MOCKENHAUPT
BENEFITS GROUP

ACTUARIAL VALUATION REPORT

for the

City of Pittsburgh

Firemen's Relief and Pension Fund

as of

January 1, 2009

Report Date: July 26, 2010

One Gateway Center / Suite 1475 / 420 Fort Duquesne Boulevard / Pittsburgh, PA / 15222
412.394.9660 / 1.800.405.3620 / Fax: 412.394.6339

Table of Contents

Section One: Introduction

At the request of the City of Pittsburgh, we have completed an actuarial valuation of the City of Pittsburgh Firemen's Relief and Pension Fund as of January 1, 2009. Our actuarial valuation is based upon participant data as of January 1, 2009 and upon asset information as of December 31, 2008 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 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. This report also presents an alternative amortization payment that would amortize the entire unfunded liability over a 30-year period commencing January 1, 2009. The City has voluntarily elected to use this amount, which exceeds the current Act 205 minimum applicable to this Plan. This information is shown in Table 09-4.

For the minimum amortization under Act 205, the City is permitted to utilize provisions of Act 82 of 1998. As a result, 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 2. Bases for subsequent years are 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 qualified for Distress Level III according to the original requirements under Act 205 of 1984.

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, 2008 the calculated market value of assets in the Firemen's Relief and Pension Fund is $90,994,141. Section Nine contains exhibits illustrating the calculation of this amount.

2009 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, 2009 compared to the prior year are as follows:

	Current Year 2009	Prior Year 2007
Normal Cost as a Percentage of Total W-2 Payroll	12.080%	9.210%
Expenses as a Percentage of Total W-2 Payroll	2.400%	2.400%
Amortization Payment	$16,021,969	$11,765,333

The change in actuarial costs from valuation to valuation can be affected by changes in Plan provisions, assumption changes, and experience changes. Pension bonds were issued in March 1998. The debt service payment for 2009 is approximately $5.59 million.

Act 82

Act 82 of 1998 also has an impact on the actuarial costs of this pension plan. Act 82 allowed the City to change the amortization schedule for its Unfunded Actuarial Accrued Liability since pension bond proceeds were deposited 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. The annual amortization payment is calculated in several steps. An amortization payment is calculated that eliminates the Unfunded Actuarial Accrued Liability net of 1998 bond proceeds over a 40-year period using 8.75 percent interest. Next, the future value of these payments at the end of the 40-year period is calculated using 8.75 percent interest. Finally, an amortization payment is calculated using 10 percent interest that will have the same future value as the previous calculation. The 10 percent amortization amount becomes the amortization payment starting in 1998.

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. The gain or loss from the comparative interest rate tabulation will be combined with the other actuarial gains or losses for the year to determine the aggregate annual gain or loss. The comparative interest rate tabulation is included in Table 09-2. A similar calculation is included in Table 09-6 which is part of the information that will be used to determine State Aid.

Assumption Changes

Two significant assumption-related changes have been made since the January 1, 2007 actuarial valuation. The valuation interest rate has been reduced from 8.75 percent to 8.00 percent and the actuarial valuation of assets is now determined using a tabular smoothing method.

The reduction in the interest rate was originally suggested by Mercer Investment Group in their Asset/Liability study of December 2008. We confirmed our agreement with this recommendation as a result of our Experience Study 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 interest rate assumption. There were no other assumption changes recommended for this plan in the 2009 study.

Act 44 of 2009 added a tabular reserve smoothing method as one permissible actuarial asset valuation method for Act 205 valuations. The City has adopted this method for the January 1, 2009 valuations of its Plans. A smoothing method is designed to lessen the year-to-year impact of large fluctuations in market value, while not deviating by too great an amount from fair market value. For 2009, and for additional valuation years, if the municipality meets certain distress criteria, the tabular reserve method is capped at 130 percent of market value. Thereafter, it is capped at 120 percent of fair market value. The tabular reserve method is likely to be higher than market value for a relatively long period of time compared to more common asset smoothing methods that typically yield greater values over a shorter period of three to five years. Higher asset values under the tabular reserve method will reduce contribution requirements and produce higher funding ratios at a given point in time, but the latter is a matter of appearances only, because assets will accumulate more slowly due to the reduced contributions.

The decrease in the interest rate acts to increase actuarial accrued liability (total and unfunded) whereas the tabular smoothing method decreases unfunded actuarial accrued liability by assigning a higher current actuarial value to assets. The interest rate assumption change increased the total actuarial accrued liability by $20,140,272, an increase of approximately 6.42 percent. The tabular smoothing method increased the actuarial value of assets by $27,298,242. The net effect of these changes is a decrease in the unfunded actuarial accrued liability of $7,157,970.

Benefit Changes

There were no benefit changes during the period from January 1, 2007 through January 1, 2009. 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. The change in the normal cost percentage from 2007 to 2009 was mainly the result of assumption changes rather than experience.

