

**SECTION III  
AMORTIZATION CHARGES AND OTHER MMO SUPPORTING DETAILS**

The following tables represent the amortization schedules used in the development of the MMO, based upon the January 1, 2009 actuarial valuation report.

<b>Combined Amortization Schedule</b>						
<u>Source</u>	<u>Original Base</u>	<u>Established Year</u>	<u>Target Year</u>	<u>Remaining Balance</u>	<u>Remaining Payments</u>	<u>Annual Amount</u>
Initial Unfunded	\$ 258,471,867	1998	2037	\$ 340,245,826	29	\$ 15,212,028
Assumption Change	\$ (9,951,433)	1998	2017	\$ (6,505,501)	9	\$ (964,259)
Experience Gain	(5,963,379)	1999	2013	(2,862,236)	5	(663,764)
Experience Gain	(25,199,768)	2000	2014	(13,951,820)	6	(2,794,441)
Experience Loss	52,070,313	2001	2015	32,350,096	7	5,753,297
Plan Change	15,673,606	2002	2021	12,804,235	13	1,500,014
Experience Loss	6,079,056	2002	2016	4,154,132	8	669,334
Investment Loss	53,313,385	2002	2032	48,538,538	24	4,268,603
Assumption Change	(27,294,448)	2003	2022	(23,192,601)	14	(2,604,805)
Plan Change	7,219,914	2003	2022	6,134,896	14	689,022
Plan Change	11,877,168	2003	2012	5,962,627	4	1,666,890
Experience Gain	10,779,991	2003	2017	7,980,741	9	1,182,921
Investment Loss	74,824,217	2003	2032	70,524,815	24	6,202,132
Assumption Change	423,109	2005	2024	384,356	16	40,207
Plan Change - Actives	7,325,991	2005	2024	6,655,007	16	696,168
Experience Gain	(3,401,939)	2005	2019	(2,863,556)	11	(371,404)
Experience Loss	47,058,631	2007	2021	43,646,559	13	5,113,186
<b>Aggregated Changes through Last Valuation</b>		<b>2009</b>	<b>2026</b>	<b>\$ 189,760,288</b>	<b>18</b>	<b>\$ 20,383,101</b>
Assumption Change	\$ (17,159,969)	2009	2028	\$ (17,159,969)	20	\$ (1,618,315)
Experience Loss	\$ 137,506,895	2009	2028	\$ 137,506,895	20	\$ 12,967,946
<b>Aggregated Changes in 2009</b>			<b>2028</b>	<b>\$ 120,346,926</b>	<b>20</b>	<b>\$ 11,349,631</b>
<b>Aggregate All Changes Post-1998</b>			<b>2027</b>	<b>\$ 310,107,214</b>	<b>19</b>	<b>\$ 31,732,732</b>
<b>Aggregation of all Bases</b>				<b>\$ 650,353,040</b>		<b>\$ 46,944,760</b>

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

**SECTION III**  
**AMORTIZATION CHARGES AND OTHER MMO SUPPORTING DETAILS**

<b>FIRE Amortization Schedule</b>						
<u>Source</u>	<u>Original Base</u>	<u>Established Year</u>	<u>Target Year</u>	<u>Remaining Balance</u>	<u>Remaining Payments</u>	<u>Annual Amount</u>
Initial Unfunded	\$ 73,627,561	1998	2037	\$ 96,921,458	29	\$ 4,333,255
Assumption Change	\$ (2,712,163)	1998	2017	\$ (1,773,009)	9	\$ (262,799)
Experience Gain	(7,309,856)	1999	2013	(3,508,506)	5	(813,637)
Experience Gain	(10,034,869)	2000	2014	(5,555,793)	6	(1,112,781)
Experience Loss	14,852,702	2001	2015	9,227,644	7	1,641,089
Experience Loss	1,151,699	2002	2016	787,016	8	126,808
Investment Loss	18,857,549	2002	2032	17,168,631	24	1,509,853
Assumption Change	(17,287,129)	2003	2022	(14,689,196)	14	(1,649,772)
Ben. Mod.	957,341	2003	2022	813,472	14	91,363
Ben. Mod.	6,733,210	2003	2012	3,380,235	4	944,966
Experience Gain	(1,201,890)	2003	2017	(889,794)	9	(131,887)
Investment Loss	27,829,106	2003	2032	26,230,045	24	2,306,737
Assumption Change	847,777	2005	2024	770,129	16	80,562
Experience Gain	(10,559,362)	2005	2019	(8,888,264)	11	(1,152,811)
Experience Loss	50,924,405	2007	2021	47,232,039	13	5,533,225
<b>Aggregated Changes through Last Valuation</b>						
		<b>2009</b>	<b>2026</b>	<b>\$ 70,304,649</b>	<b>18</b>	<b>\$ 7,110,916</b>
Assumption Change	\$ (7,157,970)	2009	2028	\$ (7,157,970)	20	\$ (675,051)
Experience Loss	\$ 55,699,104	2009	2028	\$ 55,699,104	20	\$ 5,252,849
<b>Aggregated Changes in 2009</b>			<b>2028</b>	<b>\$ 48,541,134</b>	<b>20</b>	<b>\$ 4,577,798</b>
<b>Aggregate All Changes Post-1998</b>			<b>2027</b>	<b>\$ 118,845,783</b>	<b>19</b>	<b>\$ 11,688,714</b>
<b>Aggregation of all Bases</b>				<b>\$ 215,767,241</b>		<b>\$ 16,021,969</b>



CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

**SECTION III**  
**AMORTIZATION CHARGES AND OTHER MMO SUPPORTING DETAILS**

<b>MUNICIPAL Amortization Schedule</b>						
<u>Source</u>	<u>Original Base</u>	<u>Established Year</u>	<u>Target Year</u>	<u>Remaining Balance</u>	<u>Remaining Payments</u>	<u>Annual Amount</u>
Initial Unfunded	\$ 53,226,758	1998	2037	\$ 70,066,359	29	\$ 3,132,592
Assumption Change	\$ (4,327,036)	1998	2017	\$ (2,828,694)	9	\$ (419,275)
Experience Loss	531,346	1999	2013	255,031	5	59,143
Experience Gain	(8,518,572)	2000	2014	(4,716,297)	6	(944,638)
Experience Loss	15,454,485	2001	2015	9,601,519	7	1,707,580
Plan Change	15,075,742	2002	2021	12,315,824	13	1,442,797
Experience Loss	1,076,675	2002	2016	735,747	8	118,547
Investment Loss	15,617,085	2002	2032	14,218,390	24	1,250,402
Assumption Change	(5,300,394)	2003	2022	(4,503,844)	14	(505,835)
Plan Change	6,262,573	2003	2022	5,321,424	14	597,659
Experience Loss	4,617,946	2003	2017	3,418,800	9	506,741
Investment Loss	20,777,261	2003	2032	19,583,399	24	1,722,214
Assumption Change	(55,417)	2005	2024	(50,342)	16	(5,266)
Plan Change - Actives	7,325,991	2005	2024	6,655,007	16	696,168
Experience Gain	(7,233,308)	2005	2019	(6,088,583)	11	(789,691)
Experience Gain	(3,323,763)	2007	2021	(3,082,768)	13	(361,146)
<b>Aggregated Changes through Last Valuation</b>		<b>2009</b>	<b>2026</b>	<b>\$ 50,834,613</b>	<b>18</b>	<b>\$ 5,075,400</b>
Assumption Change	\$ (9,457,779)	2009	2028	\$ (9,457,779)	20	\$ (891,940)
Experience Gain	\$ 40,849,981	2009	2028	\$ 40,849,981	20	\$ 3,852,464
<b>Aggregated Changes in 2009</b>			<b>2028</b>	<b>\$ 31,392,202</b>	<b>20</b>	<b>\$ 2,960,524</b>
<b>Aggregate Changes</b>			<b>2027</b>	<b>\$ 82,226,815</b>	<b>19</b>	<b>\$ 8,035,924</b>
<b>Aggregate of all Bases</b>				<b>\$ 152,293,174</b>		<b>\$ 11,168,516</b>

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

**SECTION III**  
**AMORTIZATION CHARGES AND OTHER MMO SUPPORTING DETAILS**

<b>POLICE Amortization Schedule</b>						
<u>Source</u>	<u>Original Base</u>	<u>Established Year</u>	<u>Target Year</u>	<u>Remaining Balance</u>	<u>Remaining Payments</u>	<u>Annual Amount</u>
Initial	\$ 131,617,548	1998	2037	\$ 173,258,009	29	\$ 7,746,181
Assumption Change	\$ (2,912,234)	1998	2017	\$ (1,903,798)	9	\$ (282,185)
Experience Loss	815,131	1999	2013	391,239	5	90,730
Experience Gain	(6,646,327)	2000	2014	(3,679,730)	6	(737,022)
Experience Loss	21,763,126	2001	2015	13,520,933	7	2,404,628
Assumption Change	597,864	2002	2021	488,411	13	57,217
Experience Loss	3,850,682	2002	2016	2,631,369	8	423,979
Investment Loss	18,838,751	2002	2032	17,151,517	24	1,508,348
Assumption Change	(4,706,925)	2003	2022	(3,999,561)	14	(449,198)
Ben. Mod.-Retired	5,143,958	2003	2012	2,582,392	4	721,924
Experience Loss	7,363,935	2003	2017	5,451,735	9	808,067
Investment Loss	26,217,850	2003	2032	24,711,371	24	2,173,181
Assumption Change	(369,251)	2005	2024	(335,431)	16	(35,089)
Experience Loss	14,390,731	2005	2019	12,113,291	11	1,571,098
Experience Gain	(542,011)	2007	2021	(502,712)	13	(58,893)
<b>Aggregated Changes through Last Valuation</b>		<b>2009</b>	<b>2026</b>	<b>\$ 68,621,026</b>	<b>13</b>	<b>\$ 8,196,785</b>
Assumption Change	\$ (544,220)	2009	2028	\$ (544,220)	20	\$ (51,324)
Experience Loss	\$ 40,957,810	2009	2028	\$ 40,957,810	20	\$ 3,862,633
<b>Aggregated Changes in 2009</b>			<b>2028</b>	<b>\$ 40,413,590</b>	<b>20</b>	<b>\$ 3,811,309</b>
<b>Aggregate Changes</b>			<b>2023</b>	<b>\$ 109,034,616</b>	<b>15</b>	<b>\$ 12,008,094</b>
<b>Aggregate of all Bases</b>				<b>\$ 282,292,625</b>		<b>\$ 19,754,275</b>

