MOCKENHAUPT
BENEFITS GROUP

REVISED
ACTUARIAL VALUATION REPORT

for the

City of Pittsburgh

Policemen's Relief and Pension Fund

as of

January 1, 2011

Report Date: September 12, 2011

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Section One: Commentary and Actuarial Disclosures

At the request of the City of Pittsburgh, we have completed a revised actuarial valuation of the City of Pittsburgh Policemen's Relief and Pension Fund as of January 1, 2011. Our actuarial valuation is based upon participant data as of January 1, 2011 and upon revised asset information as of December 31, 2010 as provided by the City. This report has been completed in accordance with generally accepted actuarial principles and practices, and reflects our current understanding of applicable laws and regulatory requirements.

This revised valuation reflects an adjustment in reported asset information. The original valuation was completed based upon the asset information in the City's Comprehensive Annual Financial Report (CAFR) as prepared by the City Controller and audited by Maher Duessel. Those statements did not recognize as plan assets the dedicated stream of revenues created by Ordinances 42 and 44 of 2010. This entity was not recognized as a plan asset in our actuarial valuation because of this fact and the uncertainty that the entity as drawn up would qualify as a plan asset. As actuaries, we do not make determinations as to whether a particular entity qualifies as a plan asset nor audit asset information. However, in accordance with Actuarial Standard of Practice No. 23 (ASOP 23), Data Quality, we do have a responsibility for reviewing data for reasonableness and identifying data values that are materially questionable. Consistent with that responsibility, we advised the City to obtain independent third party advice both on whether the entity can be considered a plan asset and, if so, obtain a qualified independent valuation of such asset.

The City Controller has obtained third-party advice from which he has determined that this stream of revenues can be recognized as a pension plan asset for purposes of the required actuarial report under Act 205 and the Board of Trustees of the Comprehensive Municipal Pension Trust Fund has now unanimously directed us to combine the assets listed in the 2010 CAFR with the value of the revenue stream as determined by an independent accounting firm, Gleason & Associates. The value so provided is consistent with Paragraph 3.5 (Assets that are Difficult to Value) of ASOP 44, Selection and Use of Asset Valuation Methods for Pension Valuations.

Since Ordinances 42 and 44 of 2010 were enacted December 31, 2010, the present value of dedicated future parking meter revenue streams has also been treated as a City contribution for 2010 with the contribution allocated to each of the three pension plans in proportion to other City contributions for the year.

Our inclusion of the present value of this stream of dedicated future parking meter revenues does not imply that it necessarily qualifies as a pension plan asset under GAS 25. Further, our inclusion of this asset as directed by the City does not guarantee its acceptance by the Public Employee Retirement Commission (PERC). That determination will be made by PERC.

This valuation was prepared to satisfy the funding and disclosure requirements of Act 205 of 1984. It also contains the cost components that may be used to compute the Plan's Minimum Municipal Obligation (MMO) in accordance with that law. One of the cost components of the Minimum Municipal Obligation is an amortization payment calculated according to specified rules of Act 205.

The minimum amortization under Act 205 reflects the utilization of provisions of Act 82 of 1998 for which the City qualified. Under those provisions, the Unfunded Actuarial Accrued Liability as of January 1, 1998 is being amortized over 40 years calculated pursuant to special procedures described beginning on page 5. Bases for subsequent years are established according to the normal procedures of Act 205 of 1984 and amortized over various periods according to the source of the change in unfunded liability such as experience gains or losses, benefit changes, and assumption changes. These periods are not limited by average future service because the City qualifies for Distress Level III according to the requirements under Act 205 of 1984. This report also presents an alternative level amortization payment that would amortize the entire unfunded liability over a 30-year period commencing January 1, 2011.

The City's pension plan assets are aggregated into a single trust. An annual calculation is made to determine each Plan's portion of the assets. The receipts and disbursements for each Plan are added to the Plan's allocated value from the prior year. Then, the year's investment income is allocated proportionately to each Plan in accordance with procedures set forth in Act 205. As of December 31, 2010, the calculated market value of assets in the Policemen's Relief and Pension Fund is $216,050,208. Section Nine contains exhibits illustrating the calculation of this amount. Section Nine also shows the development of the actuarial value of assets, which is determined using the Tabular Reserve method first adopted as of January 1, 2009.

2011 Results

Certain highlights of this actuarial valuation compared with the prior valuation are shown in Section Three. The use of pension bond proceeds to reduce the Unfunded Actuarial Accrued Liability has split the funding of the pension plan into actuarial costs and debt service. The actuarial costs consist of normal cost, administrative expense contributions and amortization payments to eliminate the remainder of the

Unfunded Actuarial Accrued Liability. The actuarial information used to develop contribution requirements according to the rules of Act 205 is shown in Section Five. Debt service payments repay the money borrowed and subsequently deposited into the Plan. Information concerning the annual debt service is contained in Section Ten. The demographics of the Plan population are summarized in Section Eight.

The actuarial cost components as of January 1, 2011 compared to the prior year are as follows:

	Current Year 2011	Prior Year 2009
Normal Cost as a Percentage of Total W-2 Payroll	10.650%	11.921%
Expenses as a Percentage of Total W-2 Payroll	1.200%	1.700%
Minimum Amortization Payment	$7,667,320	$19,754,275

The change in actuarial costs from year to year can be affected by changes in Plan provisions, assumption changes, and experience changes. A summary of the actuarial assumptions is contained in Section Seven, Actuarial Basis of Valuation.

Pension bonds were issued in March 1998. The debt service payment for 2011 is approximately $8.69 million.

Assumption Changes

One assumption change was made since the January 1, 2009 actuarial valuation. The annual salary scale assumption was reduced from 5.75 percent to 5.00 percent. This change was recommended in the most recent experience study completed as of January 1, 2009.

Act 205 requires that the City have an experience study prepared every four years. The purpose of this experience study is to compare the Plan's actual experience with the valuation assumptions. This comparison can indicate that actuarial assumptions should be changed as is the case with the salary scale assumption. Other than the interest rate reduction adopted in 2009 and the salary scale change, there were no other assumption changes recommended for this Plan in the 2009 study

The salary scale assumption change decreased the total actuarial accrued liability by $3,468,835. Most of the decrease in normal cost is also the result of this change.

Benefit Changes

There have been no benefit changes since January 1, 2009 affecting current participants. The benefits provided are summarized in Section Four of this report.

Experience Changes

Plan experience during the year affects the Plan cost for the following year. Both the normal cost and the amortization payment can change.

Normal cost is the portion of the total cost allocated to the current year by the actuarial cost method. Unless Plan provisions or assumptions change, normal cost usually remains fairly stable, changing only moderately from year to year. The changes that do occur relate to changes in the age and service distribution of the participant group.

Generally, experience changes have a greater effect on the current year's actuarial gain or loss than on normal cost. Since foresight can never be perfect, actuarial assumptions will not perfectly match the experience that actually develops from year to year. The determination and amortization of actuarial gains and losses provide the mechanism for correcting these gains and losses and maintaining the Plan's funding on a sound basis.

