



**City of Lansing
Employees' 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

Contents

Executive Summary	3
Actuarial Certification.....	9
Section 1: Summary of Plan Provisions and Member Data	10
1.1: Brief Outline of Plan Provisions	11
1.2: Member Data Summary	16
1.3: Changes in Membership from Prior Valuation	17
Section 2: Actuarial Methods and Assumptions	18
2.1: Actuarial Methods	19
2.2 Actuarial Assumptions	20
2.3: Glossary of Actuarial Terms.....	22
Section 3: Asset Information	24
3.1: Statement of Net Plan Assets	25
The information above is based on the unaudited asset documentation provided by the City's finance office.	25
3.2: Income Statement	26
3.3: Computation of Actuarial Value of Assets.....	27
Section 4: Actuarial Computations	28
4.1: Employer Contributions.....	29
Section 5: Disclosure Information.....	30
5.1: GASB Schedules	31
5.2: Summary of Valuation Information.....	33
Appendix I: Detailed Participant Data.....	34
Appendix II: Prior Actuarial Assumptions.....	37

Executive Summary

This report presents the results of an actuarial review and analysis of the City of Lansing Employees' Retirement System (ERS, the Plan) as of December 31, 2011.

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

	December 31, 2010	December 31, 2011
Plan Membership		
Active	497	481
Inactive	78	87
<u>Receiving Benefits</u>	<u>840</u>	<u>844</u>
Total	1,415	1,412
Average Pay	\$55,868	\$54,122
Assets (\$ millions)		
Market Value (MVA)	\$ 172.5	\$ 164.2
<i>(excluding non-pension reserves)</i>		
Valuation Results (\$ millions)		
Valuation Assets (AVA)	\$ 187.4	\$ 177.1
Actuarial Accrued Liability (AAL)	\$ 269.5	\$ 287.3
Unfunded Accrued Liability	82.0	110.2
Funding Ratio (AVA/AAL)	70%	62%
Funding Ratio (MVA/AAL)	64%	57%
Contributions		
Employer Normal Cost Rate	10.26%	7.50%
Total Employer Contribution Rate	26.41%	31.95%
City Contribution (millions)	\$ 7.6	\$ 8.6

Purpose of the Report

This Report presents the results of an actuarial review and analysis of the City of Lansing Employees' Retirement System (ERS, the Plan) as of December 31, 2011. The purposes of this Report are:

- To compute the annual contribution required to fund the Plan in accordance with actuarial principles;
- To review the experience of the Plan over the past year and to discuss reasons for changes in Plan cost;
- To discuss issues associated with the determination of Plan costs and future cost implications; and
- To present 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

	Employer Contribution Rate
December 31, 2010	26.41%
Fiscal Year 2012 Contribution	\$ 7,596,879
Change in Cost Due to:	
Scheduled Investment Loss Recognition/Expected Increase	2.65%
Actual Investment Experience	0.46%
Demographic and Salary Experience	0.50%
Changes in Assumptions	2.25%
<u>Change in UAW contribution rate</u>	<u>(0.32%)</u>
Total Change	5.54%
December 31, 2011	31.95%
Projected Payroll	\$ 26,874,899
Fiscal Year 2013 Contribution	\$ 8,586,536

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. Likewise, investment gains serve to decrease contributions. 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.

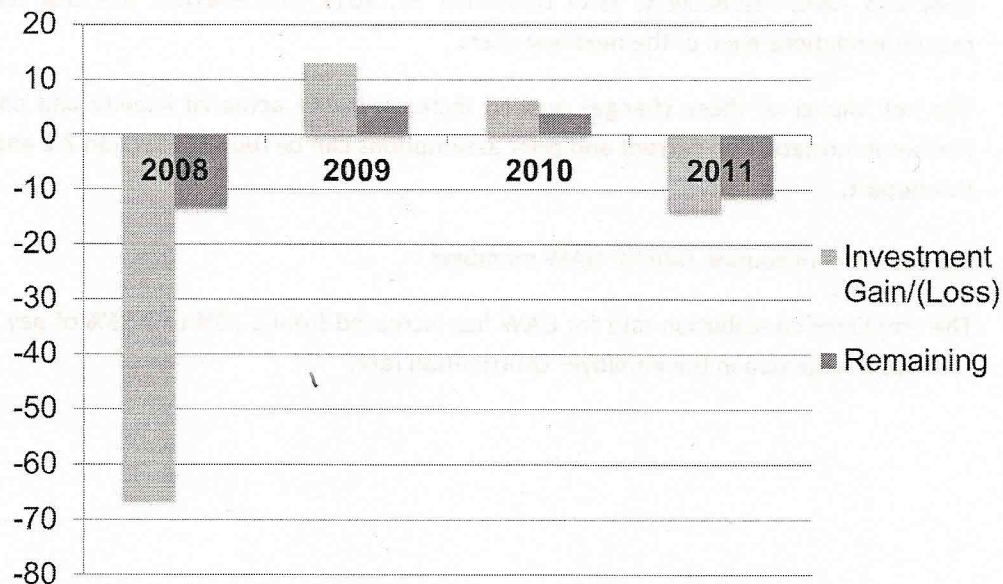
More information on asset smoothing can be found in Section 3.3.

