

**CITY OF LINCOLN PARK POLICE OFFICERS AND FIREFIGHTERS
RETIREMENT SYSTEM
SEVENTY-THIRD ANNUAL ACTUARIAL VALUATION REPORT
JUNE 30, 2015**

OUTLINE OF CONTENTS

Page	Items
1	<i>Cover Letter</i>
	 <i>Valuation Results, Comments and Conclusions</i>
A-1	Financial Objective and Contributions Rates
A-2	Computed City Contributions
A-3	Determining Dollar Contributions
A-4	Short Condition Test
A-5	Computed and Actual Contributions - Comparative Statement
A-6	Comments and Conclusion
A-9	Other Observations
A-10	Actuarial Balance Sheet
A-11	Financial Objective Achievement Tests & Risk Measures - Comparative Statement
A-13	Derivation of Actuarial Gain (Loss) Development
	 <i>Summary of Benefit Provisions and Valuation Data</i>
B-1	Summary of Benefit Provisions
B-4	Reported Asset Information
B-8	Retired Life Data
B-11	Vested Terminated Member Data
B-12	Active Member Data
	 <i>Financial Principles, Actuarial Valuation Process, Actuarial Cost Methods, Actuarial Assumptions and Definitions of Technical Terms</i>
C-1	Financial Principles
C-3	Actuarial Cost Method
C-4	Amortization Schedule
C-5	Actuarial Assumptions in the Valuation Process
C-8	Actuarial Assumptions Used for the Valuation
C-14	Miscellaneous and Technical Assumptions
C-15	Definitions of Technical Terms

October 7, 2016

Retirement Board
City of Lincoln Park
Police Officers and Firefighters Retirement System
Lincoln Park, Michigan

Ladies and Gentlemen:

The results of the June 30, 2015 Actuarial Valuation of the City of Lincoln Park Police Officers and Firefighters Retirement System are presented in this report. The purposes of the annual valuation are to measure the System's funding progress and to determine the City's contribution rate for the fiscal year beginning July 1, 2016 in accordance with established funding policies. The results of the valuation may not be applicable for other purposes. No adjustments have been made for events after June 30, 2015.

This report should not be relied on for any purpose other than those described above. It was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The computed contribution amount shown on page A-2 may be considered as a minimum contribution rate that complies with the Board's funding policy. Users of this report should be aware that contributions made at that rate do not guarantee benefit security. Given the importance of benefit security to any retirement system, we suggest that contributions to the System in excess of those presented in this report be considered.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

The contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Section C of this report. This report includes risk metrics on page A-12 but does not include an assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We encourage a review and assessment of contribution, investment and other significant risks that may have a material effect on the plan's financial condition.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

A summary of valuation results, comments and conclusion are contained in Section A.

The valuation was based upon information, furnished by the City Controller, concerning individual participants, terminated participants, retired participants and beneficiaries, plan benefits and financial transactions and assets. Data was checked for reasonableness and missing information, but was not audited. We are not responsible for the accuracy or completeness of the information provided by the System. This information is summarized in Section B.

GASB Statement No. 25 and No. 27 have been superseded by GASB Statement No. 67 and No. 68. Information formerly required by GASB 25 and GASB 27 will no longer be provided. Information required by Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 that is effective for fiscal year 2016 will be provided in a separate report.

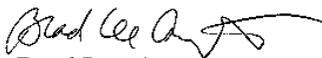
This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. We certify that the information contained in this report is accurate and fairly presents the actuarial position of the City of Lincoln Park Police Officers and Firefighters Retirement System as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. The actuarial assumptions used for the valuation are reasonable.

Brad Lee Armstrong and David T. Kausch are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

The signing actuaries are independent of plan sponsor.

From time to time we perform services for the City of Lincoln Park such as preparing GASB No. 68 disclosure information with the Board's approval.

Respectfully submitted,



Brad Lee Armstrong
ASA, EA, FCA, MAAA



David T. Kausch, FSA, EA, FCA, MAAA

BLA/DTK:bd

SECTION A

VALUATION RESULTS, COMMENTS
AND CONCLUSIONS

FINANCIAL OBJECTIVE

The financial objective of the Retirement System is to establish and receive contributions, expressed as dollar amounts, which will achieve progress towards 100% funded status and remain approximately level from year-to-year and will not have to be increased for future generations of citizens in the absence of benefit improvements. This objective meets the requirements of the Retirement System ordinance and Article IX, Section 24 of the Constitution of the State of Michigan.

CONTRIBUTION AMOUNTS

The Retirement System is supported by Member Contributions, City Contributions and Investment Income from Retirement System assets.