The actuarial gain or loss computed in the current valuation reflects differences since the prior valuation between actual experience and the experience anticipated by the actuarial assumptions. For bases established in 2009 and later, Act 205 requires the amortization of actuarial gains or losses over a 20-year period. An actuarial gain will reduce the total amortization payment, and an actuarial loss will increase the payment.

For 2011 a new actuarial gain base of $124,186,299 has been established. This gain was largely due to contributions to the plan in excess of those actuarially required. The contribution gain of $125,141,393 was mostly due to the pan's allocated share of the present value of the dedicated future parking revenues. An additional notable gain arose from salary increases for the two year period that were, on average, less than the previously assumed rate of 5.75%. The gains were partially offset by an asset loss primarily due to the tabular interest rate being one percent less than the valuation rate and fewer deaths among inactive employees than assumed.

Funded Ratios

Another measure of comparison between valuations is the plan's funded ratio (the actuarial value of assets divided by the actuarial accrued liability). This ratio is currently 60.2 percent (refer to Table 1 for the values used in this calculation). As of January 1, 2009, the corresponding ratio was 27.2 percent so the current valuation shows an increase of 33.0 percent. While the Act 205 amortization requirements are designed to bring this ratio eventually to 100 percent, the change in funding from valuation to valuation will not generally be steady because of normally expected fluctuations due to actuarial gains and losses, benefit changes, or assumption changes.

Accounting Information

This valuation also includes certain actuarial information required for accounting purposes. Section Six contains a summary of the actuarial present values of accumulated Plan benefits and a summary of certain information required by GAS#27.

Actuarially Recommended Alternate 30-Year Level Amortization Payment

Act 82 of 1998 has a significant impact on the minimum funding requirements. We believe that the procedure for determining amortization amounts in accordance with Act 82 no longer produces an actuarially appropriate funding level. The adoption of a funding policy based on the alternative amortization payment in this report is highly recommended.

Act 82 allowed the City to change the minimum funding amortization schedule for its Unfunded Actuarial Accrued Liability because pension bond proceeds were deposited by the City into the pension plan during 1998 that changed the ratio of the Actuarial Value of Assets to the Actuarial Accrued Liability by more than 25 percent. Act 82 allowed the City to amortize the January 1, 1998 Unfunded Actuarial Accrued Liability, reduced by pension bond proceeds deposited during 1998, over a 40-year period using a special procedure that was mechanically complex but lowered the amortization payment from what it would otherwise be. The annual amortization payment was calculated in several steps. An amortization payment was calculated that would eliminate the Unfunded Actuarial Accrued Liability net of 1998 bond proceeds over a 40-year period using a statutory interest rate of 8.75 percent. Next, the future value of these payments at the end of the 40-year period was calculated using 8.75 percent interest. Finally, an amortization payment was calculated using 10 percent interest that would have the same future value at the end of the 40-year period as the previous calculation. The 10 percent amortization amount became the amortization payment starting in 1998.

There are several drawbacks to this approach in the long-term. Under the Act 82 amortization schedule, the outstanding balance of Unfunded Actuarial Accrued Liability for the affected 1998 base actually grows for several years, extending the funding of obligations beyond normal payment periods. For example, as of January 1, 2011 the Unfunded Actuarial Accrued Liability for this special base has increased from $131,617,548 as of January 1, 1998 to $182,693,401 as of January 1, 2011 and doesn't start to decline until during the year 2024. Therefore, this amortization method does not maintain normal generational funding objectives.

Act 82 requires that valuations include a comparative interest rate tabulation. This annual tabulation compares the balance of the accumulated Act 82 amortization payments using the actual earnings of the fund during the year with the balance assuming a 10 percent rate of return. If the fund earns more than 10 percent during the year, there will be an actuarial gain. If the fund earns less than 10 percent, there will be an actuarial loss on the comparative interest rate balance. When this legislation was enacted in 1998, investment conditions were different, and an average 10 percent rate of return on a significant block of assets no longer seems reasonable. This balance grows over time and the losses from this source will tend to grow significantly. In fact, because benefits are being paid out as contributions are coming in, the comparative interest rate balance, which isn't adjusted for benefit payments, eventually will become larger than the total market value of assets. In practice, this will likely lead to significant actuarial losses, an increasing pattern of amortization payments, and a funding ratio which will still be well below 100% at the end of the 40-year period due to remaining balances on these losses.

By contrast, increasing the amortization to the recommended level will be a more level amortization payment, will be higher now but ultimately lower, and will likely lead to a funding ratio much closer to 100% by the fixed target year. In future valuations, all gains and losses could be folded into this base with a revised amortization payment computed.

Section Two: Certification

In the actuary's opinion, the actuarial assumptions used in the valuation are reasonably related to the experience of the Plan and to reasonable expectations. They represent the actuary's best estimate of anticipated experience under the Plan. To the best of our knowledge, the report is complete and accurate, based on the data herein and the disclosures in Section One.

We will be happy to answer any questions concerning this report and provide further information as needed.

MOCKENHAUPT BENEFITS GROUP

I, G. Herbert Loomis, am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Prepared and Certified by:

G. Herbert Loomis

G. Herbert Loomis, F.S.A., E.A., M.A.A.A.
Consulting Actuary

Section Three: Valuation Highlights

Participant Count	**01/01/11**	**01/01/09**	**Change**
Total Active	880	898	(18)
Vested	175	110	65
Not Vested	705	788	(83)
Total In Payment Status	1,534	1,592	(58)
Retirement Benefits	664	699	(35)
Disability Benefits	370	388	(18)
Survivor Benefits	500	505	(5)
Deferred	15	4	11
Total	**2,429**	**2,494**	(65)

Average Monthly Benefit			
In Payment Status			
Retirement Benefits	$2,271	$2,207	$64
Disability Benefits	$1,992	$1,940	$52
Survivor Benefits	$ 689	$ 646	$ 43
Deferred	$2,764	$2,800	$(36)

Active Participant Averages			
Hire Age	28.8	28.9	(0.1)
Attained Age	43.2	42.0	1.2
Normal Retirement Age	52.0	51.9	0.1
Assumed Future Service	17.0	16.0	1.0
Monthly Compensation	$5,146	$ 4,904	$ 242

Financial Data			
Market Value of Assets	$ 216,050,208	$ 81,203,837	$ 134,846,371
Accumulated Employee Contributions	$ 41,516,583	$ 37,618,989	$ 3,897,594

Cost Components			
Normal Cost as a percentage of total payroll	10.650%	11.921%	-1.271%
Expenses as a percentage of total payroll	1.200%	1.700%	-0.500%
Total	11.850%	13.621%	-1.771%
Amortization payment	$ 7,667,320	$ 19,754,275	$ (12,086,955)

Section Four: Summary of Plan Provisions

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

Disability

Eligibility

- Permanent disablement in line of duty *or*
- Permanent disablement (not in line of duty) after completing 10 years of service

Benefit Amount

- 50% of earnings in year prior to disablement

Members Hired after December 31, 1991

- Sum of this benefit and member's workers' compensation benefit shall not exceed member's regular salary at time of disablement

Benefit Commencement Date

- First day of calendar month following determination of disablement *and*
- Continuing for the duration of disability prior to normal retirement date and life thereafter

Vesting

- 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

Terminated Participants

- 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

Death Benefits

Accidental Death

- 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

- *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

- *Children Benefits (Cont'd)*

- 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

Employee Contributions

- 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.

