



# **ACTUARIAL VALUATION REPORT**

*for the*

**City of Pittsburgh  
Municipal Pension Fund**

*as of*

**January 1, 2007**

**Report Date: July 14, 2008**

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## Section One: Introduction

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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, 2007. Our actuarial valuation is based upon participant data as of January 1, 2007 and upon asset information as of December 31, 2006 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).

The City has qualified as Distress Level III, as defined by Act 205 of 1984. The City is also permitted to utilize provisions of Act 82 of 1998, which amended Act 205. As a result, the unfunded actuarial accrued liability as of January 1, 1998 is being amortized over 40 years.

Under Act 205 of 1984, a Level III municipality is mandated to aggregate the assets of its pension plans 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, 2006, the calculated value of assets in the Municipal Pension Fund is \$117,692,558. Section Nine contains exhibits illustrating the calculation of this amount.

### **2007 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, 2007 compared to the prior year are as follows:

	Current Year 2007	Prior Year 2005
<i>Normal Cost</i> as a Percentage of Total W-2 Payroll	5.405%	5.665%
<i>Expenses</i> as a Percentage of Total W-2 Payroll	1.400%	1.100%
<i>Amortization Payment</i>	\$8,442,587	\$8,816,171

The change in actuarial costs from year to year can be affected by changes in Plan provisions, assumption changes, and experience changes. A summary of the Plan provisions is set forth in Section Four. The most recent pension bonds were issued in March 1998. The 2007 debt service payment for these bonds is approximately \$4.14 million. The annual debt service payment for the bonds issued in 1996 is approximately \$3.09 million. Over time, the debt service and amortization schedules will allow the City to eliminate the Unfunded Actuarial Accrued Liability with payments that increase less and have a lower present value than the increasing amortization schedule included in prior actuarial valuations.

### **Assumption Changes**

Act 205 requires that the City have an experience study prepared every four years. The purpose of the experience study is to compare the Plan's actual experience with the valuation assumptions. This comparison can indicate that actuarial assumptions should be changed.

The last experience study was prepared as of January 1, 2005. Assumption changes recommended by that study were described and incorporated into the January 1, 2005 Actuarial Valuation. No additional assumption changes have been made for the January 1, 2007 Actuarial Valuation.

### **Experience Changes**

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

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

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

The actuarial gain or loss computed in the current valuation reflects differences since the prior valuation between actual experience and the experience anticipated by the actuarial assumptions. It also includes an adjustment for the difference between actual contributions made for the prior year and the theoretical amount based on the prior valuation. This adjustment is termed "contribution gain or loss." Act 205 requires the amortization of actuarial gains or losses over a 15-year period. An actuarial gain will reduce the total amortization payment, and an actuarial loss will increase the payment.

The Plan has experienced a net actuarial gain of \$3,323,763 since the prior valuation. The primary reason for the gain was salaries that increased, on average, less than the 4.0 percent per year assumed. Offsetting a portion of the gain were a liability increase due to the addition of 223 new active participants and contribution losses that arose because the Minimum Municipal Obligation calculations based on previous valuations were compared to actuarial requirements based on the January 1, 2005 valuation reports. Because of the requirements of Act 205, it was required that the Minimum Municipal Obligation calculation for 2005 be presented to City Council by September 30, 2004. As a result, the 2005 contribution had to be based on an earlier valuation and could not reflect the contribution requirements of the 2005 actuarial valuation.

### **Benefit Improvements**

The average compensation used to calculate benefits may have been inadvertently changed for some participants, but it is our understanding that corrective measures have or will be made to reverse this change. It is also our understanding that no other benefit changes were made in the period from January 1, 2005 through January 1, 2007. Accordingly, the benefits valued are the same as those valued in the January 1, 2005 valuation.

### **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. 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.

### **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

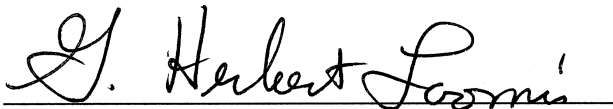
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In the actuary's opinion, the actuarial assumptions used in the valuation are reasonably related to the experience of the Plan and to reasonable expectations. They represent the actuary's best estimate of anticipated experience under the Plan. To the 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, F.S.A., E.A., M.A.A.A.  
Consulting Actuary

## Section Three: Valuation Highlights

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<b>Participant Count</b>	<b>01/01/07</b>	<b>01/01/05</b>	<b>Change</b>
Total Active	1,778	1,815	(37)
Vested	1,119	1,222	(103)
Not Vested	659	593	66
Total In Payment Status	1,634	1,688	(54)
Retirement Benefits	1,252	1,315	(63)
Disability Benefits	313	311	2
Survivor Benefits	69	62	7
Deferred	67	66	1
<b>Total</b>	<b>3,479</b>	<b>3,569</b>	<b>(90)</b>

### *Average Monthly Benefit*

#### *In Payment Status*

Retirement Benefits	\$ 806	\$ 786	\$ 20
Disability Benefits	\$ 909	\$ 841	\$ 68
Survivor Benefits	\$ 418	\$ 418	\$ 0
Deferred	\$1,351	\$ 783	\$568