Generally, experience changes affect the current year's actuarial gain or loss to a greater degree than they affect 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 2009, a new actuarial loss base of $55,699,104 has been established. Of this loss, $39,761,840 relates to experience since January 1, 2007 in comparison with the actuarial assumptions. The remaining $15,937,264 arises from the Minimum Municipal Obligation (MMO) procedures under Act 205.

The major reason for the $39,761,840 loss from assumptions was the investment performance for the two-year period, which was significantly lower than if earnings on plan assets of 8.75 percent per year, the previous valuation interest rate assumption, had occurred. For all other assumptions combined, a relatively small gain of about 0.5 percent of the actuarial accrued liability was experienced.

The loss of $15,937,264 from the MMO procedures arose because Act 205 required that the MMOs for 2007 and 2008 be presented to City Council by September 30, 2006 and September 30, 2007 respectively. Actuarial cost components from the January 1, 2005 valuation had to be used for this purpose because these due dates fell prior to the completion of the January 1, 2007 actuarial valuation. When the January 1, 2007 actuarial valuation was completed, higher costs were indicated. Because these amounts were not calculable at the time of the MMO, the $15,937,264 represents the deferred recognition of these higher costs and is amortized as part of this valuation's actuarial loss.

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 35.4 percent (refer to Table 09-1 for the values used in this calculation). As of January 1, 2007, the corresponding ratio was 46.3 percent so the current valuation shows a decrease of 10.9 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.

As long as the funding rules of Act 205 are followed and the MMO contributed, plans will generally remain satisfactorily funded even if the funding ratio falls temporarily. However, the funding ratios for all three of the City of Pittsburgh Pension Plans were relatively low, both before and after recognition of the changes from the last valuation.

It is worth noting that if market value of assets was used as the actuarial value of assets instead of asset smoothing, minimum annual costs based on this valuation would be even higher, by approximately $2,574,432 and the funding ratio would be 27.2 percent. Without regard to any other changes, if market returns in excess of the assumed 8 percent rate of return are not realized in the next two years, increased costs will be reflected after the January 1, 2011 valuation.

Accounting Information

This valuation also includes certain actuarial information required for accounting purposes. Section Six is a summary of the actuarial present values of accumulated Plan benefits and the pension benefit obligation.

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.

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

MOCKENHAUPT BENEFITS GROUP

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	01/01/09	01/01/07	Change
Total Active	642	622	20
Vested	177	150	27
Not Vested	465	472	(7)
Total In Payment Status	1,165	1,198	(33)
Retirement Benefits	574	598	(24)
Disability Benefits	245	252	(7)
Survivor Benefits	346	348	(2)
Deferred	1	4	(3)
Total	**1,808**	**1,824**	**(16)**

Average Monthly Benefit

In Payment Status			
Retirement Benefits	$2,129	$2,587	$(458)
Disability Benefits	$2,673	$2,006	$667
Survivor Benefits	$ 630	$ 581	$ 49
Deferred	$3,194	$2,745	$449

Active Participant Averages

Hire Age	29.8	29.7	0.1
Attained Age	43.7	43.1	0.6
Normal Retirement Age	53.3	53.0	0.3
Assumed Future Service	18.0	19.0	(1.0)
Monthly Compensation	$6,113	$5,634	$ 479

Financial Data

Market Value of Assets	$90,994,141	$142,787,099	$ (51,792,958)
Accumulated Employee Contributions	$29,882,006	$ 24,084,425	$ 5,797,581

Cost Components

Normal Cost as a percentage of total payroll	12.080%	9.210%	2.870%
Expenses as a percentage of total payroll	2.400%	2.400%	0.000%
Total	14.480%	11.610%	2.870%
Amortization Payment	$16,021,969	$11,765,333	$ 4,256,636

Section Four: Summary of Plan Provisions

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
Members hired before January 1, 1976	Completion of 20 years of service
Monthly Benefit	Equal to 50% of average compensation plus service increment, if any
Late Retirement	
Eligibility	Employment beyond normal retirement
Amount of Benefit	Normal retirement benefit based upon average compensation as calculated at actual retirement
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
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

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 1/2 percent of compensation

Section Five: Development of Contribution Requirements

Table 09-1: Normal Cost and Actuarial Accrued Liability

Normal Cost

Retirement Benefits	$3,728,755
Disability Benefits	1,724,167
Preretirement Death Benefits	174,349
Postretirement Death Benefits	2,746
Refunds to Withdrawals	89,931
Medicare Premium Benefits	0
Vested Benefits	18,976
Total	**$5,738,924**

Actuarial Accrued Liability

Actuarial Present Value of Benefits at Attained Age

	Deferred	In Payment	Active	All
Retirement Benefits	$ 397,331	$ 164,904,993	$121,279,963	$286,582,287
Disability Benefits	0	55,230,374	38,566,919	93,797,293
Survivor Benefits	0	17,967,940	0	17,967,940
Preretirement Death Benefits	0	0	3,213,101	3,213,101
Postretirement Death Benefits	0	0	80,643	80,643
Refunds to Withdrawals	0	0	974,159	974,159
Medicare Premium Benefits	0	0	0	0
Vested Benefits	0	0	336,496	336,496
Total	**$ 397,331**	**$238,103,307**	**$164,451,281**	**$402,951,919**