Refund

- Accumulated contributions without interest

Section Five: Development of Contribution Requirements

Table 1: Normal Cost and Actuarial Accrued Liability

Normal Cost	
Retirement Benefits	$4,417,931
Disability Benefits	2,248,455
Preretirement Death Benefits	148,294
Postretirement Death Benefits	0
Refunds to Withdrawals	271,155
Medicare Premium Benefits	0
Vested Benefits	73,821
Total	**$7,159,656**

Actuarial Accrued Liability

Actuarial Present Value of Benefits at Attained Age

	Deferred	In Payment	Active	All
Retirement Benefits	$ 3,855,227	$148,778,923	$146,593,944	$299,228,094
Disability Benefits	0	79,848,916	44,703,390	124,552,306
Survivor Benefits	0	28,173,249	0	28,173,249
Preretirement Death Benefits	0	0	2,372,454	2,372,454
Postretirement Death Benefits	0	0	0	0
Refunds to Withdrawals	0	0	1,860,357	1,860,357
Medicare Premium Benefits	0	0	0	0
Vested Benefits	0	0	1,868,667	1,868,667
Total	**$ 3,855,227**	**$256,801,088**	**$197,398,812**	**$458,055,127**

Actuarial Present Value of Future Normal Costs

Retirement Benefits	$42,040,085	
Disability Benefits	20,950,281	
Preretirement Death Benefits	1,408,522	
Postretirement Death Benefits	0	
Refunds to Withdrawals	2,614,428	
Medicare Premium Benefits	0	
Vested Benefits	788,012	
Total	**$67,801,328**	**($67,801,328)**
Actuarial Accrued Liability		**$390,253,799**

Unfunded Actuarial Accrued Liability

Actuarial Accrued Liability	$390,253,799
Actuarial Value of Assets	(235,012,542)
Unfunded Actuarial Accrued Liability	**$155,241,257**

Table 2: Actuarial (Gain) Loss Determination

Reconciliation of Funded Status

	2009	2010	
Unfunded Actuarial Accrued Liability as of January 1, 2009			$282,292,625
Normal Cost/Administrative Expenses Assumed	$ 8,688,431	$ 9,188,016	17,876,447
Interest Charged at Valuation Rate			49,154,288
Contributions Made			
- Municipality	$13,454,517	$146,783,857	
- State Aid Allocated	5,561,608	7,052,918	
- Employees	3,453,346	3,539,856	$(179,846,102)
Interest Credited at Valuation Rate			(4,345,148)
Special Adjustment Because of Higher Act 82 Interest Rate			(7,377,112)
Expected Unfunded Actuarial Accrued Liability Before Adjustments			$157,743,998
Experience from Investment Return			
- Comparative Interest Rate Amortization Tab. (Gain) Loss		$(2,639,700)	
- Other Investment Return (Gain) Loss		12,128,246	9,488,546
Experience (Gain) Loss from all Other Sources			(8,533,452)
Increase (Decrease) in Unfunded Actuarial Accrued Liability:			
- Benefit Modifications for Actives		$ 0	
- Benefit Modifications for Retirees		0	
- Changes in Actuarial Assumptions		(3,468,835)	(3,468,835)
Actual Unfunded Actuarial Accrued Liability			$155,241,257

Loss (Gain) to be Amortized

Experience (Gain) Loss from January 1, 2009		$ 955,094
Actuarially Required Contributions and Bond Proceeds with Interest	$ 59,049,857	
Actual Contributions with Interest	(184,191,250)	
Contribution (Gain) Loss		(125,141,393)
Loss (Gain) to be Amortized		$ (124,186,299)

Comparative Interest Rate Amortization Tabulation

Balance Calculated Using Actual Investment Return	2009	2010	
Act 82 Amortization Balance at January 1	$157,900,348	$ 196,006,225	
Act 82 Amortization Payment	7,746,181	7,746,181	
Comparative Interest Rate Balance on January 1	$165,646,529	$203,752,406	
Actual Investment Return on Balance	30,359,696	7,840,393	
Actual Act 82 Amort. Balance at December 31	$196,006,225	$211,592,799	$211,592,799
Balance Calculated Using 10 Percent Investment Return			
Comparative Interest Rate Balance at January 1	$165,646,529	$ 189,957,363	
Interest at 10 Percent	16,564,653	18,995,736	
Comparative Act 82 Amort. Bal. at December 31	$182,211,182	$208,953,099	$208,953,099
Comparative Interest Rate Amortization Tabulation (Gain) Loss			$(2,639,700)

Table 3: Amortization of Unfunded Actuarial Accrued Liability

Source	Original Amount	Year Est.	Target Year	Remaining Balance	Remaining Payments	Annual Amount
Initial	$131,617,548	1998	2037	$182,693,401	27	$7,746,181
Assumption Change	$(2,912,234)	1998	2017	$(1,586,690)	7	$(282,185)
Experience Loss	815,131	1999	2013	252,525	3	90,730
Experience Gain	(6,646,327)	2000	2014	(2,636,394)	4	(737,022)
Experience Loss	21,763,126	2001	2015	10,369,060	5	2,404,628
Assumption Change	597,864	2002	2021	441,150	11	57,217
Experience Loss	3,850,682	2002	2016	2,116,803	6	423,979
Investment Loss	18,838,751	2002	2032	16,617,176	22	1,508,348
Assumption Change	(4,706,925)	2003	2022	(3,656,009)	12	(449,198)
Ben. Mod.-Retired	5,143,958	2003	2012	1,390,372	2	721,924
Experience Loss	7,363,935	2003	2017	4,543,662	7	808,067
Investment Loss	26,217,850	2003	2032	23,941,509	22	2,173,181
Assumption Change	(369,251)	2005	2024	(312,423)	14	(35,089)
Experience Loss	14,390,731	2005	2019	10,599,629	9	1,571,098
Experience Gain	(542,011)	2007	2021	(454,067)	11	(58,893)
Assumption Change	(544,220)	2009	2028	(519,484)	18	(51,324)
Experience Loss	40,957,810	2009	2028	39,096,171	18	3,862,633
Agg. Change through Last Valuation	N/A	N/A	2023	$100,202,990	13	$12,008,094
Assumption Change	$(3,468,835)	2011	2025	$(3,468,835)	15	$(375,243)
Ben. Mod. - Actives	N/A					
Ben. Mod. – Retired	N/A					
Experience Gain	(124,186,299)	2011	2030	(124,186,299)	20	(11,711,712)
Agg. Change-2011	N/A	N/A	2030	$(127,655,134)	20	$(12,086,955)
Aggregate Changes	N/A	N/A		$(27,452,144)		$(78,861)
Aggregate	N/A	N/A		$155,241,257		$7,667,320

Details of the Calculation of Act 82 Payment

Act 82 Unfunded Actuarial Accrued Liability	$ 131,617,548
40-Year Amortization Payment	$ 10,972,874
Future Value at end of 40-Year period	$ 3,771,242,164
Payment to provide the same future value with 10% annual earnings	$ 7,746,181

Table 4: Municipal Contributions

Required Municipal Contributions (Reflecting Act 82 of 1998)

The Financial Requirement of the Plan is based on the Normal Cost Percentage and other components shown below. The Normal Cost Percentage is applied to the payroll of the members for the applicable fiscal year.

