



**City of Lansing  
Police and Fire Retirement System**

**Actuarial Review and Analysis  
as of December 31, 2011**

February 14, 2013

**EFI ACTUARIES | EFI ASSET/LIABILITY MANAGEMENT SERVICES, INC.**  
*The nation's leader in plan-specific, interactive asset allocation optimization counseling*  
**WASHINGTON, DC ✕ PHILADELPHIA ✕ SEATTLE ✕ SAN FRANCISCO**

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## Executive Summary

This report presents the results of an actuarial review and analysis of the City of Lansing Police and Fire Retirement System (P&F, the Plan) as of December 31, 2011.

The required employer contribution for Fiscal Year 2013 has been determined based on actual demographic and asset information as of December 31, 2011. A summary of the current status of the P&F Plan as a whole is as follows:

	December 31, 2010	December 31, 2011
<b>Plan Membership</b>		
Active	424	362
Inactive	20	48
<u>Receiving Benefits</u>	<u>659</u>	<u>671</u>
Total	1,103	1,081
Average Pay	\$67,302	\$69,417
<b>Assets (\$ millions)</b>		
Market Value (MVA)	\$ 251.8	\$ 244.8
<b>Valuation Results (\$ millions)</b>		
Valuation Assets (AVA)	\$ 276.4	\$ 264.7
Actuarial Accrued Liability (AAL)	\$ 359.3	\$ 372.9
Unfunded Accrued Liability	82.9	107.9
Funding Ratio (AVA/AAL)	77%	71%
Funding Ratio (MVA/AAL)	70%	66%
<b>Contributions</b>		
Employer Normal Cost Rate	15.15%	14.27%
Total Employer Contribution Rate	31.03%	39.10%
City Contribution (millions)	\$ 9.2	\$ 10.1

**Purpose of the Report**

This Report presents the results of an actuarial review and analysis of the City of Lansing Police and Fire Retirement Plan as of December 31, 2011. The purposes of this Report are:

- To review the experience of the Plan over the past year and to discuss reasons for changes in Plan cost;
- To compute the annual contribution required to fund the Plan in accordance with actuarial principles;
- To discuss other issues associated with the determination of Plan costs and future cost implications; and
- To present those items required for disclosure under Statement No. 25 of the Governmental Accounting Standards Board (GASB).

**Change in Plan Cost from December 31, 2010 to December 31, 2011**

The employer contribution determined based on actual demographic and asset information has increased since the prior valuation. The narrative and table below summarize the impact of actuarial experience and other changes on Plan cost.

**Table 1**

	<b>Employer Contribution Rate</b>
<b>December 31, 2010</b>	<b>31.03%</b>
Fiscal Year 2012 Contribution	\$ 9,242,173
Change in Cost Due to:	
Scheduled Investment Loss Recognition/Expected Increase	2.92%
Actual Investment Experience	0.80%
Demographic and Salary Experience	1.19%
Changes in Assumptions	3.91%
<u>Change in Fire contribution rate</u>	<u>(0.75%)</u>
Total Change	8.07%
<b>December 31, 2011</b>	<b>39.10%</b>
Projected Payroll	\$ 25,858,337
<b>Projected Contribution Amount</b>	<b>\$ 10,133,599</b>

The following impacted the change in cost from the prior review:

- Expected increase

As part of the asset smoothing process, investment losses from prior years (specifically from 2008) are gradually recognized and cause contribution rates to increase. This caused a significant increase in the contribution rate, and will do so for one more year, when the 2008 investment loss is fully recognized.

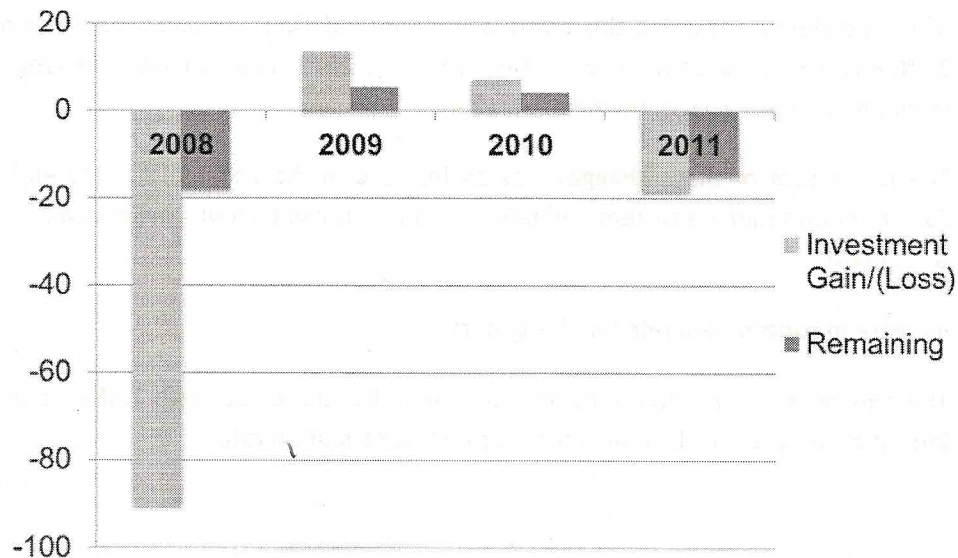
More information on asset smoothing can be found in Section 3.3 herein.

- Actual Investment experience

In addition to prior loss recognition, the actual experience during 2011 represented an investment loss (2% return versus 8% expected) and served to further increase the contribution rate. The opposite was true last year.

In accordance with the asset smoothing process, part of this loss was recognized immediately, partially offsetting the prior gain recognition. This is the intended operation of asset smoothing: gains and losses are expected to offset each other over time.

The following chart represents the recent investment gains and losses (amounts in millions) by year, and the portions of such that will be recognized in future valuations.



