MOCKENHAUPT
BENEFITS GROUP

# SUMMARY ACTUARIAL VALUATION REPORT

*for the*

## City of Pittsburgh Pension Funds

*as of*

## January 1, 2013

## Report Date: April 16, 2014

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# Section One: Introduction

This report presents a summary of the results of the January 1, 2013 actuarial valuations of the City of Pittsburgh's Policemen's, Firemen's and Municipal Pension Funds It is intended to serve as a quick reference and overview of the three valuations. Consult the individual reports for additional detail.

The City Controller obtained third-party advice from which he has determined that the dedicated stream of revenue created by Ordinances 42 and 44 of 2010 can be recognized as a pension plan asset for purposes of the required actuarial reports under Act 205. The Board of Trustees of the Comprehensive Municipal Pension Trust Fund has unanimously directed us to combine the assets listed in the CAFR with the value of the revenue stream as determined by an independent accounting firm, Gleason & Associates. The value so provided is consistent with Paragraph 3.5 (Assets that are Difficult to Value) of ASOP 44, Selection and Use of Asset Valuation Methods for Pension Valuations. The Public Employee Retirement Commission has accepted the revised actuarial valuation reports as of January 1, 2011 which included the present value of the revenue stream as a pension plan asset for Act 205 actuarial valuation purposes. The inclusion of the present value of this stream of future parking revenues does not imply that it necessarily qualifies as a pension plan asset under GAS 25 or for any other purpose.

These valuations were prepared to satisfy the funding and disclosure requirements of Act 205 of 1984, and should be used for no other purpose. Each year the City is required to budget its minimum contribution for the following year. Under Act 205, this budgeted amount is referred to as the Minimum Municipal Obligation (MMO). The calculation of the MMO depends upon the actuarial cost components that are determined by the actuarial valuations.

One of the cost components of the Minimum Municipal Obligation is an amortization payment calculated according to specified rules of Act 205. The minimum amortization under Act 205 reflects the utilization of provisions of Act 82 of 1998 for which the City qualified. Under those provisions, the Unfunded Actuarial Accrued Liability as of January 1, 1998 is being amortized over 40 years calculated pursuant to special procedures described beginning on page 5. Bases for subsequent years are established according to the normal procedures of Act 205 of 1984 and amortized over various periods according to the source of the change in unfunded liability such as experience gains or losses, benefit changes, and assumption changes. These periods are not limited by average future service because the City qualifies for Distress Level II according to the requirements under Act 205 of 1984.

Because the Act 82 amortization methodology does not result in an actuarially appropriate funding level, we also present an actuarially recommended amortization payment based on a 30-year "fresh start" amortization payment commencing as of January 1, 2011 and additional amortization bases added thereafter according to the normal procedures of Act 205 of 1984.

The use of pension bond proceeds to reduce the Unfunded Actuarial Accrued Liability has split the funding of the pension plan into debt service and actuarial costs. Debt service payments repay the money borrowed and subsequently deposited into the plan. Information concerning the annual debt service is contained in Section Six. Section Three of this report summarizes the development of the actuarial cost components. The City's MMO is determined by summing these components and deducting estimated employee contributions. The three components of the plan's annual actuarial requirement are normal cost, administrative expenses and an amortization amount.

*Normal cost* is the portion of cost that is allocated to the current year, if the cost of each employee's prospective pension is allocated over his or her expected total employment period.

*Administrative expenses* are based upon current expense amounts paid from the plans.

The *amortization amount* is contributed when current asset levels are less, to date, than the target specified by Act 205 for funding. In Act 205 and actuarial language, this target is termed Actuarial Accrued Liability. As the term *accrued* suggests, this amount represents the portion of pension benefit liabilities allocated to service performed before the valuation date.

The insufficiency of current assets compared to the Actuarial Accrued Liability is referred to as the *Unfunded Actuarial Accrued Liability.* This insufficiency developed over the years for a variety of reasons. Two significant reasons are benefit improvements made after retirement, and benefit improvements made before retirement, which are related to prior service. Prior funding would not have anticipated these improvements. Additionally, prior contributions may have been at less than actuarially sound levels.

Since 1985, the annual contribution requirements for the pension plans have been based upon actuarial standards set forth in Act 205 of 1984.

## 2013 Results

The actuarial cost components as of January 1, 2013 are as follows:

| | Police | Fire | Municipal | Combined |
|---|---|---|---|---|
| Normal Cost as a % of Payroll | 11.671% | 14.256% | 6.997% | 10.451% |
| Admin. Expense as a % of Payroll | 1.200% | 1.200% | 0.800% | 1.038% |
| Gross Normal Cost % | 12.871% | 15.456% | 7.797% | 11.489% |
| Act 205 Minimum Amortization Payment | $10,431,040 | $11,224,426 | $8,567,318 | $30,222,784 |

Beginning with the 2009 valuations, the reports also show an alternate amortization payment basis for funding purposes. The 2013 reports show the development of these amounts, based on amortizing the 2011 unfunded actuarial accrued liability over a "fresh-start" 30-year period and adding subsequent gain/loss bases. This amount is higher than the Act 205 minimum. These actuarially recommended amortization payments as of January 1, 2013 are as follows:

| | Police | Fire | Municipal | Combined |
|---|---|---|---|---|
| Actuarially Recommended Amortization Payment | $16,375,691 | $14,829,383 | $10,573,162 | $41,778,236 |

Pension bonds were issued and deposited into the Municipal Plan in December 1996 and all three plans in March 1998. The annual debt service on these bonds is approximately $28.35 million for 2013. 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.

## Changes Since the 2011 Actuarial Valuation

Actuarial costs for pension plans may change significantly from one valuation date to the next. These cost changes may be due to plan experience, changes in plan provisions, or changes in actuarial assumptions.

Normal costs, which are attributable to the current year's service, will usually change more moderately than the amortization amount. Unless plan provisions or assumptions change, normal costs as a percentage of payroll usually remain fairly stable over time. The changes that do occur are influenced by changes in the demographics of active plan participants.

The amortization amounts typically change by a greater amount from year to year. The total amortization payment is affected by changes in the Actuarial Accrued Liability due to experience

gains and losses, contribution gains and losses, modifications in actuarial assumptions and modifications in plan provisions.

### Changes in Plan Provisions

There have been no benefit changes since January 1, 2003 affecting current participants in either the Policemen's or Firemen's Plans, and no benefit changes since January 1, 2006 affected current participants in the Municipal Plan.

### Changes in Actuarial Assumptions

Multiple assumption changes were made for the January 1, 2013 actuarial valuations. The most significant was the change in the interest rate assumption, which the City decided to lower from 8.0% to 7.5% per year.

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. The comparison can indicate that actuarial assumptions should be changed. Based on the January 1, 2013 experience study, numerous assumption changes were made, including updating the mortality assumptions to include projections for future mortality improvement. Please consult the actuarial valuation reports for the individual plans for a complete description of the assumption changes. The net effect of the assumption changes was a combined increase in the Unfunded Actuarial Accrued Liabilities of the plans of $114,348,632.

### Experience Changes

The goal in selecting actuarial assumptions is to provide a reasonable estimate of actual experience over the long range. However, actual experience will always deviate somewhat from expected experience, especially over the short run. These experience gains or losses reduce or increase, respectively, actuarial contribution requirements for the future. Experience gains or losses are amortized over a 20-year period.

A plan's ability to pay benefits depends, in large part, on its earnings on accumulated funds. What does not come from those earnings must arise from future contributions. Thus, favorable or unfavorable investment experience between valuations will often have the largest impact on the gain or loss from experience compared to actuarial assumptions for the period. These gains or losses will then decrease or increase, respectively, future contribution requirements.

For the period from January 1, 2011 to January 1, 2013, the combined experience gain for the three Pittsburgh plans was $18,394,106. Table 3 shows each plan's portion of this gain, which

was primarily due to contributions to the plans that were greater than actuarially required based on the January 1, 2011 actuarial valuations (based on the Act 82 amortization payment). A more complete discussion of the actuarial experience gain or loss for each plan is included in the Commentary and Actuarial Disclosures section of that plan's actuarial valuation report.

### Funded Ratios

A measure of comparison between valuations is the plan's funded ratio, the actuarial value of assets divided by the actuarial accrued liability. The funded ratios as of January 1, 2013 are as follows:

| | Police | Fire | Municipal | Combined |
|---|---|---|---|---|
| Actuarial Value of Assets | $248,871,901 | $224,050,549 | $202,529,949 | $675,452,399 |
| Actuarial Accrued Liability | $440,021,893 | $395,323,604 | $324,697,069 | $1,160,042,566 |
| Percentage Funded | 56.6% | 56.7% | 62.4% | 58.2% |

The combined funded ratio for the City's three pension plans is currently 58.2%; as of January 1, 2011, the corresponding ratio was 62.4%, so the current valuations show a decrease of 4.2%. This decrease was primarily due to the change to more conservative assumptions (which should help the plans funded status in the long run). The funded ratio based on the market value of assets is 52.2%.

### Actuarially Recommended Amortization Payment

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

Act 82 allowed the City to change the amortization schedule for its Unfunded Actuarial Accrued Liability because during 1998, pension bond proceeds were deposited into the pension plans 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 each plan's January 1, 1998 Unfunded Actuarial Accrued Liability reduced by pension bond proceeds deposited during 1998, over a 40-year period using a special procedure that was mechanically complex but lowered the amortization payment from what it otherwise would have been. The annual amortization payment was calculated in several steps. An amortization payment was calculated that would eliminate the Unfunded Actuarial Accrued Liability net of 1998 bond proceeds over a 40-year period using 8.75 percent

interest. Next, the future value of these payments at the end of the 40-year period was calculated using 8.75 percent interest. Finally, an amortization payment was calculated using 10 percent interest that would have the same future value at the end of the 40-year period as the previous calculation. The 10 percent amortization amount became the amortization payment starting in 1998.

There are several drawbacks to this approach in the long-term. Under the Act 82 amortization schedule, the outstanding balance of Unfunded Actuarial Accrued Liability for the affected 1998 base actually grows for several years, extending the funding of obligations beyond normal payment periods and doesn't start to decline until during the year 2024. Therefore, this amortization method does not maintain normal generational funding objectives.

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

By contrast, funding the plans on the basis of the Actuarially Recommended Amortization Payment is expected to result in a more level amortization schedule, that will result in higher contributions now but ultimately lower contributions, and will likely lead to a funded ratios much closer to 100% by the fixed target year.

# Section Two: Certification

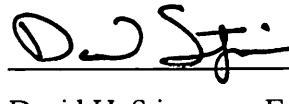
Complete summaries of the data, actuarial assumptions and methods and plan provisions used for each valuation are set forth in the individual reports for each pension plan. This report is intended to be a quick reference or overview of the results of the individual reports. This report does not constitute a statement of actuarial opinion; the individual reports do. Please refer to the individual reports for the proper documentation, disclosure and certification of the results that are summarized herein.