Contributions which satisfy the financial objective are determined by an annual actuarial valuation and are sufficient to:

- (1) cover the actuarial present value of benefits assigned to the current year by the actuarial cost methods described in Section C (the normal cost); and
- (2) amortize over a period of future years the actuarial present value of benefits not covered by valuation assets and anticipated future normal costs (unfunded actuarial accrued liability).

Contribution requirements for the fiscal year beginning July 1, 2016 and July 1, 2015 are shown on page A-2.

**CONTRIBUTIONS COMPUTED TO MEET THE FINANCIAL OBJECTIVE OF
THE RETIREMENT SYSTEM FOR THE FISCAL YEARS
BEGINNING JULY 1, 2016 AND JULY 1, 2015**

Contributions for Fiscal Year Beginning	Contributions Expressed as Percents of Payroll	
	7/1/2016	7/1/2015
Normal Cost		
Age & service benefits	24.05 %	23.50 %
Disability benefits	1.33	1.67
Survivor pensions		
Pre-retirement	0.33	0.39
Post-retirement	1.24	1.32
Termination benefits		
Deferred service pensions	0.54	0.62
Refunds of member contributions	0.28	0.28
Total Normal Costs	27.77	27.78
Member portion (weighted average)	8.18 %	8.18 %
Employer Normal Cost %	19.59 %	19.60
Employer Normal Cost \$	\$649,365	\$738,506
Unfunded Actuarial Accrued Liability (Employer)		
As a % of payroll	162.34 %	149.51 %
As a \$ amount	\$5,381,210	\$5,633,366
Computed Employer Rate	181.93 %	169.11 %
Computed Employer Dollar Contribution	\$6,030,575	\$6,371,872
Funded Ratio	23.10 %	23.80 %
Market Value Funded Ratio	22.10 %	23.60 %

Unfunded actuarial accrued liabilities were amortized as a level dollar amount over a closed period of 19 years. The characteristics of this method of amortizing unfunded actuarial accrued liabilities are illustrated on page C-4.

Procedures for determining dollar contribution amounts are described on page A-3 and comparative contribution amounts for prior fiscal years are shown on page A-5.

We assume the City will contribute based on the Employer Dollar Contribution.

DETERMINING DOLLAR CONTRIBUTIONS

Contribute the following dollar amounts:

Police	Fire	Total
\$4,012,056	\$2,018,519	\$6,030,575

If contributions are made on a later schedule, interest should be added at the rate of 0.526% (compounded) for each month of delay.

A sample quarterly contribution schedule of the above amounts would be as follows:

Date	Police	Fire	Total
August 15, 2016	1,003,014	504,629.75	1,507,643.75
November 15, 2016	1,003,014	504,629.75	1,507,643.75
February 15, 2016	1,003,014	504,629.75	1,507,643.75
May 15, 2016	<u>1,003,014</u>	504,629.75	1,507,643.75
Total	\$4,012,056	\$2,018,519.00	\$6,030,575.00

SHORT CONDITION TEST

The Short Condition Test is a way of looking at a system's progress under its funding program based on the actuarial present value of credited projected benefits. In a short condition test, the plan's valuation assets are compared with: 1) Active member contributions on deposit; 2) The liabilities for future benefits to present retired lives; 3) The liabilities allocated to service already rendered by active members. In a system that has been following the discipline of level percent-of-payroll financing, the liabilities for active member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by valuation assets (except in rare circumstances). In addition, the liabilities assigned to service already rendered by active members (liability 3) will be partially covered by the remainder of valuation assets. The larger the funded portion of liability 3, the stronger the condition of the system. Liability 3 being fully funded is not necessarily an objective of level percent-of-payroll funding methods. The schedule below illustrates the history of liabilities 1, 2 and 3. **Please note that the schedule shows that the System only has 22% of the assets needed to cover retiree liabilities. It is very important that rapid progress be made in funding retiree liability to 100%.**

SHORT CONDITION TEST COMPARATIVE STATEMENT (\$ AMOUNTS IN THOUSANDS)