- Demographic and salary experience

Demographic experience includes movement within the population from one time period to another, in this case during the course of calendar year 2011. When experience differs from that expected (e.g., number of retirements or terminations, salary increases), then actuarial gains and losses occur, increasing or decreasing the contribution rate.

During 2011, demographic and salary experience represented an actuarial gain (lower actuarial liability than expected); however, the impact on the contribution rate was an increase. This is due to the lower than expected payroll.

- Assumption changes

EFI conducted a review of all actuarial funding assumptions for the Plan during 2012, covering calendar years 2005 through 2010. This Experience Study was delivered as separate report.

The assumption changes recommended by EFI and approved by the Board, included revisions to demographic assumptions (rates of retirement, termination, disability, and mortality), as well as changes to economic and salary assumptions.

In addition to the assumption change recommendations, we discussed with the Board a strategy to gradually phase-in the impact of the changes in assumptions over a few years. Our final recommendation regarding this effort is to adopt inflation and investment return assumptions of 3.3% and 7.8%, respectively, as of December 31, 2011, and evaluate the long term assumption recommendations each of the next few years.

The net impact of these changes was an increase in the actuarial liability and cost of the Plan. Further information on current and prior assumptions can be found in Section 2.2 and Appendix II of this Report.

- Increase in contribution rate for Firefighters

The employee contribution rate for Firefighters has increased from 7.58% to 9.08% of pay. The impact of this was a reduction in the employer contribution rate.

## Projected Future Costs

There are a number of factors that can be expected to impact costs in the future:

- Based on the assumptions and cost method, Plan assets are currently below the target level of assets, known as the Actuarial Accrued Liability (AAL); consequently, there is an unfunded actuarial accrued liability (UAAL).

The employer contribution consists of two components: The normal cost and the amortization of the UAAL. The normal cost represents the cost of the additional benefits earned each year by active Plan members. The members pay a portion of this normal cost each year and the City pays the remaining amount. The balance of the employer contribution represents the amortization of the unfunded liability, which is a payment, designed to bring the Plan's assets up to the target level over time. Currently, the amortization represents almost two-thirds of the total City contribution.

- The liabilities and contributions determined in this Report are based on a set of actuarial assumptions. Despite the care and effort expended in determining the most accurate possible set of assumptions, the future experience of the Plan will certainly differ from what we assume. As a result, actuarial gains or losses will occur annually, and the employer contributions will fluctuate from year to year.

The following graphs show baseline projections of City contributions and rates as well as funding progress for the Plan. These are based on only one of an infinite number of possible future outcomes – the case that all actuarial assumptions are exactly met each and every year. Even though this scenario is impossible, it is helpful to study these graphs to gain a sense of the general trend over the next three decades.

In Figure 1, the estimated funding ratio (assets as a percent of AAL) is shown on the right axis. The estimated UAAL is shown in dollars on the left axis. During the time that the UAAL is increasing most rapidly – over the next few years as investment losses are recognized – City contributions are expected to increase, as shown in Figure 2. After this, ignoring the impact of any gains or losses in the interim, a decrease in the rate is expected. Also shown in Figure 2, on the right axis, is the City cost as a percentage of total payroll.

Table 2 shows the dollar values of the expected future cash flows.

These projections are representations of the impact of past experience (prior to 12/31/2011) on future funding. Actual experience in 2012 and beyond will impact contributions and funding, potentially in a significant way.