### *Active Participant Averages*

Hire Age	33.0	32.6	0.4
Attained Age	49.4	48.5	0.9
Normal Retirement Age	60.1	60.0	0.1
Assumed Future Service	14.0	14.0	0.0
Monthly Compensation	\$3,000	\$2,914	\$86

### **Financial Data**

Market Value of Assets	\$117,692,558	\$109,791,039	\$ 7,901,519
Accumulated Employee Contributions	\$ 57,653,174	\$ 53,390,419	\$ 4,262,755

### **Cost Components**

Normal Cost as a percentage of total payroll	5.405%	5.665%	-0.260%
Expenses as a percentage of total payroll	1.400%	1.100%	0.300%
Total	6.805%	6.765%	0.040%
Amortization Payment	\$ 8,442,587	\$8,816,171	\$ (373,584)



## Section Four: Summary of Plan Provisions

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<i>Plan Year</i>	▼ Twelve-month period beginning January 1 and ending December 31
<i>Plan Established</i>	▼ May 28, 1915
<i>Principal Definitions</i>	
<i>Employee</i>	▼ 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
<i>Retirement Benefit Commencement Date</i>	▼ Assumed to be the first day of the month coincident with or next following eligibility for and election to retire
<i>Service Increment</i>	▼ 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
<i>Service</i>	▼ Assumed to be completed years of service calculated from date of hire through date of retirement or severance
<i>Normal Form of Payment</i>	▼ Monthly pension benefit payable for life
<i>Participation Requirements</i>	
<i>Entry Date</i>	▼ Following completion of 90-day probationary period
<b>Compensation</b>	▼ Base wages, plus “acting” or “in-grade” pay
<i>Average Compensation</i>	▼ Averaged over the 3-year period prior to retirement or severance
<i>Members hired after December 31, 1987</i>	▼ Averaged over the 4-year period prior to retirement or severance
<i>Normal Retirement Eligibility</i>	
<i>Employees other than Emergency Medical Services</i>	▼ Later of age 60 or completion of 8 years of service
<i>Emergency Medical Services Employees</i>	▼ Later of age 55 or completion of 8 years of service
<i>Monthly Benefit</i>	▼ 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
- ▼ Eligible retired members and spouses will  
receive additional monthly payment equal  
to coverage premium
- ▼ Employees hired after December 31, 1987  
not eligible

*Supplemental Medical*

*Early Retirement  
Eligibility  
Benefit Amount*

- ▼ Later of age 50 *or* completion of 8 years of service
- ▼ 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
- ▼ If 25 years of service, reduction applied only  
on benefits attributed to earnings in excess  
of \$7,800

*Members hired prior to January 1, 1975*

*Disability  
Eligibility*

*Benefit Amount*

- ▼ Permanent disablement in line of duty *or*
- ▼ Permanent disablement (not in line of  
duty) after completing 8 years of service
- ▼ 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
- ▼ Member's beneficiary receives amount equal to member's contributions

*Death Before Early Retirement Eligibility*

**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**

*Members hired prior to January 1, 1988*

- ▼ 4% of compensation
- ▼ 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

## Section Five: Development of Contribution Requirements

**Table 07-1: Normal Cost and Actuarial Accrued Liability**

<i>Normal Cost</i>	
Retirement Benefits	\$2,283,589
Disability Benefits	453,211
Preretirement Death Benefits	34,944
Postretirement Death Benefits	0
Refunds to Withdrawals	636,605
Medicare Premium Benefits	76,955
Vested Benefits	<u>308,206</u>
<b>Total</b>	<b>\$3,793,510</b>

*Actuarial Accrued Liability*

*Actuarial Present Value of Benefits at Attained Age*

	<u>Deferred</u>	<u>In Payment</u>	<u>Active</u>	<u>All</u>
Retirement Benefits	\$4,991,706	\$ 88,718,130	\$ 110,229,800	\$203,939,636
Disability Benefits	0	27,559,014	13,226,090	40,785,104
Survivor Benefits	0	2,460,110	0	2,460,110
Preretirement Death Benefits	0	0	1,631,711	1,631,711
Postretirement Death Benefits	0	0	0	0
Refunds to Withdrawals	0	0	1,693,985	1,693,985
Medicare Premium Benefits	0	0	10,262,329	10,262,329
Vested Benefits	<u>0</u>	<u>0</u>	<u>4,053,823</u>	<u>4,053,823</u>
<b>Total</b>	<b>\$4,991,706</b>	<b>\$118,737,254</b>	<b>\$141,097,738</b>	<b>\$264,826,698</b>

*Actuarial Present Value of Future Normal Costs*

Retirement Benefits	\$ 16,207,379
Disability Benefits	3,392,935
Preretirement Death Benefits	260,259
Postretirement Death Benefits	0
Refunds to Withdrawals	4,832,213
Medicare Premium Benefits	452,975
Vested Benefits	<u>2,366,751</u>
<i>Total</i>	<i>\$ 27,512,512</i> ( <i>\$27,512,512</i> )

