



City of Lansing Employees' Retirement System

Actuarial Valuation For Funding and Contributions

as of December 31, 2014

September, 2015

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September 10, 2015

City of Lansing Employees' Retirement System
124 W. Michigan Avenue
8th Floor
Lansing, MI 48933

Executive Summary

Members of the Board:

The following report sets forth the Actuarial Valuation of the City of Lansing Employees' Retirement System (the System) as of December 31, 2014. The report is based on participant data and asset summary as of December 31, 2014 as submitted by the Plan Administrator and City finance department. We relied on this information without auditing it.

INVESTMENT PERFORMANCE:

The total Market Value of Plan Assets for the plan year ending December 31, 2014 was \$204,492,610. Plan assets exclude from this a reserve for healthcare benefits. The total yield of the fund for the plan year ending December 31, 2014 was 6.3% on the market value of assets and 9.0% on an actuarial basis.

The Plan uses a smoothing method to determine the City's contributions. Under this method, asset gains or losses are spread over a 5-year period. The gains and losses are determined every year by comparing actual investment returns with expected asset performance.

Details of the development of the Actuarial Asset Value are shown on page 8.

FUNDING RECOMMENDATIONS:

The total recommended City contribution for fiscal year 2016 is \$10,181,620. Last year the total recommended contribution was \$10,547,556. Changes in the Employee Contributions and the change in Plan provisions for the new hires in Teamsters 580 CTP and Supervisors and District Court Teamsters 580 Bargaining Units, resulted in a slight decrease in the City Contribution.

FUNDING PROGRESS:

The Actuarial Accrued Liability as of December 31, 2014 is \$309,924,744 compared to the Actuarial Value of Assets (excluding healthcare reserve) of \$177,259,420, resulting in a plan funded ratio of 57.2%. On a market value basis, this ratio is 58.7%.

The purposes of this report are to establish the City contribution for the next fiscal year, and to evaluate the funding progress of the System.

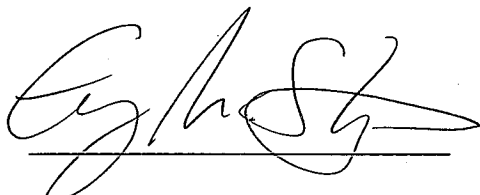
The accounting report for the System, under GASB 67 and 68, is provided under separate cover, and serves a different purpose. All the figures presented in this report are to be used for funding and contribution purposes.

This report has been prepared in accordance with generally accepted actuarial principles and practices. In the opinion of the Retirement Board and its actuary, the actuarial assumptions used are reasonable related to Retirement System experience and expectations, and represent the best estimate of Retirement System experience.

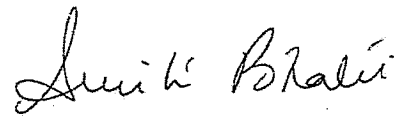
The undersigned below are members of the American Academy of Actuaries, and are qualified to render the actuarial opinions presented in this report.

Respectfully Submitted,

BOOMERSHINE CONSULTING GROUP, L.L.C.



Gregory M. Stump, FSA, EA, MAAA, FCA
Chief Actuary



Sunita K. Bhatia, ASA, EA, MAAA
Senior Consultant

Plan Asset Information

Plan Assets

Market Value of Total Fund as of January 1, 2014		\$201,818,037
<u>Receipts:</u>		
Employer Contribution - Pension Fund	11,308,565	
Employer Contribution - Healthcare Reserve	410,000	
Member Contributions	1,264,933	
Adjustments Investment Income		
Interest	1,009,998	
Dividends	693,404	
Market Appreciation	10,931,298	
Total Additions		\$25,618,198
<u>Disbursements:</u>		
Member Refunds	6,567	
Distributions to Participants/ Beneficiaries	22,120,989	
Administrative Expenses and Other	112,363	
Investment Expenses	703,706	
Total Disbursements		\$22,943,625
Net Increase/(Decrease) in Assets		<u>\$2,674,573</u>
Market Value of Total Fund as of December 31, 2014		\$204,492,610

Allocation of Net Plan Assets

Asset Class	Market Value	% of Total
Cash and Short Term Investments	22,685,831	11.1%
Equity	98,379,975	48.1%
Fixed Income	70,862,732	34.7%
Real Estate	14,061,815	6.9%
<u>Accounts payable</u>	<u>(1,497,743)</u>	<u>-0.7%</u>
TOTAL ASSETS	\$204,492,610	100.0%
Estimated Rate of Return on Market Value for 2014:		6.31%