In the actuary's opinion, the actuarial assumptions used in the valuations are reasonably related to the experience of the plans and to reasonable expectations, and they represent his best estimate of anticipated experience under the plans. To the best of our knowledge, the individual actuarial valuation reports for each plan are complete and accurate, based on the data outlined therein. We will be happy to answer any questions concerning this report and provide further information as needed.

**MOCKENHAUPT BENEFITS GROUP**

I, David H. Stimpson, am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Prepared by:



David H. Stimpson, E.A., F.C.A., M.A.A.A.
Vice President of Actuarial Services

# Section Three: Development of Contribution Requirements

**Table 1: Normal Cost**

| | Police | Fire | Municipal | Combined |
|---|---|---|---|---|
| **Normal Cost** | | | | |
| Retirement Benefits | $ 4,965,022 | $ 4,995,540 | $ 3,762,033 | $ 13,722,595 |
| Disability Benefits | 2,514,342 | 2,180,244 | 680,143 | 5,374,729 |
| Preretirement Death Benefits | 137,731 | 168,336 | 50,906 | 356,973 |
| Postretirement Death Benefits | 0 | 2,591 | 0 | 2,591 |
| Refund to Withdrawals | 302,975 | 94,704 | 643,071 | 1,040,750 |
| Medicare Premiums | 0 | 0 | 62,917 | 62,917 |
| Vested Benefits | 81,910 | 25,078 | 532,383 | 639,371 |
| **Total** | $ 8,001,980 | $ 7,466,493 | $ 5,731,453 | $ 21,199,926 |
| Covered Payroll (As reported on Form W-2) | $ 68,561,656 | $ 52,375,212 | $ 81,916,275 | $202,853,143 |
| **Normal Cost as % of Pay** | | | | |
| Normal Cost | 11.671% | 14.256% | 6.997% | 10.451% |
| Expenses | 1.200% | 1.200% | 0.800% | 1.038% |
| **Gross Normal Cost** | 12.871% | 15.456% | 7.797% | 11.489% |

## Table 2: Unfunded Actuarial Accrued Liability

| | Police | Fire | Municipal | Combined |
|---|---|---|---|---|
| **Actuarial Accrued Liability-Active** | | | | |
| *Actuarial Present Value (APV) of Future Benefits* | | | | |
| Retirement Benefits | $172,847,750 | $165,868,799 | $166,093,475 | $ 504,810,024 |
| Disability Benefits | 49,253,032 | 49,125,243 | 16,123,779 | 114,502,054 |
| Preretirement Death Benefits | 0 | 2,724,118 | 1,821,051 | 4,545,169 |
| Postretirement Death Benefits | 1,869,905 | 76,559 | 0 | 1,946,464 |
| Refunds to Withdrawals | 0 | 889,595 | 2,176,838 | 3,066,433 |
| Medicare Premiums | 1,651,774 | 0 | 9,989,507 | 11,641,281 |
| Vested Benefits | 2,074,388 | 476,069 | 5,445,272 | 7,995,729 |
| Total | $227,696,849 | $219,160,383 | $201,649,922 | $ 648,507,154 |
| *APV of Future Normal Costs* | $ (71,760,340) | $ (85,904,161) | $ (40,942,325) | $ (198,606,826) |
| **Actuarial Accrued Liability-Total** | | | | |
| Active | $155,936,509 | $133,256,222 | $160,707,597 | $ 449,900,328 |
| Deferred Inactive | 7,340,544 | 520,141 | 8,550,594 | 16,411,279 |
| In Payment-Retirement | 160,080,319 | 182,241,070 | 123,592,181 | 465,913,570 |
| In Payment-Disability | 85,307,653 | 58,674,208 | 27,535,328 | 171,517,189 |
| In Payment-Survivors | 31,356,868 | 20,631,963 | 4,311,369 | 56,300,200 |
| Total | $440,021,893 | $395,323,604 | $324,697,069 | $1,160,042,566 |
| **Unfunded Actuarial Accrued Liability** | | | | |
| Total Actuarial Accrued Liability | $440,021,893 | $395,323,604 | $324,697,069 | $1,160,042,566 |
| Actuarial Value of Assets * | (248,871,901) | (224,050,549) | (202,529,949) | (675,452,399) |
| Unfunded Actuarial Accrued Liability | $191,149,992 | $171,273,055 | $122,167,120 | $ 484,590,167 |
| Funded Ratio | 56.6% | 56.7% | 62.4% | 58.2% |

* The Actuarial Value of Assets is determined using the tabular smoothing method permitted by Act 44 of 2009.

## Table 3: Summary of Changes in Unfunded Actuarial Accrued Liability

| | Police | Fire | Municipal | Combined |
|---|---|---|---|---|
| **Expected Change in Unfunded Actuarial Accrued Liability** | | | | |
| Normal Cost Assumed | $ 16,310,999 | $ 13,654,746 | $ 11,664,312 | $ 41,630,057 |
| Contributions Made | (45,279,091) | (40,377,995) | (29,606,176) | (115,263,262) |
| Interest Charged | 14,078,935 | 14,342,981 | 10,924,823 | 39,346,739 |
| Total | $ (14,889,157) | $(12,380,268) | $ (7,017,041) | $ (34,286,466) |
| **Total Change in Unfunded Actuarial Accrued Liability** | | | | |
| Expected Change | $ (14,889,157) | $(12,380,268) | $ (7,017,041) | $ (34,286,466) |
| Plan Experience | 9,038,451 | 13,437,998 | 1,970,765 | 24,447,213 |
| Benefit Modification-Actives | 0 | 0 | 0 | 0 |
| Benefit Modifications-Retired | 0 | 0 | 0 | 0 |
| Changes in Actuarial Assumptions | 41,759,441 | 41,016,905 | 31,572,286 | 114,348,632 |
| Total Changes | $ 35,908,735 | $ 42,074,635 | $ 26,526,010 | $ 104,509,379 |
| **Summary** | | | | |
| Unfunded AAL as of 1/1/11 | $ 155,241,257 | $129,198,421 | $ 95,641,110 | $ 380,080,788 |
| Changes Since the Prior Valuation | 35,908,735 | 42,074,635 | 26,526,010 | 104,509,379 |
| Unfunded AAL as of 1/1/13 | $ 191,149,992 | $171,273,055 | $122,167,120 | $ 484,590,167 |
| **Gain/Loss to be Amortized** | | | | |
| Contribution Loss (Gain) | $ (20,261,123) | $(14,161,614) | $ (8,418,582) | $ (42,841,319) |
| Experience Loss (Gain) | 9,038,451 | 13,437,998 | 1,970,765 | 24,447,213 |
| Experience Loss (Gain) to be Amortized | $ (11,222,672) | $ (723,617) | $ (6,447,817) | $ (18,394,106) |

## Table 4: Amortization of Unfunded Actuarial Accrued Liability

| | Police | Fire | Municipal | Combined |
|---|---|---|---|---|
| **Payment for Bases Established Prior to 1/1/13** | | | | |
| Initial (Re-established by Act 82 in 1998) | $ 7,746,181 | $ 4,333,255 | $ 3,132,592 | $ 15,212,028 |
| Other Changes Through 2011 | (691,843) | 2,634,696 | 2,695,883 | 4,638,736 |
| Total for Previous Bases | $ 7,054,338 | $ 6,967,951 | $ 5,828,475 | $ 19,850,764 |
| **Payment for Changes as of 1/1/13** | | | | |
| Experience Loss (Gain) | $ (1,024,053) | $ (66,029) | $ (588,354) | $ (1,678,436) |
| Benefit Modifications-Retired | 0 | 0 | 0 | 0 |
| Benefit Modifications-Active | 0 | 0 | 0 | 0 |
| Changes in Actuarial Assumptions | 4,400,755 | 4,322,504 | 3,327,197 | 12,050,456 |
| Total-New Bases | $ 3,376,702 | $ 4,256,475 | $ 2,738,843 | $ 10,372,020 |
| **Total Payments** | | | | |
| Previous Bases | $ 7,054,338 | $ 6,967,951 | $ 5,828,475 | $ 19,850,764 |
| New Bases | 3,376,702 | 4,256,475 | 2,738,843 | 10,372,020 |
| Total | $ 10,431,040 | $11,224,426 | $ 8,567,318 | $ 30,222,784 |

## Table 5: Actuarial Cost Components for Required Municipal Contributions

| | Police | Fire | Municipal | Combined |
|---|---|---|---|---|
| **Normal Cost Percentage (before expenses)** | | | | |
| 2011 Percentage | 10.650% | 11.849% | 5.943% | 9.694% |
| Change | 1.021% | 2.407% | 1.054% | 0.757% |
| 2013 Percentage | 11.671% | 14.256% | 6.997% | 10.451% |
| **Summary of Normal Cost Percentage** | | | | |
| Normal Cost Before Expenses | 11.671% | 14.256% | 6.997% | 10.451% |
| Administrative Expenses | 1.200% | 1.200% | 0.800% | 1.038% |
| Gross Normal Cost | 12.871% | 15.456% | 7.797% | 11.489% |
| **2013 Amortization Payment** | | | | |
| 2011 Amortization Payments | $ 7,667,320 | $ 7,971,360 | $ 5,878,010 | $ 21,516,690 |
| Changes for Bases Fully Amortized | (721,924) | (944,966) | 0 | (1,666,890) |
| Changes For Bases Established 1/1/13 and Interest Adjustments | 3,485,644 | 4,198,032 | 2,689,308 | 10,372,984 |
| Net Amortization Payment for 1/1/13 | $ 10,431,040 | $11,224,426 | $ 8,567,318 | $ 30,222,784 |
| **Actuarially Recommended Amortization Payment** | | | | |
| 2011 Amortization Payments | $ 12,768,224 | $10,626,263 | $ 7,866,254 | $ 31,260,741 |
| Change | 3,607,467 | 4,203,120 | 2,706,908 | 10,517,495 |
| 2013 Amortization Payments | $ 16,375,691 | $14,829,383 | $ 10,573,162 | $ 41,778,236 |