Valuation Date June 30	Present Value of Credited Projected Benefits			Valuation Assets	Portion of Present Values Covered by Assets		
	(1) Active Member Contr.	(2) Retirants and Benef.	(3) Active Members (Employer Financed Portion)		(1)	(2)	(3)
	(\$ Amounts in Thousands)						
2001	\$ 9,105	\$23,154	\$ 9,774	\$46,725	100 %	100.0 %	148.0 %
2001 #	9,105	23,154	10,421	46,725	100	100.0	138.8
2002	10,085	22,756	12,067	46,939	100	100.0	116.8
2003	10,754	22,778	12,551	46,303	100	100.0	101.8
2004	9,663	25,979	11,905	43,611	100	100.0	66.9
2004 *	4,233	44,740	4,725	43,611	100	88.0	0.0
2004 @	4,233	44,740	4,370	43,611	100	88.0	0.0
2005	4,696	42,131	5,603	35,339	100	72.7	0.0
2006	5,019	41,995	7,400	32,519	100	65.5	0.0
2007	4,602	44,401	7,492	31,170	100	59.8	0.0
2008	4,313	46,282	6,961	29,698	100	54.9	0.0
2009	4,553	45,949	7,641	24,777	100	44.0	0.0
2010	5,347	44,848	8,256	23,184	100	39.8	0.0
2011	5,188	45,522	8,066	22,108	100	37.2	0.0
2012	5,602	44,802	8,947	21,082	100	34.6	0.0
2013	4,508	48,628	7,281	19,345	100	30.5	0.0
2014	4,125	49,180	6,680	18,538	100	29.3	0.0
2014 @	4,125	61,868	10,364	18,538	100	23.3	0.0
2015	4,303	62,808	10,018	18,192	100	22.1	0.0
2015 #	4,303	62,701	10,637	18,192	100	22.2	0.0

After changes in benefit provisions.

@ After changes in actuarial assumptions and/or methods.

* At conclusion of early retirement window, 12/31/2004.

COMPUTED AND ACTUAL CITY CONTRIBUTIONS COMPARATIVE STATEMENT

Fiscal Year Beginning	Valuation Date	Dollar Contributions		Projected Payroll+	Percent of Payroll Contributions	
		Computed	Actual		Computed	Actual
		July 1	June 30		Computed	Actual
1998	1997	\$ 740,458	\$ 740,458	\$5,488,941	13.49 %	13.49 %
1999	1998	751,769	-	5,589,362	13.45	-
1999	1998 @	650,602	659,208	5,589,362	11.64	11.79
2000	1999	550,791	550,791	5,646,484	9.75	9.75
2001	2000	450,708	-	5,712,398	7.89	-
2001	2000 #	631,219	631,219	5,712,398	11.05	11.05
2002	2001	617,649	-	5,860,048	10.54	-
2002	2001 #	683,282	683,282	5,860,048	11.66	11.66
2003	2002	834,494	834,494	6,126,980	13.62	13.62
2004	2003	928,116	928,116	6,102,016	15.21	15.21
2005	2004	1,110,113	-	5,802,996	19.13	-
2005	2004 ++	1,378,558	-	4,747,098	29.04	-
2005	2004 @	1,328,238	1,315,588	4,747,098	27.98	27.71
2006	2005	1,818,550	1,900,854	4,293,082	42.36	44.28
2007	2006	2,131,438	2,172,141	4,969,547	42.89	43.71
2008	2007	2,344,600	2,354,705	4,818,331	48.66	48.87
2009	2008	2,557,853	2,569,039	5,119,801	49.96	50.18
2010	2009	2,925,995	2,947,238	5,197,149	56.30	56.71
2011	2010	3,086,121	3,086,121	5,261,929	58.65	58.65
2012	2011	3,186,996	3,186,996	5,074,835	62.80	62.80
2013	2012	3,332,855	3,332,855	5,140,122	64.84	64.84
2014	2013	3,464,682	3,464,682	4,455,609	77.76	77.76
2015	2014 @	6,371,872		3,767,886	169.11	
2016	2015	5,996,433		3,314,778	180.90	
2016	2015 #	6,030,575		3,314,778	181.93	

After changes in benefit provisions.

@ After changes in actuarial assumptions or methods.

+ Projected payroll is equal to the valuation payroll projected to the appropriate fiscal year. Beginning in the 1991/1992 year, the projection factor is 1.0816. Beginning in the 1993/1994 year, the projection factor is 1.1025. Beginning in the 2000/2001 year, the projection factor is 1.092. In 2005 the projection factor is 1.0 due to a wage freeze. Beginning in the 2007/2008 year, the projection factor is 1.0816. Beginning in the 2014/2015 year, the projection factor is 1.0609.

++ At conclusion of early retirement window, 12/31/2004.