Actuarial Present Value of Future Normal Costs

Retirement Benefits	$44,825,324	
Disability Benefits	20,602,326	
Preretirement Death Benefits	2,081,251	
Postretirement Death Benefits	27,793	
Refunds to Withdrawals	1,088,448	
Medicare Premium Benefits	0	
Vested Benefits	267,153	
Total	**$68,892,295**	**($68,892,295)**

Actuarial Accrued Liability	$334,059,624

Unfunded Actuarial Accrued Liability

Actuarial Accrued Liability	$334,059,624
Actuarial Value of Assets	(118,292,383)
Unfunded Actuarial Accrued Liability	**$215,767,241**

Table 09-2: Actuarial (Gain) Loss Determination

Reconciliation of Funded Status

	2007	2008	
Unfunded Actuarial Accrued Liability as of January 1, 2007			$ 165,625,303
Normal Cost/Administrative Expenses Assumed	$ 5,523,063	$ 5,818,761	11,341,824
Interest Charged at Valuation Rate			31,770,460
Contributions Made			
- Municipality	$ 3,836,514	$ 3,896,003	
- State Aid Allocated	4,014,402	4,059,384	
- Employees	2,955,857	3,189,198	$ (21,951,358)
Interest Credited at Valuation Rate			(1,680,307)
Special Adjustment Because of Higher Act 82 Interest Rate			(1,942,551)
Expected Unfunded Actuarial Accrued Liability Before Adjustments			$183,163,371
Experience from Investment Return			
- Comparative Interest Rate Amortization Tab. (Gain) Loss		$ 26,876,717	
- Other Investment Return (Gain) Loss		14,621,951	41,498,668
Experience (Gain) Loss from all Other Sources			(1,736,828)
Increase (Decrease) in Unfunded Actuarial Accrued Liability			
- Benefit Modifications for Actives		$ 0	
- Benefit Modifications for Retirees		0	
- Change in Actuarial Asset Valuation Method		(27,298,242)	
- Change in Actuarial Assumptions (Interest Rate)		20,140,272	(7,157,970)
Actual Unfunded Actuarial Accrued Liability			$215,767,241

Loss (Gain) to be Amortized

Experience (Gain) Loss from January 1, 2007		$ 39,761,840
Actuarially Required Contributions and Bond Proceeds with Interest	$39,568,929	
Actual Contributions with Interest	(23,631,665)	
Contribution (Gain) Loss		15,937,264
Loss (Gain) to be Amortized		$55,699,104

Comparative Interest Rate Amortization Tabulation

Balance Calculated Using Actual Investment Return	2007	2008	
Act 82 Amortization Balance at January 1	$ 64,727,673	$ 76,817,161	
Act 82 Amortization Payment	4,333,255	4,333,255	
Comparative Interest Rate Balance at January 1	$ 69,060,928	$ 81,150,416	
Actual Investment Return on Balance	7,756,233	(19,696,829)	
Actual Act 82 Amort. Balance at December 31	$ 76,817,161	$61,453,587	$61,453,587
Balance Calculated Using 10 Percent Investment Return			
Comparative Interest Rate Balance at January 1	$ 69,060,928	$ 80,300,276	
Interest at 10 Percent	6,906,093	8,030,028	
Comparative Act 82 Amort. Bal. at December 31	$ 75,967,021	$ 88,330,304	$ 88,330,304
Comparative Interest Rate Amortization Tabulation (Gain) Loss			$ 26,876,717

Table 09-3: Amortization of Unfunded Actuarial Accrued Liability

Source	Original Amount	Year Est.	Target Year	Remaining Balance	Remaining Payments	Annual Amount
Initial	$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. - Actives	957,341	2003	2022	813,472	14	91,363
Ben. Mod. - Retired	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
Agg. Changes through Last Valuation	N/A	N/A	2026	$70,304,649	18	$7,110,916
Assumption Change	(7,157,970)	2009	2028	(7,157,970)	20	(675,051)
Ben. Mod. – Actives	N/A					
Ben. Mod. – Retired	N/A					
Experience Loss	55,699,104	2009	2028	55,699,104	20	5,252,849
Agg. Changes-2009	N/A	N/A	2028	$48,541,134	20	$4,577,798
Aggregate Changes	N/A	N/A	2027	$118,845,783	19	$11,688,714
Aggregate	N/A	N/A		$215,767,241		$16,021,969

Details of the Calculation of Act 82 Payment

Act 82 Unfunded Actuarial Accrued Liability	$ 73,627,561
40-Year Amortization Payment	$ 6,138,285
Future Value at end of 40-Year period	$ 2,109,653,057
Payment to provide the same future value with 10% annual earnings	$ 4,333,255

Table 09-4: Required Municipal Contributions

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 09-1)	$ 5,738,924
Total Annual Payroll	$ 47,509,475
Percentages for Budget	
• Normal Cost (Normal Cost divided by Total Annual Payroll)	12.080%
• Administrative Expense (as a % of Payroll)	2.400%
• Gross Normal Cost	14.480%
Net Amortization Payment (Table 09-3)	$ 16,021,969
Funding Adjustment	$ 0

Alternative Amortization Payment

The City has voluntarily elected to amortize the entire unfunded liability over a 30-year period commencing January 1, 2009.