Development of Actuarial Value of Assets

Market Value of Total Fund as of December 31, 2013		\$201,818,037
Plus: Contributions		12,983,498
Less: Benefit Payments, Refunds		22,127,556
Less: Admin Expenses		112,363
Plus: Expected Return during 2014 (@ 7.6%)		14,740,875
Expected Market Value		\$207,302,491
Actual Market Value of Total Fund as of December 31, 2014		\$204,492,610
Asset Gain/(Loss) for 2014 Plan Year		(2,809,882)
Actuarial Value =		
Market Value of Total Fund as of December 31, 2014		\$204,492,610
Less: 80% of 2014 Gain/(Loss)	80%*	(2,809,882)
Less: 60% of 2013 Gain/(Loss)	60%*	10,553,104
Less: 40% of 2012 Gain/(Loss)	40%*	7,932,079
Less: 20% of 2011 Gain/(Loss)	20%*	(10,802,449)
Total Deferred Gain/(Loss)		5,096,300
Actuarial Value of Assets, Total Fund - December 31, 2014 (Market Value, less total deferred)		\$199,396,310
as % of Market Value of Assets		97.5%
Healthcare Reserve as of December 31, 2014		\$22,702,174
Adjusted Healthcare Reserve ¹		22,136,890
Actuarial Value of Assets, Pension Plan - December 31, 2014		\$177,259,420
Estimated Rate of Return on the Actuarial Value of Assets:	9.01%	

¹ Takes into account asset smoothing

Participant Summary

Reconciliation of Plan Participants from Prior Year

	Active	Vested	Retired	Disabled	Beneficiary	Total
	Participants	Terminations				
Participants as of December 31, 2013	373	68	735	25	125	1,326
Corrections	0	0	0	0	(1)	(1)
Retired	(34)	(3)	37	0	0	0
Terminated Vested	(9)	9	0	0	0	0
Terminated Non-Vested (Member Contributions refunded)	(8)	0	0	0	0	(8)
Disabled	0	0	0	0	0	0
Deceased	(1)	0	(20)	(1)	(9)	(31)
New Beneficiary / EDRO	0	0	0	0	9	9
Rehired	0	0	0	0	0	0
Terminated Non-Vested (Member Contributions to be refunded)	0	0	0	0	0	0
Transfers In	0	0	0	0	0	0
Transfers to Police and Fire Plan	0	0	0	0	0	0
New Hires	43	0	0	0	0	43
Data Adjustments	(3)	0	0	1	0	(2)
Participants as of December 31, 2014	361	74	752	25	124	1,336

Inactive Participants	12/31/2013	12/31/2014
Number of Retired Participants	735	752
Average Age	66.5	66.8
Average Annual Benefit	\$26,821	\$27,033
Number of Disabled Participants	25	25
Average Age	61.4	62.1
Average Annual Benefit	\$18,477	\$18,432
Number of Beneficiaries/EDROs	125	124
Average Age	73.5	73.0
Average Annual Benefit	\$12,367	\$12,361
Number of Deferred Vested Participants	68	74
Average Age	51.1	51.0
Average Annual Benefit	\$11,716	\$11,213

Distribution of Active Participants and Average Compensation

Nearest Age	----Years of Credited Service----								Total	
	<1	1	2 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25+		
<20										
20 - 24	1 4,406									1 4,406
25 - 29	8 22,122	5 41,617	1 30,994							14 29,718
30 - 34	8 24,229	4 40,369	2 56,987	3 54,766	1 35,666					18 37,180
35 - 39	5 25,512	1 60,050		6 51,701	7 57,492	1 49,750				20 47,501
40 - 44	8 23,518	2 44,108	2 70,945	3 58,901	24 56,353	3 52,309				42 50,103
45 - 49	5 24,753	5 71,373	1 46,180	11 60,798	37 59,762	16 60,349	6 62,396	1 70,589		82 58,748
50 - 54	2 23,214	1 86,352	2 42,406	11 65,092	35 60,166	26 57,187	11 57,818	1 82,998		89 58,935
55 - 59	4 21,457			9 60,295	24 56,014	14 62,896	7 65,486	3 57,284		61 57,108
60 - 64	1 17,377		1 103,197	1 74,304	10 50,343	4 70,802	3 65,313	1 70,105		21 59,408
>64				1 107,446	7 57,025	4 63,798	1 69,827			13 63,972
Total	42 22,960	18 53,391	9 57,894	45 61,342	145 57,617	68 59,972	28 61,948	6 65,924		361
						<u>Males</u>	<u>Females</u>	<u>Total</u>		
						12,434,981	7,287,376	19,769,460		
						56,267	52,427	54,763		
						Arithmetic Averages:				
						48.61	49.19	48.70		
						11.01	10.68	10.85		
						Salary-Weighted Averages:				
						49.85	50.15	49.84		
						12.24	11.31	11.87		
						221	139	361		
						61.22%	38.50%	100.00%		