# Section Four: Participant Summaries

## Active Members

| | Police | Fire | Municipal | Combined |
|---|---|---|---|---|
| **Reconciliation from Prior Valuation** | | | | |
| Active at 1/1/11 | 880 | 611 | 1,829 | 3,320 |
| New Members | 73 | 25 | 195 | 293 |
| Status Change or Transfers In | 3 | 0 | 1 | 4 |
| Termination-Vested Benefits | (14) | (1) | (17) | (32) |
| Other Terminations or Transfers Out | (27) | (8) | (111) | (146) |
| Death | 0 | (1) | (5) | (6) |
| Disability | (9) | (9) | (11) | (29) |
| Regular Retirement | (23) | (33) | (97) | (153) |
| Data Adjustments (Net) | 0 | 0 | 0 | 0 |
| Active at 1/1/13 | 883 | 584 | 1,784 | 3,251 |
| **Current Membership Summary** | | | | |
| Number Active at 1/1/13 | 883 | 584 | 1,784 | 3,251 |
| Average Monthly Compensation | $5,238 | $7,353 | $3,490 | $4,659 |
| **Average Ages** | | | | |
| At Hire | 28.8 | 29.8 | 33.8 | 31.7 |
| At Valuation Date | 43.8 | 46.1 | 49.6 | 47.4 |
| At Normal Retirement | 52.2 | 56.5 | 60.4 | 57.4 |

## Inactive Members

| | Police | Fire | Municipal | Combined |
|---|---|---|---|---|
| **Number as of 1/1/13** | | | | |
| Regular Retirement | 644 | 555 | 1,225 | 2,424 |
| Disability Retirement | 360 | 230 | 267 | 857 |
| Survivors | 492 | 326 | 92 | 910 |
| Total in Payment | 1,496 | 1,111 | 1,584 | 4,191 |
| Deferred Vested | 25 | 1 | 66 | 92 |
| Total | 1,521 | 1,112 | 1,650 | 4,283 |
| **Average Monthly Benefits** | | | | |
| Regular Retirement | $ 2,335 | $ 2,900 | $ 984 | $ 1,782 |
| Disability Retirement | $ 2,036 | $ 2,274 | $ 1,025 | $ 1,785 |
| Survivor | $ 722 | $ 726 | $ 479 | $ 699 |
| Deferred Vested | $ 2,680 | $ 3,551 | $ 1,514 | $ 1,853 |
| **Reconciliation from Prior Valuation - Number in Payment Status** | | | | |
| Number as of 1/1/11 | 1,534 | 1,124 | 1,597 | 4,255 |
| New Payees | 79 | 72 | 127 | 278 |
| Cessation of Benefits | (117) | (85) | (152) | (354) |
| Net Data Adjustments | 0 | 0 | 12 | 12 |
| Number as of 1/1/13 | 1,496 | 1,111 | 1,584 | 4,191 |

# Section Five: Plan Assets

## Combined Municipal Pension Trust Fund Calendar Year 2011

### Source of Asset Information

The assets of the Aggregated Trust for the City's pension plans are summarized in the following tables based on the information provided by the City and by Maher Duessel. As directed by the Trustees of the City of Pittsburgh Comprehensive Municipal Pension Trust Fund, the values represent a combination of the assets listed in the City's 2011 Comprehensive Annual Financial Report (CAFR) and the present value calculated by Gleason and Associates of the dedicated stream of revenues created by City Ordinances 42 & 44 of 2010. Assets are shown at market value.

### Summary of Values for Aggregated Trust

| | 1/1/11 | 1/1/12 |
|---|---|---|
| Invested Portfolio | $334,927,888 | $325,275,669 |
| Dedicated Funding from Parking Assets | 238,572,759 | 246,267,849 |
| Accrued Interest | 540,982 | 506,858 |
| Accrued Contributions | 12,606 | 0 |
| Due from City of Pittsburgh | 0 | 1,402,380 |
| Accrued Expenses and Other Payables | (2,671,784) | (2,660,726) |
| Market Value of Assets - Accrual Basis | $571,382,451 | $570,792,030 |

### Summary of Transactions for the Aggregated Trust

| | | |
|---|---|---|
| Balance as of January 1, 2011 | | $571,382,451 |
| Contributions Toward Pension Liability | | |
| - Policemen's | $25,581,920 | |
| - Firemen's | 23,013,090 | |
| - Municipal | 15,527,698 | $ 64,122,708 |
| Miscellaneous and Pass Through Items | | 4,418,518 |
| Interest and Dividends | | 5,241,252 |
| Net Appreciation (Decline) in Fair Value Of Investments | | 9,622,836 |
| Payments to Participants | | |
| - Policemen's | $ 32,545,291 | |
| - Firemen's | 28,200,726 | |
| - Municipal | 21,133,734 | (81,879,751) |
| Expenses | | (2,115,984) |
| **Balance as of December 31, 2011** | | **$570,792,030** |

Undivided Participation Calculation Calendar Year 2011 - Accrual Basis

| | Policemen's | Firemen's | Municipal | Total |
|---|---|---|---|---|
| January 1, 2011 Market Value | $216,050,208 | $188,721,694 | $ 166,610,549 | $571,382,451 |
| Plan-Specific Contributions | 26,885,936 | 23,384,367 | 17,372,712 | 67,643,014 |
| Plan-Specific Distributions | (32,873,373) | (28,393,023) | (21,420,864) | (82,687,260) |
| Sub-Total | $210,062,771 | $183,713,038 | $ 162,562,397 | $556,338,205 |
| Sub-Total Percentages | 37.76% | 33.02% | 29.22% | 100.00% |
| Allocated Expenses | (494,080) | (432,058) | (382,336) | (1,308,475) |
| Allocated Investment Earnings | 5,951,844 | 5,204,711 | 4,605,745 | 15,762,300 |
| December 31, 2011 Market Value | $215,520,534 | $188,485,691 | $166,785,805 | $570,792,030 |

**Contributions and Distributions for 2011 - Accrual Basis**

| **Plan-Specific Contributions** | Policemen's | Firemen's | Municipal | Total |
|---|---|---|---|---|
| General Municipal Pension System State Aid | $ 11,402,091 | $ 9,106,716 | $ 6,398,832 | $26,907,639 |
| Member Contributions | 3,591,870 | 3,562,550 | 3,196,201 | 10,350,620 |
| City Contributions | 10,587,959 | 8,440,820 | 5,932,666 | 24,961,445 |
| Wilkinsburg Fire Transfer | 0 | 1,903,004 | 0 | 1,903,004 |
| Pass Through Contributions | 1,304,016 | 361,800 | 1,772,618 | 3,438,434 |
| Miscellaneous Income | 0 | 9,477 | 72,395 | 81,872 |
| **Total Contributions** | **$26,885,936** | **$23,384,367** | **$17,372,712** | **$67,643,014** |
| | | | | |
| **Plan-Specific Distributions** | | | | |
| Benefit Payments to Participants | $32,297,162 | $28,159,257 | $20,562,562 | $81,018,981 |
| Refunds to Participants | 248,129 | 41,469 | 571,172 | 860,770 |
| Administrative Expenses | 328,082 | 192,297 | 287,130 | 807,509 |
| **Total Distributions** | **$32,873,373** | **$28,393,023** | **$21,420,864** | **$82,687,260** |

**Source of Asset Information**

The assets of the Aggregated Trust for the City's pension plans are summarized in the following tables based on the information provided by the City and by Maher Duessel. As directed by the Trustees of the City of Pittsburgh Comprehensive Municipal Pension Trust Fund, the values represent a combination of the assets listed in the City's 2012 Comprehensive Annual Financial Report (CAFR) and the present value calculated by Gleason and Associates of the dedicated stream of revenues created by City Ordinances 42 & 44 of 2010. Assets are shown at market value.

**Summary of Values for the Aggregated Trust**

| | 1/1/12 | 1/1/13 |
|---|---|---|
| Invested Portfolio | $ 325,275,669 | $ 355,308,381 |
| Dedicated Funding from Parking Assets | 246,267,849 | 252,251,944 |
| Accrued Interest | 506,858 | 534,057 |
| Accrued Contributions | 0 | 0 |
| Due From City of Pittsburgh | 1,402,380 | 688,949 |
| Accrued Expenses and Other Payables | (2,660,726) | (2,660,148) |
| Market Value of Assets – Accrual Basis | $ 570,792,030 | $ 606,123,183 |

**Summary of Transactions for the Aggregated Trust**

| | | |
|---|---|---|
| Balance as of January 1, 2012 | | $ 570,792,030 |
| Contributions Toward Pension Liability | | |
| -Policemen's | $ 19,697,172 | |
| -Firemen's | 19,267,909 | |
| -Municipal | 14,078,478 | $ 53,043,559 |
| Miscellaneous and Pass Through Items | | 3,506,306 |
| Interest and Dividends | | 4,675,117 |
| Net Appreciation (Decline) in Fair Value of Investments | | 59,319,524 |
| Payments to Participants | | |
| -Policemen's | $ 32,627,580 | |
| -Firemen's | 28,849,451 | |
| -Municipal | 21,573,218 | (83,050,249) |
| Expenses | | (2,163,104) |
| **Balance as of December 31, 2012** | | **$ 606,123,183** |

Undivided Participation Calculation Calendar Year 2012 - Accrual Basis

| | Policemen's | Firemen's | Municipal | Total |
|---|---|---|---|---|
| January 1, 2012 Market Value | $215,520,534 | $188,485,691 | $166,785,805 | $570,792,030 |
| Plan-Specific Contributions | 20,955,098 | 19,592,765 | 15,897,202 | 56,445,065 |
| Plan-Specific Distributions | (32,994,063) | (29,071,505) | (21,868,627) | (83,934,195) |
| Sub-Total | $203,481,569 | $179,006,951 | $160,814,380 | $543,302,900 |
| Sub-Total Percentages | 37.45% | 32.95% | 29.60% | 100.00% |
| Allocated Expenses | (479,045) | (421,483) | (378,631) | (1,279,158) |
| Allocated Investment Earnings | 24,005,241 | 21,120,766 | 18,973,434 | 64,099,441 |
| December 31, 2012 Market Value | $227,007,765 | $ 199,706,235 | $ 179,409,183 | $606,123,183 |

**Contributions and Distributions for 2012 - Accrual Basis**

| **Plan-Specific Contributions** | Policemen's | Firemen's | Municipal | Total |
|---|---|---|---|---|
| General Municipal Pension System State Aid | $ 6,383,196 | $ 6,203,826 | $ 4,320,825 | $16,907,847 |
| Member Contributions | 3,684,218 | 3,704,596 | 3,236,377 | 10,625,191 |
| City Contributions | 9,629,757 | 9,359,487 | 6,521,276 | 25,510,521 |
| Pass Through Contributions | 1,257,926 | 315,400 | 1,798,849 | 3,372,175 |
| Miscellaneous Income | 0 | 9,456 | 19,875 | 29,331 |
| **Total Contributions** | **$20,955,098** | **$19,592,765** | **$15,897,202** | **$56,445,065** |
| **Plan-Specific Distributions** | | | | |
| Benefit Payments to Participants | $32,402,642 | $28,667,452 | $21,055,082 | $ 82,125,176 |
| Refunds to Participants | 224,938 | 181,999 | 518,136 | 925,073 |
| Administrative Expenses | 366,483 | 222,054 | 295,409 | 883,946 |
| **Total Distributions** | **$32,994,063** | **$29,071,505** | **$21,868,627** | **$83,934,195** |

## 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 1 percent less than the prior valuation interest rate assumption. The resulting value is further subject to a minimum of 80 percent and a maximum of 120 percent of the market value of assets.