Normal Cost (Table 1)	$ 7,159,656
Total Annual Payroll	$67,225,218
Percentages for Budget	
• Normal Cost (Normal Cost divided by Total Annual Payroll)	10.650%
• Administrative Expense (as a % of Payroll)	1.200%
• Gross Normal Cost	11.850%
Net Amortization Payment (Table 3)	$7,667,320
Funding Adjustment	$ 0

Amortization Payment (Actuarially Recommended)

30-Year Amortization Payment	$12,768,224

See the Introduction for further explanation of the basis of this recommendation.

Section Six: Accounting Information

Accumulated Plan Benefits		01/01/11	01/01/09
Assets at Market Value		$ 216,050,208	$ 81,203,837
Actuarial Present Value of Vested Benefits			
Retired	$256,801,088		
Deferred	3,855,227		
Employee Contributions	12,927,604		
Active	45,689,402		
Total		$319,273,321	$318,004,618
Unfunded Actuarial Present Value of Vested Benefits		$103,223,113	$236,800,781
Actuarial Present Value of Accrued Benefits			
Retired	$256,801,088		
Deferred	3,855,227		
Employee Contributions	1,091,182		
Active	103,003,063		
Total		$364,750,560	$357,988,279
Unfunded Actuarial Present Value of Accrued Benefits		$148,700,352	$276,784,442

GAS #27 Information

Summary of Annual Pension Cost and Net Pension Obligation (NPO) for Prior Years

	2009	2010
Annual Required Contribution (ARC)	$ 24,887,045	$ 25,065,133
Interest on NPO	346,595	848,262
Adjustment to the ARC	(484,178)	(1,201,803)
Annual pension cost	24,749,462	24,711,592
Contributions made	19,016,125	45,942,245
Change in NPO	5,733,337	(21,230,653)
NPO - Beginning of Year (1/1)	3,961,083	9,694,420
NPO - End of Year (12/31)	$ 9,694,420	$ (11,536,233)

Annual Pension Cost for the Year Beginning 1/1/2011

Annual Required Contribution (ARC)	$ 28,104,819
Interest on NPO	(922,899)
Adjustment to the ARC	974,165
Annual Pension Cost	$ 28,156,085

Other Information from the 1/1/2011 Actuarial Valuation for GAS #25 and GAS #27

Actuarial Cost Method	Entry Age
Asset Valuation Method	Tabular Smoothing
Amortization Method	Level Dollar Closed
Aggregate Remaining Amortization Period (Years)	30
Actuarial Assumptions	
Investment Rate of Return	8.00%
Projected Salary Increases	5.00%
Underlying Inflation Rate	3.50%

Section Seven: Actuarial Basis of Valuation

Actuarial Assumptions: January 1, 2011

Economic

Interest Rate	8.0 percent increase per annum
Salary Projection	5.00 percent increase per annum Merit and Longevity Increases: 1.50 percent 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 upon 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 Health Annuitant Mortality Rates (Appendix D of *RP-2000 Mortality Tables Report*)

Sample Rates (Rounded):

Age	Active Male Participant	Male Regular Retiree	Male Disabled Retiree	Male Beneficiary
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%

Age	Active Female Participant	Female Regular Retiree	Female Disabled Retiree	Female Beneficiary
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:

Age	Rate
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:

Age	Male	Female
30	.22%	.26%
40	.50%	.98%
50	1.53%	1.94%
60	4.56%	3.49%

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.

Actuarial Basis of Valuation: Actuarial Cost Method

The actuarial costs of this Plan are determined under the Entry Age Normal Actuarial Cost Method as described in Act 205 of 1984. The total contribution (the financial requirements of the Pension Plan) is made up of three components: normal cost, administrative expense and amortization payment or funding adjustment.

Normal Cost

For each active participant covered by the Plan, normal cost is calculated to be the annual contribution necessary to completely fund the participant's pension by the participant's retirement age. Contributions are assumed to begin with the year of employment and to be a constant percentage of the participant's annual pay.

For the Plan, normal cost is expressed as a percentage of the total annual payroll of the participants used in budgeting of required contributions.

Administrative Expense

Estimated annual expense to be incurred by the fund for the contribution year for which the financial requirements are determined.

Actuarial Accrued Liability

Total actuarial present value of all future benefits less the actuarial present value of the future normal costs. The total Unfunded Actuarial Accrued Liability as of the valuation date is the Actuarial Accrued Liability less the total value of all assets owned by the Plan.

Amortization Payment

Sum of the annual level amortization contribution requirements specified by the Act for the applicable portions of the unfunded actuarial accrued liability. The Plan's unfunded actuarial accrued liability was re-established in 1998. In the subsequent years, experience gains and losses, changes in benefit provisions, and changes in valuation assumptions would result in increases or decreases to the unfunded actuarial accrued liability. If the unfunded actuarial accrued liability is negative, the amortization payment is zero and a funding adjustment is created.

Section Eight: Demographic Summaries

Distribution of Active Members by Age and Service

Years of Service											
Age	**Number of People in Category**										
	1	**2**	**3**	**4-5**	**6-10**	**11-15**	**16-20**	**21-25**	**26-30**	**30+**	**Total by Age**
<20	0	0	0	0	0	0	0	0	0	0	**0**
20-24	0	5	0	0	0	0	0	0	0	0	**5**
25-29	0	24	6	30	9	0	0	0	0	0	**69**
30-34	0	9	1	26	46	6	0	0	0	0	**88**
35-39	0	2	3	15	49	35	12	0	0	0	**116**
40-44	0	0	1	9	21	28	130	12	0	0	**201**
45-49	0	1	0	8	7	9	120	51	3	0	**199**
50-54	0	1	1	1	4	6	52	37	6	7	**115**
55-59	0	0	0	1	2	1	15	17	13	16	**65**
60-64	0	0	0	1	0	0	8	5	0	6	**20**
65+	0	0	0	0	0	0	0	0	2	0	**2**
Total	**0**	**42**	**12**	**91**	**138**	**85**	**337**	**122**	**24**	**29**	**880**