Valuation Summary

Development of Funding Ratio and City Contribution

	12/31/2013	12/31/2014
1) Total Entry Age Normal Cost	\$ 2,862,200	\$ 2,842,174
2) <u>Estimated Employee Contributions</u>	<u>1,058,421</u>	<u>1,072,734</u>
3) Net City Normal Cost: (1) – (2)	\$ 1,803,779	\$ 1,769,440
4) Valuation Payroll	\$ 20,874,143	\$ 22,391,750
5) City Normal Cost Rate (% of pay): (3) ÷ (4)	8.6%	7.9%
Actuarial Accrued Liability		
Active Employees	\$ 55,328,454	\$ 53,422,881
Member Benefit Fund	15,621,340	16,534,167
Terminated Vested	5,404,429	5,823,137
<u>Retirees and Beneficiaries</u>	<u>236,904,523</u>	<u>234,144,559</u>
6) Total Actuarial Accrued Liability: (sum of above)	\$ 313,258,746	\$ 309,924,744
7) Actuarial Value of Assets	172,687,582	177,259,421
8) Unfunded Actuarial Accrued Liability: (6) – (7)	140,571,164	132,665,323
9) Plan Funding Ratio: (7) ÷ (6)	55.1%	57.2%
10) Amortization of Unfunded Actuarial Accrued Liability	\$ 8,426,634	\$ 8,106,040
11) Amortization Rate (% of Pay): (10) ÷ (4)	40.4%	36.2%
12) Total Contribution Rate: (5) + (11)	49.0%	44.1%
13) Projected Fiscal Payroll	\$ 21,521,242	\$ 23,085,894
14) Total City Contribution: (12) x (13)	\$ 10,547,556	\$ 10,181,620

Estimated Cash Flow for Next Five Years

Fiscal Year	City Contributions	Member Contributions	Benefit Payments
2017	\$ 10,400,000	\$ 1,100,000	\$ 22,100,000
2018	10,500,000	1,200,000	22,400,000
2019	10,700,000	1,200,000	22,600,000
2020	11,000,000	1,300,000	23,000,000
2021	11,300,000	1,300,000	23,200,000

Actuarial Assumptions and Methods

Funding Method: Entry Age Normal Actuarial Cost Method. The contribution equals the sum of the normal cost and the amount necessary to amortize the unfunded actuarial liability as a level percent of payroll over a closed period of thirty years, decreasing by 1 year to an ultimate period of 15 years (27 years remaining as of December 31, 2014).

Asset Smoothing Method: Investment gains and losses are determined annually and each is spread over a 5- year period. This is done on a total fund basis. The adjusted value of the healthcare reserve is then excluded from the valuation assets.

Investment Return: 7.60% compounded annually, net of investment expenses

Cost of Living (inflation): The cost of living as measured by the Consumer Price Index (CPI) is assumed to increase at the rate of 3.10% per year.

Salary Increases: Increases in salary are assumed to be 3.10% annually, plus an additional amount that varies based on the service of the member as shown below:

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

Mortality: 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 projecting the table to 2023 using 50% of Scale BB.

Percent Married: 90% of participants are assumed to be married. Male spouses are assumed to be three years older than their female spouse.

Disability: Rates of disability vary based on the age of the member as shown below. Half of all disabilities are assumed to be duty related.

Sample rates are shown below:

<u>Age</u>	<u>Rate</u>
20	0.0004
30	0.0004
40	0.0013
50	0.0041
60	0.0090

Termination: Rates of termination vary based on the service of the member.
 Sample Rates are shown below:

<u>Years of Service</u>	<u>UAW</u>	<u>Others</u>
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%

Retirement: Rates of retirement vary based on the age of the member as shown below. Rate is applied only if the member is eligible to retire.