**Actuarial Accrued Liability** **\$237,314,186**

*Unfunded Actuarial Accrued Liability*

Actuarial Accrued Liability	\$237,314,186
Actuarial Value of Assets	<u>(117,692,558)</u>
<b>Unfunded Actuarial Accrued Liability</b>	<b>\$119,621,628</b>

**Table 07-2: Actuarial (Gain) Loss Determination**

*Reconciliation of Funded Status*

Unfunded Actuarial Accrued Liability as of January 1, 2005			\$121,741,373
	<b>2005</b>	<b>2006</b>	
Normal Cost/Administrative Expenses Assumed	\$ 4,557,726	\$ 4,740,035	9,297,761
Interest Charged at Valuation Rate			23,484,073
Contributions Made			
- Municipality	\$ 3,537,581	\$ 5,129,759	
- State Aid Allocated	6,605,725	5,562,429	
- Employees	<u>3,027,239</u>	<u>2,958,836</u>	\$ (26,821,569)
Interest Credited at Valuation Rate			(1,874,836)
Special Adjustment Because of Higher Act 82 Interest Rate			<u>(1,018,719)</u>
Expected Unfunded Actuarial Accrued Liability Before Adjustments			\$124,808,083
Experience from Investment Return			
- Comparative Int. Rate Amortization Tab. (Gain) Loss		\$ 783,611	
- Other Investment Return (Gain) Loss		<u>(596,062)</u>	187,549
Experience (Gain) Loss from all Other Sources			(5,374,004)
Increase (Decrease) in Actuarial Accrued Liability			
- Benefit Modifications for Actives		\$ 0	
- Benefit Modifications for Retirees		0	
- Changes in Actuarial Assumptions		<u>0</u>	<u>0</u>
Actual Unfunded Actuarial Accrued Liability			<u>\$119,621,628</u>

*Loss (Gain) to be Amortized*

Experience (Gain) Loss from January 1, 2005		\$ (5,186,455)
Actuarially Required Contributions and Bond Proceeds with Interest	\$30,559,097	
Actual Contributions with Interest	<u>(28,696,405)</u>	
Contribution (Gain) Loss		<u>1,862,692</u>
Loss (Gain) to be Amortized		\$(3,323,763)

*Comparative Interest Rate Amortization Tabulation*

*Balance Calculated Using Actual Investment Return*

	<b>2005</b>	<b>2006</b>	
Act 82 Amortization Balance at January 1	\$ 32,691,381	\$ 38,122,797	
Act 82 Amortization Payment	<u>3,132,592</u>	<u>3,132,592</u>	
Comparative Interest Rate Balance at January 1	\$ 35,823,973	\$ 41,255,389	
Actual Investment Return on Balance	<u>2,298,824</u>	<u>4,753,858</u>	
Actual Act 82 Amort. Balance at December 31	\$ 38,122,797	\$ 46,009,247	\$46,009,247

*Balance Calculated Using 10 Percent Investment Return*

Comparative Int. Rate Balance at January 1	\$ 35,823,973	\$ 42,538,962	
Interest at 10 Percent	<u>3,582,397</u>	<u>4,253,896</u>	
Comparative Act 82 Amort. Bal. at Dec. 31	\$ 39,406,370	\$ 46,792,858	\$ 46,792,858

*Comparative Interest Rate Amortization Tabulation (Gain) Loss* \$783,611

**Table 07-3: Amortization of Unfunded Actuarial Accrued Liability**

Source	Original Amount	Year Est.	Target Year	Remaining Balance	Remaining Payments	Annual Amount
<i>Initial</i>	\$53,226,758	1998	2037	\$66,445,460	31	\$3,132,592
<i>Assumption Change</i>	\$(4,327,036)	1998	2017	\$(3,216,181)	11	\$(429,461)
<i>Experience Loss</i>	\$531,346	1999	2013	\$330,624	7	\$59,901
<i>Experience Gain</i>	\$(8,518,572)	2000	2014	\$(5,829,817)	8	\$(959,570)
<i>Experience Loss</i>	\$15,454,485	2001	2015	\$11,457,735	9	\$1,739,547
<i>Ben. Mod. - Actives</i>	\$15,075,742	2002	2021	\$13,278,614	15	\$1,492,502
<i>Experience Loss</i>	\$1,076,675	2002	2016	\$854,573	10	\$121,102
<i>Investment Loss</i>	\$15,617,085	2002	2032	\$14,556,913	26	\$1,320,365
<i>Assumption Change</i>	\$(5,300,394)	2003	2022	\$(4,814,934)	16	\$(524,443)
<i>Ben. Mod. - Actives</i>	\$6,262,573	2003	2022	\$5,688,986	16	\$619,645
<i>Experience Loss</i>	\$4,617,946	2003	2017	\$3,887,122	11	\$519,052
<i>Investment Loss</i>	\$20,777,261	2003	2032	\$20,049,657	26	\$1,818,577
<i>Assumption Change</i>	\$(55,417)	2005	2024	\$(53,092)	18	\$5,483)
<i>Ben. Mod.-Actives</i>	\$7,325,991	2005	2024	\$7,018,575	18	\$724,864
<i>Experience Gain</i>	\$(7,233,308)	2005	2019	\$(6,708,844)	13	\$(813,016)
<i>Agg. Changes through Last Valuation</i>	N/A	N/A	2025	\$56,499,931	19	\$5,683,582
<i>Assumption Change</i>	N/A					
<i>Ben. Mod. - Actives</i>	N/A					
<i>Ben. Mod. - Retired</i>	N/A					
<i>Experience Gain</i>	\$(3,323,763)	2007	2021	\$(3,323,763)	15	\$(373,587)
<i>Agg. Changes-2007</i>	N/A	N/A	2021	\$(3,323,763)	15	\$(373,587)
<i>Aggregate Changes</i>	N/A	N/A	2026	\$53,176,168	20	\$5,309,995
<i>Aggregate</i>	N/A	N/A		\$119,621,628		\$ 8,442,587

