MOCKENHAUPT
BENEFITS GROUP

Actuarial Valuation Report

for the

City of Pittsburgh
Municipal Pension Fund

as of

January 1, 2009

Report Date: July 26, 2010

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Section One: Introduction

At the request of the City of Pittsburgh, we have completed an actuarial valuation of the City of Pittsburgh Municipal 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 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.

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 value of assets in the Municipal Pension Fund is $88,709,644. 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, as amended, is shown in Section Five. Debt service payments repay the money that was 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	6.199%	5.405%
Expenses as a Percentage of Total W-2 Payroll	1.700%	1.400%
Amortization Payment	$11,168,516	$8,442,587

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 actuarial assumptions is contained in Section Seven, Actuarial Basis of Valuation.

Pension bonds were issued in December 1996 and again in March 1998. The 2009 annual debt service payment for the bonds issued in 1996 is approximately $3.09 million. The 2009 debt service payment for the bonds issued in March 1998 is approximately $4.14 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 during 1998 pension bond proceeds were deposited into the pension plan 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 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.

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 recommendation as a result of our Experience Study 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 the 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 $17,155,114, an increase of approximately 6.85 percent. The tabular smoothing method increased the actuarial value of assets by $26,612,893. The net effect of these changes is a decrease in the unfunded actuarial accrued liability of $9,457,779.

Benefit Improvements

It is our understanding that no benefit changes were made in 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 primarily the result of the interest rate change rather than experience.

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. Act 44 of 2009 now 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 $40,849,981 has been established. Most of this loss ($39,073,248) arises from the investment performance for the two-year period, which was significantly lower than either the prior valuation rate of 8.75 percent per year, or the Special Act 82 rate of 10.00 percent per year.

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 43.1 percent (refer to Part C of Table 09-1 for the values used in this calculation). As of January 1, 2007, the corresponding ratio was 49.6 percent so the current valuation shows a decrease of 6.5 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 $2,509,798 and the funding ratio would be 33.1 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	1,783	1,778	5
Vested	1,081	1,119	(38)
Not Vested	702	659	43
Total In Payment Status	1,606	1,634	(28)
Retirement Benefits	1,228	1,252	(24)
Disability Benefits	288	313	(25)
Survivor Benefits	90	69	21
Deferred	77	67	10
Total	**3,466**	**3,479**	**(13)**
Average Monthly Benefit			
In Payment Status			
Retirement Benefits	$ 857	$ 806	$ 51
Disability Benefits	$ 966	$ 909	$ 57
Survivor Benefits	$ 427	$ 418	$ 9
Deferred	$1,403	$1,351	$ 52
Active Participant Averages			
Hire Age	33.5	33.0	0.5
Attained Age	49.6	49.4	0.2
Normal Retirement Age	60.2	60.1	0.1
Assumed Future Service	14.0	14.0	0.0
Monthly Compensation	$3,170	$3,000	$170
Financial Data			
Market Value of Assets	$88,709,644	$117,692,558	$ (28,982,914)
Accumulated Employee Contributions	$56,428,567	$ 57,653,174	$ (1,224,607)
Cost Components			
Normal Cost as a percentage of total payroll	6.199%	5.405%	0.794%
Expenses as a percentage of total payroll	1.700%	1.400%	0.300%
Total	7.899%	6.805%	1.094%
Amortization Payment	$ 11,168,516	$8,442,585	$ 2,725,931