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX A  
SUMMARY OF PLAN PROVISIONS - FIRE**

*Plan Year:* Twelve-month period beginning January 1 and ending December 31

*Plan Established:* May 25, 1933

**Principal Definitions**

*Employee:* Any uniformed employee of the City of Pittsburgh Bureau of Fire

*Retirement Benefit Commencement Date:* Assumed to be the first day of the month coincident with or next following eligibility for and election to retire

*Service Increment:* Additional monthly benefit of \$20 for each completed year of service in excess of 20 years, excluding years of service after age 65

For members hired on or after January 1, 2005: Additional monthly benefit of \$10 for each completed year of service in excess of 20 years, excluding years of service after age 65 (Payable only after age 50)

*Service:* Completed years of service calculated from date of hire through date of retirement or severance, plus periods of service purchased

*Normal Form of Payment:* Monthly pension benefit payable for life

**Participation Requirements**

*Entry Date:* Date of hire

**Compensation** Total W-2 wages

*Average Compensation:* Compensation averaged over the 36-month period prior to retirement or severance

**Normal Retirement**

*Eligibility:* Later of age 50 or Completion of 20 years of service

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

APPENDIX A  
SUMMARY OF PLAN PROVISIONS - FIRE

<i>Members hired before January 1, 1976:</i>	Completion of 20 years of service
<i>Monthly Benefit:</i>	Equal to 50% of average compensation plus service increment, if any
<b>Late Retirement</b>	
<i>Eligibility:</i>	Employment beyond normal retirement
<i>Amount of Benefit:</i>	Normal retirement benefit based upon average compensation as calculated at actual retirement
<b>Disability</b>	
<i>Eligibility:</i>	Permanent disablement in line of duty <i>or</i> Permanent disablement (not in line of duty) after completing 10 years of service
<i>Benefit Amount:</i>	50% of earnings in year prior to disablement
<i>Benefit Commencement Date:</i>	First day of calendar month following determination of disablement <i>and</i> Continuing for the duration of disability prior to normal retirement date and life thereafter
<b>Vesting</b>	
	If member completed 20 years of service, may collect normal retirement benefit based on average compensation at termination (providing terminated member continues contributions at rate in effect at termination)
	Benefit deferred to age 50

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

APPENDIX A  
SUMMARY OF PLAN PROVISIONS - FIRE

**Death Benefits**

*Accidental Death:* Benefit plus return of member's accumulated contributions  
Benefit plus workers' compensation or other payments is equal to 50% of member's wages at death  
Payable for 500 weeks or until surviving spouse dies or remarries  
If no surviving spouse or unmarried children, dependent parents receive payments

- *Children Benefits*  
(*No surviving spouse/or discontinued payment to surviving spouse*): Unmarried child under age 18 receives payments equal to 25% of payments to spouse  
Total payments to one family may not exceed 50% of member's wages at time of death  
\$60 minimum monthly payment if only one child  
If maximum amount payable, divide equally among entitled children  
Payments terminate when child reaches age 18, dies, marries  
Payments may continue indefinitely to incompetent child

*Death Prior to Retirement*  
*Active service/not accidental:* If so elected, spouse paid benefit equal to 50% of pension member would have received if retired on date of death  
  
No election, accumulated contributions without interest paid to beneficiary or estate

*Death After Retirement:* If so elected, spouse paid benefit equal to 50% of pension member was receiving  
  
No surviving spouse, benefit may be paid to surviving children or dependent parents

*Lump Sum Benefit:* Lump sum of \$1,200 to beneficiary of any deceased member

**Employee Contributions** 6 percent of compensation plus \$1 per month  
  
\$1 per month ceases at age 65  
  
If surviving spouse benefit elected, add ½ percent of compensation

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX A  
SUMMARY OF PLAN PROVISIONS - POLICE**

*Plan Year:* Twelve-month period beginning January 1 and ending December 31

*Plan Established:* September 1, 1935

**Principal Definitions**

*Employee:* Any person employed by the City of Pittsburgh Bureau of Police, including all substitute uniformed employees of the Bureau.