### Development of the Actuarial Value of Assets

| | Police | Firemen | Municipal |
|---|---|---|---|
| Market Value of Assets at January 1, 2013 | $227,007,765 | $199,706,235 | $179,409,183 |
| Actuarial Value of Assets at January 1, 2011 | $235,012,542 | $209,936,926 | $187,041,985 |
| Contributions During 2011 | 26,885,936 | 23,374,890 | 17,300,317 |
| Disbursements During 2011 | (33,367,453) | (28,825,081) | (21,803,200) |
| Interest Credited During 2011 | 16,169,518 | 14,494,478 | 12,904,931 |
| Tabular Smoothing Value of Assets at January 1, 2012 | $244,700,542 | $218,981,213 | $195,444,032 |
| | | | |
| Tabular Smoothing Value of Assets at January 1, 2012 | $244,700,542 | $218,981,213 | $195,444,032 |
| Contributions During 2012 | 20,955,098 | 19,583,309 | 15,877,327 |
| Disbursements During 2012 | (33,473,108) | (29,492,988) | (22,247,258) |
| Interest Credited During 2012 | 16,689,368 | 14,979,014 | 13,455,847 |
| Tabular Smoothing Value of Assets at January 1, 2013 | $248,871,901 | $224,050,549 | $202,529,949 |
| Low Limit: 80% of Market Value | $181,606,212 | $159,764,988 | $143,527,346 |
| High Limit: 120% of Market Value | $272,409,318 | $239,647,482 | $215,291,020 |
| | | | |
| **Actuarial Value of Assets at January 1, 2013** | **$248,871,901** | **$224,050,549** | **$202,529,949** |

# Section Six: Schedule of Debt Service Payments by Plan Arising from the Issuance of Pension Obligation Bonds

| Year | 1996 Issue Municipal | 1998 Issue Municipal | Municipal Subtotal | 1998 Issue Police | 1998 Issue Fire | Total |
|---|---|---|---|---|---|---|
| 1997 | $1,834,529.78 | | $1,834,529.78 | | | $ 1,834,529.78 |
| 1998 | 3,089,976.25 | $1,873,403.84 | 4,963,380.09 | $3,921,658.75 | $2,531,176.79 | 11,416,215.63 |
| 1999 | 3,093,905.00 | 3,965,451.43 | 7,059,356.43 | 8,301,011.75 | 5,357,765.57 | 20,718,133.75 |
| 2000 | 3,089,965.00 | 3,952,795.18 | 7,042,760.18 | 8,274,518.00 | 5,340,665.57 | 20,657,943.75 |
| 2001 | 3,093,050.00 | 3,940,071.43 | 7,033,121.43 | 8,247,882.95 | 5,323,474.37 | 20,604,478.75 |
| 2002 | 3,093,065.00 | 3,927,111.43 | 7,020,176.43 | 8,220,753.35 | 5,305,963.97 | 20,546,893.75 |
| 2003 | 3,094,772.50 | 3,914,050.18 | 7,008,822.68 | 8,193,411.80 | 5,288,316.77 | 20,490,551.25 |
| 2004 | 3,092,930.00 | 3,900,853.93 | 6,993,783.93 | 8,165,787.65 | 5,270,487.17 | 20,430,058.75 |
| 2005 | 3,092,285.00 | 4,215,898.93 | 7,308,183.93 | 8,825,281.84 | 5,696,147.98 | 21,829,613.75 |
| 2006 | 3,092,631.25 | 4,141,574.68 | 7,234,205.93 | 8,669,696.42 | 5,595,727.65 | 21,499,630.00 |
| 2007 | 3,094,008.75 | 4,140,402.43 | 7,234,411.18 | 8,667,242.51 | 5,594,143.81 | 21,495,797.50 |
| 2008 | 3,091,210.00 | 4,129,471.22 | 7,220,681.22 | 8,644,359.86 | 5,579,374.54 | 21,444,415.62 |
| 2009 | 3,093,890.00 | 4,136,108.02 | 7,229,998.02 | 8,658,252.89 | 5,588,341.59 | 21,476,592.50 |
| 2010 | 3,091,950.00 | 4,147,130.21 | 7,239,080.21 | 8,681,326.00 | 5,603,233.79 | 21,523,640.00 |
| 2011 | 3,090,225.00 | 4,152,755.21 | 7,242,980.21 | 8,693,101.00 | 5,610,833.79 | 21,546,915.00 |
| 2012 | 3,093,220.00 | 5,122,623.89 | 8,215,843.89 | 10,723,359.45 | 6,921,234.16 | 25,860,437.50 |
| 2013 | 3,092,690.00 | 5,684,604.41 | 8,777,294.41 | 11,899,772.03 | 7,680,532.31 | 28,357,598.75 |
| 2014 | 3,092,940.00 | 5,679,272.19 | 8,772,212.19 | 11,888,609.92 | 7,673,327.89 | 28,334,150.00 |
| 2015 | 3,091,015.00 | 5,731,435.63 | 8,822,450.63 | 11,997,805.38 | 7,743,806.49 | 28,564,062.50 |
| 2016 | 3,091,390.00 | 5,729,424.69 | 8,820,814.69 | 11,993,595.82 | 7,741,089.49 | 28,555,500.00 |
| 2017 | 3,093,365.00 | 6,550,975.62 | 9,644,340.62 | 13,713,375.79 | 8,851,096.09 | 32,208,812.50 |
| 2018 | 3,091,415.00 | 5,193,528.14 | 8,284,943.14 | 10,871,785.68 | 7,017,033.68 | 26,173,762.50 |
| 2019 | 3,093,792.50 | 6,476,899.43 | 9,570,691.93 | 13,558,309.64 | 8,751,010.93 | 31,880,012.50 |
| 2020 | 3,094,545.00 | 6,477,531.68 | 9,572,076.68 | 13,559,633.15 | 8,751,865.17 | 31,883,575.00 |
| 2021 | 3,093,937.50 | 6,477,401.18 | 9,571,338.68 | 13,559,359.97 | 8,751,688.85 | 31,882,387.50 |
| 2022 | 3,091,260.00 | 6,478,435.06 | 9,569,695.06 | 13,561,524.21 | 8,753,085.73 | 31,884,305.00 |
| 2023 | 3,090,625.00 | 6,479,074.06 | 9,569,699.06 | 13,562,861.85 | 8,753,949.09 | 31,886,510.00 |
| 2024 | 3,090,967.50 | 6,478,846.81 | 9,569,814.31 | 13,562,386.14 | 8,753,642.05 | 31,885,842.50 |

# Section Seven: Historical Information

The Act 205 of 1984 requirement that the City have annual actuarial valuations prepared for each of its defined benefit plans ended with the January 1, 2003 valuation. Actuarial information is included in the following charts for the last five biennial actuarial valuations. However, contribution information is included annually beginning with 2008.

The information contained elsewhere in this report provides detailed information on liabilities for each plan as of January 1, 2013 and the changes in the funding components during the year ending December 31, 2012. This section examines funding trends that emerged during the last five actuarial valuation periods. Also, a five-year review of contributions to fund the benefits has been included and a comparison of the actuarial value of assets for the last four valuations has been added.

The goal of the actuarial funding method is to accumulate enough assets by an employee's retirement date so that these assets and the interest they earn will pay benefits for the remainder of the employee's life, and possibly to a beneficiary. As active employees approach retirement, accumulated assets will increase each year. As retirement benefits are paid the accumulated assets will decrease. At any point in time, there is a theoretical asset level that should have been achieved, known as the Actuarial Accrued Liability.

A number of factors can have an impact on the Actuarial Accrued Liability. The January 1, 2013 valuation reports include assumption changes which have changed the actuarial accrued liability, the most significant of which was lowering of the assumed interest rate from 8.0% to 7.5% per year.

*Chart No. 1* shows the Actuarial Accrued Liability for each plan and the total for all plans from the actuarial valuations prepared in the period 2005 through 2013. Each of the Funds' Actuarial Accrued Liability increases over the period, which is the expected trend.

Comparing the assets and the Actuarial Accrued Liability as of a given date determines whether the funding is ahead of or behind schedule. Each of the City's plans is behind schedule because the Actuarial Accrued Liability is greater than the assets. This deficit is known as the Unfunded Actuarial Accrued Liability. Over time, annual amortization payments to the funds, calculated using the valuation interest rate will eliminate the Unfunded Actuarial Accrued Liability.

In 1996 and in 1998, the City issued pension obligation bonds and deposited the proceeds into the funds to reduce the gap between the Actuarial Accrued Liability and the assets. The debt service on the bonds is lower than the corresponding amortization payments because the interest rate on the bonds is lower than the valuation interest rate. As a result, the City is paying less money each year to provide pension benefits.

*Chart No. 2* shows the Unfunded Actuarial Accrued Liability for each plan and the total for all plans from the actuarial valuations prepared from 2005 through 2013. The January 1, 2007 actuarial valuations indicated that there was a substantial experience loss in the Firemen's Fund. The Municipal and Policemen's Funds had small experience gains. The January 1, 2009 valuation then showed a significant increase in the Unfunded Actuarial Accrued Liability due to the major investment losses of 2008. The Unfunded Actuarial Accrued Liability declined at January 1, 2011 because of the contribution gain that resulted from the inclusion of the present value of future

parking revenue as a City contribution for 2010. The Unfunded Actuarial Accrued Liability increased at January 1, 2013 due to assumption changes, the magnitude of which exceeded the net experience gains of each plan.

*Chart No. 3* provides the Funding Ratio for each fund and the average Funding Ratio for the 2005 through 2013 period. The Funding Ratio is the ratio of assets to the Actuarial Accrued Liability. In 1996, assets averaged 23.5 percent of the Actuarial Accrued Liability. Because of the pension obligation bonds, investment earnings in excess of the actuarial assumption and other changes noted above, the average peaked in 2000 at 67.0 percent. The return on investment in 2000, 2001, and 2002 and benefit improvements caused the average 2003 funding ratio to fall to 40.8 percent. The Funding Ratio increased slightly in 2005, but retracted by 2.7 percent in 2007, mostly due to experience losses in the Firemen's Fund. The ratio dropped by 7.4 percent to 34.3 percent in 2009 as a result of the large investment losses in 2008 and, to a lesser extent, by a decrease in the assumed interest rate from 8.75 percent to 8.0 percent. The funding ratio increased by 28.1 percent in 2011 to 62.4 percent due to the inclusion of the present value of future parking revenue as a pension plan asset. Funding ratios in 2009, 2011 and 2013 would be lower if the actuarial value of assets had not been changed to a value based on a tabular smoothing method. The funding ratio declined by 4.2 percent from 2011 to 2013, mainly because of assumption changes.