Section Four: Summary of Plan Provisions

Plan Year	Twelve-month period beginning January 1 and ending December 31
Plan Established	May 28, 1915
Principal Definitions	
Employee	Any full-time employee of the City of Pittsburgh other than a firefighter or police officer, and full-time employees of the Pittsburgh Water and Sewer Authority
Retirement Benefit Commencement Date	Assumed to be the first day of the month coincident with or next following eligibility for and election to retire
Service Increment	An additional monthly benefit of 1 percent of average compensation for each completed year of service in excess of 20 years to a maximum of $100
Service	Assumed to be completed years of service calculated from date of hire through date of retirement or severance
Normal Form of Payment	Monthly pension benefit payable for life
Participation Requirements	
Entry Date	Following completion of 90-day probationary period
Compensation	Base wages, plus "acting" or "in-grade" pay
Average Compensation	Averaged over the 3-year period prior to retirement or severance
Members hired after December 31, 1987	Averaged over the 4-year period prior to retirement or severance
Normal Retirement	
Eligibility	
Employees other than Emergency Medical Services	Later of age 60 *or* completion of 8 years of service
Emergency Medical Services Employees	Later of age 55 or completion of 8 years of service
Monthly Benefit	Equal to 50% of average compensation and service increment, if any
	Prorated for service less than 20 years
	Upon reaching age 65 reduced by 50% of social security benefit; the reduction shall not exceed 50% of the monthly benefit. This reduction shall not apply to Pittsburgh Water and Sewer Employees. City non-union employees and union employees whose union has negotiated to eliminate the reduction, who were hired on or before June 29, 2004 will not be subject to the reduction.

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

If pay is less than $450:

- Equal to 60% of 3-year average pay
- Not less than $130
- Plus service increment, if any

OR

If pay is greater than $450:

- 55% of first $650 of 3-year average pay *and* 30% of excess
- Not less than $270
- Plus service increment, if any

Supplemental Medical

- Eligible retired members and spouses will receive additional monthly payment equal to coverage premium
- Employees hired after December 31, 1987 not eligible

Early Retirement

Eligibility

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

Benefit Amount

- Normal retirement benefit based upon average compensation at actual retirement
- May be deferred to age 60 *or* paid immediately in reduced amount
- Reduction will be 1/2 percent per month for each month that payment commences prior to age 60

Members hired prior to January 1, 1975

- If 25 years of service, reduction applied only on benefits attributed to earnings in excess of $7,800

Disability

Eligibility

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

Benefit Amount

- Normal retirement benefit at date of disablement
- Not prorated for service less than 20 years
- Participants hired after December 31, 1974 will have their benefit reduced by 50% of their social security benefit upon reaching age 65. The reduction shall not exceed 50% of the benefit.

Members Hired After December 31, 1987	- Normal retirement benefit if at least age 60 with 8 years of service - Upon reaching age 65, reduced by 50% of the social security benefit. The reduction shall not exceed 50 percent of the benefit - Disabled before age 60 with at least 8 years of service calculated as of age 60 with service being greater of: (a) Service at disablement or (b) The lesser of 20 years and completed service (assuming work until age 60) - Benefit is reduced so that the sum of the plan benefit and workers' compensation does not exceed member's regular salary at time of disablement
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	- Attainment of age 40 *and* - Completion of 8 years of service
Members hired prior to January 1, 1975	- Completion of 15 years of service/no age requirement
Vested Terminated Participants	- Normal retirement benefit if contributions continue to age 50 - Benefit deferred to age 60, a benefit reduced as for early retirement may be elected at age 50.
Death Benefits Before Retirement	
Death After Early Retirement Eligibility	- Surviving spouse entitled to 50% of pension that would have been payable if member retired at date of death
Death Before Early Retirement Eligibility	- Member's beneficiary receives amount equal to member's contributions
Death Benefits After Retirement	- Member's beneficiary receives amount equal to the excess, if any, of member's contributions over retirement benefit paid on member's behalf
Members Hired Prior to 1988	- Married employee may deduct up to $100 per month from retirement benefit to provide a $100 per month benefit payable to surviving spouse until death or remarriage
Spouse Predeceases Retiree	- Monthly benefit restored to full level for remainder of retiree's life - At no time shall total benefit payment on behalf of member be less than the member's contributions to the fund

Members Hired After December 31, 1987

- Married member may elect a reduced pension
- Spouse will receive 50% of the reduced pension
- Member's pension not restored to full level if spouse predeceases retiree
- Total benefit payments on behalf of member will be no less than member's contribution to fund

Employee Contributions

- 4% of compensation

Members hired prior to January 1, 1988

- 5% of compensation

Interest Credit

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

- 5% compound interest per year

Table 09-1: Normal Cost and Actuarial Accrued Liability

Normal Cost	
Retirement Benefits	$2,875,265
Disability Benefits	549,249
Preretirement Death Benefits	44,900
Postretirement Death Benefits	0
Refunds to Withdrawals	603,641
Medicare Premium Benefits	76,367
Vested Benefits	380,695
Total	**$4,530,117**