30-Year Amortization Payment	$ 17,746,343

Section Six: Accounting Information

Accumulated Plan Benefits		**01/01/09**	**01/01/07**
Assets at Market Value		**$ 90,994,141**	**$142,787,099**
Actuarial Present Value of Vested Benefits			
Retired	$238,103,307		
Deferred	397,331		
Employee Contributions	3,565,833		
Active	41,455,810		
Total		**$283,522,281**	**$266,744,054**
Unfunded Actuarial Present Value of Vested Benefits		**$192,528,140**	**$123,956,955**
Actuarial Present Value of Accrued Benefits			
Retired	$238,103,307		
Deferred	397,331		
Employee Contributions	462,154		
Active	71,895,144		
Total		**$310,857,936**	**$288,092,664**
Unfunded Actuarial Present Value of Accrued Benefits		**$219,863,795**	**$145,305,565**

GAS #27 Information

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

	2007	2008
Annual Required Contribution (ARC)	$ 7,850,916	$ 11,467,374
Interest on NPO	0	0
Adjustment to the ARC	0	0
Annual pension cost	7,850,916	11,467,374
Contributions made	7,850,916	7,955,387
Change in NPO	0	3,511,987
NPO, Beginning of Year (1/1)	0	0
NPO, End of Year (12/31)	$ 0	$3,511,987

Annual Pension Cost for the Year Beginning 1/1/2009

Annual Required Contribution (ARC)	$ 24,173,258
Interest on NPO	307,299
Adjustment to the ARC	(429,284)
Annual Pension Cost	$ 24,051,273

Other Information from the 1/1/2009 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	5.75%
Underlying Inflation Rate	3.50%

Section Seven: Actuarial Basis of Valuation

Actuarial Assumptions: January 1, 2009

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):

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	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:

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

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.

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	6	2	6	0	0	0	0	0	0	0	**14**
25-29	8	4	28	12	1	0	0	0	0	0	**53**
30-34	6	8	18	23	11	0	0	0	0	0	**66**
35-39	5	5	8	10	36	24	2	0	0	0	**90**
40-44	0	3	4	6	31	33	20	1	0	0	**98**
45-49	2	2	4	3	25	24	16	27	7	0	**110**
50-54	1	0	4	1	8	9	24	37	37	5	**126**
55-59	0	0	0	0	2	1	10	11	11	16	**51**
60-64	0	0	0	0	0	2	7	4	3	18	**34**
65+	0	0	0	0	0	0	0	0	0	0	**0**
Total	28	24	72	55	114	93	79	80	58	39	**642**

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	0	0.00	0.00
45-49	0	0.00	0.00
50-54	1	$ 38,328.36	$ 38,328.36
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	**1**	**$ 38,328.36**	**$ 38,328.36**

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	29	$ 1,155,691.68	$ 39,851.44
55-59	126	5,000,330.64	39,685.16
60-64	118	4,438,140.84	37,611.36
65-69	74	2,578,877.04	34,849.69
70-74	63	1,949,640.12	30,946.67
75-79	60	1,380,386.16	23,006.44
80-84	77	1,505,154.72	19,547.46
85+	27	402,467.04	14,906.19
Total	**574**	**$18,410,688.24**	**$ 32,074.37**

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	4	$ 126,168.96	$ 31,542.24
40-44	4	128,311.92	32,077.98
45-49	4	125,036.28	31,259.07
50-54	22	770,366.52	35,016.66
55-59	49	1,385,364.48	28,272.74
60-64	47	1,443,732.36	30,717.71
65-69	27	688,295.76	25,492.44
70-74	25	539,018.88	21,560.76
75-79	23	416,970.60	18,129.16
80-84	28	470,737.56	16,812.06
85+	12	164,227.32	13,685.61
Total	**245**	**$ 6,258,230.64**	**$ 25,543.80**

Age Distribution of Retired Participants

Survivors			
Age Group	Number of People	Total Annual Benefit	Average Annual Benefit
< 30	3	$ 20,665.32	$ 6,888.44
30-34	1	5,734.92	5,734.92
35-39	0	0.00	0.00
40-44	0	0.00	0.00
45-49	0	0.00	0.00
50-54	13	195,075.12	15,005.78
55-59	11	135,810.00	12,346.36
60-64	17	188,592.84	11,093.70
65-69	29	318,138.12	10,970.28
70-74	48	389,598.60	8,116.64
75-79	58	411,306.84	7,091.50
80-84	85	541,503.72	6,370.63
85+	81	410,739.96	5,070.86
Total	**346**	**$ 2,617,165.44**	**$ 7,564.06**