*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 07-4: 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 07-1)	\$ 3,793,510
Total Annual Payroll	\$70,189,133
Percentages for Budget	
• Normal Cost (Normal Cost divided by Total Annual Payroll)	5.405%
• Administrative Expense (as a % of payroll)	1.400%
• Gross Normal Cost	6.805%
Net Amortization Payment (Table 07-3)	\$ 8,442,587
Funding Adjustment	\$ 0



## Section Six: Accounting Information

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<b>Accumulated Plan Benefits</b>	<u>01/01/07</u>	<u>01/01/05</u>
<b>Assets at Market Value</b>	<b><u>\$ 117,692,558</u></b>	<b><u>\$ 109,791,039</u></b>
<i>Actuarial Present Value of Vested Benefits</i>		
Retired	\$ 118,737,254	
Deferred	4,991,706	
Employee Contributions	3,243,030	
Active	<u>87,538,721</u>	
<b>Total</b>	<b><u>\$ 214,510,711</u></b>	<b><u>\$ 207,065,081</u></b>
<b>Unfunded Actuarial Present Value of Vested Benefits</b>	<b><u>\$ 96,818,153</u></b>	<b><u>\$ 97,274,042</u></b>
<i>Actuarial Present Value of Accrued Benefits</i>		
Retired	\$ 118,737,254	
Deferred	4,991,706	
Employee Contributions	1,118,584	
Active	<u>94,204,880</u>	
<b>Total</b>	<b><u>\$ 219,052,424</u></b>	<b><u>\$ 212,113,730</u></b>
<b>Unfunded Actuarial Present Value of Accrued Benefits</b>	<b><u>\$ 101,359,866</u></b>	<b><u>\$ 102,322,691</u></b>

**GAS #27 Information**

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

	<b>2005</b>	<b>2006</b>
Annual required contribution (ARC)	\$ 10,143,306	\$ 10,692,188
Interest on NPO	0	0
Adjustment to the ARC	<u>0</u>	<u>0</u>
Annual Pension cost	10,143,306	10,692,188
Contributions made	<u>\$ 10,143,306</u>	<u>\$ 10,692,188</u>
Change in NPO	0	0
NPO, Beginning of Year (1/1)	<u>0</u>	<u>0</u>
NPO, End of Year (12/31)	\$ 0	\$ 0

**Annual Pension Cost for the Year Beginning 1/1/2007**

Annual Required Contribution (ARC)	\$ 10,383,206
Interest on NPO	0
Adjustment to the ARC	<u>0</u>
Annual Pension Cost	\$ 10,383,206

**Other Information from the 1/1/2007 Actuarial Valuation for GAS #25 and GAS #27**

Actuarial Cost Method	Entry Age
Asset Valuation Method	Market Value
Amortization Method	Level Dollar
	Closed
Aggregate Remaining Amortization Period (Years)	40
Actuarial Assumptions	
Investment Rate of Return	8.75%
Projected Salary Increases	4.00%
Underlying Inflation Rate	3.50%

## Section Seven: Actuarial Basis of Valuation

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### Actuarial Assumptions: January 1, 2007

#### *Economic*

Interest Rate	8.75 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 2007, 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 2007, \$93.50 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	5	5	1	2	0	0	0	0	0	0	13
25-29	14	18	7	10	9	0	0	0	0	0	58
30-34	17	18	6	14	36	2	0	0	0	0	93
35-39	7	16	4	25	41	11	10	0	0	0	114
40-44	13	15	4	18	50	34	47	14	0	0	195
45-49	14	7	4	21	50	31	71	63	56	1	318
50-54	11	10	6	29	58	33	70	54	117	55	443
55-59	8	8	3	10	26	25	57	37	60	87	321
60-64	2	7	1	5	16	11	23	25	21	46	157
65+	0	0	1	8	11	10	9	6	6	15	66
<b>Total</b>	<b>91</b>	<b>104</b>	<b>37</b>	<b>142</b>	<b>297</b>	<b>157</b>	<b>287</b>	<b>199</b>	<b>260</b>	<b>204</b>	<b>1,778</b>