Actuarial Accrued Liability

Actuarial Present Value of Benefits at Attained Age

	Deferred	In Payment	Active	All
Retirement Benefits	$7,294,851	$ 97,974,767	$ 130,157,544	$235,427,162
Disability Benefits	0	28,728,727	14,560,973	43,289,700
Survivor Benefits	0	3,412,157	0	3,412,157
Preretirement Death Benefits	0	0	1,844,541	1,844,541
Postretirement Death Benefits	0	0	0	0
Refunds to Withdrawals	0	0	1,731,751	1,731,751
Medicare Premium Benefits	0	0	10,713,454	10,713,454
Vested Benefits	0	0	4,320,281	4,320,281
Total	**$7,294,851**	**$130,115,651**	**$163,328,544**	**$300,739,046**

Actuarial Present Value of Future Normal Costs

Retirement Benefits	$ 20,725,455	
Disability Benefits	4,171,540	
Preretirement Death Benefits	343,303	
Postretirement Death Benefits	0	
Refunds to Withdrawals	4,510,993	
Medicare Premium Benefits	436,537	
Vested Benefits	2,935,507	
Total	**$ 33,123,335**	**($33,123,335)**

Actuarial Accrued Liability	**$267,615,711**

Unfunded Actuarial Accrued Liability	
Actuarial Accrued Liability	$267,615,711
Actuarial Value of Assets	(115,322,537)
Unfunded Actuarial Accrued Liability	**$152,293,174**

Table 09-2: Actuarial (Gain) Loss Determination

Reconciliation of Funded Status			
Unfunded Actuarial Accrued Liability as of January 1, 2007			$119,621,628
	2007	**2008**	
Normal Cost/Administrative Expenses Assumed	$ 4,776,158	$ 4,928,071	9,704,229
Interest Charged at Valuation Rate			23,153,239
Contributions Made	**2007**	**2008**	
- Municipality	$ 4,685,449	$ 4,799,711	
- State Aid Allocated	5,697,757	5,646,176	
- Employees	3,010,554	3,133,640	$ (26,973,287)
Interest Credited at Valuation Rate			(1,991,394)
Special Adjustment Because of Higher Act 82 Interest Rate			(1,404,307)
Expected Unfunded Actuarial Accrued Liability Before Adjustments			$122,110,108
Experience from Investment Return			
- Comparative Int. Rate Amortization Tab. (Gain) Loss		$ 19,898,172	
- Other Investment Return (Gain) Loss		19,175,076	39,073,248
Experience (Gain) Loss from all Other Sources			567,597
Increase (Decrease) in Unfunded Actuarial Accrued Liability			
- Benefit Modifications for Actives		$ 0	
- Benefit Modifications for Retirees		0	
- Change in Actuarial Asset Valuation Method		(26,612,893)	
- Changes in Actuarial Assumptions (Interest Rate)		17,155,114	(9,457,779)
Actual Unfunded Actuarial Accrued Liability			$152,293,174
Loss (Gain) to be Amortized			
Experience (Gain) Loss from January 1, 2007			$ 39,640,845
Actuarially Required Contributions and Bond Proceeds with Interest		$30,173,817	
Actual Contributions with Interest		(28,964,681)	
Contribution (Gain) Loss			1,209,136
Loss (Gain) to be Amortized			$ 40,849,981
Comparative Interest Rate Amortization Tabulation			
Balance Calculated Using Actual Investment Return	**2007**	**2008**	
Act 82 Amortization Balance at January 1	$ 46,792,858	$ 55,778,211	
Act 82 Amortization Payment	3,132,592	3,132,592	
Comparative Interest Rate Balance at January 1	$ 49,925,450	$ 58,910,803	
Actual Investment Return on Balance	5,852,761	(14,953,329)	
Actual Act 82 Amort. Balance at December 31	$ 55,778,211	$ 43,957,474	$43,957,474
Balance Calculated Using 10 Percent Investment Return			
Comparative Int. Rate Balance at January 1	$ 49,925,450	$ 58,050,587	
Interest at 10 Percent	4,992,545	5,805,059	
Comparative Act 82 Amort. Bal. at Dec. 31	$ 54,917,995	$ 63,855,646	$ 63,855,646
Comparative Interest Rate Amortization Tabulation (Gain) Loss			$19,898,172