Age Distribution of Retired Participants

All Persons Receiving Benefits			
Age Group	Number of People	Total Annual Benefit	Average Annual Benefit
< 30	3	$ 20,665.32	$ 6,888.44
30-34	1	5,734.92	5,734.92
35-39	4	126,168.96	31,542.24
40-44	4	128,311.92	32,077.98
45-49	4	125,036.28	31,259.07
50-54	64	2,121,133.32	33,142.71
55-59	186	6,521,505.12	35,061.86
60-64	182	6,070,466.04	33,354.21
65-69	130	3,585,310.92	27,579.31
70-74	136	2,878,257.60	21,163.66
75-79	141	2,208,663.60	15,664.28
80-84	190	2,517,396.00	13,249.45
85+	120	977,434.32	8,145.29
Total	**1,165**	**$ 27,286,084.32**	**$ 23,421.53**

Demographic Data as of January 1, 2009

Changes in Plan Participation for Active Members

Active Members	Number
As of January 1, 2007	622
New Entrants	47
Transfer From Another Plan	5
Total	674
Separation from Active Service	
Separation with a Deferred Benefit	(1)
Separation without a Deferred Benefit	(1)
Transfer to another Plan	(1)
Disability	(12)
Death	(2)
Retirement with a Service Retirement Benefit	(15)
Total Separations	(32)
Data Adjustments	0
Active Members as of January 1, 2009	642

Changes in Plan Participants for Inactive Members and Survivors

	Deferred Vested	Regular Retirements	Disability Retirement	Survivors		Total
				Child	Other	
As of January 1, 2007	4	598	252	2	346	1,202
New Benefit Recipients	1	15	12	2	35	65
Death	0	(42)	(20)	0	(39)	(101)
Other Cessation of Benefits	(4)	4	0	0	0	0
Net Data Adjustments	0	(1)	1	0	0	0
As of January 1, 2009	1	574	245	4	342	1,166

Section Nine: Plan Assets

Combined Municipal Pension Trust Fund Calendar Year 2007

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

	1/1/07	1/1/08
Market Value of Assets - Cash Basis	$377,673,832	$386,897,374
Accrued Interest	1,187,226	1,074,391
Accrued Contributions	0	0
Other Receivables	55,719	0
Accrued Expenses and Other Payables	(3,548,053)	(2,752,736)
Market Value of Assets - Accrual Basis	$375,368,724	$385,219,029

Summary of Transactions for the Aggregated Trust

Balance as of January 1, 2007		$375,368,724
Contributions Toward Pension Liability		
- Policemen's	$23,158,196	
- Firemen's	10,806,773	
- Municipal	13,393,760	$ 47,358,728
Miscellaneous Pass Through Items		5,891,267
Miscellaneous City Contribution		48,078
Interest and Dividends		23,105,840
Net Appreciation (Decline) in Fair Value Of Investments		16,179,386
Payments to Participants		
- Policemen's	$ 32,473,633	
- Firemen's	27,856,920	
- Municipal	19,763,649	(80,094,202)
Expenses		(2,638,792)
Balance as of December 31, 2007		**$385,219,029**

Undivided Participation Calculation Calendar Year 2007 - Accrual Basis

	Policemen's	Firemen's	Municipal	Total
January 1, 2007 Market Value	$114,889,067	$142,787,099	$ 117,692,558	$375,368,724
Plan-Specific Contributions	24,488,010	11,447,972	15,366,173	51,302,155
Plan-Specific Distributions	(32,809,375)	(28,092,508)	(20,197,616)	(81,099,499)
Sub-Total	$106,567,701	$126,142,563	$ 112,861,115	$345,571,379
Sub-Total Percentages	30.84%	36.50%	32.66%	100.00%
Allocated Expenses	(503,770)	(596,226)	(533,499)	(1,633,495)
Allocated Investment Earnings	12,731,105	15,067,618	13,482,421	41,281,144
December 31, 2007 Market Value	$118,795,037	$140,613,955	$125,810,037	$385,219,029

Contributions and Distributions for 2007 - Accrual Basis

Plan-Specific Contributions	Policemen's	Firemen's	Municipal	Total
State Aid:				
General Municipal Pension System State Aid	$ 5,470,103	$ 4,014,402	$ 5,697,757	$15,182,262
Supplemental State Aid	0	0	0	0
Total State Aid	$ 5,470,103	$ 4,014,402	$ 5,697,757	$15,182,262
Member Contributions	3,234,709	2,955,857	3,010,554	9,201,120
City Contributions	14,453,383	3,836,514	4,685,449	22,975,346
Miscellaneous City Contribution	0	0	48,078	48,078
Pass Through Contributions	1,329,814	631,000	1,924,336	3,885,150
Miscellaneous Income	0	10,199	0	10,199
Total Contributions	**$24,488,010**	**$11,447,972**	**$15,366,173**	**$51,302,155**
Plan-Specific Distributions				
Benefit Payments to Participants	$32,212,494	$27,721,407	$19,160,847	$79,094,748
Refunds to Participants	261,139	135,513	602,802	999,454
Administrative Expenses	335,742	235,588	433,967	1,005,297
Total Distributions	**$32,809,375**	**$28,092,508**	**$20,197,616**	**$81,099,499**