*Retirement Benefit Commencement Date:* Assumed to be the first day of the month coincident with or next following eligibility for and election to retire

*Service Increment:* An additional monthly benefit of \$20 for each completed year of service between 20 and 25 years, plus \$25 for each year of service in excess of 25 years

*Service:* Assumed to be completed years of service calculated from date of hire through date of retirement or severance, plus periods of service purchased

*Normal Form of Payment:* Monthly pension benefit payable for life

**Participation Requirements**

*Entry Date:* Date of hire

**Compensation** Base wages and longevity pay

*Average Compensation:* Compensation averaged over the 12-month period prior to retirement or severance

*Members hired after December 31, 1991:* Compensation averaged over 36 months prior to retirement or severance

**Normal Retirement**

*Eligibility:* Later of age 50 or Completion of 20 years of service

*Monthly Benefit:* Equal to 50% of average compensation plus service increment if any

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

APPENDIX A  
SUMMARY OF PLAN PROVISIONS - POLICE

**Disability**

<i>Eligibility:</i>	Permanent disablement in line of duty <i>or</i>  Permanent disablement (not in line of duty) after completing 10 years of service
<i>Benefit Amount:</i>	50% of earnings in year prior to disablement
<i>Members hired after December 31, 1991:</i>	Sum of this benefit and member's workers' compensation benefit shall not exceed member's regular salary at time of disablement
<i>Benefit Commencement Date:</i>	First day of calendar month following determination of disablement <i>and</i>  Continuing for the duration of disability prior to normal retirement date and life thereafter
<b>Vesting</b>	If member completed 20 years of service, may collect normal retirement benefit based on average compensation at termination (providing terminated member continues contributions at rate in effect at termination)  Benefit deferred to age 50
<i>Terminated Participants:</i>	If contributions continue at same rate in effect at termination and continue to age 50, member may receive monthly benefit based on rate of pay in effect had officer worked until age 50

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

APPENDIX A  
SUMMARY OF PLAN PROVISIONS - POLICE

**Death Benefits**

<i>Accidental Death:</i>	Benefit plus return of member's accumulated contributions  Benefit plus workers' compensation or other payments equal to 50% of member's wages at death  Payable for 500 weeks or until surviving spouse dies  If no surviving spouse or unmarried children, dependent parents receive payments
- <i>Children Benefits (No surviving spouse/or discontinued payment to surviving spouse):</i>	Unmarried child under age 18 receives payments equal to 25% of payments to spouse  Total payments to one family may not exceed 50% of member's wages at time of death  \$60 minimum monthly payment if only one child  If maximum amount payable, divide equally among entitled children  Payments terminate when child reaches age 18, dies, marries  Payments may continue indefinitely to incompetent child
<i>Death Prior to Retirement Active service/not accidental:</i>	If so elected, spouse paid benefit equal to 50% of pension member would have received if retired on date of death  No election, accumulated contributions without interest paid to beneficiary or estate
<i>Death After Retirement:</i>	If so elected, spouse paid benefit equal to 50% of pension member was receiving  No surviving spouse, benefit may be paid to surviving children or dependent parents
<b>Employee Contributions</b>	Participants will contribute 6.0 percent of their compensation plus \$1 per month. Members who elect the surviving spouse benefit contribute an additional 1.2 percent of compensation. The \$1 per month contribution will cease at age 65.
<i>Refund:</i>	Accumulated contributions without interest



**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX A  
SUMMARY OF PLAN PROVISIONS - MUNICIPAL**

*Plan Year:* Twelve-month period beginning January 1 and ending December 31

*Plan Established:* May 28, 1915

**Principal Definitions**

*Employee:* Any full-time employee of the City of Pittsburgh other than a firefighter or police officer, and full-time employees of the Pittsburgh Water and Sewer Authority

*Retirement Benefit Commencement Date:* Assumed to be the first day of the month coincident with or next following eligibility for and election to retire

*Service Increment:* An additional monthly benefit of 1 percent of average compensation for each completed year of service in excess of 20 years to a maximum of \$100

*Service:* Assumed to be completed years of service calculated from date of hire through date of retirement or severance

*Normal Form of Payment:* Monthly pension benefit payable for life

**Participation Requirements**

*Entry Date:* Following completion of 90-day probationary period

**Compensation** Base wages, plus “acting” or “in-grade” pay

*Average Compensation:* Averaged over the 3-year period prior to retirement or severance

*Members hired after December 31, 1987:* Averaged over the 4-year period prior to retirement or severance

**Normal Retirement**

*Eligibility*

- *Employees other than Emergency Medical Services:* Later of age 60 or completion of 8 years of service

- *Emergency medical Services Employees:* Later of age 55 or completion of 8 years of service

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX A  
SUMMARY OF PLAN PROVISIONS - MUNICIPAL**

*Monthly Benefit:* Equal to 50% of average compensation and service increment, if any

Prorated for service less than 20 years

Upon reaching age 65 reduced by 50% of social security benefit; the reduction shall not exceed 50% of the monthly benefit. This reduction shall not apply to Pittsburgh Water and Sewer Employees. City non-union employees and union employees whose union has negotiated to eliminate the reduction, who were hired on or before June 29, 2004 will not be subject to the reduction.