- 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 loss 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 (as a percentage of pay) was an increase. This is due to 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 UAW members

The employee contribution rate for UAW has increased from 1.70% to 2.95% 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 approximately 75% 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 over the next two decades. 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.

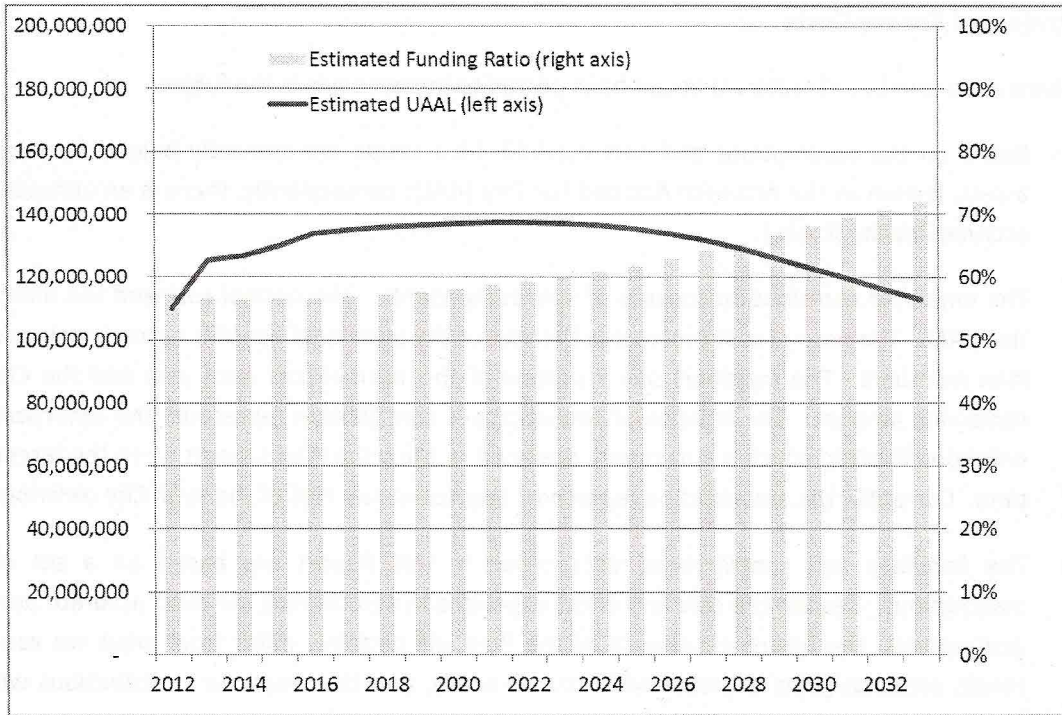


Figure 1: Estimated Future Funding Progress

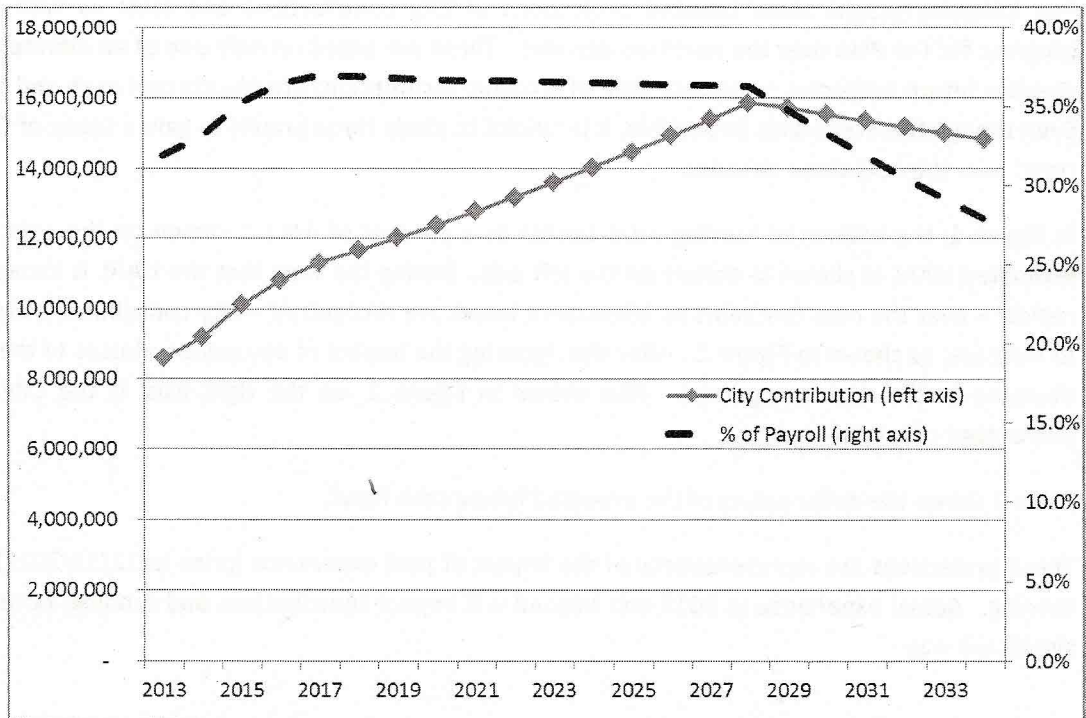


Figure 2: Estimated Future City Contribution Rates

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

Fiscal Year (ends June 30,)	Estimated City Contribution	Estimated Member Contributions	Estimated Benefit Payments
2013	8,587	1,419	20,490
2014	9,192	1,466	20,900
2015	10,111	1,514	21,318
2016	10,803	1,564	21,744
2017	11,309	1,616	22,179
2018	11,663	1,669	22,622
2019	12,018	1,724	23,075
2020	12,383	1,781	23,536
2021	12,772	1,840	24,007
2022	13,177	1,901	24,487

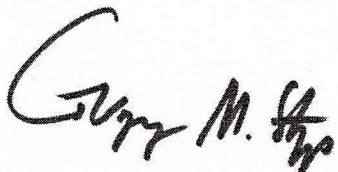
Actuarial Certification

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.

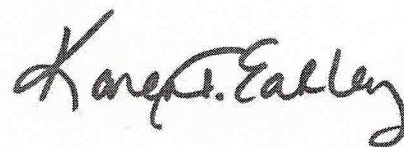
We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices. In particular, the assumptions and methods used for funding purposes meet the parameters of the Governmental Accounting Standards Board Statement No. 25.