COMMENTS AND CONCLUSION

Comment A: The financial position of the Retirement System has been placed in jeopardy by the investment market events to which the Retirement System's assets were exposed during fiscal years ending 2009, 2012, and 2015. These events negatively affected almost all diversified portfolios. In the specific case of the City of Lincoln Park Police Officers and Firefighters Retirement System, it created a strong short term possibility that the current level of negative cash flows (unrelated to investment income) could exhaust System assets in the absence of consistently favorable investment returns and timely City contributions. The current contribution requirements have effectively eliminated negative cash flows in the short term and recent benefit provision changes should help for the long term. However, we remain concerned about potential cash flow problems for this plan. Since the assets in this plan cover only 22% of retiree liability, and less than 4 years of benefit payments can be made with current assets, *receipt of contributions is still mission critical.*

The results in this report assume:

- The City made quarterly contributions during FY2016 totaling \$5,464,682.
- The City will make quarterly contributions of approximately \$1.6 million each during FY2017.
- City contributions will be made in an amount not less than \$6,030,575 during FY2018, with approximately \$1.5 million being due each quarter.

Annual benefits in payment status on the valuation date were \$5,027, 537. Benefit payments would deplete current assets in about 4 years without any additional contributions or investment income. If assets were depleted, trustees would be required to collect the \$5 million plus any withdrawal of member contributions just to pay current benefits.

Comment B: Plan provisions have changed since the prior valuation and are reflected in the valuation as of June 30, 2015. Benefit changes include, but are not limited to, new multipliers for prospective service of active members depending on union group and date of hire, termination of the \$300 annual Cost-of-Living Adjustment for Police Patrol and Police Command members retiring after November 1, 2014, and termination of the Annuity Withdrawal Option for Police Patrol and Police Command members hired after January 1, 2014. Due to their prospective nature, the benefit reductions will have a marginal effect on the unfunded actuarial accrued liability and the contribution rate in the near term.

The Voluntary Retirement eligibility conditions for Police Patrol and Police Command members hired before April 21, 2010 and Fire members hired before July 1, 2013 were also updated from the prior valuation. Formerly, the eligibility conditions were age 55 with 25 years of service or 28 years of service

COMMENTS AND CONCLUSION

regardless of age. The current eligibility conditions allow Voluntary Retirement at *age 50* with 25 years of service or 28 years of service regardless of age. The change to the eligibility requirements for these members increased the unfunded actuarial accrued liability and the contribution rate.

The total impact of the changes discussed above increased the contribution dollar amount for the fiscal year beginning July 1, 2016 by approximately \$33,000 from the baseline scenario (no benefit or eligibility condition changes). Please see section B for a full summary of the benefit provisions considered in the June 30, 2015 valuation.

Comment C: Due to the Board's use of a five-year smoothed market asset valuation method, lower than expected market returns were only 20% recognized by the asset valuation method this year. This year's loss combined with the scheduled phase-in of prior unrecognized investment income will be recognized in the next four valuation reports (please see page B-5 for details). This will exert upward pressure on the computed employer contribution requirements and a coinciding downward pressure on funded ratios in the absence of additional future gains or additional employer contributions above the required amounts. If the contribution requirement shown on page A-2 of \$6,030,575 had been determined using the Market Value of Assets rather than the smoothed Valuation Assets, the result would have been a City contribution requirement of \$6,107,478.

Comment D: The funded ratio has decreased from 23.8% last year to 23.1% this year on the smoothed Valuation Assets basis and from 23.6% to 22.1% on a Market Value of Assets basis. It is of particular concern that the retiree liability is only 22% funded. (See Short Condition Test on page A-4.) With benefit payments now amounting to 29% of the Market Value of Assets, the timely receipt of future employer contribution requirements is essential to avoid fund depletion. Absent member and employer contributions, the fund would be expected to be depleted in about 4 years.

Risks to Future Employer Contribution Requirements: There are ongoing risks to future employer contribution requirements to which the Retirement System is exposed, such as:

- Actual vs. Expected Investment Rate of Return
- Actual vs. Expected Mortality Rates
- Actual vs. Expected Retirement, Termination, and Disability rates
- Actual vs. Required City Contributions
- Future Assumption Changes

COMMENTS AND CONCLUSION

Comment E: The Board adopted assumption changes for the June 30, 2014 actuarial valuation. Close monitoring of plan experience versus the assumptions is extremely important given the low funded status. We recommend that the Board perform a formal assumption review before the June 30, 2019 valuation. In the interim, we may recommend assumption changes and incorporate them into the valuation before the 2019 valuation if circumstances warrant.