Age Distribution of Deferred Vested Participants

Persons Entitled to Deferred Benefits			
Age Group	Number of People	Total Annual Benefit	Average Annual Benefit
< 30	0	0.00	0.00
30-34	0	0.00	0.00
35-39	0	0.00	0.00
40-44	8	$ 249,616.32	$ 31,202.04
45-49	5	173,542.44	34,708.49
50-54	2	74,341.80	37,170.90
55-59	0	0.00	0.00
60-64	0	0.00	0.00
65-69	0	0.00	0.00
70-74	0	0.00	0.00
75-79	0	0.00	0.00
80-84	0	0.00	0.00
85+	0	0.00	0.00
Total	**15**	**$497,500.56**	**$33,166.70**

Age Distribution of Retired Participants

Regular Retirements			
Age Group	**Number of People**	**Total Annual Benefit**	**Average Annual Benefit**
< 30	0	0.00	0.00
30-34	0	0.00	0.00
35-39	0	0.00	0.00
40-44	0	0.00	0.00
45-49	0	0.00	0.00
50-54	25	$844,139.64	$ 33,765.59
55-59	64	2,157,558.00	33,711.84
60-64	93	2,861,066.04	30,764.15
65-69	140	4,396,323.96	31,402.31
70-74	106	2,947,396.56	27,805.63
75-79	84	2,111,167.56	25,132.95
80-84	89	1,726,240.92	19,395.97
85+	63	1,049,954.28	16,665.94
Total	**664**	**$18,093,846.96**	**$ 27,249.77**

Age Distribution of Retired Participants

Disability Retirements			
Age Group	**Number of People**	**Total Annual Benefit**	**Average Annual Benefit**
< 30	0	0.00	0.00
30-34	**0**	0.00	0.00
35-39	2	$53,744.40	$ 26,872.20
40-44	23	633,206.88	27,530.73
45-49	45	1,180,202.40	26,226.72
50-54	24	655,486.68	27,311.95
55-59	57	1,413,060.24	24,790.53
60-64	44	1,118,416.32	25,418.55
65-69	62	1,433,428.32	23,119.81
70-74	43	1,009,177.44	23,469.24
75-79	27	601,134.60	22,264.24
80-84	30	556,681.20	18,556.04
85+	13	192,006.72	14,769.75
Total	**370**	**$8,846,545.20**	**$ 23,909.58**

Age Distribution of Retired Participants

Survivors			
Age Group	**Number of People**	**Total Annual Benefit**	**Average Annual Benefit**
< 30	3	$26,031.00	$8,677.00
30-34	1	18,106.80	18,106.80
35-39	2	19,235.40	9,617.70
40-44	0	0.00	0.00
45-49	3	46,761.60	15,587.20
50-54	6	69,174.60	11,529.10
55-59	15	175,298.64	11,686.58
60-64	33	385,882.80	11,693.42
65-69	48	468,269.28	9,755.61
70-74	73	731,973.24	10,027.03
75-79	91	782,306.64	8,596.78
80-84	103	777,587.88	7,549.40
85+	122	630,737.52	5,169.98
Total	**500**	**$4,131,365.40**	**$ 8,262.73**

Age Distribution of Retired Participants

All Persons Receiving Benefits			
Age Group	**Number of People**	**Total Annual Benefit**	**Average Annual Benefit**
< 30	3	$26,031.00	$8,677.00
30-34	1	18,106.80	18,106.80
35-39	4	72,979.80	18,244.95
40-44	23	633,206.88	27,530.73
45-49	48	1,226,964.00	25,561.75
50-54	55	1,568,800.92	28,523.65
55-59	136	3,745,916.88	27,543.51
60-64	170	4,365,365.16	25,678.62
65-69	250	6,298,021.56	25,192.09
70-74	222	4,688,547.24	21,119.58
75-79	**202**	3,494,608.80	17,300.04
80-84	222	3,060,510.00	13,786.08
85+	198	1,872,698.52	9,458.07
Total	**1,534**	**$31,071,757.56**	**$20,255.38**

Demographic Data as of January 1, 2011

Changes in Plan Participation for Active Members

Active Members	Number
As of January 1, 2009	898
New Entrants	43
Transfer from Another Plan	2
Total	943
Separation from Active Service	
Separation with a Deferred Benefit	(12)
Separation without a Deferred Benefit	(22)
Disability	(3)
Death	(6)
Retirement with a Service Retirement Benefit	(20)
Total Separations	(63)
Data Adjustments	0
Active Members as of January 1, 2011	880

Changes in Plan Participants for Inactive Members and Survivors

	Deferred Vested Retirees	Regular Retirements	Disability Retirement	Survivors		Total
				Child	Other	
As of January 1, 2009	4	699	388	3	502	1,596
New Benefit Recipients	12	20	3	1	55	91
Death	0	(57)	(22)	0	(59)	(138)
Commencement of Deferred Benefits	(3)	2	1	0	0	0
Other Cessation of Benefits	0	0	0	(2)	0	(2)
Net Data Adjustments	2	0	0	0	0	2
As of January 1, 2011	15	664	370	2	498	1,549

Section Nine: Plan Assets

Combined Municipal Pension Trust Fund Calendar Year 2009

Source of Asset Information

The assets of the Aggregated Trust for the City's pension plans are summarized in the following tables based on the information provided by the City and by Maher Duessel. Assets are shown at market value.

Summary of Values for Aggregated Trust

	1/1/09	1/1/10
Market Value of Assets - Cash Basis	$262,608,291	$284,621,678
Accrued Interest	625,027	1,382,083
Accrued Contributions	0	7,288
Other Receivables	0	0
Accrued Expenses and Other Payables	(2,325,696)	(2,681,768)
Market Value of Assets - Accrual Basis	$260,907,622	$283,329,281

Summary of Transactions for the Aggregated Trust

Balance as of January 1, 2009		$260,907,622
Contributions Toward Pension Liability		
- Policemen's	$22,469,471	
- Firemen's	20,282,196	
- Municipal	13,561,823	$ 56,313,491
Miscellaneous and Pass Through Items		4,655,642
Interest and Dividends		9,010,852
Net Appreciation (Decline) in Fair Value Of Investments		36,537,576
Payments to Participants		
- Policemen's	$ 33,268,221	
- Firemen's	27,962,043	
- Municipal	19,887,553	(81,117,817)
Expenses		(2,978,084)
Balance as of December 31, 2009		**$283,329,281**

Undivided Participation Calculation Calendar Year 2009 - Accrual Basis

	Policemen's	Firemen's	Municipal	Total
January 1, 2009 Market Value	$81,203,837	$90,994,141	$ 88,709,644	$260,907,622
Plan-Specific Contributions	23,860,501	20,716,962	15,373,832	59,951,296
Plan-Specific Distributions	(33,611,738)	(28,199,854)	(20,209,729)	(82,021,321)
Sub-Total	$71,452,600	$83,511,249	$83,873,747	$238,837,597
Sub-Total Percentages	29.92%	34.97%	35.11%	100.00%
Allocated Expenses	(620,714)	(725,481)	(728,385)	(2,074,580)
Allocated Investment Earnings	13,932,626	16,284,223	16,349,415	46,566,264
December 31, 2009 Market Value	$84,764,512	$99,069,992	$99,494,777	$283,329,281