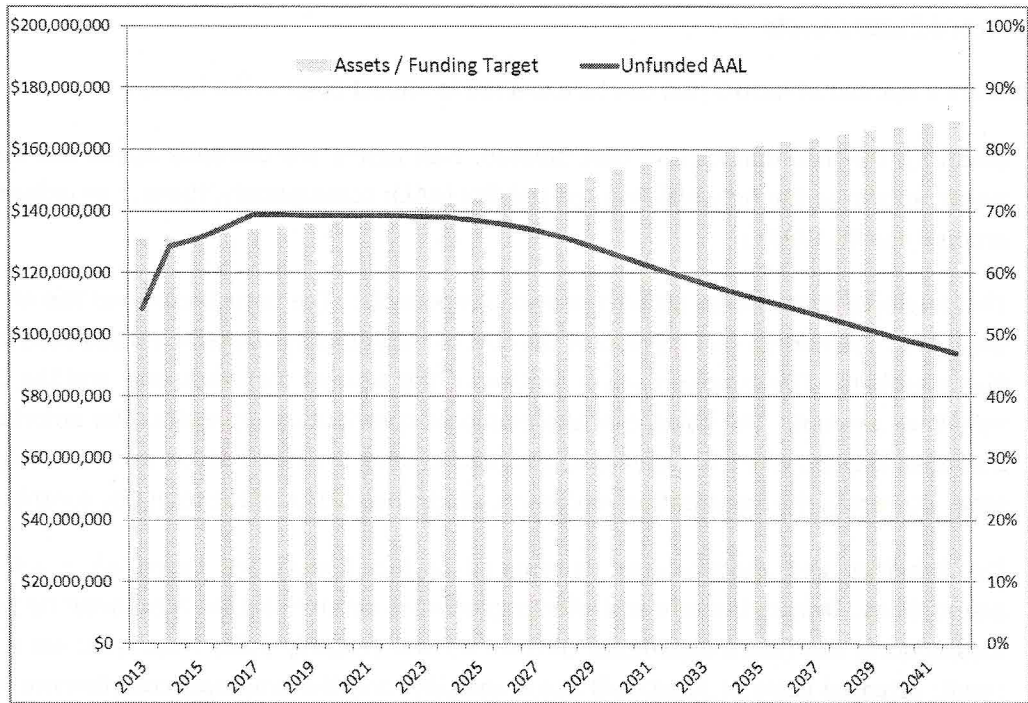


Figure 1: Estimated Future Funding Progress

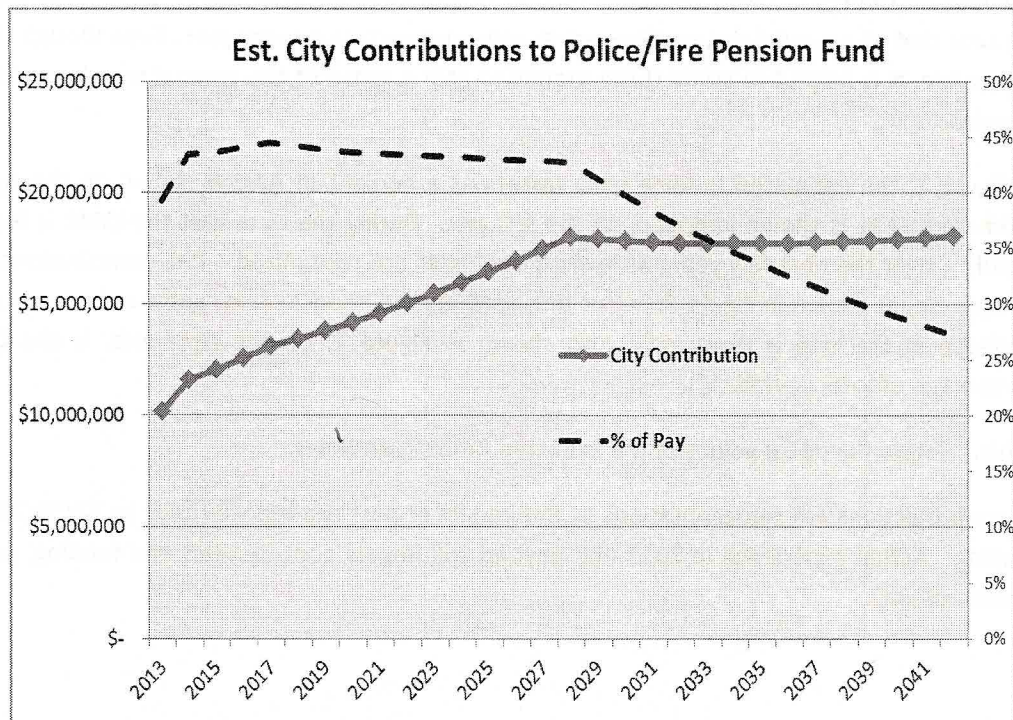


Figure 2: Estimated Future City Contribution Rates



**Table 2: Estimated Future Cash Flows (\$ thousands)**

Fiscal Year (ends June 30,)	Estimated City Contribution	Estimated Member Contributions	Estimated Benefit Payments
2013	10,134	2,238	25,466
2014	11,593	2,311	26,324
2015	12,017	2,388	27,113
2016	12,546	2,466	27,927
2017	13,097	2,548	28,764
2018	13,431	2,632	29,627
2019	13,768	2,719	30,516
2020	14,144	2,808	31,432
2021	14,559	2,901	32,375
2022	14,999	2,997	33,346

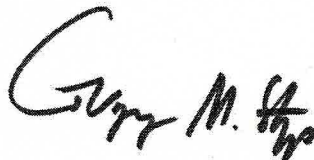
### Actuarial Certification

In this study, we conducted an examination of all participant data for reasonableness and consistency. Actuarial funding is based on the Entry Age Normal Cost Method. Under this method, the employer contribution provides for current cost (normal cost) plus an amount to amortize the unfunded actuarial accrued liability (UAAL). As of the valuation date, the amortization period is 30 years. For actuarial valuation purposes, Plan assets are valued at Actuarial Value, using a method that gradually recognizes investment gains and losses.

We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices. In particular, the assumptions and methods used for funding purposes meet the parameters of the Governmental Accounting Standards Board Statement No. 25.

The undersigned are members of and meet the qualification standards of the American Academy of Actuaries, and are qualified to render the actuarial opinions presented herein.

Respectfully Submitted,



Gregory M. Stump, FSA, MAAA



Karen T. Earley, FSA, MAAA

**Section 1:**

**Summary of Plan Provisions and Member Data**

## **1.1: Brief Outline of Plan Provisions**

### **Membership**

The Plan covers all Police Officers and Fire Fighters employed by the City.

### **Definitions**

#### ***Final Average Compensation***

Final Average Compensation is determined as the average of the member's compensation for the twenty-four consecutive months which produces the highest average.

### **Retirement**

#### ***Eligibility***

Members are eligible for Normal Retirement at age 55 or after earning 25 years of service.

#### ***Mandatory Retirement***

Age 60 for Police groups; age 70 for Firefighters.

#### ***Benefit Amount***

Benefit is determined as 3.2% of Final Average Compensation multiplied by the number of years of credited service, not to exceed 25 years. Maximum benefit is 80% of Final Average Compensation.

#### ***Form of Benefit***

The spouse will receive 50% of the regular retirement benefit for their lifetime upon the death of the member. Optional benefit forms are also available, as described below.

### **Deferred Vested Benefit**

#### ***Eligibility***

A member is eligible for a Deferred Vested Benefit upon termination of employment after earning ten years of credited service.

#### ***Benefit Amount***

The Deferred Vested Benefit is computed in the same manner as the Normal Retirement Benefit, but it is based on credited service and Final Average Compensation on the date of termination.

#### ***Form of Benefit***

The Deferred Vested Benefit will be paid monthly beginning at age 55.

## **Duty Disability**

### ***Eligibility***

Members are eligible for Duty Disability Retirement benefits immediately upon employment.

### ***Benefit Amount (Before Retirement Eligible)***

The Duty Disability Retirement Benefit payable to members is equal to 2/3 of Final Average Compensation.

### ***Benefit Amount (After Retirement Eligible)***

The Duty Disability Retirement Benefit payable to members is equal to the accrued Retirement benefit. In computing the benefit amount, credited service is increased to include the period of disability, and Final Average Compensation is calculated using current rates of compensation for those with similar rank.