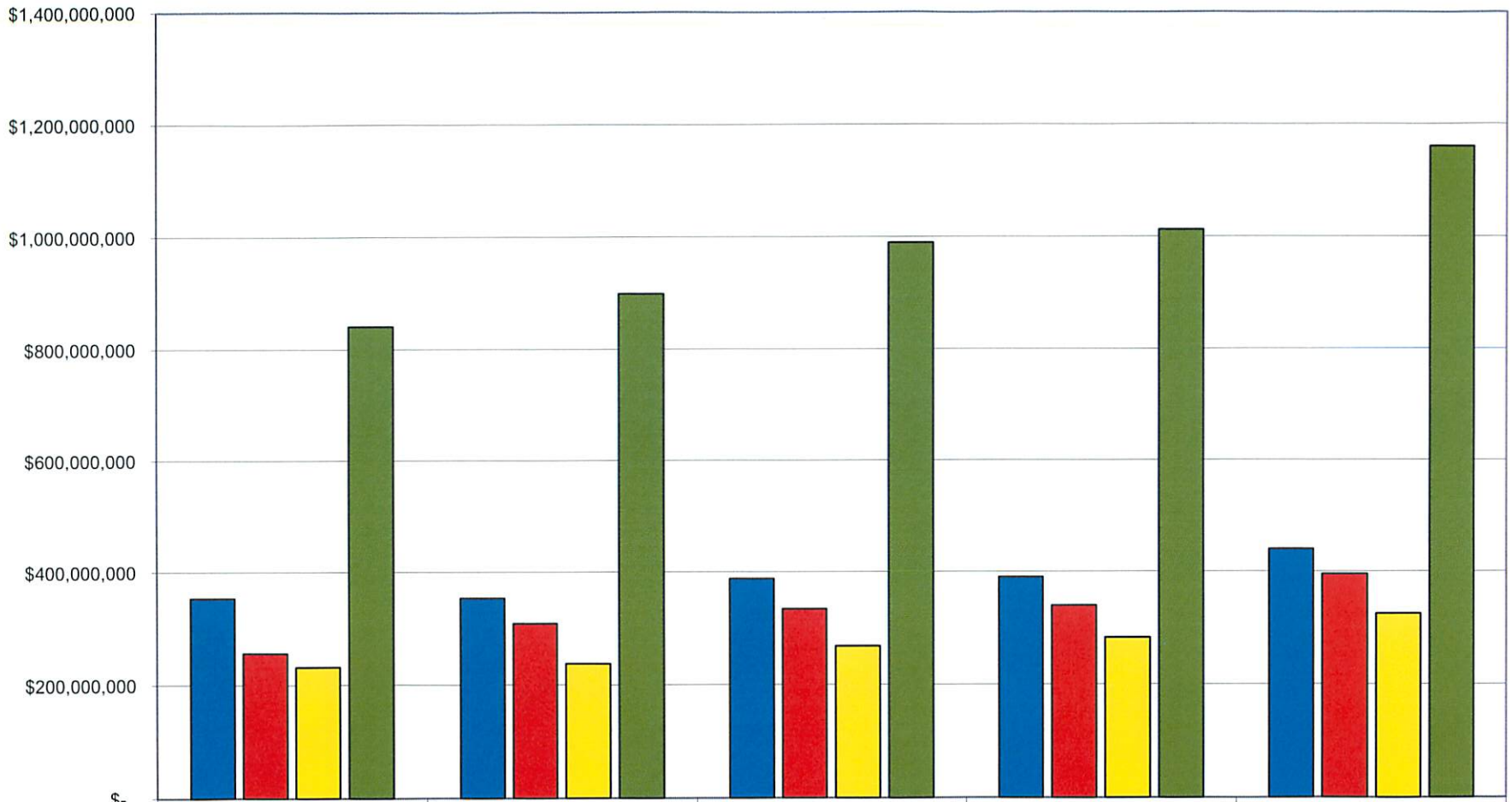
*Charts No. 4 through 7* provide information on the sources of the money to fund pension benefits on an individual and on an aggregate basis. Contributions for 2008 through 2012 are shown as a percentage of the total pay as reported on Form W-2 for each group. The City Contribution is the money paid by the City directly to the pension plans. Debt service is the annual payment made by the City to retire the pension obligation bonds.

The complete schedule of debt service payments is included in Section Six. The employees' contributions are withheld from employees' paychecks and paid directly to the pension plans. State Aid is the City's allocation from the two percent premium tax on foreign fire and casualty insurance, which the City deposits into the plans. State Aid could also be used to pay debt service, but the City would have to make additional contributions to the pension plans equal to the amount of State Aid used to pay debt service. In the future, if the City's Minimum Municipal Obligation falls below the State Aid allocation, the extra State Aid could be used to pay debt service.

*Charts No. 8 through 11* provide information comparing the actuarial value and market value of assets by plan and for all plans combined as of biennial valuation dates from January 1, 2005 to January 1, 2013. For valuation years before 2009, market and actuarial value of assets match. However, in 2009, the tabular smoothing method results in the values differing, with the actuarial value of assets being higher.

## Chart No. 1

## Actuarial Accrued Liability

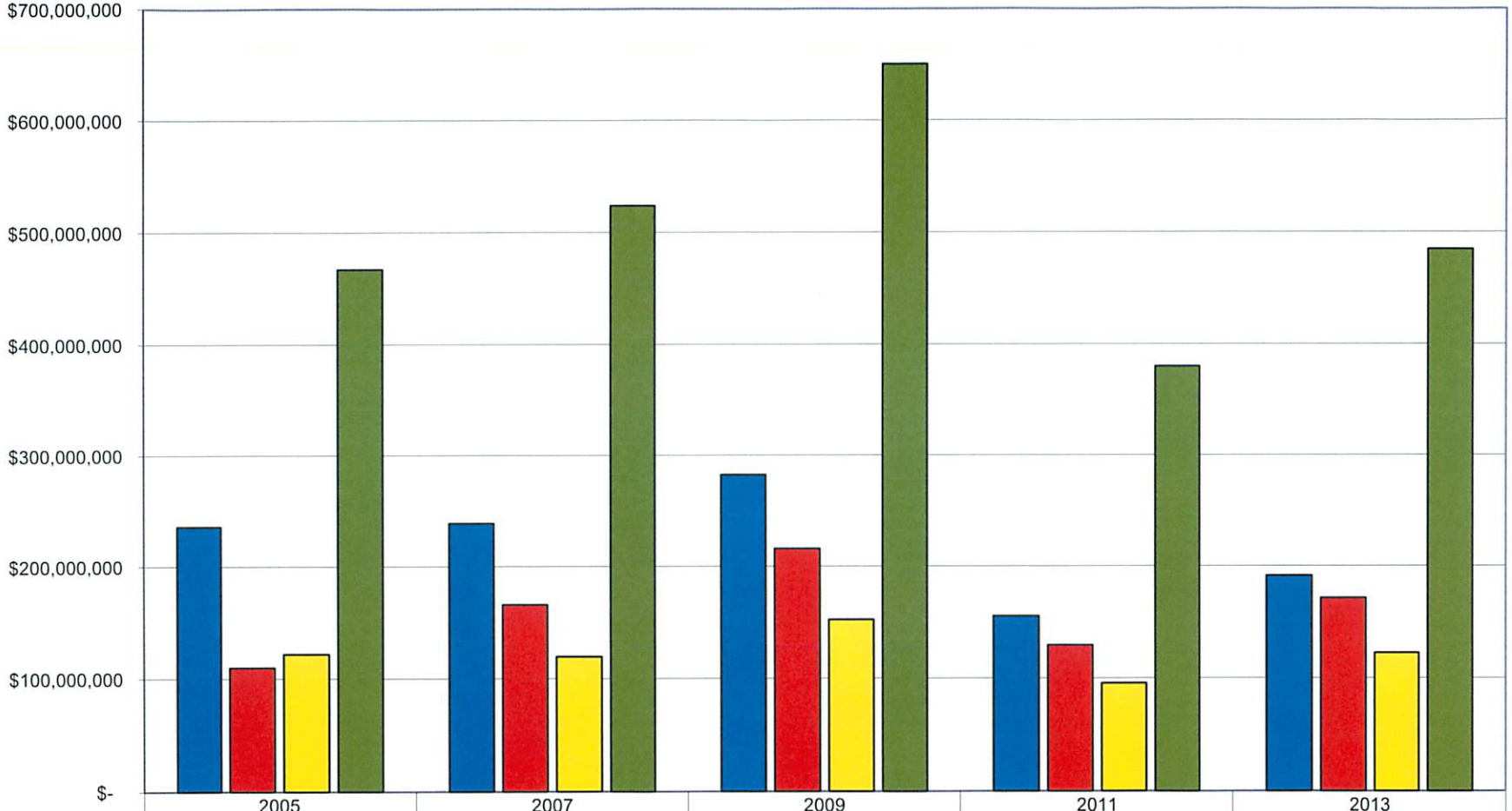



| | 2005 | 2007 | 2009 | 2011 | 2013 |
|---|---|---|---|---|---|
| Police | $353,479,164 | $353,521,990 | $387,857,613 | $390,253,799 | $440,021,893 |
| Fire | $255,769,628 | $308,412,402 | $334,059,624 | $339,135,347 | $395,323,604 |
| Municipal | $231,532,412 | $237,314,186 | $267,615,711 | $282,683,095 | $324,697,069 |
| Total | $840,781,204 | $899,248,578 | $989,532,948 | $1,012,072,241 | $1,160,042,566 |

Assumption changes in the 2009 and 2013 valuations increased the Actuarial Accrued Liability.