Table 09-3: Amortization of Unfunded Actuarial Accrued Liability

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

Details of Calculation of Act 82 Payment

Act 82 Unfunded Actuarial Accrued Liability	$ 53,226,758
40-Year Amortization Payment	$ 4,437,482
Future Value at end of 40-Year period	$ 1,525,108,142
Payment to provide same future value with 10% annual earnings	$ 3,132,592

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)	$ 4,530,117
Total Annual Payroll	$73,072,430
Percentages for Budget	
• Normal Cost (Normal Cost divided by Total Annual Payroll)	6.199%
• Administrative Expense (as a % of payroll)	1.700%
• Gross Normal Cost	7.899%
Net Amortization Payment (Table 09-3)	$11,168,516
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	$12,525,752

Section Six: Accounting Information

Accumulated Plan Benefits		01/01/09	01/01/07
Assets at Market Value		$ 88,709,644	$ 117,692,558
Actuarial Present Value of Vested Benefits			
Retired	$ 130,115,651		
Deferred	7,294,851		
Employee Contributions	2,511,911		
Active	101,548,314		
Total		$ 241,470,727	$ 214,510,711
Unfunded Actuarial Present Value of Vested Benefits		$ 152,761,083	$ 96,818,153
Actuarial Present Value of Accrued Benefits			
Retired	$ 130,115,651		
Deferred	7,294,851		
Employee Contributions	1,002,810		
Active	107,705,554		
Total		$ 246,118,866	$ 219,052,424
Unfunded Actuarial Present Value of Accrued Benefits		$ 157,409,222	$ 101,359,866

GAS #27 Information

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

	2007	2008
Annual Required Contribution (ARC)	$ 10,383,206	$ 12,285,405
Interest on NPO	0	0
Adjustment to the ARC	0	0
Annual pension cost	10,383,206	12,285,405
Contributions made	10,383,206	10,445,887
Change in NPO	0	1,839,518
NPO, Beginning of Year (1/1)	0	0
NPO, End of Year (12/31)	$ 0	$ 1,839,518

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

Annual Required Contribution (ARC)	$ 12,185,877
Interest on NPO	160,958
Adjustment to the ARC	(224,851)
Annual Pension Cost	$ 12,121,984

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	4.00%
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	4.0 percent increase per annum Merit Increase: 0.5 percent increase per annum Inflation: 3.5 percent increase per annum
Social Security Benefits	Actives: Offset based on social security law in 2009, projected using an annual increase in the National Average Wage of 4 percent and an annual increase in the Social Security Consumer Price Index of 3 percent Retirees: Offset based on: ❑ Actual benefit if 65 or older ❑ One third of original pension amount, if younger than 65
Medicare Premiums	For 2009, $96.40 per month. The premium for years thereafter is assumed to increase at a rate of 6.5 percent per annum.
Employee Characteristics	
Mortality	RP-2000 Mortality Tables, with adjustments to reflect Pittsburgh 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 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	8.20%
25	7.98%
30	7.67%
35	7.18%
40	6.40%
45	5.24%
50	3.49%
55	1.28%
60	0.12%

Disablement

Sample rates:

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

Retirement Age

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

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

Exclusions

Non-participants

Percentage Married

Active: 80 percent of male participants and 65 percent of female participants

Spouse Age

Female spouse assumed to be two years younger than male spouse

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 the 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	10	1	2	1	0	0	0	0	0	0	**14**
25-29	24	28	10	17	8	0	0	0	0	0	**87**
30-34	14	21	13	19	30	4	0	0	0	0	**101**
35-39	15	18	7	15	47	20	2	0	0	0	**124**
40-44	10	8	10	18	39	33	28	9	1	0	**156**
45-49	15	16	14	12	49	31	47	50	21	0	**255**
50-54	18	13	10	15	62	29	46	54	82	56	**385**
55-59	6	11	10	12	42	33	60	43	48	127	**392**
60-64	1	5	1	10	23	11	23	30	22	65	**191**
65+	2	0	1	2	17	6	8	12	7	23	**78**
Total	**115**	**121**	**78**	**121**	**317**	**167**	**214**	**198**	**181**	**271**	**1,783**