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 employees of the City in the following groups: Teamsters, UAW, Exempt, District Court (except Judges), Executive Pay Plan and Police 911. Newly hired elected officials do not become members of the retirement plan.

Definitions

Compensation

Compensation is defined as a member's salary, wages, and longevity bonus. In addition, Compensation may include up to 80 hours of compensatory time for members not eligible for overtime pay.

Final Average Compensation

Final Average Compensation is determined as the average of the highest annual compensation paid a member during a period of two consecutive years of credited service contained within the member's ten years of credited service immediately preceding the date when the member's employment with the City has terminated.

Retirement – Old Plan

Eligibility (UAW)

UAW Members are eligible for Normal Retirement at age 50 with 25 years of service, or at age 58 with 8 years of service.

Eligibility (All Others)

Members are eligible for Normal Retirement after 8 years of service and the attainment of the earlier of:

- age 58, or
- The age at which age plus service equals or exceeds 65.

Benefit Amount (UAW and Elected Officials)

Benefit is determined as 2.75% of Final Average Compensation for the first 35 years of credited service, plus 1.5% of Final Average Compensation for the next 5 years of service, plus 1.0% of Final Average Compensation for service in excess of 40 years, with a maximum of 100% of Final Average Compensation.

Benefit Amount (District Court Teamsters)

Benefit is determined as 2.3% of Final Average Compensation times years of credited service.