The Disability Benefit will be offset by any workers' compensation payable on account of the disability.

### ***Form of Benefit***

The Duty Disability Retirement Benefit will be paid monthly beginning at the effective date of disability retirement and for the life of the member.

## **Non-Duty Disability**

### ***Eligibility***

Members are eligible for Non-Duty Disability Retirement benefits after completing ten years of service.

### ***Benefit Amount***

The Non-Duty Disability Retirement Benefit payable to members is equal to the accrued Retirement benefit, with a maximum benefit equal to 2/3 of the annual rate of compensation of either a full-paid patrolman or a full-paid firefighter as of the date of retirement, whichever is higher.

### ***Form of Benefit***

The Non-Duty Disability Retirement Benefit will be paid monthly beginning at the effective date of disability retirement and for the life of the member.

## Death in Line of Duty

### *Eligibility*

The Death in Line of Duty Benefit is payable to the survivors of a member who died as a result of an injury or disease arising out of and in the course of duty.

### *Benefit Amount*

A benefit equal to 86% of the Normal Retirement Benefit is payable to the widow or widower, with a minimum benefit equal to 1/3 of the deceased member's Final Compensation. In addition, unmarried children under the age of 21 will receive a benefit equal to 1/4 of the deceased member's Final Compensation, divided equally among children.

### *Form of Benefit*

The benefit described above is payable as a life annuity.

## Non-Duty Pre-Retirement Death

### *Eligibility*

The Non-Duty Pre-Retirement Death Benefit is payable upon the death of a member after earning ten years of credited service.

### *Benefit Amount*

50% of the accrued retirement benefit, computed in the same manner as the Retirement Benefit.

### *Form of Benefit*

The benefit described above is payable as a life annuity to the surviving spouse.

## Optional Benefit Forms

Prior to retirement, a member may elect a reduced benefit of either 93% or 86% of the original amount, thereby increasing the spouse benefit to either 75% or 86%, respectively.

## Member Contributions

Each member contributes a percentage of Compensation to the Plan. The percentages contributed are as follows:

<b>Contribution Rates (% of Pay)</b>	
<b>Member Group</b>	<b>Percentage</b>
Fire	9.08%
Police, Supervisor	9.52%
Police, Non-Supervisor	8.50%

**Ad Hoc Cost-of-Living Adjustments**

One-time cost of living increases were granted in 1973, 1984 and 1987.

**Post Retirement Benefit Adjustments**

Effective January 1, 1995 and each January 1 thereafter, the annual benefit amount will be increased by \$525 for each retiree who meets each of the following conditions:

- 1) 25 or more years of credited service at the time of retirement
- 2) Age 60 as of the January 1 increase date
- 3) Has been retired at least 6 months as of the January 1 increase date

The \$525 amount is reduced for retirees who elected the 75% or 86% optional forms of benefit (\$488.25 and \$451.50, respectively).

Spouses of deceased members are also eligible for benefit increases each January 1 if:

- 1) The deceased member had at least 25 years of credited service at the time of retirement
- 2) The deceased member would have attained at least age 60 as of the January 1 increase date
- 3) The deceased member had been deceased at least 6 months as of the January 1 increase date.

The spouse's annual benefit increase amount is adjusted based on the form of payment elected by the deceased member, according to the following schedule:

Spouse Benefit %	Annual Benefit Increase
50%	\$262.50
75%	\$393.75
86%	\$451.50

The benefit increases accumulate from year to year, but cumulative benefit increases shall not exceed cumulative increases in the Consumer Price Index.

**Changes in Plan Provisions since Prior Valuation**

The contribution rate for Firefighters is now 9.08% of pay (previously 7.58%).

## 1.2: Member Data Summary

Data for active and inactive members and their beneficiaries as of the valuation date was supplied by the Plan Administrator on electronic media. Member data was neither verified nor audited.

Active Participants	12/31/2010			12/31/2011		
	Fire	Police	Total	Fire	Police	Total
Number of Active Employees	198	226	424	177	185	362
Average Age	40.5	38.8	39.6	41.2	40.6	40.9
Average Service	12.9	13.0	13.0	13.8	15.1	14.4
Average Pay	\$ 70,767	\$ 64,266	\$ 67,302	\$ 71,420	\$ 67,500	\$ 69,417
Number Eligible to Retire				5	6	11

Inactive Participants	12/31/2010			12/31/2011		
	Fire	Police	Total	Fire	Police	Total
Number of Retired Participants	201	265	466	208	270	478
Average Age	65.1	64.8	64.9	65.0	65.1	65.0
Average Annual Benefit	\$ 44,611	\$ 40,447	\$ 42,243	\$ 46,273	\$ 41,400	\$ 43,520
Number of Disabled Retirees	36	23	59	35	22	57
Average Age	55.9	54.2	55.2	55.0	53.5	54.4
Average Annual Benefit	\$ 37,802	\$ 33,469	\$ 36,113	\$ 39,477	\$ 34,623	\$ 37,603
Number of Beneficiaries/EDROs	56	78	134	58	78	136
Average Age	72.9	72.8	72.8	73.8	72.1	72.8
Average Annual Benefit	\$ 14,867	\$ 14,439	\$ 14,618	\$ 14,801	\$ 15,094	\$ 14,969
Number of Deferred Vested Participants	1	16	17	1	15	16
Average Age	39.4	48.1	47.6	40.4	47.7	47.3
Average Annual Benefit	\$ 27,142	\$ 24,394	\$ 24,556	\$ 27,142	\$ 25,377	\$ 25,487
Number of Terminated Participants Due Refunds	2	1	3	10	22	32