<u>Age</u>	<u>UAW</u>	<u>Others</u>
45-49	0.0%	10.0%
50-54	40.0%	10.0%
55-56	40.0%	15.0%
57	20.0%	15.0%
58	10.0%	25.0%
59	10.0%	10.0%
60	20.0%	15.0%
61	35.0%	15.0%
62-64	20.0%	15.0%
65-69	100.0%	50.0%
70 +	100.0%	100.0%

The assumptions above are based on the most recent experience study, covering 2005 through 2011.
 The next study is scheduled for 2016.

Changes in assumptions since the prior valuation

There have been no changes in assumptions since the prior valuation.

Summary of Plan Benefits

All benefits are subject to the language in the City Ordinance and relevant collective bargaining agreements.

Employee Group Covered: Teamsters, UAW, Exempt, District Court (except Judges), Executive Pay, Newly hired elected officials do not become members of this Plan.

Normal Retirement Age (All Members - New Plan): Age 50 with 25 years of service or at age 58 with 8 years of service.

Normal Retirement Age (Old Plan): UAW - Age 50 with 25 years of service or at age 58 with 8 years of service. All Others - 8 years of service and attainment of the earlier of age 58 or the age at which age plus service equals or exceeds 65.

Normal Form of Benefit: Single life annuity

<u>Member Contributions:</u>	<u>Old Plan</u>	<u>New Plan</u>
UAW	2.95%	3.00% effective 10/18/2013
Teamsters 214	3.75%	6.5% (5.00% for hires after September 2012)
Teamsters 580	3.50%	6.35% (5.00% for hires after 05/09/2014) for T580 CTP and Sup)
District Court Teamsters	3.50%	5.50% (5.00% for hires after 04/01/2014 for DCT580)
District Court Exempt	4.50%	5.50%
Exempt	3.75%	6.50%
Executive Pay Plan	3.75%	6.50%
Elected Officials	3.25%	No Defined Benefit Plan

Compensation: 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: The average of the highest annual compensation paid over 2 consecutive years of credited service within the last 10 years of credited service immediately preceding a member's termination of employment.

Normal Retirement Benefit Formula (New Plan):

UAW	2.75% of Final Average Compensation times years of credited service; 1.70% of Final Average Compensation times years of credited service for new hires after October 18, 2013.
Teamsters 214 and 580	1.80% of Final Average Compensation times years of credited service; 1.25% of Final Average Compensation times years of credited service for new hires after September 2012 in Teamsters 214 and hires after 05/19/2014 in T580 CTP and Sup.
All Others	1.60% of Final Average Compensation times years of credited service; 1.25% of Final Average Compensation times years of credited service for new hires after 04/01/2014 in DCT580

Normal Retirement Benefit Formula (Old Plan):

UAW and Elected Officials	2.75% of Final Average Compensation times 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.
District Court Teamsters	2.30% of Final Average Compensation times years of credited service:
All Others	2.80% of Final Average Compensation times 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.

Termination Prior to Retirement

Eligibility	Vesting is after 8 years of credited service
Form of Benefit	Benefit is payable as a Life Annuity beginning at age 58 for new Plan Members and at the age at which age plus service equals 65 for Old Plan Members (except UAW).

Duty Disability

Eligibility	Members are eligible for Duty Disability Retirement benefits immediately upon employment.
Benefit Amount	Benefit is paid at the effective date of disability retirement as a Life Annuity and is equal to the accrued Retirement Benefit, with additional service granted to age 60. During the worker's compensation period, the disability benefit may not exceed the difference between the member's final compensation and the worker's compensation amount. 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 10 years of service.
Benefit Amount	Benefit is paid at the effective date of disability retirement as a Life Annuity and is equal to the accrued Retirement Benefit, with a minimum benefit equal to 25% of final average compensation.

Death incurred in the Line of Duty

Eligibility	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	Benefit is paid upon termination of the survivor's workers' compensation period as a Life Annuity and is equal to the survivor's weekly workers' compensation converted to an annual basis.

Non Duty Pre-Retirement Death

Eligibility	The non-duty pre-retirement death benefit is payable upon the death of a member after earning 8 years of credited service.
Benefit Amount	Benefit is paid to the surviving spouse as a Joint and Survivor benefit and is computed in the same manner as the Normal Retirement Benefit.