Benefit Amount (All Others)

Benefit is determined as 2.80% of Final Average Compensation for each of the first 35 years of credited service, plus 1.5% of Final Average Compensation for the next 5 years of service, plus 1.0% of Final Average Compensation for service in excess of 40 years, with a maximum of 100% of Final Average Compensation.

Retirement – New Plan

Eligibility (All)

Members are eligible for Normal Retirement at age 50 with 25 years of service, or at age 58 with 8 years of service.

Benefit Amount (UAW)

Benefit is determined as 2.75% of Final Average Compensation times years of credited service.

Benefit Amount (Teamsters 214 and 580)

Benefit is determined as 1.8% of Final Average Compensation times years of credited service. (Effective 2/1/2010 – previously the benefit multiplier was 1.6%)

Benefit Amount (All Others)

Benefit is determined as 1.6% of Final Average Compensation times years of credited service.

Form of Benefit

The Retirement Benefit will be paid monthly beginning at retirement and for the life of the member. Optional benefit forms are also available, as described below. If the member selects a Joint and Survivor Option, in the event of the member's death a percentage of the benefit will continue for the life of the member's beneficiary.

Duty Disability

Eligibility

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

Benefit Amount

The Duty Disability Retirement Benefit payable to members is equal to the accrued Retirement benefit, with additional service credit granted to age 60. During the workers' compensation period,

the disability benefit may not exceed the difference between the member's final compensation and the workers' compensation amount.

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. Upon the attainment of age 60, disabled retirees are transferred to service retirement status.

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 minimum benefit equal to 25% of final average compensation.

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 Incurred in the 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

The benefit payable to the survivors is equal to the survivors' weekly workers' compensation, converted to an annual basis.

Form of Benefit

The benefit described above shall begin upon termination of the survivors' workers' compensation period, payable as a life annuity. Children's benefits shall terminate upon attainment of the age of 21 years, or death, or marriage, whichever comes first.

Non-Duty Pre-Retirement Death

Eligibility

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

Benefit Amount

The Non-Duty Pre-Retirement Death Benefit is computed in the same manner as the Normal Retirement Benefit.

Form of Benefit

The benefit described above is payable as a 100% Joint and Survivor benefit to the surviving spouse.

Deferred Vested Benefit

Eligibility

A member is eligible for a Deferred Vested Benefit upon termination of employment after earning eight 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 58 for New Plan members, and for the life of the member. For Old Plan members (except UAW), the Deferred Vested Benefit is payable at the age at which age plus service equals 65.

Optional Benefit Forms

Prior to retirement, a member may elect to convert his retirement allowance into a benefit of equivalent actuarial value in accordance with one of the optional forms described below.

- Cash Refund Annuity – If a member dies before receiving the total value of accumulated member contributions, the remaining member contributions are payable to designated beneficiary(ies) at the time of death.
- 50% or 100% Joint and Survivor annuity
- Social Security Level Income ("Equating Pension") - Any member who retires prior to age 65 may elect to have his retirement allowance actuarially equated to provide an increased retirement allowance to age 65, and a reduced retirement allowance payable thereafter. The increased retirement allowance shall approximate the sum of the member's reduced

retirement allowance payable after age 65 and the member's estimated Social Security primary insurance amount.

Member Contributions

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

Member Group	Contribution Rates (% of Pay)	
	Old Plan	New Plan
Police 911	7.25%	5.50%
UAW	2.95%	N/A
Teamsters 214	3.75%	6.50%
Teamsters 580	3.50%	6.35%
District Court Teamsters	3.50%	5.50%
District Court Exempt	4.50%	5.50%
Exempt	3.75%	6.50%
Executive Pay Plan	3.75%	6.50%
Elected Officials	3.25%	N/A

Post-Retirement Benefit Adjustments

One-time post-retirement benefit increases were granted in 1984, 1987 and 1998.

Effective January 1, 1999, and each January 1 thereafter, eligible retirees and beneficiaries receive annual benefit increases financed by the Members' Benefit Fund. Retirees/Beneficiaries must meet both of the following conditions:

- 1) Has been retired at least 6 months as of the January 1 increase date
- 2) Age 60 as of the January 1 increase date

In general, the amount of the annual increase in retirement allowance shall be 3% of the annual retirement allowance. However, the maximum annual increase is as follows:

- For a retiree/beneficiary who elected a 50% or 100% Joint and Survivor Annuity, the maximum annual increase is equal to \$200 (\$100 for the beneficiary if 50% option is elected) times a ratio of the original Joint and Survivor benefit to the original straight life annuity benefit.
- For all other retirees/beneficiaries, the maximum annual increase is \$200.