### 1.3: Changes in Membership from Prior Valuation

	Actives	Non-vested Terminations	Vested Terminations	Retired	Disabled	Benefici- aries*	Total Participants
<b>December 31, 2010</b>	<b>424</b>	<b>3</b>	<b>17</b>	<b>466</b>	<b>59</b>	<b>134</b>	<b>1,103</b>
New Entrants							0
Rehires							0
Retirements	(19)		(2)	21			0
Disabilities	(1)				1		0
Vested Terminations	(1)		1				0
Died, With Beneficiaries' Benefit Payable				(5)	(3)	8	0
Non-Vested Terminations and Death without beneficiary	(29)	29		(3)		(9)	(12)
Domestic Relations Orders						2	2
Withdrawals Paid	(12)						(12)
Data Corrections				(1)		1	0
<b>December 31, 2011</b>	<b>362</b>	<b>32</b>	<b>16</b>	<b>478</b>	<b>57</b>	<b>136</b>	<b>1,081</b>

\* also includes EDRO beneficiaries



**Section 2:**

**Actuarial Methods and Assumptions**

## **2.1: Actuarial Methods**

### **Actuarial Cost Method**

Annual contributions to the Plan are computed under the Entry Age Normal Actuarial Cost Method. Under this Cost Method, the Normal Cost is calculated as the amount necessary to fund each member's benefits as a level percentage of payroll over their projected working lifetime.

At each valuation date, the Actuarial Accrued Liability (AAL) is equal to the difference between the liability for the members' total projected benefit and the present value of future Normal Cost contributions.

The excess of the AAL over Plan assets is the Unfunded Actuarial Accrued Liability (UAAL), and this amount is amortized as a level percent of payroll over a closed period of 30 years, decreasing by 1 year to an ultimate period of 15 years (30 years remaining as of December 31, 2011).

The total Plan cost is the sum of the Normal Cost and the amortization of the Unfunded Actuarial Accrued Liability.

### **Actuarial Value of Plan Assets**

The valuation assets are equal to the expected actuarial value, plus a portion of actuarial gains and losses. Actuarial gains and losses from Plan investments over each of the five years prior to the calculation date are recognized at the rate of 20% per year in computing the actuarial value of assets. The detailed calculation of the actuarial value of Plan assets is shown in Section 3.3.

### **Changes in Actuarial Methods since Prior Valuation**

The amortization period was changed from a 30-year open period to a closed, initial 30-year period, decreasing by one year during each annual valuation for 15 years, until becoming a 15-year open period.

## 2.2: Actuarial Assumptions

Valuation Date	All assets and liabilities are computed as of December 31, 2011.
Rate of Investment Return	The annual rate of return on all Plan assets is assumed to be 7.8%, net of investment and administrative expenses.
Cost of Living (inflation)	The cost of living as measured by the Consumer Price Index (CPI) will increase at the rate of 3.3% per year.
Increases in Pay	Increases in salary are assumed to include a wage inflation component of 3.3% per year, plus 7% for those with less than 5 years of service, or 0.75% for all others.
Member Mortality	<p>Rates of mortality for Plan members are specified by the Retired Pensioners (RP) 2000 Mortality Tables for males and females, with Blue Collar adjustments. For Disabled members, the disabled versions of these tables are assumed, with a 5 year age setback for males. Each of these tables is projected to 2008 with Scale BB.</p> <p>Projected improvements in mortality for non-disabled members have been accounted for by applying 50% of Scale BB to the year 2023.</p>
Service Retirement	Retirement is assumed to occur among eligible members in accordance with the table below.

Years of Service	Fire	Police
10-24	5%	5%
25	80%	80%
26-29	60%	25%
30+	100%	100%

**Disability**

Rates of disability vary based on the age of the member as shown below. 95% of disabilities are assumed to be duty-related.

Representative Assumed Rates of Disability

Age	Rate
20	0.080%
30	0.400%
40	0.625%
50	0.750%
60+	0.00%

**Termination**

Rates of termination vary based on the age and service of the member as shown below.

Representative Assumed Rates of Termination

Service	Fire	Police
0	4.0%	5.0%
1	3.2%	4.3%
5	1.3%	2.2%
10	0.4%	1.0%
15	0.1%	0.4%
20	0.0%	0.0%

**Family Composition**

90% of Plan members are assumed to be married. If no spouse data is available, male spouses are assumed to be three years older than their wives.

**Change in Actuarial Assumptions since Prior Valuation**

The assumptions above were updated based on the recent Experience Study, covering 2005 through 2010. Prior assumptions are shown in Appendix II.

## 2.3: Glossary of Actuarial Terms

### Actuarial Accrued Liability

A plan's actuarial accrued liability is the level of assets estimated by the system actuary to be needed as of the valuation date to

- Finance all previously earned benefits for actively employed members of the plan (and their beneficiaries, if applicable) for when they eventually retire, die or terminate with deferred vested benefits, and
- Finance all currently payable benefits of current pensioners and their beneficiaries (if applicable).

It is important to note that the Actuarial Accrued Liability is not a debt; instead, it is an asset target set by the actuarial cost method to produce an orderly accumulation of assets to finance the plan's obligations.

### Actuarial Assumptions

The actuarial assumptions are the actuary's anticipated rates of future termination, death, disability and retirement for each member of the plan as well as the actuary's anticipated rate of investment return on underlying assets. Because these assumptions will not be in exact accord with actual events, actuarial gains and losses will materialize.

### Actuarial Value of Assets

The actuarial value of assets, used for funding purposes, is computed using an asset smoothing technique in which investment gains and losses are not fully recognized in the year they occur, but are spread out over time, typically a specified number of years. Use of an actuarial value of assets (rather than market value) helps avoid large fluctuations in recognized value of the underlying assets and, in turn, avoids large fluctuations in required contribution rates.

### Actuarial Present Value of Benefits

The actuarial present value of benefits is the Actuarial Accrued Liability plus actuarial present value of future Normal Costs. The actuarial present value of benefits can also be explained as the actuarial present value of all future benefits expected to be paid to the Plan's current members, whether based on current or future service.