Optional Benefit Forms

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

- a. 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.
- b. 50% or 100% Joint and Survivor Annuity
- c. 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 increase 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.

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, certain eligible retirees and beneficiaries receive annual benefit increases, financed by the Members' Benefit Fund reserve while it maintains a positive balance. 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

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 the prior valuation

This Valuation takes into effect the change in Employee Contributions and the Plan provisions for the new hires in Teamsters 580 CTP and Supervisors and District Court Teamsters 580 Bargaining Units.

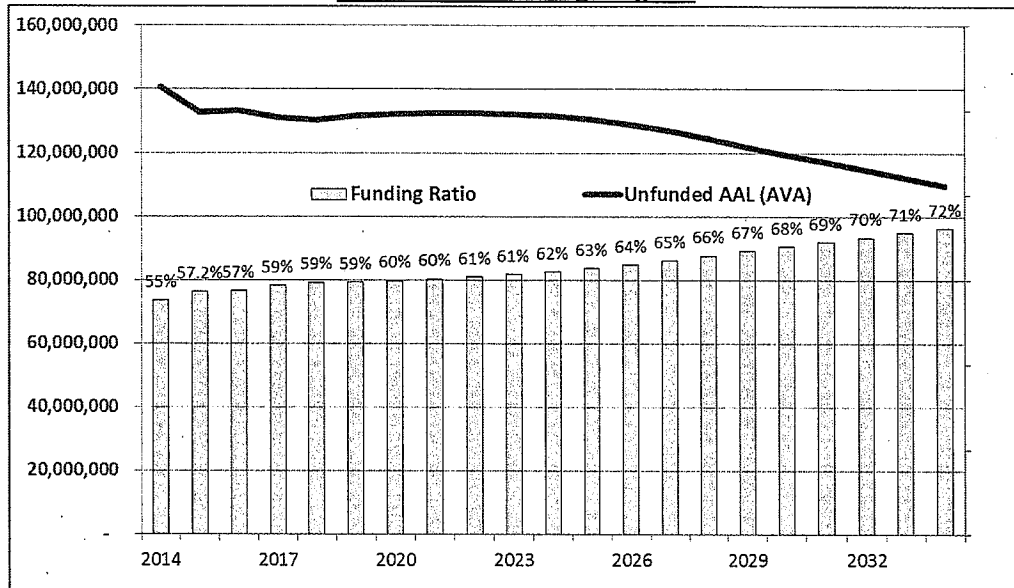
Glossary of Terms

Actuarial Accrued Liability (AAL):	The portion of benefits deemed to be accrued by participants based on past service. The AAL serves as the asset funding target, when annual contributions are determined.
Actuarial Value of Assets (AVA):	The smoothed value of assets, used to compute the Unfunded AAL. The purpose of the AVA is to control volatility in annual cash contributions .
Amortization of Unfunded Liability:	The portion of the annual cash contribution that represents a portion of the Unfunded AAL. The amortization can be positive or negative.
Actuarially Determined Employer Contribution (ADEC):	The contribution determined by the actuary for funding purposes .
Market Value of Assets (MVA):	The total value of Plan assets available to pay benefits.
Normal Cost:	That portion of the annual contribution that represents one year's accrual of benefits. In funding calculations, this is known as the Service Cost.
Unfunded Actuarial Accrued Liability:	The difference between the Actuarial Value of Assets and the Actuarial Accrued Liability, used for funding purposes .