Changes in Plan Provisions since Prior Valuation

The member contribution rate for UAW was increased from 1.70% to 2.95%, effective July 15, 2011.

1.2: Member Data Summary

Data on 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
Number of Active Employees	497	481
Average Age	47.7	47.8
Average Service	10.8	11.2
Average Pay	\$ 55,868	\$ 54,122

Inactive Participants	12/31/2010	12/31/2011
Number of Retired Participants	673	681
Average Age	65.8	66.3
Average Annual Benefit	\$ 26,584	\$ 26,681
Number of Disabled Retirees	23	22
Average Age	63.5	62.2
Average Annual Benefit	\$ 17,857	\$ 17,807
Number of Beneficiaries/EDROs	144	141
Average Age	72.9	72.0
Average Annual Benefit	\$ 11,003	\$ 11,885
Number of Deferred Vested Participants	63	67
Average Age	51.1	51.2
Average Annual Benefit	\$ 11,824	\$ 11,245
Number of Terminated Participants Due Refunds	15	20
Average Balance	\$ 4,438	\$ 7,319

1.3: Changes in Membership from Prior Valuation

	Actives	Non-vested Terminations due Refunds	Vested Terminations	Retired	Disabled	Beneficiaries*	Total
December 31, 2010	497	15	63	673	23	144	1,415
New Entrants	9						9
Rehires	2	(1)	(1)				0
Retirements	(15)		(4)	19			0
Disabilities	(2)				2		0
Vested Terminations	(7)		7				0
Died, With Beneficiaries' Benefit Payable	(1)			(4)	(2)	7	0
Non-Vested Terminations and Death without beneficiary	(10)	9		(7)	(1)	(11)	(20)
Transfers	12						12
Domestic Relations Orders						2	2
Withdrawals Paid	(4)	(2)				(1)	(7)
Data Corrections		(1)	2				1
December 31, 2011	481	20	67	681	22	141	1,412

* 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 7.80%, 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 3.30% per year.
Increases in Pay	Increases in salary are assumed to be 3.3% annually, plus an additional amount that varies based on the service of the member as shown below:

Years of Service	UAW	All Others
0-8	2.00%	1.50%
9-10	2.00%	0.25%
11+	1.00%	0.25%

Member Mortality	Rates of mortality for Plan members are specified by the RP2000 Combined Healthy Tables, set back one year for females. For Disabled members, the disabled versions of these tables are assumed. Each of these tables is projected to 2008 using Scale BB.
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Projected improvements in mortality for non-disabled members have been accounted for by projected the table to 2023 using 50% of Scale BB.

Disability	Rates of disability vary based on the age of the member as shown below. 50% of disabilities are assumed to be duty-related.
------------	-----------------------------------------------------------------------------------------------------------------------------

Representative Assumed Rates of Disability

Age	Rate
20	.0004
30	.0004
40	.0013
50	.0041
60	.0090

Service Retirement

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

Age	UAW	All Others
45-49	0%	10%*
50-54	40%	10%
55-56	40%	15%
57	20%	15%
58	10%	25%
59	10%	10%
60	20%	15%
61	35%	15%
62-64	20%	15%
65-69	100%	50%
70+	100%	100%

* Applies to Old Plan members only

Termination

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

Representative Assumed Rates of Termination

All Ages		
Service	UAW	Others
0	10.0%	20.0%
1	7.0%	10.0%
2	5.0%	4.0%
3	5.0%	4.0%
4	5.0%	4.0%
5	4.0%	3.0%
10	1.0%	1.0%
15	1.0%	1.0%
20+	0.5%	0.5%

Family Composition

90% of Plan members are assumed to be married. 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
<u>ASSETS</u>		
Cash, Short-Term		
Investments and Receivables	\$ 8,164,401	\$ 3,564,594
Accrued Interest and Dividends	230,821	242,639
Investments:		
Government Bonds	33,824,597	36,353,834
Corporate Bonds	36,176,835	36,328,878
Common Stock	81,656,038	77,102,662
Other Equities	21,642,841	17,265,701
Real Estate	7,074,200	9,438,124
Total System Assets	188,769,733	\$ 180,296,432
Accounts Payable	(937,294)	(173,608)
<u>NET ASSETS AVAILABLE FOR BENEFITS</u>	\$ 187,832,439	\$ 180,122,824