Contributions and Distributions for 2009 - Accrual Basis

Plan-Specific Contributions	Policemen's	Firemen's	Municipal	Total
General Municipal Pension System State Aid	$5,561,608	$3,878,737	$5,589,760	$15,030,106
Adjustment for 2006 MMO	(1,224,832)	2,967,459	252,593	1,995,220
Member Contributions	3,453,346	3,198,573	3,150,921	9,802,840
City Contributions	14,679,349	10,237,427	4,568,549	29,485,325
Pass Through Contributions	1,391,030	425,000	1,812,009	3,628,039
Miscellaneous Income	0	9,766	0	9,766
Total Contributions	**$23,860,501**	**$20,716,962**	**$15,373,832**	**$59,951,296**

Plan-Specific Distributions				
Benefit Payments to Participants	$33,067,715	$27,887,469	$19,616,639	$80,571,823
Refunds to Participants	200,506	74,574	270,914	545,994
Administrative Expenses	343,517	237,811	322,176	903,504
Total Distributions	**$33,611,738**	**$28,199,854**	**$20,209,729**	**$82,021,321**

Combined Municipal Pension Trust Fund Calendar Year 2010

Source of Asset Information

The assets of the Aggregated Trust for the City's pension plans are summarized in the following tables based on the information provided by the City and by Maher Duessel. As directed by the Trustees of the City of Pittsburgh Comprehensive Municipal Pension Trust Fund, the values represent a combination of the assets listed in the City's 2010 Comprehensive Annual Financial Report (CAFR) and the present value calculated by Gleason and Associates of the dedicated stream of revenues created by City Ordinances 42 & 44 of 2010. Assets are shown at market value.

Summary of Values for the Aggregated Trust

	1/1/10	1/1/11
Market Value of Assets – Cash Basis	$ 284,621,678	$ 334,927,888
Accrued Interest	1,382,083	540,982
Accrued Contributions	7,288	12,606
Other Receivables (Present Value of Revenue Stream)	0	238,572,759
Accrued Expenses and other Payables	(2,681,768)	(2,671,784)
Market Value of Assets – Accrual Basis	$ 283,329,281	$ 571,382,451

Summary of Transactions for the Aggregated Trust

Balance as of January 1, 2010		$ 283,329,281
Contributions toward Pension Liability		
- Policemen's	$ 157,376,630	
- Firemen's	111,970,854	
- Municipal	80,982,788	$ 350,330,272
Miscellaneous and Pass Through Items		3,507,889
Interest and Dividends		4,678,249
Net Appreciation (Decline) in Fair Value of Investments		12,757,573
Payments to Participants		
- Policemen's	$ 32,395,004	
- Firemen's	28,020,271	
- Municipal	20,855,167	(81,270,442)
Expenses		(1,950,372)
Balance as of December 31, 2010		**$ 571,382,451**

Undivided Participation Calculation Calendar Year 2010 - Accrual Basis

	Policemen's	Firemen's	Municipal	Total
January 1, 2010 Market Value	$84,764,512	$99,069,992	$99,494,777	$283,329,281
Plan-Specific Contributions	50,789,734	36,268,001	28,170,944	115,228,679
Plan-Specific Distributions	(32,719,838)	(28,254,523)	(21,147,046)	(82,121,407)
Sub-Total	$102,834,408	$107,083,470	$106,518,675	$316,436,553
Sub-Total Percentage	32.50%	33.84%	33.66%	100.00%
Allocated Expenses	(357,307)	(372,039)	(370,061)	(1,099,407)
Allocated Investment Earnings	5,678,577	5,912,710	5,881,259	17,472,546
Market Value Without Parking Revenue	$ 108,155,678	$ 112,624,141	$ 112,029,873	$332,809,692
Value of Future Dedicated Parking Tax Revenue	107,894,530	76,097,553	54,580,676	238,572,759
December 31, 2010 Market Value	$ 216,050,208	$ 188,721,694	$ 166,610,549	$ 571,382,451

Contributions and Distributions for 2010 - Accrual Basis

Plan-Specific Contributions	Policemen's	Firemen's	Municipal	Total
General Municipal Pension System State Aid	$ 7,052,918	$ 4,974,393	$ 3,567,864	$15,595,175
Adjustment for 2008 MMO	(10,204)	(1,537)	11,741	0
Member Contributions	3,539,856	3,464,771	3,144,377	10,149,003
City Contributions*	38,899,531	27,435,673	19,678,131	86,013,335
Pass Through Contributions	1,307,634	385,100	1,768,831	3,461,565
Miscellaneous Income	0	9,600	0	9,600
Total Contributions	**$50,789,734**	**$36,268,001**	**$28,170,944**	**$115,228,679**
Plan-Specific Distributions				
Benefit Payments to Participants	$32,261,808	$27,977,630	$20,105,804	$ 80,345,242
Refunds to Participants	133,196	42,641	749,363	925,200
Administrative Expenses	324,834	234,252	291,879	850,965
Total Distributions	**$32,719,838**	**$28,254,523**	**$21,147,046**	**$82,121,407**

*City contributions for 2010 include the transfer of $45 million from the City's Debt Service Reserve Fund to the Pension Fund.

Calculation of Actuarial Value of Assets

Description of Method

The Actuarial Value of Assets is determined by a Tabular Smoothing Method which takes the Actuarial Value of Assets from the prior valuation report and brings it forward using a specified interest rate. The Actuarial Value of Assets in the prior report, contributions by year, and annual disbursements are each credited with interest at a rate of one percent less than the prior valuation interest rate assumption. The resulting value is further subject to a minimum of 70 percent and a maximum of 130 percent of the market value of assets.