*Members hired prior to January 1, 1975 whose union has not negotiated the benefits level for employees hired on or after January 1, 1975 and before January 1, 1988:*

If pay is less than \$450:

Equal to 60% of 30year average pay

Not less than \$130

Plus service increment, if any

OR

If pay is greater than \$450:

55% of first \$650 of 3-year average pay *and* 30% of excess

Not less than \$270

Plus service increment, if any

*Supplemental Medical:*

Eligible retired members and spouses will receive additional monthly payment equal to coverage premium

Employees hired after December 31, 1987 not eligible

**Early Retirement**

*Eligibility:*

Later of age 50 *or* completion of 8 years of service

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

APPENDIX A  
SUMMARY OF PLAN PROVISIONS - MUNICIPAL

*Benefit Amount:* Normal retirement benefit based upon average compensation at actual retirement

May be deferred to age 60 *or* paid immediately in reduced amount

Reduction will be ½ percent per month for each month that payment commences prior to age 60

*Members hired prior to January 1, 1975:* If 25 years of service, reduction applied only on benefits attributed to earnings in excess of \$7,800

**Disability**

*Eligibility:* Permanent disablement in line of duty *or*

Permanent disablement (not in line of duty) after completing 8 years of service

*Benefit Amount:* Normal retirement benefit at date of disablement

Not prorated for service less than 20 years

Participants hired after December 31, 1974 will have their benefit reduced by 50% of their social security benefit upon reaching age 65. The reduction shall not exceed 50% of the benefit.

*Members Hired After December 31, 1987:* Normal retirement benefit if at least age 60 with 8 years of service

Upon reaching age 65, reduced by 50% of the social security benefit. The reduction shall not exceed 50 percent of the benefit

Disabled before age 60 with at least 8 years of service calculated as of age 60 with service being greater of:

- (a) Service at disablement *or*
- (b) The lesser of 20 years and completed service (assuming work until age 60)

Benefit is reduced so that the sum of the plan benefit and workers' compensation does not exceed member's regular salary at time of disablement

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

APPENDIX A  
SUMMARY OF PLAN PROVISIONS - MUNICIPAL

<i>Benefit Commencement Date:</i>	First day of calendar month following determination of disablement <i>and</i>  Continuing for the duration of disability prior to normal retirement date and life thereafter
<b>Vesting</b>	Attainment of age 40 <i>and</i>  Completion of 8 years of service
<i>Members hired prior to January 1, 1975:</i>	Completion of 15 years of service/no age requirement
<i>Vested Terminated Participants:</i>	Normal retirement benefit if contributions continue to age 50  Benefit deferred to age 60, a benefit reduced as for early retirement may be elected at age 50.
<b><i>Death Benefits Before Retirement</i></b>	
<i>Death After Early Retirement Eligibility:</i>	Surviving spouse entitled to 50% of pension that would have been payable if member retired at date of death
<i>Death Before Early Retirement Eligibility:</i>	Member's beneficiary receives amount equal to member's contributions
<b><i>Death Benefits After Retirement</i></b>	Member's beneficiary receives amount equal to the excess, if any, of member's contributions over retirement benefit paid on member's behalf
<i>Members Hired Prior to 1988:</i>	Married employee may deduct up to \$100 per month from retirement benefit to provide a \$100 per month benefit payable to surviving spouse until death or remarriage
<i>Spouse Predeceases Retiree:</i>	Monthly benefit restored to full level for remainder of retiree's life  At no time shall total benefit payment on behalf of member be less than the member's contributions to the fund

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

APPENDIX A  
SUMMARY OF PLAN PROVISIONS - MUNICIPAL

*Members Hired After  
December 31, 1987:*

Married member may elect a reduced pension

Spouse will receive 50% of the reduced pension

Member's pension not restored to full level if spouse  
predeceases retiree

Total benefit payments on behalf of member will be no less than  
member's contribution to fund

**Employee Contributions**

4% of compensation

*Members hired prior to  
January 1, 1988:*

5% of compensation

**Interest Credit**

*For non-union employees and  
members of unions that  
negotiated for the interest  
credit, who were hired on or  
before June 29, 2004:*