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	\$ 176,768,482	\$ 187,832,439
<u>ADDITIONS</u>		
Member contributions	1,696,038	1,314,121
Employer contributions	7,186,000	7,525,083
Employer contributions – Healthcare Reserve	0	0
Adjustments	(21,934)	0
Investment Income:		
Interest	11,990,094	2,622,017
Dividends	335,366	717,606
Market Appreciation	9,816,219	1,007,740
Total Additions	+\$ 31,001,784	13,186,567
<u>EXPENDITURES</u>		
Member contributions refunded	0	0
Retirement benefits paid	19,158,835	20,094,183
Administrative Expenses and Other	246,211	26,840
Investment expenses	534,780	773,159
Transfers	0	0
Total Expenditures	-\$ 19,939,827	20,894,182
Adjustments	2,000	(2,000)
<u>NET INCREASE/(DECREASE)</u>	\$ 11,063,957	(7,709,615)
Total Plan Assets – End of Year	<u>187,832,439</u>	<u>\$ 180,122,824</u>

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 Earnings¹</u>	<u>Actual Earnings²</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	14,374,653	3,572,204	(10,802,449)	80%	(8,641,960)
12/31/2010	15,897,374	22,143,679	6,246,305	60%	3,747,783
12/31/2009	16,639,256	29,685,408	13,046,152	40%	5,218,461
12/31/2008	17,273,688	(49,044,101)	(66,317,789)	20%	(13,263,558)
(1) Total Gain/(Loss) Unrecognized as of Valuation Date					(12,939,274)
(2) Market Value, Total Fund					180,122,824
(3) Actuarial Value, Total Fund: [(2)-(1)]					193,062,098
(4) Healthcare Reserve as of 12/31/2011					15,961,235
(5) Actuarial Value, Pension Plan: [(3)-(4)]					177,100,863
Ratio of Actuarial Value to Market Value, Total Fund					107.2%
Approximate Rate of Return based on Market Value					2.0%
Approximate Rate of Return based on Actuarial Value					1.2%

¹ Computed based on assumed return from prior valuation. Employee contributions and benefits assumed to be paid throughout the year, employer contributions based on actual timing.

² 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	4,214,833	4,050,044	3,373,862
<u>Estimated Employee Contributions</u>	<u>1,365,370</u>	<u>1,328,329</u>	<u>1,418,955</u>
Net City Normal Cost	2,849,463	2,721,715	1,954,907
Valuation Payroll	27,766,628	26,068,735	26,068,735
City Normal Cost Rate (% of pay)	10.26%	10.44%	7.50%
Active Actuarial Accrued Liability	55,339,084	54,578,555	58,111,273
Member Benefit Fund	15,627,109	15,759,061	15,759,061
Terminated Members Actuarial Accrued Liability	4,901,433	5,120,456	5,507,600
<u>Retiree/Beneficiary Actuarial Accrued Liability</u>	<u>193,594,309</u>	<u>194,997,734</u>	<u>207,928,773</u>
Total Actuarial Accrued Liability	269,461,935	270,533,643	287,306,707
Actuarial Value of Assets (Section 3.3)	187,440,590	177,100,863	177,100,863
Net Unfunded Actuarial Accrued Liability (UAAL)	82,021,345	93,432,780	110,205,845
Amortization of UAAL	4,482,689	5,106,354	6,374,059
Amortization Rate (% of pay)	16.15%	19.57%	24.45%
Total City Contribution Rate	26.41%	30.01%	31.95%
Projected Fiscal Payroll	28,769,143	27,276,427	26,874,899
Estimated City Contribution	\$ 7,596,879	\$ 8,186,272	\$ 8,586,536

* also includes impact of increase in UAW employee contribution rate.