Development of the Actuarial Value of Assets

Market Value of Assets at January 1, 2011	$ 216,050,208
Actuarial Value of Assets at January 1, 2009	$105,564,988
Contributions During 2009	23,860,501
Disbursements During 2009	(34,232,452)
Interest Credited During 2009	7,032,671
Tabular Smoothing Value of Assets at January 1, 2010	$102,225,708
Tabular Smoothing Value of Assets at January 1, 2010	$102,225,708
Contributions During 2010	158,684,265
Disbursements During 2010	(33,077,145)
Interest Credited During 2010	7,179,714
Tabular Smoothing Value of Assets at January 1, 2011	$235,012,542
Low Limit: 70% of Market Value	$151,235,146
High Limit: 130% of Market Value	$280,865,270
Actuarial Value of Assets at January 1, 2011	$235,012,542

Section Ten: Supplementary Exhibits for Plans Funded With Pension Bond Proceeds

Table 5: Unfunded Actuarial Accrued Liability Excluding Assets Arising from Pension Bond Proceeds

Assets Excluding Pension Bond Proceeds			
Assets Excluding Bond Proceeds at January 1, 2009			$ 0
Receipts	**2009**	**2010**	
Employer Contributions	$ 23,285,602	$ 146,783,857	
Employee Contributions	3,453,346	3,539,856	
State Aid	5,561,608	7,052,918	
Investment Income	0	142,955	
Net Appreciation	0	372,021	
Pass Through Contributions	1,391,030	1,307,634	
Total Receipts			$192,890,827
Disbursements			
Monthly Benefit Payments	$ 31,676,685	$ 30,954,174	
Refund of Employee Contributions	200,506	133,196	
Administrative Expenses	423,365	486,108	
Pass Through Payments	1,391,030	1,307,634	
Total Disbursements			(66,572,698)
Assets Excluding Bond Proceeds at January 1, 2011			$126,318,129

Development of Actuarial Value of Assets Excluding Bond Proceeds

Market Value of Assets Excluding Bond Proceeds at January 1, 2011		$126,318,129
Actuarial Value of Assets Excluding Bond Proceeds at January 1, 2009		$ 0
Contributions During 2009		33,691,586
Disbursements During 2009		(33,691,586)
Interest Credited During 2009		(282,682)
Tabular Smoothing Value of Assets at January 1, 2010		$(282,682)
Tabular Smoothing Value of Assets at January 1, 2010		$(282,682)
Contributions During 2010		158,684,265
Disbursements During 2010		(32,881,112)
Interest Credited During 2010		10,872
Tabular Smoothing Value of Assets at January 1, 2011		$125,531,343
Low Limit	70 Percent of Market Value	$88,422,691
High Limit	130 Percent of Market Value	$164,213,568
Actuarial Value of Assets Excluding Bond Proceeds at January 1, 2011		**$126,318,129**
Unfunded Actuarial Accrued Liability Excluding Assets from Bond Proceeds		
Actuarial Accrued Liability (Table 1)		$390,253,799
Actuarial Value of Assets Excluding Bond Proceeds at January 1, 2011		(126,318,129)
Adjusted Unfunded Actuarial Accrued Liability		$263,935,670

Table 6: Actuarial (Gain) Loss Determination Excluding Assets Arising from Pension Bond Proceeds

Reconciliation of Funded Status			
Unfunded Actuarial Accrued Liability as of January 1, 2009			$387,857,613
	2009	**2010**	
Normal Cost/Admin Expenses Assumed	$8,688,431	$9,188,016	17,876,447
Interest Charged at Valuation Rate			66,720,304
Contributions Made			
- Municipality	$23,285,602	$146,783,857	
- State Aid Allocated	5,561,608	7,052,918	
- Employees	3,453,346	3,539,856	$(189,677,187)
Interest Credited at Valuation Rate			(5,199,948)
Special Adjustment Because of Higher Act 82 Interest Rate			(14,069,870)
Expected Unfunded Actuarial Accrued Liability Before Adjustments			$263,507,359
Experience from Investment Return			
- Comparative Interest Rate Amortization Tab. (Gain) Loss		$(5,034,521)	
- Other Investment Return (Gain) Loss		17,983,548	12,949,027
Experience (Gain) Loss from all Other Sources			(9,051,881)
Increase (Decrease) in Unfunded Actuarial Accrued Liability			
- Benefit Modifications for Actives		$ 0	
- Benefit Modifications for Retirees		0	
- Change in Actuarial Assumption		(3,468,835)	(3,468,835)
Actual Unfunded Actuarial Accrued Liability			$263,935,670

Loss (Gain) to be Amortized		
Experience (Gain) Loss from January 1, 2009		$ 3,897,146
Actuarially Required Contributions and Bond Proceeds w/Interest	$59,048,165	
Actual Contributions with Interest	(194,877,135)	
Contribution (Gain) Loss		(135,828,970)
Loss (Gain) to be Amortized		$ (131,931,824)

Comparative Interest Rate Amortization Tabulation			
Balance Calculated Using Actual Investment Return	**2009**	**2010**	
Act 82 Amortization Balance at January 1	$301,152,697	$373,829,468	
Act 82 Amortization Payment	14,773,769	14,773,769	
Comparative Interest Rate Balance at January 1	$315,926,465	$388,603,237	
Actual Investment Return on Balance	57,903,003	14,953,453	
Actual Act 82 Amort. Balance at December 31	$373,829,468	$403,556,690	$403,556,690
Balance Calculated Using 10 Percent Investment Return			
Comparative Interest Rate Balance at January 1	$315,926,465	$362,292,881	
Interest at 10 Percent	31,592,647	36,229,288	
Comparative Act 82 Amort. Bal. at December 31	$347,519,112	$398,522,169	$398,522,169
Comparative Interest Rate Amortization Tabulation (Gain) Loss			$ (5,034,521)

Table 7: Amortization of Unfunded Actuarial Accrued Liability Excluding Assets Arising from Pension Bond Proceeds

Source	Original Amount	Year Est.	Target Year	Remaining Balance	Remaining Payments	Annual Amount
Initial	$251,025,283	1998	2037	$348,438,817	27	$14,773,769
Assumption Change	$(2,912,234)	1998	2017	$(1,586,690)	7	$(282,185)
Experience Gain	(675,232)	1999	2013	(209,185)	3	(75,158)
Experience Gain	(927,052)	2000	2014	(367,734)	4	(102,802)
Experience Loss	6,608,820	2001	2015	3,148,777	5	730,214
Assumption Change	597,864	2002	2021	441,150	11	57,217
Experience Loss	4,011,726	2002	2016	2,205,332	6	441,710
Investment Loss	4,719,077	2002	2032	4,162,576	22	377,839
Assumption Change	(4,706,925)	2003	2022	(3,656,009)	12	(449,198)
Ben. Mod.-Retired	5,143,958	2003	2012	1,390,372	2	721,924
Experience Loss	7,791,758	2003	2017	4,807,636	7	855,013
Investment Loss	5,247,684	2003	2032	4,792,061	22	434,977
Assumption Change	(369,251)	2005	2024	(312,423)	14	(35,089)
Experience Loss	32,464,355	2005	2019	23,911,926	9	3,544,272
Experience Gain	(10,320,889)	2007	2021	(8,646,262)	11	(1,121,423)
Assumption Change	23,816,931	2009	2028	22,734,390	18	2,246,118
Experience Gain	(2,009,753)	2009	2028	(1,918,405)	18	(189,535)
Agg. Changes through Last Valuation	N/A	N/A	2020	$50,897,512	10	$7,153,894
Assumption Change	$(3,468,835)	2011	2025	$(3,468,835)	15	$(375,243)
Ben. Mod.-Actives	N/A					
Ben. Mod.-Retired	N/A					
Experience Gain	(131,931,824)	2011	2030	(131,931,824)	20	(12,442,174)
Agg. Change - 2011	N/A	N/A	2030	$(135,400,659)	20	$(12,817,417)
Aggregate Changes	N/A	N/A		$(84,503,147)		$(5,663,523)
Aggregate	N/A	N/A		$263,935,670		$9,110,246