Combined Municipal Pension Trust Fund Calendar Year 2008

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 the Aggregated Trust

	1/1/08	1/1/09
Market Value of Assets – Cash Basis	$ 386,897,374	$ 262,608,291
Accrued Interest	1,074,391	625,027
Accrued Contributions	0	0
Other Receivables	0	0
Accrued Expenses and other Payables	(2,752,736)	(2,325,696)
Market Value of Assets – Accrual Basis	$ 385,219,029	$ 260,907,622

Summary of Transactions for the Aggregated Trust

Balance as of January 1, 2008		$ 385,219,029
Contributions toward Pension Liability		
-Policemen's	$ 23,633,543	
-Firemen's	11,144,586	
-Municipal	13,579,527	$ 48,357,655
Miscellaneous and Pass Through Items		4,766,891
Interest and Dividends		14,075,930
Net Appreciation (Decline) in Fair Value of Investments		(106,596,461)
Payments to Participants		
-Policemen's	$ 32,885,990	
-Firemen's	27,903,309	
-Municipal	19,874,657	(80,663,956)
Expenses		(4,251,467)
Balance as of December 31, 2008		**$ 260,907,622**

Undivided Participation Calculation Calendar Year 2008 - Accrual Basis

	Policemen's	Firemen's	Municipal	Total
January 1, 2008 Market Value	$118,795,037	$140,613,955	$125,810,037	$385,219,029
Plan-Specific Contributions	25,132,047	11,703,289	15,484,933	52,320,268
Plan-Specific Distributions	(33,118,250)	(28,141,153)	(20,240,535)	(81,499,938)
Sub-Total	$110,808,834	$124,176,090	$121,054,435	$356,039,359
Sub-Total Percentages	31.12%	34.88%	34.00%	100.00%
Allocated Expenses	(1,062,899)	(1,191,321)	(1,161,265)	(3,415,485)
Allocated Investment Earnings	(28,542,098)	(31,990,629)	(31,183,526)	(91,716,253)
December 31, 2008 Market Value	$ 81,203,837	$ 90,994,141	$ 88,709,644	$260,907,622

Contributions and Distributions for 2008 - Accrual Basis

Plan-Specific Contributions	**Policemen's**	**Firemen's**	**Municipal**	**Total**
State Aid:				
General Municipal Pension System State Aid	$ 5,442,251	$ 4,059,384	$ 5,646,176	$15,147,812
Supplemental State Aid	0	0	0	0
Total State Aid	$ 5,442,251	$ 4,059,384	$ 5,646,176	$15,147,812
Member Contributions	3,501,221	3,189,198	3,133,640	9,824,059
City Contributions	14,690,070	3,896,003	4,799,711	23,385,784
Pass Through Contributions	1,498,504	548,700	1,872,500	3,919,704
Miscellaneous Income	0	10,003	32,906	42,909
Total Contributions	**$25,132,047**	**$11,703,289**	**$15,484,933**	**$52,320,268**

Plan-Specific Distributions				
Benefit Payments to Participants	$32,679,764	$27,876,680	$19,438,287	$ 79,994,731
Refunds to Participants	206,226	26,629	436,370	669,225
Administrative Expenses	232,260	237,844	365,878	835,982
Total Distributions	**$33,118,250**	**$28,141,153**	**$20,240,535**	**$81,499,938**

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, 2009	$ 90,994,141
Actuarial Value of Assets at January 1, 2007	$142,787,099
Contributions During 2007	11,437,773
Disbursements During 2007	(28,688,734)
Interest Credited During 2007	10,211,006
Tabular Smoothing Value of Assets at January 1, 2008	$135,747,144
Tabular Smoothing Value of Assets at January 1, 2008	$135,747,144
Contributions During 2008	11,693,286
Disbursements During 2008	(29,332,474)
Interest Credited Durig 2008	9,747,542
Tabular Smoothing Value of Assets at January 1, 2009	$127,855,497
Low Limit: 70% of Market Value	$63,695,899
High Limit: 130% of Market Value	$118,292,383
Actuarial Value of Assets at January 1, 2009	$118,292,383

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

Table 09-5: Unfunded Actuarial Accrued Liability Excluding Assets Arising from Pension Bond Proceeds