Conclusion: The City's contributions (members' contributions are additional) to the City of Lincoln Park Police Officers and Firefighters Retirement System, for the fiscal year beginning July 1, 2016, have been computed to be as shown on page A-2. This figure does not fully recognize all of the investment losses that have occurred up until the valuation date. The next valuation will likely show yet higher contributions, receipt of which is essential to the well-being of the System.

It is the actuary's opinion that timely receipt of future computed employer contributions is critical for the System. **We strongly encourage the Board to work with the City to secure funding above the required amounts in this report.**

OTHER OBSERVATIONS

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 6.50% on the actuarial value of assets), it is expected that:

- (1) The employer normal cost as a percentage of pay will decrease to the level of Police Command members hired after April 21, 2010, Police Patrol members hired after January 1, 2014, and Fire members hired after July 1, 2013 as time passes and the majority of the active population is comprised of these members,
- (2) The unfunded actuarial accrued liabilities will be fully amortized after 19 years, and
- (3) The funded status of the plan will increase gradually towards a 100% funded ratio.

When selecting a contribution allocation procedure, the following three items should be considered, including the balance amongst the three items: (1) benefit security, (2) intergenerational equity, and (3) contribution stability and predictability. Generally, given the nature of public employee retirement systems (e.g., level contribution financing objective and perceived ongoing nature of the plan or plan sponsor), intergenerational equity and contribution stability and predictability have received more consideration than benefit security when contribution allocation procedures are selected. **However, given the importance of benefit security to any retirement system, we suggest that contributions to the System in excess of those presented in this report be considered.**

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

- (1) The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations, in other words, for transferring the obligations to an unrelated third party (e.g., insurance company) in a market value type transaction. In addition, the measurement is inappropriate for assessing benefit security for the membership.
- (2) The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100% is not synonymous with no required future contributions. If the funded status were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).

The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets, unless the market value of assets is used in the measurement.

ACTUARIAL BALANCE SHEET - JUNE 30, 2015

Present Resources and Expected Future Resources

A. Valuation assets	
1. Net assets from System financial statements	\$17,391,101
2. Valuation adjustment	801,071
3. Valuation assets	<u>18,192,172</u>
B. Actuarial present value of expected future employer contributions	
1. For normal costs	
2. For unfunded actuarial accrued liabilities	6,136,736
3. Total	<u>60,566,555</u>
C. Actuarial present value of expected future member contributions	2,655,049
D. Total actuarial present value of present and expected future resources	<u><u>\$87,550,512</u></u>

Actuarial Present Value of Expected Future Benefit Payments and Reserves

A. To retirants and beneficiaries	\$62,700,881
B. To vested terminated members	1,404,711
C. To present active members	
1. Allocated to service rendered prior to valuation date	14,653,135
2. Allocated to service likely to be rendered after valuation date	8,791,785
3. Total	<u>23,444,920</u>
D. Total actuarial present value of expected future benefit payments	87,550,512
E. Reserves	
1. Allocated to retirants and beneficiaries	0
2. Unallocated investment income	0
3. Total	<u>0</u>
F. Total actuarial present value of expected future benefit payments and reserves	<u><u>\$87,550,512</u></u>

FINANCIAL OBJECTIVE ACHIEVEMENT TESTS & RISK MEASURES

The Retirement System's financial objective is to meet long-term benefit promises through contributions that remain approximately level from year-to-year as a percent of active member payroll. If the contributions to the System are level in concept and soundly executed, the System will *pay all promised benefits when due -- the ultimate test of financial soundness*. Testing for level contribution rates is *the long-term solvency test*. Year by year computed contribution rates are displayed on page A-5.

There is no single all-encompassing test to measure a retirement system's funding progress and current funded status. Measures based on the actuarial accrued liability are shown on page A-12, and are described below.

The Ratio of Valuation Assets to Actuarial Accrued Liabilities is a traditional measure of a system's funding progress. Except in years when the benefit provisions are amended or actuarial assumptions are revised, the ratio can be expected to increase gradually toward 100%, assuming computed contribution amounts are received by the plan. This ratio is the most appropriate of the funding progress indicators for assessing the need for future contributions above the amounts needed to fund the normal cost.

The Ratio of AAL and UAAL to Valuation Payroll is another relative index of condition. In an inflationary economy, the value of dollars is decreasing. This environment results in employee pays increasing in dollar amounts, retirement benefits increasing in dollar amounts, and then, the AAL and the UAAL increase in dollar amounts - all at a time when the actual substance of these items may be decreasing. Looking at just the dollar amounts of the AAL and the UAAL can be misleading. The AAL and UAAL dollars divided by active employee payroll dollars provides an index which helps understanding. The smaller the ratio of accrued liabilities and unfunded liabilities to active member payroll, the stronger the system. Observation of this relative index over a period of years will give an indication of whether the system is becoming financially stronger or weaker.