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	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	Unfunded Liability as a Percent of Payroll
12/31/2002	192,920,000	215,405,000	22,484,000	90%	19,098,000	118%
12/31/2003	199,329,000	221,088,000	21,759,000	90%	30,579,000	71%
12/31/2004	206,200,000	231,389,000	25,189,000	89%	32,383,000	78%
12/31/2005	207,881,000	241,882,000	34,001,000	86%	30,851,000	110%
12/31/2006	208,765,000	251,427,000	42,661,000	83%	31,944,000	134%
12/31/2007	208,572,000	254,356,000	45,784,000	82%	31,797,000	144%
12/31/2008	200,600,000	258,331,000	57,731,000	78%	29,688,000	195%
12/31/2009	193,324,000	262,298,000	68,974,000	74%	30,602,000	225%
12/31/2010	187,440,590	269,461,935	82,021,345	70%	27,766,628	295%
12/31/2011	177,100,863	287,306,707	110,205,845	62%	26,068,735	423%

Schedule of Employer Contributions

Fiscal Year Ending	Annual Required Contribution	Actual Contribution*	Percentage Contributed
6/30/2003	3,567,000	3,499,000	98.1%
6/30/2004	3,466,000	3,466,000	100.0%
6/30/2005	4,675,000	4,675,000	100.0%
6/30/2006	4,900,000	4,900,000	100.0%
6/30/2007	5,231,000	5,231,000	100.0%
6/30/2008	6,022,000	6,022,000	100.0%
6/30/2009	6,048,000	6,477,000	107.1% ¹
6/30/2010	6,472,000	6,045,000	93.4% ¹
6/30/2011	7,297,000	7,297,000	100.0%
6/30/2012	7,597,000	7,523,534	99.0% ²
6/30/2013	8,579,000		

* 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	(428,480)	(9,947)	(10,178)
Annual Required Contribution	6,472,349	7,297,083	7,596,879
Interest on the NPO	(34,278)	(796)	(814)
<u>Adjustment to the NPO</u>	<u>24,323</u>	<u>544</u>	<u>556</u>
Annual Pension Cost	6,462,394	7,296,852	7,596,621
Contributions	(6,043,861)	(7,297,083)	(7,523,534)
Increase/(Decrease) in NPO	418,553	(231)	73,087
Net Pension Obligation/(Asset)			
– End of Year	(9,947)	(10,178)	62,909

¹ 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.

² The employee contribution rate for United Auto Workers (UAW) increased from 1.70% to 2.95% 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 \$73,345 in recognition of these additional contributions.

5.2: Summary of Valuation Information

The table below summarizes certain information about this actuarial report.

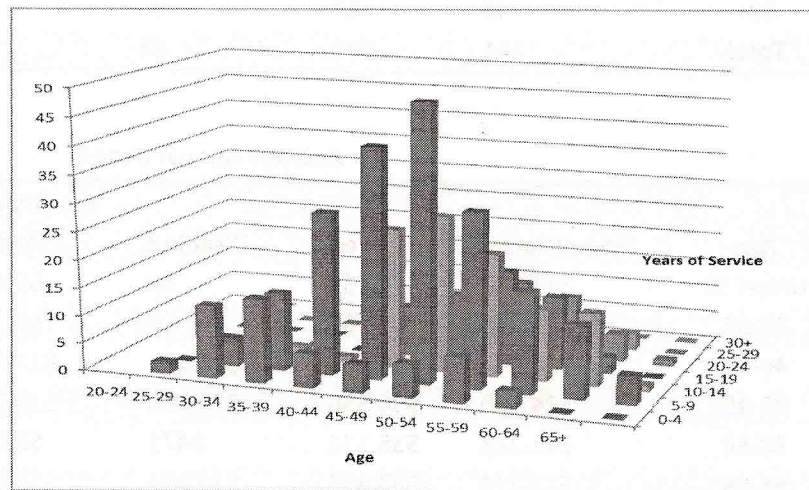
Valuation date	December 31, 2011
Actuarial cost method	Entry Age Normal, Level Percentage of Payroll
Amortization method	Level Percentage of Payroll, closed
Remaining amortization period	30 years
Asset valuation method	Five year closed period smoothing (Market Value vs. Expected Actuarial Value)
Actuarial assumptions:	
Investment rate of return*	7.80%
Projected salary increases*	3.56% - 5.37%, based 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	2	0	0	0	0	0	0	2
25-29	13	5	0	0	0	0	0	18
30-34	15	14	2	0	0	0	0	31
35-39	6	29	1	0	0	0	0	36
40-44	5	41	25	9	3	0	0	83
45-49	6	49	28	12	8	2	0	105
50-54	8	31	22	17	13	6	2	99
55-59	3	18	13	13	11	3	2	63
60-64	0	13	13	3	5	3	0	37
65+	0	5	1	0	1	0	0	7
Total	58	205	105	54	41	14	4	481