### Age Distribution of Deferred Vested Participants

<b>Persons Entitled To Deferred Benefits</b>			
<b>Age Group</b>	<b>Number of People</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
< 30	0	0.00	0.00
30-34	0	0.00	0.00
35-39	0	0.00	0.00
40-44	6	\$ 104,928.00	\$ 17,488.00
45-49	29	458,290.20	15,803.11
50-54	22	377,164.68	17,143.85
55-59	10	145,504.56	14,550.46
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
<b>Total</b>	<b>67</b>	<b>\$ 1,085,887.44</b>	<b>\$ 16,207.28</b>



## Age Distribution of Retired Participants

<b>Regular Retirements</b>			
<b>Age Group</b>	<b>Number of People</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
< 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	53	\$436,784.04	\$8,241.21
55-59	94	1,057,560.84	11,250.65
60-64	166	2,054,230.56	12,374.88
65-69	206	2,202,285.60	10,690.71
70-74	202	2,066,443.08	10,229.92
75-79	230	1,974,122.88	8,583.14
80-84	179	1,453,023.48	8,117.45
85+	122	869,572.56	7,127.64
<b>Total</b>	<b>1,252</b>	<b>\$12,114,023.04</b>	<b>\$9,675.74</b>

## Age Distribution of Retired Participants

<b>Disability Retirements</b>			
<b>Age Group</b>	<b>Number of People</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
< 30	0	0.00	0.00
30-34	0	0.00	0.00
35-39	1	\$14,135.88	\$14,135.88
40-44	1	13,863.96	13,863.96
45-49	22	324,238.68	14,738.12
50-54	49	690,195.48	14,085.62
55-59	51	705,568.56	13,834.68
60-64	37	444,601.68	12,016.26
65-69	34	301,765.20	8,875.45
70-74	41	326,634.48	7,966.69
75-79	39	321,981.36	8,255.93
80-84	22	164,861.52	7,493.71
85+	16	104,773.08	6,548.32
<b>Total</b>	<b>313</b>	<b>\$3,412,619.88</b>	<b>\$10,902.94</b>

## Age Distribution of Retired Participants

<b>Survivors</b>			
<b>Age Group</b>	<b>Number of People</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
< 30	0	0.00	0.00
30-34	0	0.00	0.00
35-39	0	0.00	0.00
40-44	1	\$312.36	\$312.36
45-49	1	11,350.44	11,350.44
50-54	2	13,969.80	6,984.90
55-59	5	33,864.00	6,772.80
60-64	11	51,749.64	4,704.51
65-69	11	61,736.76	5,612.43
70-74	7	28,807.44	4,115.35
75-79	13	62,958.48	4,842.96
80-84	11	51,782.28	4,707.48
85+	7	29,759.40	4,251.34
<b>Total</b>	<b>69</b>	<b>\$346,290.60</b>	<b>\$5,018.70</b>

## Age Distribution of Retired Participants

<b>All Persons Receiving Benefits</b>			
<b>Age Group</b>	<b>Number of People</b>	<b>Total Annual Benefit</b>	<b>Average Annual Benefit</b>
< 30	0	0.00	0.00
30-34	0	0.00	0.00
35-39	1	\$14,135.88	\$14,135.88
40-44	2	14,176.32	7,088.16
45-49	23	335,589.12	14,590.83
50-54	104	1,140,949.32	10,970.67
55-59	150	1,796,993.40	11,979.96
60-64	214	2,550,581.88	11,918.61
65-69	251	2,565,787.56	10,222.26
70-74	250	2,421,885.00	9,687.54
75-79	282	2,359,062.72	8,365.47
80-84	212	1,669,667.28	7,875.79
85+	145	1,004,105.04	6,924.86
<b>Total</b>	<b>1,634</b>	<b>\$15,872,933.52</b>	<b>\$ 9,714.16</b>

## Demographic Data as of January 1, 2007

### Changes in Plan Participation for Active Members

Active Members	Number
As of January 1, 2005	1,815
New Entrants	223
Returned from Inactive Status	<u>17</u>
Total	2,055
<b>Separation from Active Service</b>	
Transfer to another Plan	(3)
Separations w/Deferred Benefit	(22)
Separations w/o Deferred Benefit	(165)
Disability	(22)
Death	(4)
Retirement with a Service Retirement Benefit	<u>(61)</u>
Total Separations	(277)
<b>Data Adjustments</b>	<u>0</u>
Active Members as of January 1, 2007	1,778

### Changes in Plan Participants for Inactive Members and Survivors

	Deferred Vested	Regular Retirements	Disability Retirement	Survivors	Total
<i>As of January 1, 2005</i>	66	1,315	311	62	1,754
New Benefit Recipients	22	61	22	12	117
Death	(3)	(137)	(35)	(5)	(180)
Commencement of Deferred Benefits	(17)	13	4	0	0
Returned to Active Status	(10)	(7)	0	0	(17)
Changed Inactive Status	3	(7)	4	0	0
Net Data Adjustments	6	14	7	0	27
As of January 1, 2007	67	1,252	313	69	1,701