### Actuarial Funding Policy

The plan's actuarial funding policy is the scheduled program of accumulating assets to fund the plan's obligations, often as a level percentage of payroll.

The funding policy includes:

- The Normal Cost, and
- Amortization of the Unfunded or Overfunded Actuarial Accrued Liability (whichever is applicable).

#### Investment Gains and Losses

When the investment return on assets exceeds the assumed rate of return (the actuarial assumption as to investment return), this difference is identified as an investment gain. Correspondingly, when the returns are less than expected, this difference is identified as an investment loss. These investment gains and losses are either recognized immediately to produce the market value of assets or are spread out to produce the Actuarial Value of Assets.

#### Normal Cost

The Normal Cost is calculated as the annual amount necessary to fund each member's benefits from that member's Plan entry date to the end of his or her projected working life.

#### Unfunded Actuarial Accrued Liability

When the actuarial value of assets is below the Actuarial Accrued Liability, there is an Unfunded Actuarial Accrued Liability is funded according to an amortization schedule. When the actuarial value of assets is in excess of the Actuarial Accrued Liability, the amortization is negative, and can partially or fully offset the Normal Cost contribution.

**Section 3:**

**Asset Information**

### 3.1: Statement of Net Plan Assets

	12/31/2010	12/31/2011
<b><u>ASSETS</u></b>		
Cash and Short-Term Investments	\$ 14,518,659	\$ 9,411,797
Receivables	(785,973)	(851,989)
Accrued Interest and Dividends	300,415	318,421
Investments:		
Government Bonds	42,518,850	44,244,928
Corporate Bonds	43,965,995	46,247,844
Common Stock	126,147,343	122,251,653
Other Equities	33,572,842	30,073,347
Real Estate	10,086,419	13,444,002
<b>Total System Assets</b>	<b>\$ 270,324,550</b>	<b>\$ 265,140,003</b>
Accounts Payable	(191,756)	(1,677,220)
<b><u>NET ASSETS AVAILABLE FOR BENEFIT</u></b>	<b>\$ 270,132,794</b>	<b>\$ 263,462,783</b>

The information above is based on the unaudited asset documentation provided by the City's finance office.



### 3.2: Income Statement

	<u>2010</u>	<u>2011</u>
Total Plan Assets – Beginning of Year	\$ 252,995,462	270,132,794
<b><u>ADDITIONS</u></b>		
Member contributions	3,178,514	2,470,622
Employer contributions	7,900,000	8,650,688
Employer contributions – Healthcare Reserve Adjustment	47,677	0
	0	0
Investment Income:		
Interest	12,470,158	2,210,025
Dividends	551,108	1,191,987
Market Appreciation	16,903,189	4,530,342
Total Additions	+\$ 41,050,646	19,053,664
<b><u>EXPENDITURES</u></b>		
Member contributions refunded	0	101,788
Retirement benefits paid	22,982,285	24,568,293
Administrative expenses and other	310,985	28,191
Investment expenses	620,045	1,025,403
Transfers	0	
Total Expenditures	-\$ 23,913,315	25,723,675
<b><u>NET INCREASE/(DECREASE)</u></b>	<b>\$ 17,137,331</b>	<b>(6,670,011)</b>
<b>Total Plan Assets – End of Year</b>	<b>\$ 270,132,794</b>	<b>\$ 263,462,783</b>

The information above is based on the unaudited asset documentation provided by the City's finance office.

### 3.3: Computation of Actuarial Value of Assets

<u>Year Ended</u>	<u>Expected Earnings<sup>1</sup></u>	<u>Actual Earnings<sup>2</sup></u>	<u>Investment Gain/(Loss)</u>	<u>Percent of (c) Deferred</u>	<u>Amount Deferred</u>
	(a)	(b)	(c) = (b) - (a)	(d)	(e) = (c) x (d)
12/31/2011	20,738,622	6,906,950	(13,831,672)	80%	(11,065,338)
12/31/2010	23,061,562	29,613,471	6,551,909	60%	3,931,145
12/31/2009	23,753,776	37,082,814	13,329,038	40%	5,331,615
12/31/2008	24,277,335	(66,223,328)	(90,500,663)	20%	(18,100,133)
(1) Total Gain/(Loss) Unrecognized as of Valuation Date					(19,902,711)
(2) Market Value, Total Fund					263,462,783
(3) Actuarial Value, Total Fund: [(2)-(1)]					283,171,437
(4) Healthcare Reserve as of 12/31/2011					18,678,699
(5) Actuarial Value, Pension Plan: [(3)-(4)]					264,492,738
Ratio of Actuarial Value to Market Value, Total Fund					107.5%
Approximate Rate of Return based on Market Value					2.6%
Approximate Rate of Return based on Actuarial Value					1.1%

<sup>1</sup> Computed based on assumed return from prior valuation. Employee contributions and benefits assumed to be paid throughout the year, employer contributions one month prior to end of year.