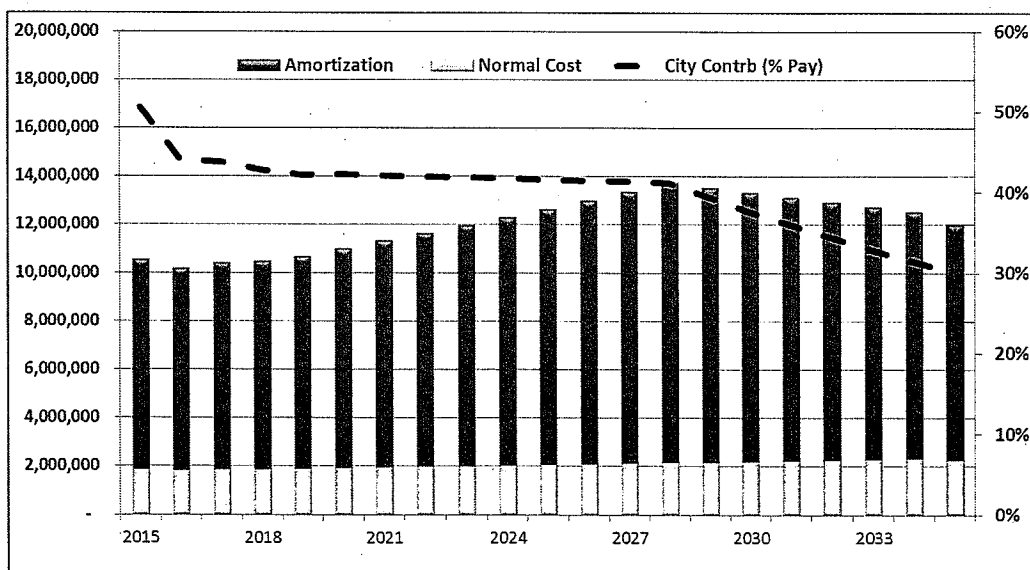
Appendix I: 20 Year Projection of Funding and Contributions

The graphs below show a projection of expected funding progress and City contributions to the Fund. The actual funding progress and contributions over this time period will differ from what is shown here, due to the actual experience of the Plan. However, we can see that the Plan is on a path to eventually reducing the unfunded liability (top graph, red line) and improving the funding ratio by about 15% over the next 20 years. During this time, the City contribution rate is expected to remain near 40% of pay. All recent benefit changes have been taken into account for these projections.

Projection of Funding Progress



Projection of City Contributions



Appendix II: History of Employer Contributions and Funding Progress

Historical Employer Contributions

Fiscal Year Ending	Actuarially Determined Employer Contribution	Actual Employer Contribution	
6/30/2007	5,230,668	5,230,668	
6/30/2008	6,021,613	6,021,613	
6/30/2009	6,047,520	6,476,000	(1)
6/30/2010	6,472,341	6,043,861	(1)
6/30/2011	7,297,083	7,297,083	
6/30/2012	7,596,879	7,523,534	(2)
6/30/2013	8,586,536	8,586,536	(3)
6/30/2014	9,361,000	9,361,000	
6/30/2015	10,548,000	10,548,000	(4)
6/30/2016	10,182,000	To be determined	

(1) The City contributed in excess of its FY 2009 Contribution. The City's FY 2010 contribution was reduced by the dollar amount of the FY 2009 overpayment.

(2) The FY 2012 City contribution was reduced by \$73,345 in recognition of additional contributions by United Auto Workers (UAW) employees, which were negotiated and contributed after the establishment of the June 30, 2012 Contribution from the December 31, 2010 valuation.

(3) Fiscal year 2013 Contribution reflects changes made to actuarial assumptions based on an Experience Study. Changes included a decrease in the assumed rate of return from 8.0% to 7.8%. A closed amortization period was also adopted as of 12/31/2011, beginning at 30 years and decreasing each year until 15 years is reached.

(4) Fiscal year 2015 Contribution reflects changes made to assumed return and inflation from 7.8% and 3.3% to 7.6% and 3.1%, respectively.

Historical Funding Progress

Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Percentage Funded	Unfunded Actuarial Accrued Liability
12/31/2005	207,881,000	241,882,000	85.9%	34,001,000
12/31/2006	208,765,000	251,427,000	83.0%	42,662,000
12/31/2007	208,572,000	254,356,000	82.0%	45,784,000
12/31/2008	200,600,000	258,331,000	77.7%	57,731,000
12/31/2009	193,324,000	262,298,000	73.7%	68,974,000
12/31/2010	187,440,590	269,461,935	69.6%	82,021,345
12/31/2011	177,100,863	287,306,707	61.6%	110,205,844 (5)
12/31/2012	167,569,807	293,974,433	57.0%	126,404,626
12/31/2013	172,687,582	313,258,746	55.1%	140,571,164 (6)
12/31/2014	177,259,421	309,924,744	57.2%	132,665,323

(5) Reflects changes made to actuarial assumptions based on an Experience Study, including a reduction in the assumed investment return 8.0% to 7.8%.

(6) Reflects changes made to assumed return and inflation from 7.8% and 3.3% to 7.6% and 3.1%, respectively.