The funding progress indicators would be different if based on the market value of assets instead of the funding value of assets.

FINANCIAL OBJECTIVE ACHIEVEMENT TESTS & RISK MEASURES COMPARATIVE STATEMENT

Valuation Date	Actuarial Accrued Liability (AAL)	Valuation Assets	Unfunded Actuarial Accrued Liability(UAAL)	Valuation Payroll	Amortization Period Years ^	Financial Objective Achievement Tests			
						Ratio of Valuation Assets to AAL	Ratio of AAL to Valuation Payroll	Ratio of UAAL to Valuation Payroll	Ratio of Valuation Assets to Valuation Payroll
June 30									
		(\$ in Thousands)		(\$ in Thousands)					
1999	\$39,734	\$42,067	(\$2,333)	\$ 5,171	N/A	105.9 %	768.4 %	- %	813.6 %
2000 #	42,431	45,090	(2,659)	5,231	N/A	106.3	811.1	-	861.9
2001 #	44,235	46,725	(2,490)	5,366	N/A	105.6	824.3	-	870.7
2002	46,333	46,939	(606)	5,611	N/A	101.3	825.8	-	836.6
2003	47,487	46,303	1,185	5,588	30	97.5	849.8	21.2	828.6
2004	48,889	43,611	5,277	5,365	30	89.2	911.2	98.4	812.9
2004 *	54,615	43,611	11,003	4,347	30	79.9	1256.3	253.1	1,003.2
2004 @	53,520	43,611	9,909	4,347	30	81.5	1231.2	227.9	1,003.2
2005	53,553	35,339	18,214	4,293	30	66.0	1247.4	424.3	823.2
2006	55,488	32,519	22,969	4,970	30	58.6	1116.6	462.2	654.4
2007	57,948	31,170	26,778	4,455	30	53.8	1300.8	601.1	699.7
2008	58,931	29,698	29,233	4,734	30	50.4	1245.0	617.6	627.4
2009	59,537	24,777	34,760	4,805	30	41.6	1239.1	723.4	515.7
2010	59,930	23,184	36,746	4,865	30	38.7	1231.9	755.3	476.6
2011	60,283	22,108	38,175	4,692	30	36.7	1284.8	813.6	471.2
2012	60,924	21,082	39,842	4,752	30	34.6	1282.0	838.4	443.6
2013	62,082	19,345	42,737	4,119	30	31.2	1507.0	1037.4	469.6
2014 @	77,768	18,538	59,230	3,552	20	23.8	2189.7	1667.7	522.0
2015	78,335	18,192	60,143	3,124	19	23.2	2507.1	1924.9	582.2
2015 #	78,759	18,192	60,567	3,124	19	23.1	2520.7	1938.4	582.2

After changes in benefit provisions.

@ After changes in actuarial assumptions or methods.

* At conclusion of early retirement window, 12/31/2004.

^ The UAAL associated with the impact of the early retirement window offered in 2004 was amortized as a level percent-of-payroll over a closed period of 20 years beginning with the June 30, 2004 valuation. As of the June 30, 2014 valuation, the UAAL in its entirety is amortized as a level dollar amount over a closed period of 20 years.

DERIVATION OF ACTUARIAL GAIN (LOSS) YEAR ENDED JUNE 30, 2015

The actuarial gains or losses realized in the operation of the Retirement System provide an experience test. Gains and losses are expected to cancel each other over a period of years (in the absence of double-digit inflation) and sizable year-to-year fluctuations are common. Detail on the derivation of the actuarial gain (loss) is shown below, along with a year-by-year comparative schedule.

1)	UAAL* at start of year	\$ 59,230,162
2)	Employer normal cost from last valuation	696,112
3)	Actual employer contributions	3,464,682
4)	Interest accrual: (1) x .065 + ((2)-(3)) x .0375	3,759,982
5)	Expected UAAL* before changes	60,221,574
6)	Change from benefit changes	423,652
7)	Change from revised actuarial assumptions and/or methods	0
8)	Expected UAAL* after changes	60,645,226
9)	Actual UAAL* at end of year	60,566,555
10)	Gain(loss): (8) - (9)	78,671
11)	Gain(loss) as percent of actuarial accrued liabilities at start of year (\$77,767,885)	0.1%

* *Unfunded Actuarial Accrued Liability.*

Valuation Date June 30	Actuarial Gain (Loss) as % of Beginning Accrued Liabilities
2001	1.2 %
2002	(4.3)
2003	(3.7)
2004	(8.6)
2005	(11.4)
2006	(7.5)
2007	(5.9)
2008	(3.4)
2009	(8.3)
2010	(2.1)
2011	(1.6)
2012	(2.0)
2013	(4.1)
2014	0.6
2015	0.1

SECTION B

SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA

BENEFIT PROVISIONS EVALUATED

(JUNE 30, 2015)

VOLUNTARY RETIREMENT:

Eligibility -

Hired before April 21, 2010 (Police Patrol/Police Command) /Hired before July 1, 2013 (Fire):
Age 50 with 25 years of service; or 28 years of service regardless of age.