## Section Nine: Plan Assets

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### Combined Municipal Pension Trust Fund Calendar Year 2005

#### 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

	<u>1/1/05</u>	<u>1/1/06</u>
Market Value of Assets - Cash Basis	\$374,352,191	\$370,222,407
Accrued Interest	1,659,618	2,019,803
Accrued Contributions	0	0
Other Receivables	368,969	150,645
Accrued Expenses and Other Payables	<u>(2,772,371)</u>	<u>(3,055,629)</u>
Market Value of Assets - Accrual Basis	\$373,608,407	\$369,337,226

#### Summary of Transactions for the Aggregated Trust

Balance as of January 1, 2005		\$373,608,407
Contributions Toward Pension Liability		
- Policemen's	\$20,694,711	
- Firemen's	12,745,182	
- Municipal	<u>13,170,545</u>	\$46,610,438
Miscellaneous Contributions and Pass Through Items		5,377,776
Interest and Dividends		10,562,500
Net Appreciation (Decline) in Fair Value Of Investments		11,028,379
Payments to Participants		
- Policemen's	\$31,964,175	
- Firemen's	22,159,854	
- Municipal	<u>20,269,564</u>	(74,393,593)
Expenses		<u>(3,456,681)</u>
<b>Balance as of December 31, 2005</b>		<b>\$369,337,226</b>

## Undivided Participation Calculation Calendar Year 2005 - Accrual Basis

	<u>Policemen's</u>	<u>Firemen's</u>	<u>Municipal</u>	<u>Total</u>
January 1, 2005 Market Value	\$117,821,971	\$145,995,397	\$ 109,791,039	\$373,608,407
Plan-Specific Contributions	22,023,542	13,456,288	15,209,403	50,689,233
Plan-Specific Distributions	<u>(32,313,136)</u>	<u>(22,397,656)</u>	<u>(20,578,509)</u>	<u>(75,289,301)</u>
Sub-Total	\$107,532,377	\$137,054,029	\$ 104,421,933	\$349,008,339
Sub-Total Percentages	30.81%	39.27%	29.92%	100.00%
Allocated Expenses	(789,036)	(1,005,694)	(766,243)	(2,560,973)
Allocated Investment Earnings	<u>7,052,366</u>	<u>8,988,848</u>	<u>6,848,646</u>	<u>22,889,860</u>
December 31, 2005 Market Value	\$113,795,707	\$145,037,183	\$110,504,336	\$369,337,226

## Contributions and Distributions for 2005 - Accrual Basis

<b>Plan-Specific Contributions</b>	<u>Policemen's</u>	<u>Firemen's</u>	<u>Municipal</u>	<u>Total</u>
State Aid:				
General Municipal				
Pension System State Aid	\$ 5,894,520	\$ 4,665,276	\$ 6,605,725	\$17,165,521
Supplemental State Aid	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>Total State Aid</i>	\$ 5,894,520	\$ 4,665,276	\$ 6,605,725	\$17,165,521
Member Contributions	3,164,191	3,698,820	3,027,239	9,890,250
City Contributions	11,636,000	4,381,086	3,537,581	19,554,667
Pass Through Contributions	1,328,831	702,200	2,038,858	4,069,889
Miscellaneous Income	<u>0</u>	<u>8,906</u>	<u>0</u>	<u>8,906</u>
<b>Total Contributions</b>	<b>\$22,023,542</b>	<b>\$13,456,288</b>	<b>\$ 15,209,403</b>	<b>\$50,689,233</b>

## Plan-Specific Distributions

Benefit Payments to Participants	\$31,397,909	\$22,108,444	\$18,889,235	\$ 72,395,588
Refunds to Participants	566,266	51,410	1,380,329	1,998,005
Administrative Expenses	<u>348,961</u>	<u>237,802</u>	<u>308,945</u>	<u>895,708</u>
<b>Total Distributions</b>	<b>\$32,313,136</b>	<b>\$22,397,656</b>	<b>\$20,578,509</b>	<b>\$75,289,301</b>

## Combined Municipal Pension Trust Fund Calendar Year 2006

### 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

	1/1/06	1/1/07
Market Value of Assets – Cash Basis	\$370,222,407	\$377,673,832
Accrued Interest	2,019,803	1,187,226
Accrued Contributions	0	0
Other Receivables	150,645	55,719
Accrued Expenses and other Payables	<u>(3,055,629)</u>	<u>(3,548,053)</u>
Market Value of Assets – Accrual Basis	\$369,337,226	\$ 375,368,724

### Summary of Transactions for the Aggregated Trust

Balance as of January 1, 2006		\$369,337,226
Contributions toward Pension Liability		
- Policemen's	\$22,679,783	
- Firemen's	10,835,359	
- Municipal	<u>13,651,024</u>	\$47,166,166
Miscellaneous Contributions and Pass Through Items		6,205,362
Interest and Dividends		12,426,048
Net Appreciation (Decline) in Fair Value of Investments		25,033,821
Payments to Participants		
- Policemen's	\$34,069,007	
- Firemen's	27,821,443	
- Municipal	<u>19,963,839</u>	(81,854,289)
Expenses		<u>(2,945,610)</u>
<b>Balance as of December 31, 2006</b>		<b>\$375,368,724</b>