Average Salary of Active Members

Service / Age	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total
20-24	52,603	0	0	0	0	0	0	52,603
25-29	48,571	60,793	0	0	0	0	0	51,966
30-34	43,254	57,893	41,122	0	0	0	0	49,728
35-39	54,891	58,055	39,749	0	0	0	0	57,019
40-44	55,371	59,306	46,317	55,147	52,829	0	0	54,471
45-49	52,677	55,470	52,995	46,706	54,898	58,425	0	53,661
50-54	59,820	58,933	47,589	51,760	53,845	53,092	71,787	54,490
55-59	65,769	55,772	46,638	51,984	53,918	56,645	99,383	54,684
60-64	0	59,339	55,036	53,483	46,933	41,133	0	54,200
65+	0	54,209	58,683	0	67,525	0	0	56,750
Total	51,441	57,663	49,440	51,351	53,486	52,053	85,585	54,122

Inactive Participants

Number of

Age	Beneficiaries	Retired	Disabled	Terminated	Total
				Vested	
Under 35	2	0	0	1	3
35-39	2	0	0	3	5
40-44	1	1	1	5	8
45-49	3	16	1	20	40
50-54	7	49	1	18	75
55-59	9	147	7	15	178
60-64	18	147	7	3	175
65-69	13	109	1	2	125
70-74	25	75	2	0	102
75-79	13	50	0	0	63
80+	48	87	2	0	137
Total	141	681	22	67	911

Average Annual Benefit

Age	Beneficiaries	Retired	Disabled	Terminated	Total
				Vested	
Under 35	\$11,552	\$0	\$0	\$5,499	\$9,534
35-39	\$12,770	\$0	\$0	\$6,362	\$8,925
40-44	\$6,672	\$34,603	\$20,181	\$17,789	\$18,800
45-49	\$24,500	\$30,530	\$25,280	\$15,313	\$22,338
50-54	\$11,228	\$35,132	\$471	\$9,090	\$26,189
55-59	\$13,824	\$33,153	\$18,594	\$9,566	\$29,616
60-64	\$12,811	\$29,622	\$23,653	\$5,083	\$27,234
65-69	\$17,279	\$25,763	\$6,121	\$5,646	\$24,402
70-74	\$13,882	\$21,572	\$13,494	\$0	\$19,529
75-79	\$11,085	\$22,167	\$0	\$0	\$19,880
80+	\$8,283	\$13,365	\$8,490	\$0	\$13,772
Total	\$ 11,885	\$ 26,681	\$ 17,807	\$11,245	\$23,042

Appendix II:

Prior Actuarial Assumptions

The following assumptions were used for the December 31, 2010 valuation of the Plan.

Rate of 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 The cost of living as measured by the Consumer Price Index (CPI) will increase at the rate of 4.0% per year.

Increases in Pay Increases in salary vary based on the age and service of the member as shown below (includes inflation of 4.0%):

Age	Service				
	0	5	10	15	20
25	11.0%	11.0%	10.0%	9.0%	7.5%
30	10.1%	10.1%	9.1%	8.1%	6.6%
40	9.1%	9.1%	8.1%	7.1%	5.6%
50	8.3%	8.3%	7.3%	6.3%	4.8%
60	7.5%	7.5%	6.5%	5.5%	4.0%

Member Mortality Rates of mortality for Plan members are specified by the 1983 Group Annuity Mortality Tables, set forward 1 year for males and females. For Disabled members, the tables are set forward 10 years for both males and females.

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

Age	Rule of 65 Members	UAW/ New Members
45-49	10%	0%
50	11%	45%
51-53	11%	30%
54	11%	40%
55-56	15%	40%
57	15%	20%
58-59	15%	10%
60	25%	20%
61	25%	35%
62-64	25%	20%
65+	100%	100%

Disability

Rates of disability vary based on the age of the member as shown below. 50% of disabilities are assumed to be duty-related.

Representative Assumed Rates of Disability

Age	Rate
20	.0007
30	.0007
40	.0025
50	.0083
60	.0180

Termination

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

Representative Assumed Rates of Termination

Age	Service					
	0	1	2	3	4	5+
25	0.07	0.04	0.03	0.03	0.03	0.025
30	0.07	0.04	0.03	0.03	0.03	0.025
40	0.07	0.04	0.03	0.03	0.03	0.015
50	0.07	0.04	0.03	0.03	0.03	0.007
60	0.07	0.04	0.03	0.03	0.03	0.007

Family Composition

90% of Plan members are assumed to be married. Male spouses are assumed to be three years older than their wives.