Hired on or after April 21, 2010 (Police Patrol/Police Command) /Hired on or after July 1, 2013 (Fire):
Age 55 with 25 years of service.

Annual Amount -

Police Patrol and Police Command Members

Hired Before April 21, 2010:

2.80% of FAC times service accrued to June 1, 2014.

2.50% of FAC times service accrued from June 1, 2014 to November 1, 2014.

2.00% of FAC times service accrued after November, 1 2014, reverting to 2.50% if the member meets Voluntary Retirement eligibility conditions.

Hired On or After April 21, 2010:

2.25% of FAC times service.

2.00% of FAC times service if the member does not meet Voluntary Retirement eligibility conditions.

Hired On or After January 1, 2014 (Police Patrol Only):

2.00% of FAC times service.

Firefighter Members

Hired Before July 1, 2013:

2.80% of FAC times service accrued to July 1, 2013.

2.50% of FAC times service accrued from July 1, 2013 to March 1, 2015.

2.00% of FAC times service accrued after March, 1 2015, reverting to 2.50% if the member meets Voluntary Retirement eligibility conditions.

Hired On or After July 1, 2013:

2.00% of FAC times service.

All Members

Maximum benefit is 78.4% of final average base compensation.

Type of Final Average Compensation –

Police Patrol & Police Command Members

Hired Before April 21, 2010:

Average of base compensation (at current pay rates) for ranks held during 5 years before retirement. Equivalent to a one-year average if no promotions during that period.

Hired On or After April 21, 2010:

Highest 5 consecutive year average of compensation of Employee's last year years of service before retirement.

Firefighter members

Average of base compensation (at current pay rates) for ranks held during 5 years before retirement. Equivalent to a one-year average if no promotions during that period.

BENEFIT PROVISIONS EVALUATED (JUNE 30, 2015)

MANDATORY RETIREMENT: Age 60 with 18 years of service.

EARLY RETIREMENT:

Eligibility - 20 or more years of service.

Annual Amount - Computed as a Voluntary Retirement benefit described above, but reduced by a certain percentage for each year prior to the Voluntary Retirement date. The annual percentage reduction is 7.2% for the first two years, 6.0% for the next three years, and 4.8% thereafter.

POST-RETIREMENT DEATH BENEFIT: Effective July 1, 1979, all members whose retirement benefits commenced after June 30, 1975 shall be covered by an automatic 50% spouse (or dependent children under age 18) benefit at no cost to the members.

DEFERRED RETIREMENT (VESTED BENEFIT):

Eligibility - 10 or more years of service. Benefit begins when member would have been eligible for Voluntary Retirement had he stayed in service.

Annual Amount - Computed as Voluntary Retirement benefit, but based on service and final average base compensation at time of termination.

DUTY DISABILITY RETIREMENT:

Eligibility - No age or service requirement.

Annual Amount - 1) Disability after eligible for Voluntary Retirement; computed as Voluntary Retirement benefit. 2) Disability before eligible for Voluntary Retirement: 55% of final average compensation is payable until date member would have been eligible for Voluntary Retirement. Then added service credit is granted for period of receipt and benefit computed as Voluntary Retirement benefit. Worker's compensation payments offset.

NON-DUTY DISABILITY RETIREMENT:

Eligibility - 10 years of service.

Annual Amount - Computed as Voluntary Retirement benefit based on service and final average compensation at time of disability. Worker's compensation payments offset until attaining age when member would have been eligible for Voluntary Retirement had he remained in service.

DUTY DEATH BEFORE RETIREMENT:

Eligibility - No age or service requirement. Also covers death of duty-disability retiree within 3 years of disability.

Annual Amount - Accumulated contributions are refunded to named beneficiary or estate if no widow or child. Widow receives 1/3 of final average compensation. Children under 18 share in 1/4 of final average compensation. If no widow, children under 18 receive 1/4 of final average compensation (to 1/2 maximum). If no widow or children, each dependent parent receives 1/6 of final average compensation. Worker's compensation payments offset.