Details of the Calculation of Act 82 Payment

Act 82 Unfunded Actuarial Accrued Liability	$ 251,025,283
40-Year Amortization Payment	$ 20,927,824
Future Value at End of 40-Year Period	$7,192,636,133
Payment to Provide the Same Future Value with 10% Annual Earnings	$ 14,773,769

Debt Service Schedule by Plan Year
Pension Bond Issue of March 10, 1998

	Date of Original Borrowing	Total Principal Borrowed	Total Principal to this Plan	Percentage to this Plan	Date of Refinancing
	3/10/98	$255,865,000	$120,512,415.10	47.6%	N/A
Plan Year	**Req. Prin.Pymt.**	**Req.Int.Pymt.**	**Annual Debt Service**	**Disc.Amort.**	**Prin.Balance at Val Date**
1998		$3,921,658.75	$3,921,658.75	$ 0	$120,512,415.10
1999	$471,000.00	7,830,011.75	8,301,011.75	0	120,512,415.10
2000	471,000.00	7,803,518.00	8,274,518.00	0	120,041,415.10
2001	471,000.00	7,776,882.95	8,247,882.95	0	119,570,415.10
2002	471,000.00	7,749,753.35	8,220,753.35	0	119,099,415.10
2003	471,000.00	7,722,411.80	8,193,411.80	0	118,628,415.10
2004	471,000.00	7,694,787.65	8,165,787.65	0	118,157,415.10
2005	1,179,855.01	7,645,426.83	8,825,281.84	0	117,686,415.10
2006	1,092,720.01	7,576,976.41	8,669,696.42	0	116,506,560.09
2007	1,158,660.01	7,508,582.50	8,667,242.51	0	115,413,840.08
2008	1,208,115.01	7,436,244.85	8,644,359.86	0	114,255,180.07
2009	1,304,670.00	7,353,582.89	8,658,252.89	0	113,047,065.06
2010	1,417,710.00	7,263,616.00	8,681,326.00	0	111,742,395.06
2011	1,521,330.00	7,171,771.00	8,693,101.00	0	110,324,685.06
2012	3,716,190.01	7,007,169.44	10,723,359.45	0	108,803,355.06
2013	5,173,935.00	6,725,837.03	11,899,772.03	0	105,087,165.05
2014	5,505,990.01	6,382,619.91	11,888,609.92	0	99,913,230.05
2015	5,988,765.01	6,009,040.37	11,997,805.38	0	94,407,240.04
2016	6,386,760.00	5,606,835.82	11,993,595.82	0	88,418,475.03
2017	8,593,395.01	5,119,980.78	13,713,375.79	0	82,031,715.03
2018	6,233,685.01	4,638,100.67	10,871,785.68	0	73,438,320.02
2019	9,434,130.01	4,124,179.63	13,558,309.64	0	67,204,635.01
2020	10,079,400.01	3,480,233.14	13,559,633.15	0	57,770,505.00
2021	10,767,060.01	2,792,299.96	13,559,359.97	0	47,691,104.99
2022	11,504,175.00	2,057,349.21	13,561,524.21	0	36,924,044.98
2023	12,290,744.99	1,272,116.86	13,562,861.85	0	25,419,869.98
2024	13,129,124.99	433,261.15	13,562,386.14	0	13,129,124.99

Section Eleven: Glossary

Accrued Benefit
The portion of the participant's retirement benefit that is attributable to service completed before the calculation date. The calculation typically uses actual service as of the calculation date and may involve other factors such as average pay at the determination date and projected service through the retirement eligibility date.

Act 205 of 1984
Municipal Pension Plan Funding Standard and Recovery Act of December 18, 1984, P.L. 1005, No. 205. The Act controls pension funding in Pennsylvania. This Act also provides for reporting of actuarial information and for a recovery program for qualifying municipalities.

Actuarial Accrued Liability
The portion of the actuarial cost assigned to prior years.

Actuarial Assumptions
Factors used by the actuary to forecast future events. These factors include items relating to future economic conditions, the survival of the participants and their beneficiaries, and the length of employment.

Actuarial Cost Method
A means of assigning costs to periods of employment. This method is used to determine a funding level that will provide sufficient assets to pay benefits for each participant upon retirement. Act 205 specifies that the entry age normal cost method, as described in the Act, should be used for this determination.

Actuarial Gain or Loss
The effect on the actuarial accrued liability of differences between events as predicted by the actuarial assumptions and those that actually occurred. This difference can increase or decrease the contribution in future years.

Actuarial Present Value
The lump sum value that is equivalent to an expected series of future payments. This value is determined by using the actuarial assumptions. An actuarial present value, as of the valuation date, represents the amount of funds that would be sufficient to provide the series of payments, if experience precisely matches the actuarial assumptions.

Actuarial Value of Assets
The value of current plan assets which is used by the actuary to evaluate the current funding status and determine future funding requirements. Under Act 205, a corridor limitation requires that this value be between 80 and 120 percent of the fair market value of the assets except for certain temporary periods for which an expanded corridor of between 70 and 130 percent of the fair market value applies.

Administrative Expenses
The average of expenses to administer the plan that is paid in the year preceding the most recent valuation and the anticipated expenses for the year following this valuation. The average is converted to a percentage of payroll and used as part of the Minimum Municipal Obligation calculation.

Amortization Payment
The annual payment required to eventually eliminate the unfunded actuarial accrued liability according to the schedule established in Act 205.

Funding Adjustment
Occurs when the actuarial value of assets exceeds the actuarial accrued liability; it is defined by Act 205 as 10 percent of the excess. This adjustment reduces the amount that must be contributed to the pension plan.

General Municipal Pension System State Aid
Annually municipalities receive a portion of the insurance premium tax levied on casualty insurance companies headquartered outside of Pennsylvania. If they have paid firefighters, they also receive a portion of the premium tax on out-of-state fire insurance companies. These taxes are distributed according to formula contained in Act 205.

Minimum Municipal Obligation
The amount that must be contributed to a pension plan by a municipality for a given year. The calculation of this amount uses the normal cost, anticipated administrative expenses, amortization payment or funding adjustment, and anticipated employee contributions to determine a municipality's contribution requirement. General Municipal Pension System State Aid may be used to reduce the contribution.

Normal Cost
The actuarial cost assigned to a given year to pay for the portion of the anticipated benefit derived from service during that year.

Unfunded Actuarial Accrued Liability
The amount by which the actuarial accrued liability exceeds the actuarial value of assets. A valuation will identify the value of changes in the unfunded actuarial accrued liability that result from changes in plan benefits, actuarial assumptions, or actuarial gains and losses.

Vesting
The participant's non-forfeitable right to receive a benefit, provided that the participant survives until benefit eligibility.