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	1	$ 25,499.76	$ 25,499.76
45-49	18	309,379.44	17,187.75
50-54	38	631,277.64	16,612.57
55-59	17	281,267.16	16,545.13
60-64	3	48,600.00	16,200.00
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	**77**	**$ 1,296,024.00**	**$ 16,831.48**

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	22	$205,118.88	$ 9,323.59
55-59	102	1,161,256.80	11,384.87
60-64	134	1,774,611.48	13,243.37
65-69	234	2,837,821.44	12,127.44
70-74	190	2,010,379.56	10,580.95
75-79	191	1,840,054.08	9,633.79
80-84	194	1,613,949.96	8,319.33
85+	161	1,187,028.48	7,372.85
Total	**1,228**	**$12,630,220.68**	**$ 10,285.20**

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	1	$14,135.88	$14,135.88
40-44	0	0.00	0.00
45-49	9	123,355.08	13,706.12
50-54	42	645,135.72	15,360.37
55-59	52	714,383.04	13,738.14
60-64	55	764,478.24	13,899.60
65-69	25	254,518.80	10,180.75
70-74	37	306,266.04	8,277.46
75-79	32	255,619.44	7,988.11
80-84	20	162,478.32	8,123.92
85+	15	98,342.64	6,556.18
Total	**288**	**$3,338,713.20**	**$11,592.75**

Age Distribution of Retired Participants

Survivors			
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	2	$7,876.80	$3,938.40
50-54	3	23,639.04	7,879.68
55-59	8	49,381.20	6,172.65
60-64	6	42,105.00	7,017.50
65-69	18	105,224.28	5,845.79
70-74	12	49,241.04	4,103.42
75-79	11	44,171.76	4,015.61
80-84	16	77,886.12	4,867.88
85+	14	61,816.56	4,415.47
Total	**90**	**$461,341.80**	**$5,126.02**

Age Distribution of Retired Participants

All Persons Receiving 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	1	$14,135.88	$14,135.88
40-44	0	0.00	0.00
45-49	11	131,231.88	11,930.17
50-54	67	873,893.64	13,043.19
55-59	162	1,925,021.04	11,882.85
60-64	195	2,581,194.72	13,236.90
65-69	277	3,197,564.52	11,543.55
70-74	239	2,365,886.64	9,899.11
75-79	234	2,139,845.28	9,144.64
80-84	230	1,854,314.40	8,062.24
85+	190	1,347,187.68	7,090.46
Total	**1,606**	**$16,430,275.68**	**$ 10,230.56**

Demographic Data as of January 1, 2009

Changes in Plan Participation for Active Members

Active Members	**Number**
As of January 1, 2007	1,778
New Entrants	254
Returned from Inactive Status	0
Transfer from Another Plan	1
Total	2,033
Separation from Active Service	
Transfer to another Plan	(5)
Separations w/Deferred Benefit	(21)
Separations w/o Deferred Benefit	(116)
Disability	(18)
Death	(4)
Retirement with a Service Retirement Benefit	(86)
Total Separations	(250)
Data Adjustments	0
Active Members as of January 1, 2009	1,783

Changes in Plan Participants for Inactive Members and Survivors

	Deferred Vested	Regular Retirements	Disability Retirement	Survivors	Total
As of January 1, 2007	67	1,252	313	69	1,701
New Benefit Recipients	21	86	18	23	148
Death	(1)	(129)	(48)	(2)	(180)
Commencement of Deferred Benefits	(2)	2	0	0	0
Returned to Active Status	0	0	0	0	0
Changed Inactive Status	0	1	(1)	0	0
Net Data Adjustments	(8)	16	6	0	14
As of January 1, 2009	77	1,228	288	90	1,683

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 Contributions and 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	$ 88,709,644
Actuarial Value of Assets at January 1, 2007	$117,692,558
Contributions During 2007	15,318,096
Disbursements During 2007	(20,731,115)
Interest Credited During 2007	8,657,050
Tabular Smoothing Value of Assets at January 1, 2008	$120,936,589
Tabular Smoothing Value of Assets at January 1, 2008	$120,936,589
Contributions During 2008	15,452,027
Disbursements During 2008	(21,401,800)
Interest Credited Durig 2008	9,012,275
Tabular Smoothing Value of Assets at January 1, 2009	$123,999,090
Low Limit: 70% of Market Value	$62,096,751
High Limit: 130% of Market Value	$115,322,537
Actuarial Value of Assets at January 1, 2009	$115,322,537