## Chart No. 2

## Unfunded Actuarial Accrued Liability

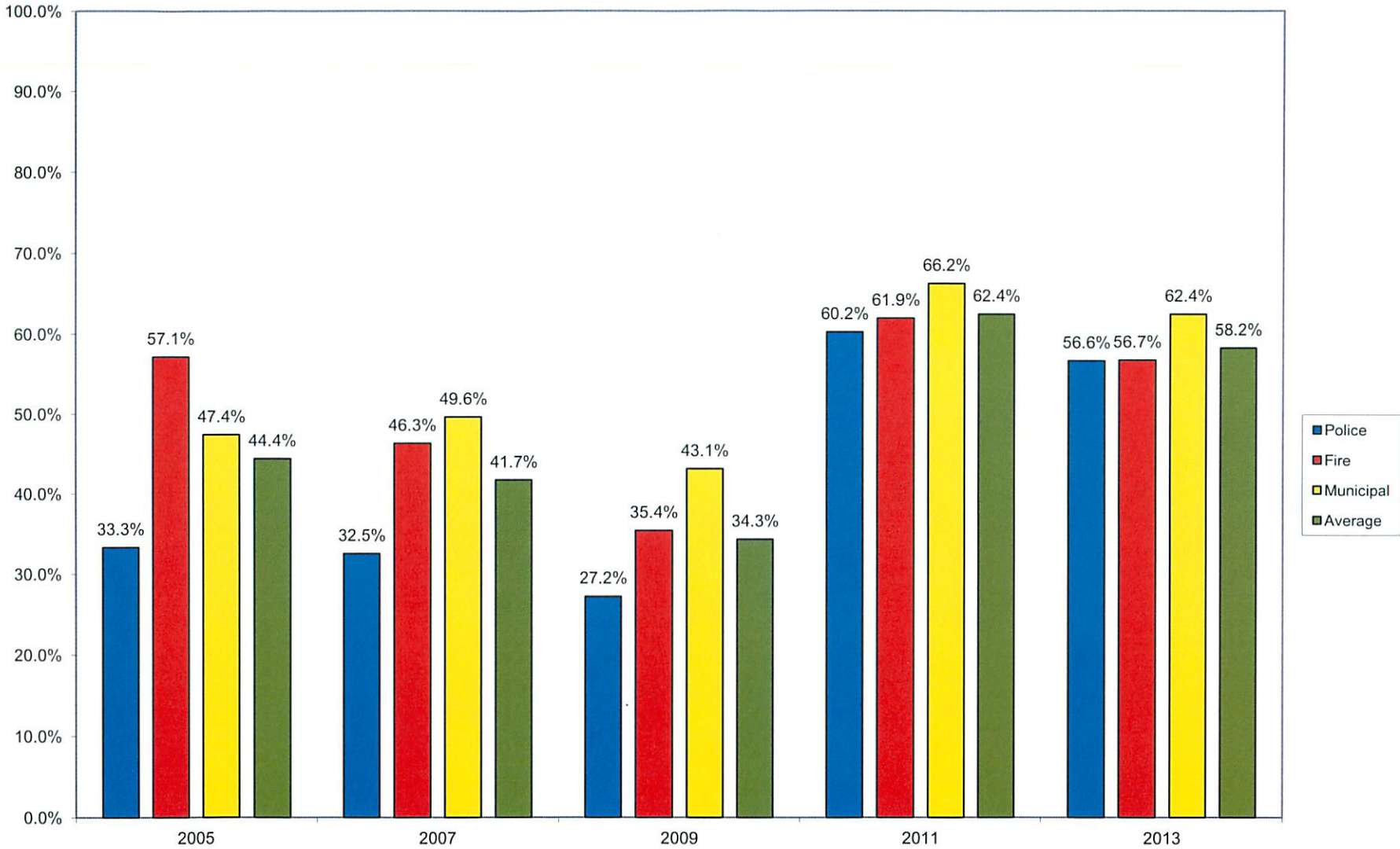



| | 2005 | 2007 | 2009 | 2011 | 2013 |
|---|---|---|---|---|---|
| Police | $235,657,193 | $238,632,923 | $282,292,625 | $155,241,257 | $191,149,992 |
| Fire | $109,774,231 | $165,625,303 | $215,767,241 | $129,198,421 | $171,273,055 |
| Municipal | $121,741,373 | $119,621,628 | $152,293,174 | $95,641,110 | $122,167,120 |
| Total | $467,172,797 | $523,879,854 | $650,353,040 | $380,080,788 | $484,590,167 |

Adoption of the tabular smoothing method and a decrease in the valuation interest rate in the 2009 valuation had an impact on the Unfunded Actuarial Accrued Liability (UAAL). The inclusion of the dedicated stream of revenues pursuant to City Ordinances 42 and 44 of 2010 significantly reduced the UAAL in the 2011 valuation. Assumption changes in the 2013 valuation increased the UAAL.

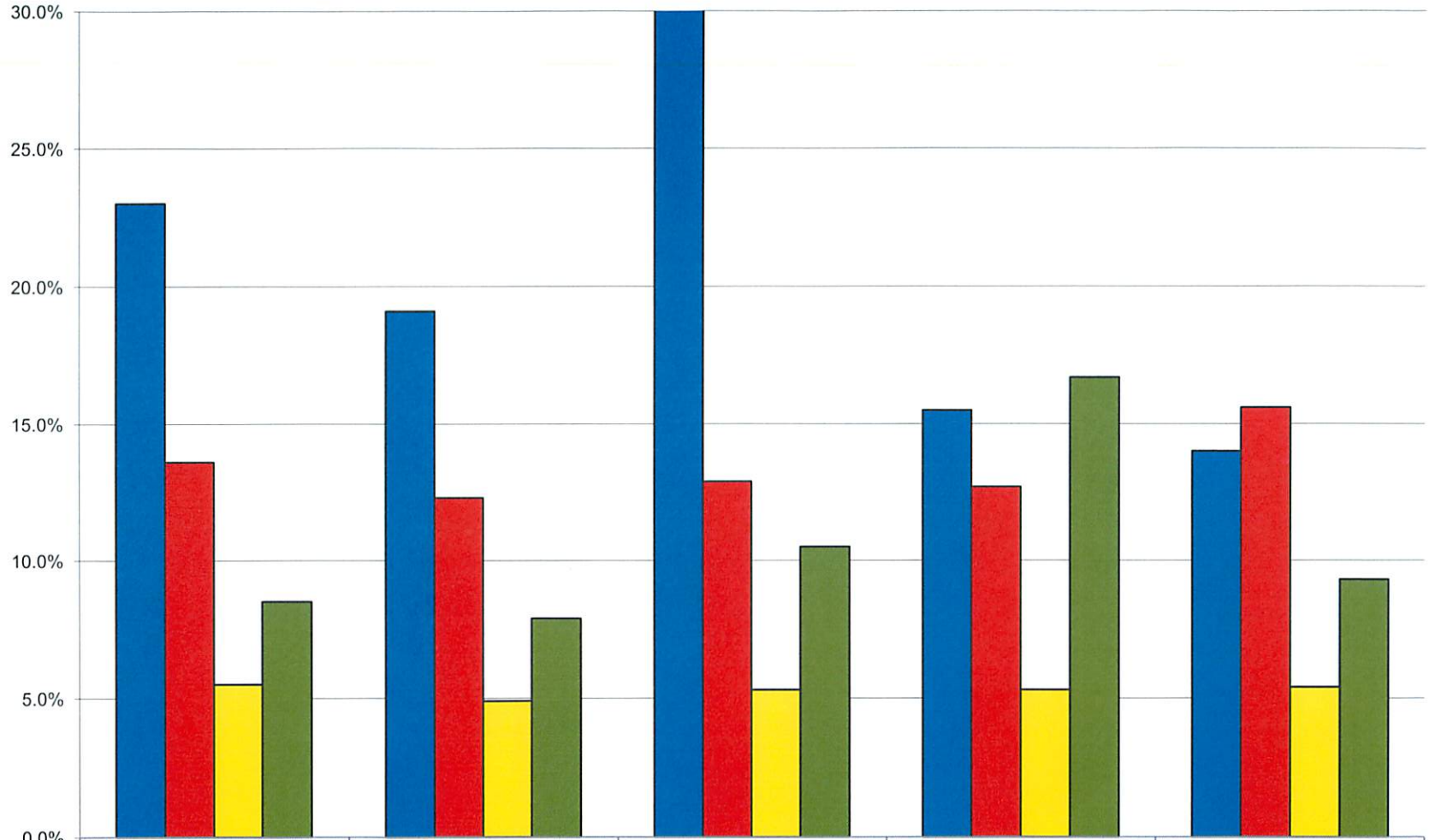
## Chart No. 3

### Funding Ratio




Funding Ratio is the actuarial value of assets divided by the actuarial accrued liability, expressed as a percentage. The Funding Ratios for 2011 and later reflect the inclusion in the actuarial value of assets of the dedicated stream of revenues pursuant to Ordinances 42 and 44 of 2010.

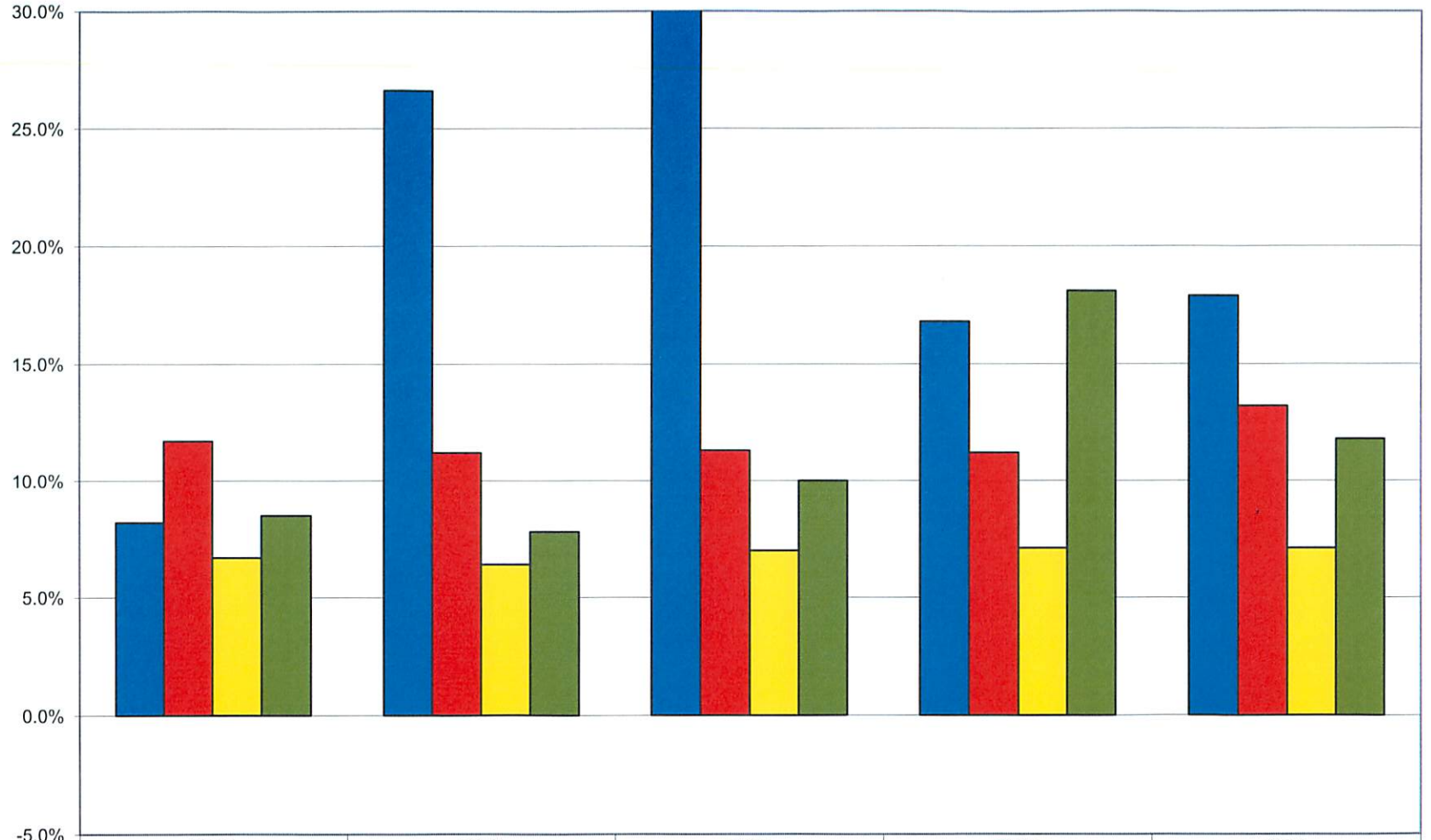
## Chart No. 4
## City of Pittsburgh Police Relief and Pension Fund
## Pension Contributions as a Percent of Actual W-2 Pay




| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| City Contribution | 23.0% | 19.1% | 218.3% | 15.5% | 14.0% |
| Debt Service | 13.6% | 12.3% | 12.9% | 12.7% | 15.6% |
| Employees | 5.5% | 4.9% | 5.3% | 5.3% | 5.4% |
| State Aid | 8.5% | 7.9% | 10.5% | 16.7% | 9.3% |

The present value of the dedicated stream of future revenues pursuant to Ordinances 42 and 44 of 2010 is included in the city contribution for 2010 making the city contribution for that year literally off the charts.

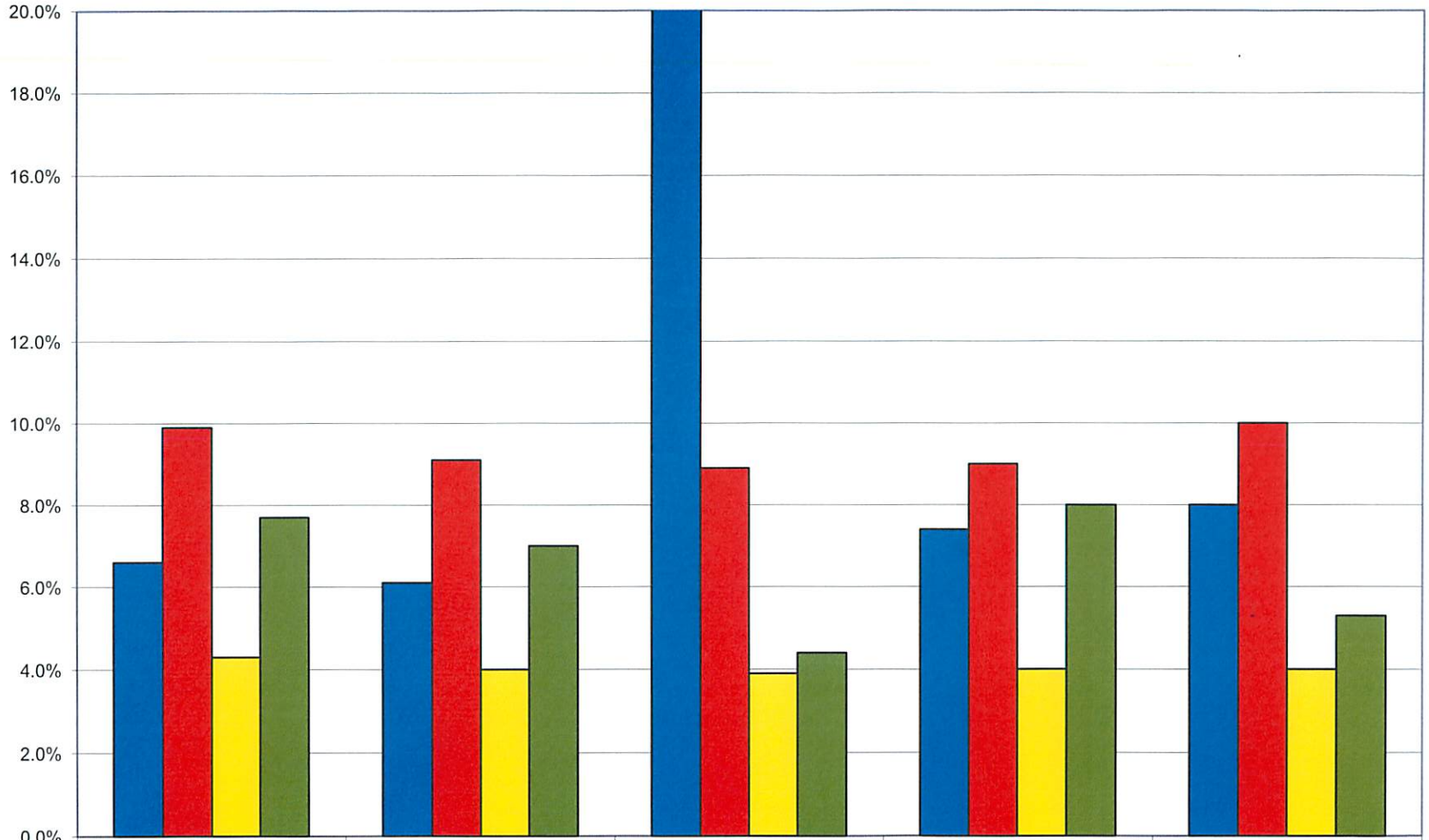
## Chart No. 5
## City of Pittsburgh Firemen's Relief and Pension Fund
## Pension Contributions as a Percentage of Actual W-2 Pay




| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| City Contribution | 8.2% | 26.6% | 209.1% | 16.8% | 17.9% |
| Debt Service | 11.7% | 11.2% | 11.3% | 11.2% | 13.2% |
| Employees | 6.7% | 6.4% | 7.0% | 7.1% | 7.1% |
| State Aid | 8.5% | 7.8% | 10.0% | 18.1% | 11.8% |

The present value of the dedicated stream of future revenues pursuant to Ordinances 42 and 44 of 2010 is included in the city contribution for 2010 making the city contribution for that year literally off the charts.

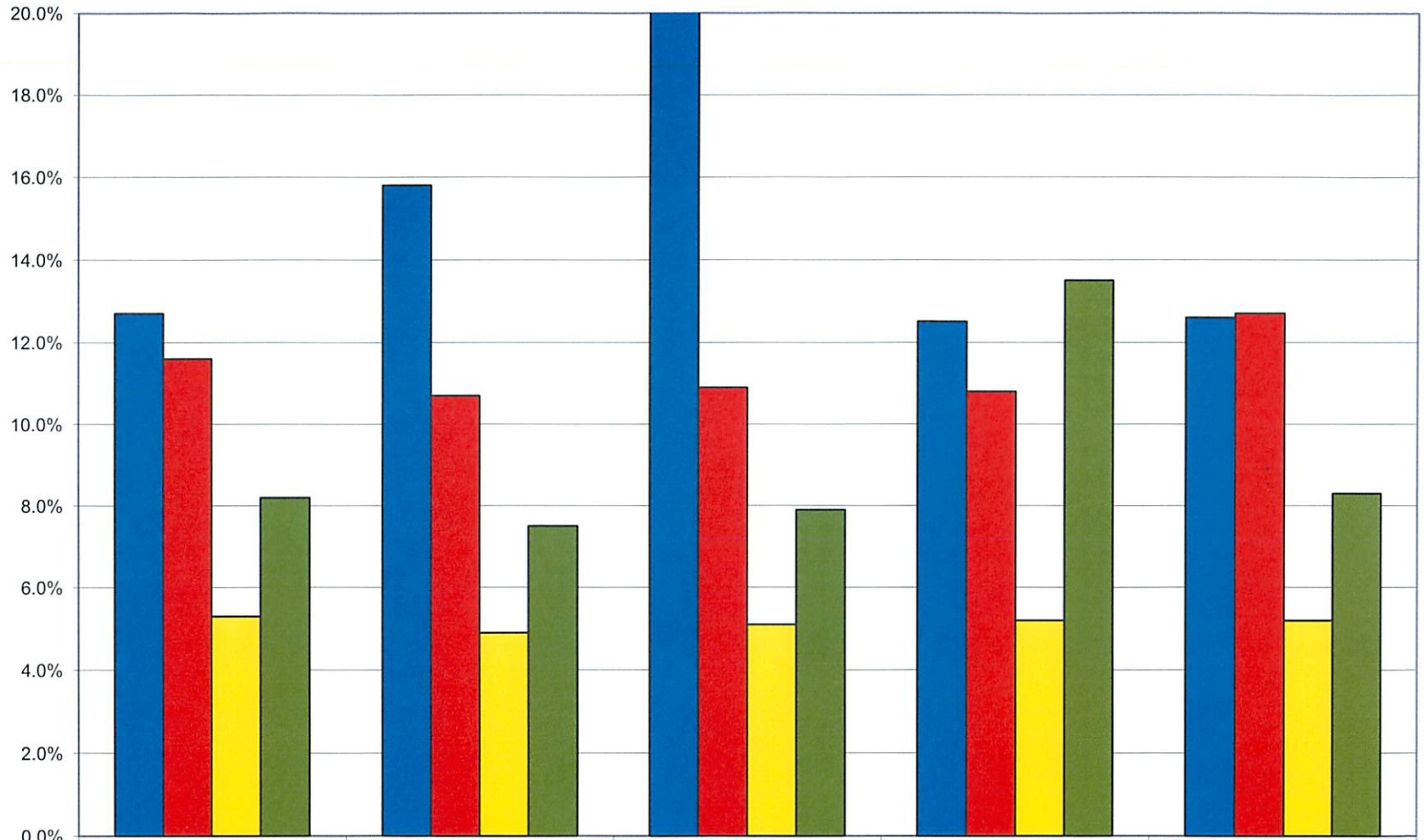
## Chart No. 6
## City of Pittsburgh Municipal Retirement Fund
## Pension Contributions as a Percentage of Actual W-2 Pay




| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| City Contribution | 6.6% | 6.1% | 91.2% | 7.4% | 8.0% |
| Debt Service | 9.9% | 9.1% | 8.9% | 9.0% | 10.0% |
| Employees | 4.3% | 4.0% | 3.9% | 4.0% | 4.0% |
| State Aid | 7.7% | 7.0% | 4.4% | 8.0% | 5.3% |

The present value of the dedicated stream of future revenues pursuant to Ordinances 42 and 44 of 2010 is included in the city contribution for 2010 making the city contribution for that year literally off the charts.