	2007	2008	
Assets Excluding Pension Bond Proceeds			
Assets Excluding Bond Proceeds at January 1, 2007			$ 59,090,914
Receipts	**2007**	**2008**	
Employer Contributions	$ 7,347,270	$7,406,759	
Employee Contributions	2,955,857	3,189,198	
State Aid	4,014,402	4,059,384	
Supplemental State Assistance	0	0	
Investment Income	3,510,491	2,044,870	
Net Appreciation	2,229,358	(12,871,714)	
Pass Through Contributions	641,199	558,703	
Total Receipts			25,085,778
Disbursements			
Monthly Benefit Payments	$27,090,407	$ 27,327,980	
Refund of Employee Contributions	135,513	26,629	
Administrative Expenses	584,387	1,119,660	
Pass Through Payments	631,000	548,700	
Total Disbursements.			(57,464,276)
Assets Excluding Bond Proceeds at January 1, 2009			**$ 26,712,416**

Development of Actuarial Value of Assets Excluding Bond Proceeds

Market Value of Assets Excluding Bond Proceeds at January 1, 2009		$ 26,712,416
Actuarial Value of Assets Excluding Bond Proceeds at January 1, 2007		$ 59,090,914
Contributions During 2007		14,948,529
Disbursements During 2007		(28,441,307)
Interest Credited During 2007		3,755,867
Tabular Smoothing Value of Assets at January 1, 2008		$ 49,354,003
Tabular Smoothing Value of Assets at January 1, 2008		$ 49,354,003
Contributions During 2008		15,204,042
Disbursements During 2008		(29,022,969)
Interest Credited During 2008		3,152,290
Tabular Smoothing Value of Assets at January 1, 2009		$ 38,687,366
Low Limit	70 Percent of Market Value	$ 18,698,691
High Limit	130 Percent of Market Value	$ 34,726,140
Actuarial Value of Assets Excluding Bond Proceeds at January 1, 2009		**$ 34,726,140**

Unfunded Actuarial Accrued Liability Excluding Assets from Bond Proceeds

Actuarial Accrued Liability (Table 09-1)	$ 334,059,624
Actuarial Value of Assets Excluding Bond Proceeds at January 1, 2009	(34,726,140)
Adjusted Unfunded Actuarial Accrued Liability	$ 299,333,484

Table 09-6: Actuarial (Gain) Loss Determination Excluding Assets Arising from Pension Bond Proceeds

Reconciliation of Funded Status

	2007	2008	
Unfunded Actuarial Accrued Liability as of January 1, 2007			$249,321,488
Normal Cost/Administrative Expenses Assumed	$ 5,523,063	$ 5,818,761	11,341,824
Interest Charged at Valuation Rate			47,058,091
Contributions Made			
- Municipality	$ 7,347,270	$ 7,406,759	
- State Aid Allocated	4,014,402	4,059,384	
- Employees	2,955,857	3,189,198	$(28,972,871)
Interest Credited at Valuation Rate			(2,113,825)
Special Adjustment Because of Higher Act 82 Interest Rate			(3,975,922)
Expected Unfunded Actuarial Accrued Liability Before Adjustments			$ 272,658,785
Experience from Investment Return			
- Comparative Int. Rate Amortization Tab. (Gain) Loss		$ 55,010,031	
- Other Investment Return (Gain) Loss		38,240,045	16,769,986
Experience (Gain) Loss from all Other Sources			(2,221,834)
Increase (Decrease) in Unfunded Actuarial Accrued Liability			
- Benefit Modifications for Actives		$ 0	
- Benefit Modifications for Retirees		0	
- Change in Actuarial Asset Valuation Method		(8,013,724)	
- Change in Actuarial Assumption (Interest Rate)		20,140,272	12,126,548
Actual Unfunded Actuarial Accrued Liability			$299,333,484

Loss (Gain) to be Amortized

Experience (Gain) Loss from January 1, 2007		$ 14,548,152
Actuarially Required Contributions and Bond Proceeds w/Interest	$47,538,895	
Actual Contributions with Interest	(31,086,696)	
Contribution (Gain) Loss		16,452,200
Loss (Gain) to be Amortized		$ 31,000,351

Comparative Interest Rate Amortization Tabulation

Balance Calculated Using Actual Investment Return	2007	2008	
Act 82 Amortization Balance at January 1	$ 132,481,634	$ 157,225,845	
Act 82 Amortization Payment	8,869,108	8,869,108	
Comparative Interest Rate Balance at January 1	$ 141,350,743	$ 166,094,953	
Actual Investment Return on Balance	15,875,102	(40,314,567)	
Actual Act 82 Amort. Balance at December 31	$157,225,845	$125,780,386	$125,780,386
Balance Calculated Using 10 Percent Investment Return			
Comparative Interest Rate Balance at January 1	$ 141,350,743	$ 164,354,925	
Interest at 10 Percent	14,135,074	16,435,492	
Comparative Act 82 Amort. Balance at December 31	$ 155,485,817	$ 180,790,417	$180,790,417
Comparative Interest Rate Amortization Tabulation (Gain) Loss			$ 55,010,031