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

Assets Excluding Pension Bond Proceeds			
Assets Excluding Bond Proceeds at January 1, 2007			$10,447,139
Receipts	**2007**	**2008**	
Employer Contributions	$8,977,751	$9,092,013	
Employee Contributions	3,010,554	3,133,640	
State Aid	5,697,757	5,646,176	
Supplemental State Assistance	0	0	
Investment Income	701,805	492,608	
Net Appreciation	450,758	(3,095,062)	
Pass Through Contributions	1,972,414	1,905,406	
Total Receipts			37,985,819
Disbursements			
Monthly Benefit Payments	$17,236,511	$17,565,787	
Refund of Employee Contributions	602,802	436,370	
Administrative Expenses	685,322	1,173,916	
Pass Through Payments	1,924,336	1,872,500	
Total Disbursements			(41,497,544)
Assets Excluding Bond Proceeds at January 1, 2009			**$ 6,935,414**

Development of Actuarial Value of Assets Excluding Bond Proceeds

Market Value of Assets Excluding Bond Proceeds at January 1, 2009	$ 6,935,414
Actuarial Value of Assets Excluding Bond Proceeds at January 1, 2007	$10,447,139
Contributions During 2007	19,610,398
Disbursements During 2007	(20,448,971)
Interest Credited During 2007	383,041
Tabular Smoothing Value of Assets at January 1, 2008	$ 9,991,607
Tabular Smoothing Value of Assets at January 1, 2008	$ 9,991,607
Contributions During 2008	19,744,329
Disbursements During 2008	(21,048,573)
Interest Credited During 2008	535,608
Tabular Smoothing Value of Assets at January 1, 2009	$ 9,222,971
Low Limit: 70% of Market Value	$ 4,854,790
High Limit: 130% of Market Value	$ 9,016,038
Actuarial Value of Assets Excluding Bond Proceeds at January 1, 2009	**$ 9,016,038**
Unfunded Actuarial Accrued Liability Excluding Assets from Bond Proceeds	
Actuarial Accrued Liability (Table 09-1)	$267,615,711
Actuarial Value of Assets Excluding Bond Proceeds at January 1, 2009	(9,016,038)
Adjusted Unfunded Actuarial Accrued Liability	$258,599,673

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			$226,867,047
Normal Cost/Administrative Expenses Assumed	$4,776,158	$4,928,071	9,704,229
Interest Charged at Valuation Rate			42,742,285
Contributions Made			
- Municipality	$8,977,751	$9,092,013	
- State Aid Allocated	5,697,757	5,646,176	
- Employees	3,010,554	3,133,640	(35,557,891)
Interest Credited At Valuation Rate			(2,521,421)
Special Adjustment Because of Higher Act 82 Interest Rate			(4,088,944)
Expected Unfunded Actuarial Accrued Liability Before Adjustments			$237,145,305
Experience from Investment Return			
- Comparative Interest Rate Amortization Tab. (Gain) Loss		$57,937,862	
- Other Investment Return (Gain) Loss		(51,593,516)	6,344,346
Experience (Gain) Loss from all Other Sources			35,532
Increase (Decrease) in Unfunded Actuarial Accrued Liability			
- Benefit Modifications for Actives		$0	
- Benefit Modifications for Retirees		0	
- Change in Actuarial Asset Valuation Method		(2,080,624)	0
- Change in Actuarial Assumption (Interest Rate)		17,155,114	15,074,490
Actual Unfunded Actuarial Accrued Liability			$258,599,673

Loss (Gain) to be Amortized

Experience (Gain) Loss from January 1, 2007		$ 6,379,878
Actuarially Required Contributions and Bond Proceeds w/Interest	$39,918,012	
Actual Contributions with Interest	(38,079,312)	
Contribution (Gain) Loss		1,838,700
Loss (Gain) to be Amortized		$ 8,218,578