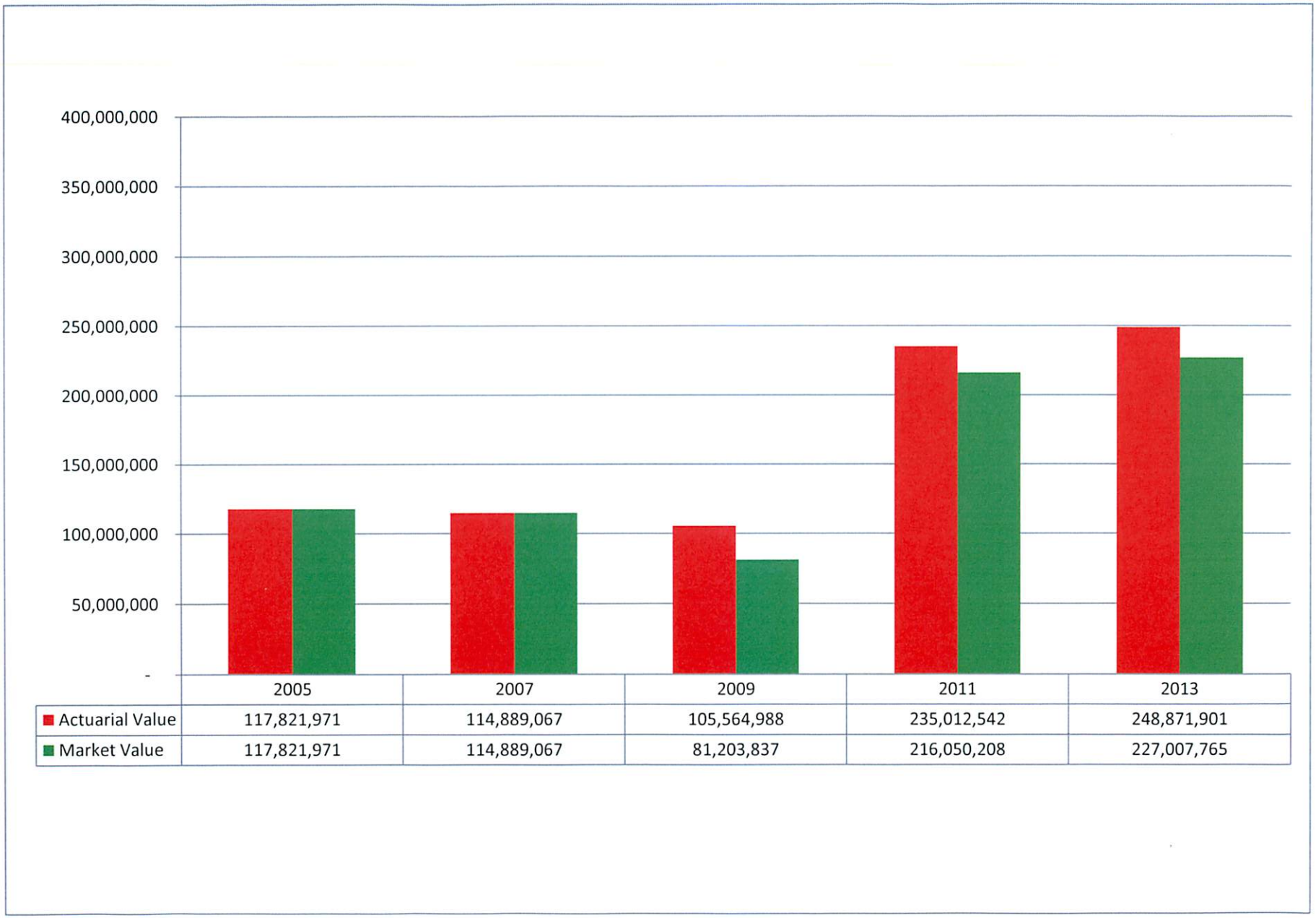
## Chart No. 7
## City of Pittsburgh - All Pension Funds
## Pension Contributions as a Percentage of Actual W-2




| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| City Contribution | 12.7% | 15.8% | 163.8% | 12.5% | 12.6% |
| Debt Service | 11.6% | 10.7% | 10.9% | 10.8% | 12.7% |
| Employees | 5.3% | 4.9% | 5.1% | 5.2% | 5.2% |
| State Aid | 8.2% | 7.5% | 7.9% | 13.5% | 8.3% |

The present value of the dedicated stream of future revenues pursuant to Ordinances 42 and 44 of 2010 is included in the city contribution for 2010 making the city contribution for that year literally off the charts.

**Chart No. 8**
**City of Pittsburgh Police Relief and Pension Fund**
**Comparison of Actuarial Value of Assets With Market Value of Assets**

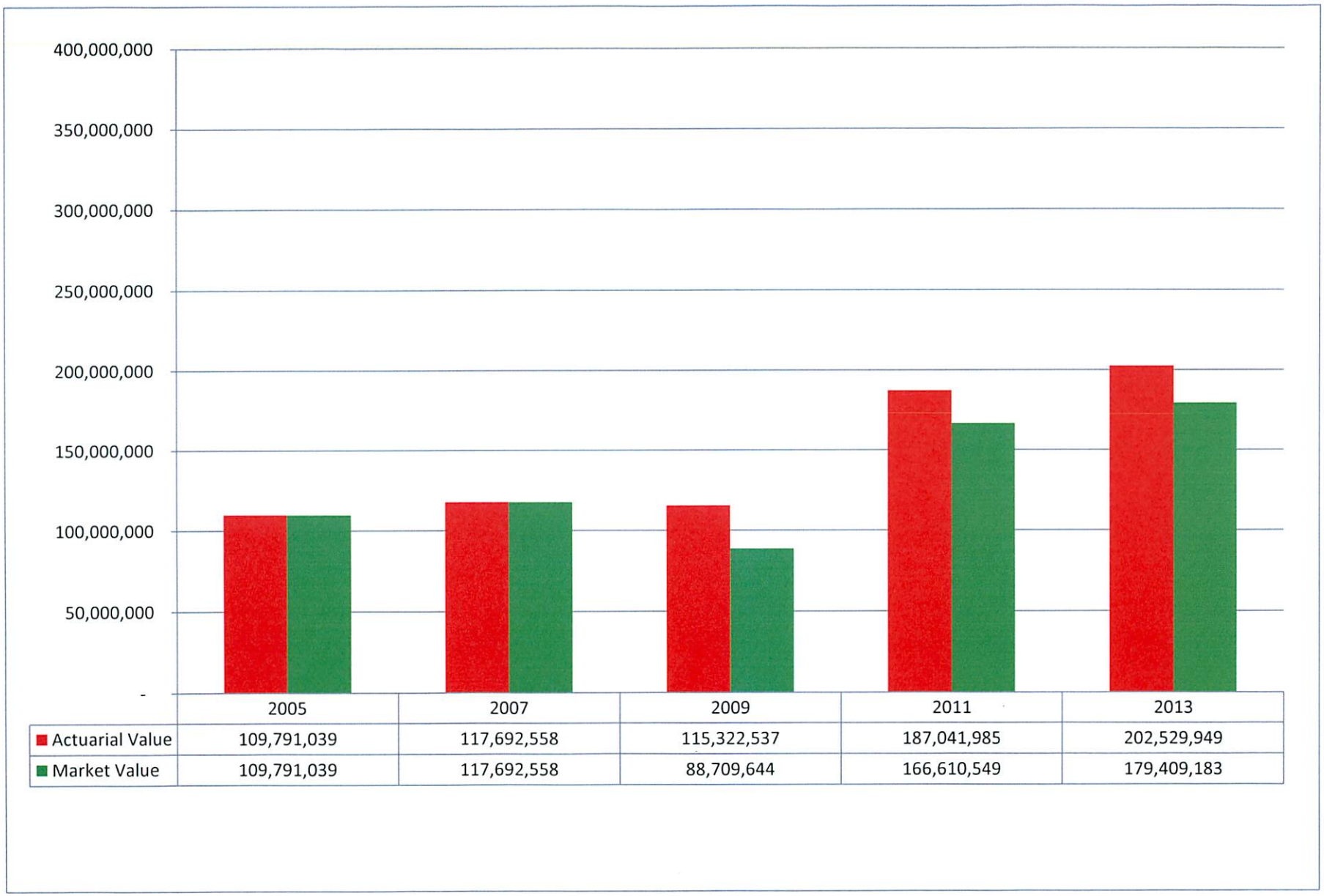



| | 2005 | 2007 | 2009 | 2011 | 2013 |
|---|---|---|---|---|---|
| Actuarial Value | 117,821,971 | 114,889,067 | 105,564,988 | 235,012,542 | 248,871,901 |
| Market Value | 117,821,971 | 114,889,067 | 81,203,837 | 216,050,208 | 227,007,765 |

**Chart No. 9**
**City of Pittsburgh Firemen's Relief and Pension Fund**
**Comparison of Actuarial Value of Assets with Market Value of Assets**


| | 2005 | 2007 | 2009 | 2011 | 2013 |
|---|---|---|---|---|---|
| Actuarial Value | 145,995,397 | 142,787,099 | 118,292,383 | 209,936,926 | 224,050,549 |
| Market Value | 145,995,397 | 142,787,099 | 90,994,141 | 188,721,694 | 199,706,235 |

**Chart No. 10**
**City of Pittsburgh Municipal Pension Fund**
**Comparison of Actuarial Value of Assets With Market Value of Assets**




| | 2005 | 2007 | 2009 | 2011 | 2013 |
|---|---|---|---|---|---|
| Actuarial Value | 109,791,039 | 117,692,558 | 115,322,537 | 187,041,985 | 202,529,949 |
| Market Value | 109,791,039 | 117,692,558 | 88,709,644 | 166,610,549 | 179,409,183 |

**Chart No. 11**
**Total Pension Plan Assets**
**Comparison of Actuarial Value of Assets With Market Value of Assets**


| | 2005 | 2007 | 2009 | 2011 | 2013 |
|---|---|---|---|---|---|
| Actuarial Value | 373,608,407 | 375,368,724 | 339,179,908 | 631,991,453 | 675,452,399 |
| Market Value | 373,608,407 | 375,368,724 | 260,907,622 | 571,382,451 | 606,123,183 |

# Section Eight: 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 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 70 and 130 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.

**Experience 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.

**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.