5% compound interest per year

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX B  
ASSUMPTIONS AND METHODS - FIRE**

**Economic**

*Interest Rate:* 8.0 percent increase per annum

*Salary Projection:* 5.75 percent increase per annum

Merit Increase 2.25 percent increase per annum  
Inflation 3.5 percent increase per annum

**Employee Characteristics**

*Mortality:* RP-2000 Mortality Tables, with adjustments to reflect Pittsburgh Pension Plan mortality experience as confirmed by experience studies. The adjusted rates are based on the following:

*Active Participants:* RP-2000 Mortality Tables – Employee Rates of Mortality

*Inactive Participants:* RP-2000 Mortality Tables for Healthy Annuitants, adjusted by blue collar ratios (Table 5-5 of *RP-2000 Mortality Tables Report*) and set forward two years in age for healthy and deferred retirees and set forward five years in age for disabled retirees.

*Surviving Beneficiaries:* RP-2000 Rates, adjusted for healthy inactives as above, and further adjusted by ratios of female beneficiary experience to overall female RP-2000 Healthy Annuitant Mortality Rates (Appendix D of *RP-2000 Mortality Tables Report*)

*Sample Rates (Rounded):*

<b>Age</b>	<b>Active Male Participant</b>	<b>Male Regular Retiree</b>	<b>Male Disabled Retiree</b>	<b>Male Beneficiary</b>
45	0.15%	0.45%	0.56%	0.57%
55	0.30%	0.88%	1.06%	1.16%
65	0.76%	2.01%	2.68%	2.54%
75	N/A	5.27%	7.05%	5.60%
85	N/A	13.86%	18.34%	14.36%

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX B  
ASSUMPTIONS AND METHODS - FIRE**

<b>Age</b>	<b>Active Female Participant</b>	<b>Female Regular Retiree</b>	<b>Female Disabled Retiree</b>	<b>Female Beneficiary</b>
45	0.11%	0.19%	0.23%	0.23%
55	0.23%	0.44%	0.62%	0.62%
65	0.58%	1.37%	1.86%	1.74%
75	N/A	3.69%	4.90%	3.93%
85	N/A	10.24%	13.67%	10.61%

*Withdrawal:*

Sample rates:

<b>Age</b>	<b>Rate</b>
20	0.82%
25	0.79%
30	0.76%
35	0.70%
40	0.53%
45	0.27%
50	0.06%
55	0.00%

*Disablement:*

Sample rates:

<b>Age</b>	<b>Male</b>	<b>Female</b>
30	0.14%	0.17%
40	0.33%	0.64%
50	1.00%	1.26%
60	2.97%	2.27%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

APPENDIX B  
ASSUMPTIONS AND METHODS - FIRE

*Retirement Age:* Percentage of employees eligible for retirement who retire at each age:

Age	Percentage
50	8
51	3
52	3
53	3
54	3
55	3
56	3
57	3
58	9
59	9
60	9
61	9
62	18
63	18
64	18
65	100

*Duty Related Mortality:* Twenty percent of deaths in active service are assumed to be duty related.

*Duty Related Disability:* Fifty percent of disabilities occurring during employment are assumed to occur in the line of duty.

*Percentage Married:* Eighty percent of male participants and 65 percent of female participants.

*Spouse Age:* Female spouse assumed to be two years younger than male spouse.



**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX B  
ASSUMPTIONS AND METHODS - POLICE**

**Economic**

*Interest Rate:* 8.0 percent increase per annum

*Salary Projection:* 5.75 percent increase per annum

Merit and Longevity Increases: 2.25 percent increase per annum  
Inflation: 3.5 percent increase per annum

**Employee Characteristics**

*Mortality:* RP-2000 Mortality Tables, with adjustments to reflect Pension Plan mortality experience as confirmed by experience studies. The adjusted rates are based on the following:

*Active Participants:* RP-2000 Mortality Tables – Employee Rates of Mortality

*Inactive Participants:* RP-2000 Mortality Tables for Healthy Annuitants, adjusted by blue collar ratios (Table 5-5 of *RP-2000 Mortality Tables Report*) and set forward two years in age for healthy and deferred retirees and set forward five years in age for disabled retirees.