Comparative Interest Rate Amortization Tabulation

Balance Calculated Using Actual Investment Return	2007	2008	
Act 82 Amortization Balance at January 1	$136,247,596	$162,410,407	
Act 82 Amortization Payment	9,121,224	9,121,224	
Comparative Interest Rate Balance at January 1	$145,368,820	$171,531,631	
Actual Investment Return on Balance	17,041,587	(43,539,874)	
Actual Act 82 Amort. Balance at December 31	$162,410,407	$127,991,757	$127,991,757
Balance Calculated Using 10 Percent Investment Return			
Comparative Interest Rate Balance at January 1	$145,368,820	$169,026,926	
Interest at 10 Percent	14,536,882	16,902,693	
Comparative Act 82 Amort. Bal. at December 31	$159,905,702	$185,929,619	$ 185,929,619
Comparative Interest Rate Amortization Tabulation (Gain) Loss			$57,937,862

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	$154,981,297	1998	2037	$204,013,456	29	$9,121,224
Assumption Change	(4,327,036)	1998	2017	(2,828,694)	9	(419,275)
Experience Loss	270,401	1999	2013	129,784	5	30,097
Experience Gain	(3,675,180)	2000	2014	(2,034,759)	6	(407,546)
Experience Loss	2,412,237	2001	2015	1,498,667	7	266,530
Ben. Mod. -Actives	15,075,742	2002	2021	12,315,823	13	1,442,796
Experience Loss	1,211,257	2002	2016	827,715	8	133,365
Investment Loss	3,463,728	2002	2032	3,153,511	24	277,328
Assumption Change	(5,300,394)	2003	2022	(4,503,844)	14	(505,835)
Ben. Mod. - Actives	6,262,573	2003	2022	5,321,424	14	597,659
Experience Loss	4,981,603	2003	2017	3,688,025	9	546,646
Investment Loss	2,634,424	2003	2032	2,483,049	24	218,366
Assumption Change	(55,417)	2005	2024	(50,342)	16	(5,266)
Ben.Mod – Actives	7,325,991	2005	2024	6,655,007	16	696,168
Experience Loss	6,389,402	2005	2019	5,378,232	11	697,558
Experience Gain	(798,334)	2007	2021	(740,449)	13	(86,743)
Agg. Changes Through Last Valuation	N/A	N/A	2023	$31,293,149	15	$3,481,848
Assumption Changes	15,074,490	2009	2028	15,074,490	20	1,421,639
Ben. Mod .– Actives	N/A					
Ben. Mod. - Ret.	N/A					
Experience Gain	8,218,578	2009	2028	8,218,578	20	775,074
Agg. Changes – 2009	N/A	N/A	2028	$23,293,068	20	$2,196,713
Aggregate Changes	N/A	N/A	2025	$54,586,217	17	$5,678,561
Aggregate	N/A	N/A		$258,599,673		$14,799,785

Details of the Calculation of Act 82 Payment

Act 82 Unfunded Actuarial Accrued Liability	$ 154,981,297
40-Year Amortization Payment	$ 12,920,696
Future Value at end of 40-Year period	$4,440,684,474
Payment to provide the same future value with 10% annual earnings	$ 9,121,224