**Undivided Participation Calculation Calendar Year 2006 - Accrual Basis**

	<u>Policemen's</u>	<u>Firemen's</u>	<u>Municipal</u>	<u>Total</u>
January 1, 2006 Market Value	\$113,795,707	\$145,037,183	\$110,504,336	\$369,337,226
Plan-Specific Contributions	24,017,572	11,510,167	15,648,833	51,176,572
Plan-Specific Distributions	<u>(34,437,246)</u>	<u>(28,067,856)</u>	<u>(20,251,973)</u>	<u>(82,757,075)</u>
Sub-Total	\$103,376,033	\$128,479,494	\$105,901,196	\$337,756,723
Sub-Total Percentages	30.61%	38.04%	31.35%	100.00%
Allocated Expenses	(625,308)	(777,090)	(640,426)	(2,042,824)
Allocated Investment Earnings	<u>12,138,342</u>	<u>15,084,695</u>	<u>12,431,788</u>	<u>39,654,825</u>
December 31, 2006 Market Value	\$114,889,067	\$142,787,099	\$117,692,558	\$375,368,724

**Contributions and Distributions for 2006 - Accrual Basis**

<b>Plan-Specific Contributions</b>	<u>Policemen's</u>	<u>Firemen's</u>	<u>Municipal</u>	<u>Total</u>
State Aid:				
General Municipal Pension System State Aid	\$5,120,770	\$3,947,132	\$5,562,429	\$14,630,331
Supplemental State Aid	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<i>Total State Aid</i>	\$5,120,770	\$3,947,132	\$5,562,429	\$14,630,331
Member Contributions	3,142,571	3,085,437	2,958,836	9,186,844
City Contributions	14,416,442	3,802,790	5,129,759	23,348,991
Pass Through Contributions	1,337,789	664,400	1,997,809	3,999,998
Miscellaneous Income	<u>0</u>	<u>10,408</u>	<u>0</u>	<u>10,408</u>
<b>Total Contributions</b>	<b>\$24,017,572</b>	<b>\$11,510,167</b>	<b>\$15,648,833</b>	<b>\$51,176,572</b>

<b>Plan-Specific Distributions</b>				
Benefit Payments to Participants	\$33,824,518	\$27,814,042	\$19,225,300	\$ 80,863,860
Refunds to Participants	244,489	7,401	738,539	990,429
Administrative Expenses	<u>368,239</u>	<u>246,413</u>	<u>288,134</u>	<u>902,786</u>
<b>Total Distributions</b>	<b>\$34,437,246</b>	<b>\$28,067,856</b>	<b>\$20,251,973</b>	<b>\$82,757,075</b>

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

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**Table 07-5: Unfunded Actuarial Accrued Liability Excluding Assets  
Arising from Pension Bond Proceeds**

<b>Assets Excluding Pension Bond Proceeds</b>			
Assets Excluding Bond Proceeds at January 1, 2005			\$11,903,511
<b>Receipts</b>	<b>2005</b>	<b>2006</b>	
Employer Contributions	\$7,546,030	\$9,138,208	
Employee Contributions	3,027,239	2,958,836	
State Aid	6,605,725	5,562,429	
Supplemental State Assistance	0	0	
Investment Income	360,314	422,581	
Net Change in Market Value	313,274	727,099	
Pass Through Contributions	<u>2,038,858</u>	<u>1,997,809</u>	
Total Receipts			40,698,403
 <b>Disbursements</b>			
Monthly Benefit Payments	\$16,850,377	\$17,227,491	
Refund of Employee Contributions	1,380,329	738,539	
Administrative Expenses	797,824	1,123,548	
Pass Through Payments	<u>2,038,858</u>	<u>1,997,809</u>	
Total Disbursements			(42,154,775)
 <b>Assets Excluding Bond Proceeds at January 1, 2007</b>			 \$10,447,139
 <b>Unfunded Actuarial Accrued Liability Excluding Assets from Bond Proceeds</b>			
Actuarial Accrued Liability (Table 07-1)			\$237,314,186
Assets Excluding Bond Proceeds at January 1, 2007			<u>(10,447,139)</u>
Adjusted Unfunded Actuarial Accrued Liability			\$226,867,047