*Surviving Beneficiaries:* RP-2000 Rates, adjusted for healthy inactives as above, and further adjusted by ratios of female beneficiary experience to overall female RP-2000 Healthy Annuitant Mortality Rates (Appendix D of *RP-2000 Mortality Tables Report*)

*Sample Rates (Rounded):*

<b>Age</b>	<b>Active Male Participant</b>	<b>Male Regular Retiree</b>	<b>Male Disabled Retiree</b>	<b>Male Beneficiary</b>
45	0.15%	0.45%	0.56%	0.57%
55	0.30%	0.88%	1.06%	1.16%
65	0.76%	2.01%	2.68%	2.54%
75	N/A	5.27%	7.05%	5.60%
85	N/A	13.86%	18.34%	14.36%

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX B  
ASSUMPTIONS AND METHODS - POLICE**

<b>Age</b>	<b>Active Female Participant</b>	<b>Female Regular Retiree</b>	<b>Female Disabled Retiree</b>	<b>Female Beneficiary</b>
45	0.11%	0.19%	0.23%	0.23%
55	0.23%	0.44%	0.62%	0.62%
65	0.58%	1.37%	1.86%	1.74%
75	N/A	3.69%	4.90%	3.93%
85	N/A	10.24%	13.67%	10.61%

*Withdrawal:*

Sample rates:

<b>Age</b>	<b>Rate</b>
20	2.04%
25	1.98%
30	1.90%
35	1.76%
40	1.31%
45	0.66%
50	0.15%
55	0.00%

*Disablement:*

Sample rates:

<b>Age</b>	<b>Male</b>	<b>Female</b>
30	0.22%	0.26%
40	0.50%	0.98%
50	1.53%	1.94%
60	4.56%	3.49%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

APPENDIX B  
ASSUMPTIONS AND METHODS - POLICE

*Retirement Age:* Percentage of employees eligible for retirement who retire at each age:

Age	Percentage
50	20
51	20
52	12
53	12
54	10
55	10
56	10
57	10
58	10
59	10
60	10
61	10
62	10
63	10
64	10
65	100

*Duty Related Mortality:* Twenty percent of deaths in active service are assumed to be duty related.

*Duty Related Disability:* Fifty percent of disabilities occurring during employment are assumed to occur in the line of duty.

*Percentage Married:* Eighty percent of male participants and 65 percent of female participants.

*Spouse Age:* Female spouse assumed to be two years younger than male spouse.

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

APPENDIX B  
ASSUMPTIONS AND METHODS - MUNICIPAL

**Economic**

*Interest Rate:* 8.0 percent increase per annum

*Salary Projection:* 4.0 percent increase per annum

Merit Increase: 0.5 percent increase per annum

Inflation: 3.5 percent increase per annum

**Social Security Benefits**

Actives: Offset based on social security law in 2009, projected using an annual increase in the National Average Wage of 4 percent and an annual increase in the Social Security Consumer Price Index of 3 percent

Retirees: Offset based on:

- Actual benefit if 65 or older
- One third of original pension amount, if younger than 65

**Medicare Premiums**

For 2009, \$96.40 per month. The premium for years thereafter is assumed to increase at a rate of 6.5 percent per annum.

**Employee Characteristics**

*Mortality:* RP-2000 Mortality Tables, with adjustments to reflect Pension Plan mortality experience as confirmed by experience studies. The adjusted rates are based on the following:

*Active Participants:* RP-2000 Mortality Tables – Employee Rates of Mortality

*Inactive Participants:* RP-2000 Mortality Tables for Healthy Annuitants, adjusted by blue collar ratios (Table 5-5 of *RP-2000 Mortality Tables Report*) and set forward two years in age for healthy and deferred retirees and set forward five years in age for disabled retirees.

*Surviving Beneficiaries:* RP-2000 Rates, adjusted for healthy inactives as above, and further adjusted by ratios of female beneficiary experience to overall female RP-2000 Healthy Annuitant Mortality Rates (Appendix D of *RP-2000 Mortality Tables Report*)

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX B  
ASSUMPTIONS AND METHODS - MUNICIPAL**

*Sample Rates (Rounded):*

<b>Age</b>	<b>Active Male Participant</b>	<b>Male Regular Retiree</b>	<b>Male Disabled Retiree</b>	<b>Male Beneficiary</b>
45	0.15%	0.45%	0.56%	0.57%
55	0.30%	0.88%	1.06%	1.16%
65	0.76%	2.01%	2.68%	2.54%
75	N/A	5.27%	7.05%	5.60%
85	N/A	13.86%	18.34%	14.36%

<b>Age</b>	<b>Active Female Participant</b>	<b>Female Regular Retiree</b>	<b>Female Disabled Retiree</b>	<b>Female Beneficiary</b>
45	0.11%	0.19%	0.23%	0.23%
55	0.23%	0.44%	0.62%	0.62%
65	0.58%	1.37%	1.86%	1.74%
75	N/A	3.69%	4.90%	3.93%
85	N/A	10.24%	13.67%	10.61%

*Withdrawal:*

Sample rates:

<b>Age</b>	<b>Rate</b>
20	8.20%
25	7.98%
30	7.67%
35	7.18%
40	6.40%
45	5.24%
50	3.49%
55	1.28%
60	0.12%

*Disablement:*

Sample rates:

<b>Age</b>	<b>Male</b>	<b>Female</b>
30	0.06%	0.07%
40	0.14%	0.27%
50	0.42%	0.53%
60	1.25%	0.96%