Debt Service Schedule by Plan Year
Pension Bond Issue of December 15, 1996

	Date of Original Borrowing	Total Principal Borrowed	Total Principal to this Plan	Percentage to this Plan	Date of Refinancing
	12/15/96	$37,710,000.00	$37,710,000.00	100%	N/A
Plan Year	**Required Principal Pymt.**	**Required Interest Pymt.**	**Annual Debt Service**	**Premium or Discount Amortized**	**Principal Balance at Valuation Date**
1997		$1,834,529.78	$1,834,529.78		$37,710,000.00
1998	$525,000.00	2,564,976.25	3,089,976.25		37,710,000.00
1999	560,000.00	2,533,905.00	3,093,905.00		37,185,000.00
2000	590,000.00	2,499,965.00	3,089,965.00		36,625,000.00
2001	630,000.00	2,463,050.00	3,093,050.00		36,035,000.00
2002	670,000.00	2,423,065.00	3,093,065.00		35,405,000.00
2003	715,000.00	2,379,772.50	3,094,772.50		34,735,000.00
2004	760,000.00	2,332,930.00	3,092,930.00		34,020,000.00
2005	810,000.00	2,282,285.00	3,092,285.00		33,260,000.00
2006	865,000.00	2,227,631.25	3,092,631.25		32,450,000.00
2007	925,000.00	2,169,008.75	3,094,008.75		31,585,000.00
2008	985,000.00	2,106,210.00	3,091,210.00		30,660,000.00
2009	1,055,000.00	2,038,890.00	3,093,890.00		29,675,000.00
2010	1,125,000.00	1,966,950.00	3,091,950.00		28,620,000.00
2011	1,200,000.00	1,890,225.00	3,090,225.00		27,495,000.00
2012	1,285,000.00	1,808,220.00	3,093,220.00		26,295,000.00
2013	1,375,000.00	1,717,690.00	3,092,690.00		25,010,000.00
2014	1,475,000.00	1,617,940.00	3,092,940.00		23,635,000.00
2015	1,580,000.00	1,511,015.00	3,091,015.00		22,160,000.00
2016	1,695,000.00	1,396,390.00	3,091,390.00		20,580,000.00
2017	1,820,000.00	1,273,365.00	3,093,365.00		18,885,000.00
2018	1,950,000.00	1,141,415.00	3,091,415.00		17,065,000.00
2019	2,095,000.00	998,792.50	3,093,792.50		15,115,000.00
2020	2,250,000.00	844,545.00	3,094,545.00		13,020,000.00
2021	2,415,000.00	678,937.50	3,093,937.50		10,770,000.00
2022	2,590,000.00	501,260.00	3,091,260.00		8,355,000.00
2023	2,780,000.00	310,625.00	3,090,625.00		5,765,000.00
2024	2,985,000.00	105,967.50	3,090,967.50		2,985,000.00

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	$57,569,624.42	22.3%	N/A
Plan Year	**Required Principal Pymt.**	**Required Interest Pymt.**	**Annual Debt Service**	**Premium or Discount Amortized**	**Principal Balance at Valuation Date**
1997					
1998		1,873,403.84	$1,873,403.84		$57,569,624.42
1999	$ 225,000.00	3,740,451.43	3,965,451.43		57,569,624.42
2000	225,000.00	3,727,795.18	3,952,795.18		57,344,624.42
2001	225,000.00	3,715,071.43	3,940,071.43		57,119,624.42
2002	225,000.00	3,702,111.43	3,927,111.43		56,894,624.42
2003	225,000.00	3,689,050.18	3,914,050.18		56,669,624.42
2004	225,000.00	3,675,853.93	3,900,853.93		56,444,624.42
2005	563,624.99	3,652,273.94	4,215,898.93		56,219,624.42
2006	521,999.99	3,619,574.69	4,141,574.68		55,655,999.43
2007	553,499.99	3,586,902.44	4,140,402.43		55,133,999.44
2008	577,124.99	3,552,346.23	4,129,471.22		54,580,499.45
2009	623,249.99	3,512,858.03	4,136,108.02		54,003,374.46
2010	677,249.99	3,469,880.22	4,147,130.21		53,380,124.47
2011	726,749.99	3,426,005.22	4,152,755.21		52,702,874.48
2012	1,775,249.98	3,347,373.91	5,122,623.89		51,976,124.49
2013	2,471,624.98	3,212,979.43	5,684,604.41		50,200,874.51
2014	2,630,249.97	3,049,022.22	5,679,272.19		47,729,249.53
2015	2,860,874.97	2,870,560.66	5,731,435.63		45,098,999.56
2016	3,050,999.97	2,678,424.72	5,729,424.69		42,238,124.59
2017	4,105,124.96	2,445,850.66	6,550,975.62		39,187,124.62
2018	2,977,874.97	2,215,653.17	5,193,528.14		35,081,999.66
2019	4,506,749.95	1,970,149.48	6,476,899.43		32,104,124.69
2020	4,814,999.95	1,662,531.73	6,477,531.68		27,597,374.74
2021	5,143,499.95	1,333,901.23	6,477,401.18		22,782,374.79
2022	5,495,624.94	982,810.12	6,478,435.06		17,638,874.84
2023	5,871,374.95	607,699.11	6,479,074.06		12,143,249.90
2024	6,271,874.95	206,971.86	6,478,846.81		6,271,874.95

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.