<sup>2</sup> Market Value return

**Section 4:**

**Actuarial Computations**

### 4.1: Employer Contributions

	<u>12/31/2010</u>	<u>12/31/2011</u>	
		Prior Assumptions	New Assumptions
Total Entry Age Normal Cost	6,650,599	5,860,838	5,824,059
<u>Estimated Employee Contributions</u>	<u>2,326,159</u>	<u>2,237,504</u>	<u>2,237,504</u>
Net City Normal Cost	4,324,441	3,623,333	3,586,555
Valuation Payroll	28,536,056	25,128,835	25,128,835
City Normal Cost Rate (% of pay)	15.15%	14.42%	14.27%
Active Actuarial Accrued Liability	114,784,182	110,278,083	116,327,833
Terminated Members Actuarial Accrued Liability	2,592,014	2,984,750	2,995,898
<u>Retiree/Beneficiary Actuarial Accrued Liability</u>	<u>241,916,820</u>	<u>246,491,353</u>	<u>253,223,779</u>
Total Actuarial Accrued Liability	359,293,016	359,754,186	372,547,509
Actuarial Value of Assets (Section 3.3)	276,377,041	264,686,793	264,686,793
Net Unfunded Actuarial Accrued Liability (UAAL)	82,915,974	95,067,393	107,860,716
Amortization of UAAL	4,531,583	5,195,691	6,238,422
Amortization Rate (% of pay)	15.88%	20.68%	24.83%
<b>Total City Contribution Rate</b>	<b>31.03%</b>	<b>35.10%</b>	<b>39.10%</b>
Projected Fiscal Payroll	29,780,315	26,099,587	25,918,180
<b>Estimated City Contribution</b>	<b>\$ 9,242,173</b>	<b>\$ 9,159,712</b>	<b>\$ 10,133,599</b>

**Section 5:**

**Disclosure Information**

## 5.1: GASB Schedules

GASB Statement No. 25 requires preparation of schedules of funding status and employer contributions, as well as the disclosure of plan provisions, actuarial assumptions, and other information. The required schedules are shown below. In each case, we have relied upon information from our files and contained in the reports of other actuaries employed by the employer in completing the schedules.

Schedule of Funding Status

Actuarial Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability	Funded Ratio (AVA/AAL)	Covered Payroll	Unfunded Liability as a Percent of Payroll
12/31/2002	280,686,000	259,282,000	(21,404,000)	104%	26,152,000	(82%)
12/31/2003	277,947,000	267,786,000	(10,161,000)	100%	26,484,000	(38%)
12/31/2004	275,807,000	279,873,000	4,066,000	99%	27,754,000	15%
12/31/2005	275,216,000	290,299,000	15,083,000	95%	27,855,000	54%
12/31/2006	278,839,000	308,193,000	29,354,000	91%	29,582,000	99%
12/31/2007	293,571,000	315,635,000	22,065,000	93%	29,600,000	75%
12/31/2008	287,394,000	326,673,000	39,279,000	88%	30,161,000	130%
12/31/2009	280,342,000	337,315,000	56,973,000	83%	30,443,000	187%
12/31/2010	276,377,041	359,293,016	82,915,974	77%	28,536,056	291%
12/31/2011	264,492,738	372,547,509	108,054,771	71%	25,128,835	430%

Schedule of Employer Contributions

Fiscal Year Ending	Annual Required Contribution	Actual Contribution*	Percentage Contributed
6/30/2003	2,637,000	2,637,000	100.0%
6/30/2004	3,287,000	3,277,000	99.7%
6/30/2005	3,334,000	3,344,000	100.3%
6/30/2006	4,659,000	4,659,000	100.0%
6/30/2007	5,386,000	5,386,000	100.0%
6/30/2008	6,521,000	6,521,000	100.0%
6/30/2009	6,094,000	6,484,000	106.4% <sup>1</sup>
6/30/2010	7,179,000	6,791,000	94.6% <sup>1</sup>
6/30/2011	8,240,688	8,240,688	100.0%
6/30/2012	9,242,173	9,057,080	98.0% <sup>2</sup>
6/30/2013	10,133,599		

\* For years prior to 2010, amount is estimated based on percentages shown in prior valuation reports.

**Net Pension Obligation/(Asset)**

	2010	2011	2012
Net Pension Obligation/(Asset)			
– Beginning of Year	(388,603)	(9,021)	(9,231)
Annual Required Contribution	7,179,360	8,240,688	9,242,173
Interest on the NPO	(31,088)	(772)	(720)
<u>Adjustment to the NPO</u>	<u>22,067</u>	<u>512</u>	<u>504</u>
Annual Pension Cost	7,170,339	8,240,478	9,241,957
Contributions	(6,790,757)	(8,240,688)	(9,057,080)
Increase/(Decrease) in NPO	379,582	(210)	184,877
Net Pension Obligation/(Asset)			
– End of Year	(9,021)	(9,231)	175,646

<sup>1</sup> The City contributed in excess of its fiscal year 2009 ARC. The City's fiscal year 2010 contribution was reduced by the dollar amount of the fiscal year 2009 overpayment.

<sup>2</sup> The employee contribution rate for the International Association of Firefighters (IAFF) increased from 7.58% to 9.08% in 2011, after the development of the fiscal year 2012 ARC in the December 31, 2010 valuation. The City's fiscal year 2012 contribution was reduced by \$185,093 in recognition of these additional contributions.

## 5.2: Summary of Valuation Information

The table below summarizes certain information about this actuarial report.

Valuation date	December 31, 2011
Actuarial cost method	Entry Age Normal, Level Percentage of Payroll
Amortization method	Level Percentage of Payroll, closed
Remaining amortization period	30 years
Asset valuation method	Five year closed period smoothing (Market Value vs. Expected Actuarial Value)
Actuarial assumptions:	
Investment rate of return*	7.80%
Projected salary increases*	4.1% - 10.5%, depending on years of service
*Includes inflation at	3.30%
Cost of living adjustments	None assumed