**Table 07-6: Actuarial (Gain) Loss Determination Excluding Assets  
Arising from Pension Bond Proceeds**

<i>Reconciliation of Funded Status</i>			
Unfunded Actuarial Accrued Liability as of January 1, 2005			\$219,628,901
	<b>2005</b>	<b>2006</b>	
Normal Cost/Administrative Expenses Assumed	\$4,557,726	\$4,740,035	9,297,761
Interest Charged at Valuation Rate			41,363,842
Contributions Made			
- Municipality	\$7,546,030	\$9,138,208	
- State Aid Allocated	6,605,725	5,562,429	
- Employees	<u>3,027,239</u>	<u>2,958,836</u>	(34,838,467)
Interest Credited At Valuation Rate			(2,256,153)
Special Adjustment Because of Higher Act 82 Interest Rate			<u>(2,966,223)</u>
Expected Unfunded Actuarial Accrued Liability Before Adjustments			\$230,229,661
Experience from Investment Return			
- Comparative Interest Rate Amortization Tab. (Gain) Loss		\$2,281,653	
- Other Investment Return (Gain) Loss		<u>281,768</u>	2,563,421
Experience (Gain) Loss from all Other Sources			(5,926,035)
Increase (Decrease) in Actuarial Accrued Liability			
- Benefit Modifications for Actives		\$0	
- Benefit Modifications for Retirees		0	
- Changes in Actuarial Assumptions		<u>0</u>	<u>0</u>
Actual Unfunded Actuarial Accrued Liability			<u>\$226,867,047</u>
<i>Loss (Gain) to be Amortized</i>			
Experience (Gain) Loss from January 1, 2005			\$ (3,362,614)
Actuarially Required Contributions		\$39,658,900	
Actual Contributions with Interest		<u>(37,094,620)</u>	
Contribution (Gain) Loss			<u>2,564,280</u>
Loss (Gain) to be Amortized			\$(798,334)
<i>Comparative Interest Rate Amortization Tabulation</i>			
<i>Balance Calculated Using Actual Investment Return</i>			
	<b>2005</b>	<b>2006</b>	
Act 82 Amortization Balance at January 1	\$95,188,073	\$111,002,825	
Act 82 Amortization Payment	<u>9,121,224</u>	<u>9,121,224</u>	
Comparative Interest Rate Balance at January 1	\$104,309,297	\$120,124,049	
Actual Investment Return on Balance	<u>6,693,528</u>	<u>13,841,894</u>	
Actual Act 82 Amort. Balance at December 31	\$111,002,825	\$133,965,943	\$133,965,943
<i>Balance Calculated Using 10 Percent Investment Return</i>			
Comparative Interest Rate Balance at January 1	\$104,309,297	\$123,861,451	
Interest at 10 Percent	<u>10,430,930</u>	<u>12,386,145</u>	
Comparative Act 82 Amort. Bal. at December 31	\$114,740,227	\$136,247,596	\$ 136,247,596
<i>Comparative Interest Rate Amortization Tabulation (Gain) Loss</i>			\$2,281,653

**Table 05-7: 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
<b>Initial</b>	\$154,981,297	1998	2037	\$193,470,422	31	\$9,121,224
<b>Assumption Change</b>	\$(4,327,036)	1998	2017	\$(3,216,181)	11	\$(429,461)
<b>Experience Loss</b>	\$270,401	1999	2013	\$168,253	7	\$30,483
<b>Experience Gain</b>	\$(3,675,180)	2000	2014	\$(2,515,167)	8	\$(413,989)
<b>Experience Loss</b>	\$2,412,237	2001	2015	\$1,788,397	9	\$271,520
<b>Ben. Mod. -Act.</b>	\$15,075,742	2002	2021	\$13,278,613	15	\$1,492,501
<b>Experience Loss</b>	\$1,211,257	2002	2016	\$961,395	10	\$136,239
<b>Investment Loss</b>	\$3,463,728	2002	2032	\$3,228,592	26	\$292,845
<b>Assumption Change</b>	\$(5,300,394)	2003	2022	\$(4,814,934)	16	\$(524,443)
<b>Ben. Mod. - Actives</b>	\$6,262,573	2003	2022	\$5,688,986	16	\$619,645
<b>Experience Loss</b>	\$4,981,603	2003	2017	\$4,193,227	11	\$559,927
<b>Investment Loss</b>	\$2,634,424	2003	2032	\$2,542,168	26	\$230,584
<b>Assumption Change</b>	\$(55,417)	2005	2024	\$(53,092)	18	\$(5,483)
<b>Ben.Mod – Actives</b>	\$7,325,991	2005	2024	\$7,018,575	18	\$724,864
<b>Experience Loss</b>	\$6,389,402	2005	2019	\$5,926,127	13	\$718,162
<b>Agg. Changes Through Last Valuation</b>	N/A	N/A	2022	\$34,194,959	16	\$3,703,394
<b>Assumption Changes</b>	N/A					
<b>Ben. Mod .– Actives</b>	N/A					
<b>Ben. Mod. - Ret.</b>	N/A					
<b>Experience Gain</b>	\$(798,334)	2007	2021	\$(798,334)	15	\$(89,732)
<b>Agg. Changes – 2007</b>	N/A	N/A	2021	\$(798,334)	15	\$(89,732)
<b>Aggregate Changes</b>	N/A	N/A	2022	\$33,396,625	16	\$3,613,662
<b>Aggregate</b>	N/A	N/A		\$226,867,047		\$12,734,886

*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

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### **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.