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX B  
ASSUMPTIONS AND METHODS - MUNICIPAL**

*Retirement Age:* Percentage of employees eligible for early retirement who retire at each age:

Age	Non-Emergency Medical Services	Emergency Medical Services EE
50	4	3
51	3	3
52	3	3
53	3	3
54	3	3
55	3.5	50
56	3.5	20
57	3.5	20
58	3.5	20
59	3.5	20
60	6.5	20
61	10	20
62	20	40
63	20	40
64	20	40
65	20	100
66	40	N/A
67	50	N/A
68	100	N/A

*Exclusions:* Non-participants

*Percentage Married:* Active: 80 percent of male participants and 65 percent of female participants

*Spouse Age:* Female spouse assumed to be two years younger than male spouse

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX B  
ASSUMPTIONS AND METHODS - PMRS**

**Healthy Life Mortality**

*Rates of Pre-Retirement Mortality:* Males: RP 2000 with 1 year set back

Females: RP 2000 with 5 year set back

*Rates of Post-Retirement Mortality:* Males and females: RP 2000 Sex-Distinct Mortality Table

*Disabled Life Mortality Rates:* Males and females: RP 2000 with 10 year set forward

**Termination Rates Before Retirement:**

<b>Proposed Termination Rates for Municipal Participants</b>		
<b>Service</b>	<b>Number of Active Members in Plan</b>	
	<b>&lt;25</b>	<b>25+</b>
< 1	20.0%	20.0%
1	20.0%	20.0%
2	12.0%	15.0%
3	10.0%	12.0%
4	8.0%	7.0%
5	6.0%	7.0%
6	4.0%	6.0%
7	3.0%	5.0%
8	3.0%	5.0%
9	2.5%	5.0%
10+	2.5%	3.0%

**Disability Incidence Rates**

*Municipal:* 40% of 1964 OASDI (Social Security) Experience for Males. Sample rates are:

<b>Age</b>	<b>Valuation Rate (%)</b>
25	0.034%
35	0.059
45	0.144
55	0.404
65	0.928

**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX B  
ASSUMPTIONS AND METHODS - PMRS**

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

<b>Age</b>	<b>Valuation Rate (%)</b>
25	0.051%
35	0.088
45	0.216
55	0.605
65	1.393

Type of Disability:

- (a) 15% of disablements are assumed to be service related for municipal plans, and
- (b) 50% of disablements are assumed to be service related for uniform plans.

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

**Salary Scale:**

<b>Age</b>	<b>Proposed Salary Scale Total Rate (%)* (including inflation)</b>
25	8.30%
30	6.40%
35	5.60%
40	5.00%
45	4.20%
50	4.10%
55	3.90%
60	3.70%
65	3.00%

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



**CITY OF PITTSBURGH  
RETIREMENT SYSTEMS**

**APPENDIX B  
ASSUMPTIONS AND METHODS - PMRS**

**Rates of Retirement**

*Municipal Members:*

Members are assumed to retire over a range of ages as shown on the following page:

<b>Age</b>	<b>Current Rate of Normal Retirement<sup>1</sup></b>
Under 46	5%
46 – 54	15
55 – 59	10
60 – 61	10
62	30
63 – 64	20
65	35
66 – 74	15
75	100

<sup>1</sup> Rates indicated are adjusted by adding 5% (and 10% for ages 60-62 under current rate assumptions) for the year in which the member is first eligible for normal retirement.

<b>Alternative Retirement Rates for Uniform Participants</b>	
<b>Age</b>	<b>Rates for all Plans</b>
<b>&lt;49</b>	0%
<b>50</b>	20%
<b>51</b>	10%
<b>52</b>	10%
<b>53</b>	10%
<b>54</b>	10%
<b>55</b>	20%
<b>56</b>	25%
<b>57</b>	25%
<b>58</b>	30%
<b>59</b>	30%
<b>60</b>	40%
<b>61</b>	50%
<b>62</b>	50%
<b>63</b>	60%
<b>64</b>	70%
<b>65</b>	80%
<b>66+</b>	100%

CITY OF PITTSBURGH  
RETIREMENT SYSTEMS

APPENDIX B  
ASSUMPTIONS AND METHODS - PMRS

<b>Marital Status and Spouse's Age (if applicable):</b>	85% of active members and are assumed to be married for retirees with the 50% J&S form of payment. Male spouses are assumed to be three years older than female spouses.
<b>Social Security Projections (if applicable):</b>	(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; and (c) The Average Total Wages of All Workers will increase by 3.5% compounded annually.
<b>Post-Retirement Cost of Living Increases (if applicable):</b>	3.0% per year, subject to plan limitations.
<b>Investment Return Assumption:</b>	6.00% compounded annually, net of expenses.
<b>Administrative Expenses:</b>	The expense assumption is based upon the expected expenses for the current year.