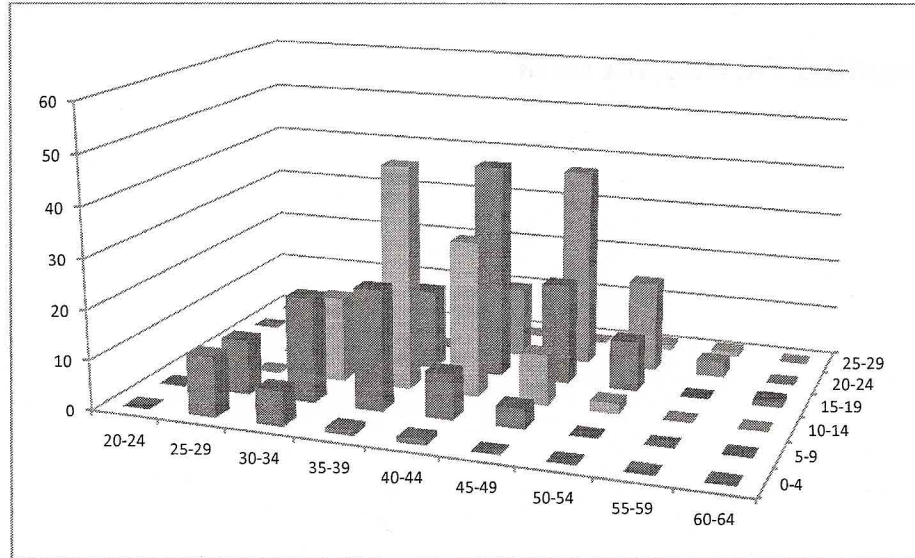


**Appendix I:**

**Detailed Participant Data**

**Count of Active Members**

Service / Age	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
20-24								
25-29	12	11						23
30-34	7	21	17					45
35-39	1	24	45	16				86
40-44	1	9	31	43	14			98
45-49	0	4	10	20	40			74
50-54			2	10	18	1		31
55-59					3	1		4
60-64				1				1
65+								
<b>Total</b>	<b>21</b>	<b>69</b>	<b>105</b>	<b>90</b>	<b>75</b>	<b>2</b>	<b>0</b>	<b>362</b>



**Average Salary of Active Members**

Service / Age	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
20-24								
25-29	62,876	63,262						63,061
30-34	59,804	65,183	65,109					64,318
35-39	54,038	66,683	66,923	69,523				67,190
40-44	66,799	67,916	68,158	70,210	75,587			70,084
45-49		68,746	68,629	69,192	76,527			73,057
50-54			73,102	72,676	76,792	79,344		75,309
55-59					75,419	99,712		81,492
60-64				70,881				70,881
65+								
<b>Total</b>	<b>61,618</b>	<b>65,962</b>	<b>67,274</b>	<b>70,143</b>	<b>76,371</b>	<b>89,528</b>	<b>0</b>	<b>69,417</b>

**Inactive Participants**

**Number of**

Age	Beneficiaries	Retired	Disabled	Terminated		Total
				Vested		
Under 35	0	0	1	0		1
35-39	1	0	4	1		6
40-44	0	0	10	3		13
45-49	4	18	6	5		33
50-54	9	58	13	7		87
55-59	13	86	6	0		105
60-64	8	99	7	0		114
65-69	18	82	4	0		104
70-74	12	51	0	0		63
75-79	19	31	3	0		53
80+	52	53	3	0		108
<b>Total</b>	<b>136</b>	<b>478</b>	<b>57</b>	<b>16</b>		<b>687</b>

**Average Annual Benefit**

Age	Beneficiaries	Retired	Disabled	Terminated		All Groups
				Vested		
30-34	\$0	\$0	\$46,460	0		\$46,460
35-39	\$11,213	\$0	\$28,812	\$41,373		\$27,973
40-44	\$0	\$0	\$36,742	\$27,025		\$34,500
45-49	\$8,084	\$63,275	\$37,526	\$23,489		\$45,876
50-54	\$17,440	\$60,578	\$40,246	\$23,986		\$50,133
55-59	\$18,673	\$48,091	\$43,925	0		\$44,211
60-64	\$17,826	\$41,982	\$42,538	0		\$40,321
65-69	\$16,483	\$40,386	\$32,058	0		\$35,929
70-74	\$17,168	\$38,147	\$0	0		\$34,151
75-79	\$14,151	\$33,249	\$29,044	0		\$26,165
80+	\$13,044	\$29,630	\$29,734	0		\$23,116
<b>Total</b>	<b>\$14,969</b>	<b>\$43,520</b>	<b>\$37,603</b>	<b>\$25,487</b>		<b>\$36,958</b>

## **Appendix II:**

### **Prior Assumptions**

**Rate of Investment Return**

The annual rate of return on all Plan assets is assumed to be 8.0%, net of investment and administrative expenses.

**Cost of Living (inflation)**

The cost of living as measured by the Consumer Price Index (CPI) will increase at the rate of 4.00% per year.

**Increases in Pay**

Increases in salary are assumed to include a wage inflation component of 4.0% per year, plus an amount based on age and service, as shown below (representative rates):

Age	Service					
	0	5	10	15	20	25
25	11.5%	7.0%				
30	8.0%	3.5%	2.5%			
40	6.4%	1.9%	0.9%	0.4%	0.4%	
50	6.2%	1.7%	0.7%	0.2%	0.2%	0.2%

**Member Mortality**

Rates of mortality for Plan members are specified by the Retired Pensioners (RP) 2000 Mortality Tables for males and females. For Disabled members, the disabled versions of these tables are assumed.

**Service Retirement**

Retirement is assumed to occur among eligible members in accordance with the table below.

Age	Fire	Police
45	39%	52%
46	39%	65%
47	52%	78%
48	52%	65%
49-52	52%	52%
53-58	39%	52%
59	52%	52%
60+	100%	100%

Disability

Rates of disability vary based on the age of the member as shown below. 95% of disabilities are assumed to be duty-related.

Representative Assumed Rates of Disability

Age	Rate
20	0.08%
30	0.08%
40	0.50%
50	0.60%
60	1.30%
65+	0.00%

Termination

Rates of termination vary based on the age and service of the member as shown below.

Representative Assumed Rates of Termination

Service	All Ages
0	5.0%
1	3.0%
2	2.0%
3	1.0%
4	1.0%

Age	Service 5+
20	0.8%
25	0.8%
30	0.7%
40	0.4%
50	0.2%
55+	0.0%

Family Composition

90% of Plan members are assumed to be married. If no spouse data is available, male spouses are assumed to be three years older than their wives.