Table 09-7: 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	$150,697,522	1998	2037	$198,374,404	29	$8,869,108
Assumption Change	(2,712,163)	1998	2017	(1,773,009)	9	(262,799)
Experience Gain	(8,740,776)	1999	2013	(4,195,304)	5	(972,908)
Experience Gain	(5,967,507)	2000	2014	(3,303,904)	6	(661,746)
Experience Loss	5,187,425	2001	2015	3,222,828	7	573,163
Experience Loss	12,280,996	2002	2016	853,820	8	137,572
Investment Loss	9,840,706	2002	2032	8,959,353	24	787,908
Assumption Change	(17,287,129)	2003	2022	(14,689,197)	14	(1,649,772)
Ben. Mod. - Actives	957,341	2003	2022	813,472	14	91,363
Ben. Mod. - Retired	6,733,210	2003	2012	3,380,234	4	944,966
Experience Gain	(930,312)	2003	2017	(688,737)	9	(102,086)
Investment Loss	14,203,883	2003	2032	13,387,728	24	1,177,351
Assumption Change	847,777	2005	2024	770,129	16	80,562
Experience Loss	2,347,661	2005	2019	1,976,127	11	256,304
Experience Loss	52,958,493	2007	2021	49,118,641	13	5,754,240
Agg. Changes through Last Valuation	N/A	N/A	2024	$57,832,181	16	$6,154,118
Assumption Change	12,126,548	2009	2028	12,126,548	20	1,143,626
Ben. Mod. - Actives	N/A					
Ben. Mod. - Retired	N/A					
Experience Loss	31,000,351	2009	2028	31,000,351	20	2,923,569
Agg. Changes -2009	N/A	N/A	2028	$43,126,899	20	$4,067,195
Aggregate Changes	N/A	N/A	2026	$100,959,080	18	$10,221,313
Aggregate	N/A	N/A		$299,333,484		$19,090,421

Details of the Calculation of Act 82 Payment

Act 82 Unfunded Actuarial Accrued Liability	$ 150,697,522
40-Year Amortization Payment	$ 12,563,560
Future Value at end of 40-Year period	$ 4,317,941,320
Payment to provide the same future value with 10% annual earnings	$ 8,869,108

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	$255,865,000.00	$77,782,960.48	30.1%	N/A
Plan Year	Required Principal Pymt.	Required Interest Pymt.	Annual Debt Service	Premium or Discount Amortized	Principal Balance at Valuation Date
1997					
1998		$2,531,176.79	$2,531,176.79		$77,782,960.48
1999	$ 304,000.00	5,053,765.57	5,357,765.57		77,782,960.48
2000	304,000.00	5,036,665.57	5,340,665.57		77,478,960.48
2001	304,000.00	5,019,474.37	5,323,474.37		77,174,960.48
2002	304,000.00	5,001,963.97	5,305,963.97		76,870,960.48
2003	304,000.00	4,984,316.77	5,288,316.77		76,566,960.48
2004	304,000.00	4,966,487.17	5,270,487.17		76,262,960.48
2005	761,520.00	4,934,627.98	5,696,147.98		75,958,960.48
2006	705,280.00	4,890,447.65	5,595,727.65		75,197,440.48
2007	747,840.00	4,846,303.81	5,594,143.81		74,492,160.48
2008	779,760.00	4,799,614.54	5,579,374.54		73,744,320.48
2009	842,080.01	4,746,261.58	5,588,341.59		72,964,560.48
2010	915,040.01	4,688,193.78	5,603,233.79		72,122,480.47
2011	981,920.01	4,628,913.78	5,610,833.79		71,207,440.46
2012	2,398,560.01	4,522,674.15	6,921,234.16		70,225,520.45
2013	3,339,440.02	4,341,092.29	7,680,532.31		67,826,960.44
2014	3,553,760.02	4,119,567.87	7,673,327.89		64,487,520.42
2015	3,865,360.02	3,878,446.47	7,743,806.49		60,933,760.40
2016	4,122,240.03	3,618,849.46	7,741,089.49		57,068,400.38
2017	5,546,480.03	3,304,616.06	8,851,096.09		52,946,160.35
2018	4,023,440.02	2,993,593.66	7,017,033.68		47,399,680.32
2019	6,089,120.04	2,661,890.89	8,751,010.93		43,376,240.30
2020	6,505,600.04	2,246,265.13	8,751,865.17		37,287,120.26
2021	6,949,440.04	1,802,248.81	8,751,688.85		30,781,520.22
2022	7,425,200.06	1,327,885.67	8,753,085.73		23,832,080.18
2023	7,932,880.06	821,069.03	8,753,949.09		16,406,880.12
2024	8,474,000.06	279,641.99	8,753,642.05		8,474,000.06

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. Pennsylvania Code, Title 16, Part IV, Section 203.2(a) requires that this value be between 80 and 120 percent of the fair market value of the assets.

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.