NON-DUTY DEATH BEFORE RETIREMENT:

Eligibility - 10 years of service.

Annual Amount - Widow's benefit (or other dependent if Option A was elected) computed as Voluntary Retirement benefit but actuarially reduced to reflect a 100% joint and survivor election.

BENEFIT PROVISIONS EVALUATED (JUNE 30, 2015)

POST-RETIREMENT COST-OF-LIVING ADJUSTMENTS: A one-time increase for retirees on the rolls was enacted on July 1, 1975. Annual amount of the increase was \$50 (\$25 for beneficiaries) for each year since retirement.

For Fire retirees after July 1, 1995 and Police retirees after September 6, 1996 (and their eventual beneficiaries), retirement benefits will increase \$300 annually (\$150 for beneficiaries) each January 1, beginning with the January 1 which is at least one year after retirement.

Beginning July 1, 1980 the minimum benefit for retirees was gradually raised to \$7,500 (\$3,750 for survivors). For Fire retirees the minimum was raised to \$9,683 (\$4,842 for survivors). For Police retirees the minimum was raised to \$9,683 (2 persons) or \$7,570 (1 person).

Police Patrol and Police Command members who retired after November 1, 2014, they receive no annual COLA.

MEMBER CONTRIBUTIONS: 8.18% of compensation.

ANNUITY WITHDRAWAL: Contributions may be withdrawn at retirement, with a corresponding reduction in annual benefits. All annuities will earn a maximum 4.0% annual rate of return starting with the annuity applicable to the valuation period ending on June 30, 2015. The rate paid will match the rate of return of the system with a 4.0% cap. Should the plan have a negative return, no monies will be paid.

Police Patrol and Police Command members hired after January 1, 2014 will not receive an annuity refund as an option.

PURCHASE OF ADDITIONAL SERVICE CREDIT: The ability to purchase additional service credit was eliminated August 20, 2014.

REPORTED FUND BALANCE (MARKET VALUE)

Reserves for	Fund Balances June 30,	
	2015	2014
Retirement Allowance Benefits	\$17,391,101	\$18,358,402
Reserve for Health Insurance	0	0
Total Fund Balance	\$17,391,101	\$18,358,402

Valuation assets are equal to reported market value of assets, except that only 20% of the difference between the market-to-market rate of return and the projected rate of return (the 6.5% actuarial assumption) is recognized each year. Such spreading reduces the fluctuation in the City's computed contribution rate which might otherwise be caused by market value fluctuations. The details of the spreading technique are shown on pages B-4 through B-7. The present method was adopted for the 1994 year. The valuation assets as of June 30, 2015 total \$18,192,172.

In financing actuarial accrued liabilities, valuation assets of \$18,192,172 were distributed as follows:

	Valuation Assets Applied to Actuarial Accrued Liabilities for			Totals
	Active Members	Retirees & Beneficiaries	Contingency Reserve	
Valuation Assets	\$4,302,842	\$13,889,330	\$0	\$18,192,172

Assets allocated to retirees and beneficiaries are insufficient to fully fund retiree liabilities. See the Short Condition Test for more information on page A-4.

DERIVATION OF VALUATION ASSETS
MARKET VALUE WITH 20% RECOGNITION OF THE DIFFERENCE BETWEEN
THE MARKET RATE OF RETURN AND THE PROJECTED RATE OF RETURN

Year Ended June 30

	2014	2015	2016	2017	2018	2019
Beginning of Year:						
(1) Market Value	\$18,358,507	\$18,358,402				
(2) Valuation Assets	19,344,819	18,537,723				
End of Year:						
(3) Market Value	18,358,402	17,391,101				
(4) Net Additions to Assets, Excluding Investment Income and Administrative Expenses	(2,192,808)	(1,230,793)				
(5) Total Investment Income =(3)-(1)-(4)	2,192,703	263,492				
(6) Projected Rate of Return	8.00%	6.50%				
(7) Projected Investment Income =(6)x[(2)+.5x(4)]	1,459,873	1,164,951				
(8) Investment Income In Excess of Projected Income	732,830	(901,459)				
(9) Excess Investment Income Recognized This Year (5-year recognition)						
(9a) From This Year	146,566	(180,292)				
(9b) From One Year Ago	(48,533)	146,566	\$(180,292)			
(9c) From Two Years Ago	(422,534)	(48,533)	146,566	\$(180,292)		
(9d) From Three Years Ago	225,082	(422,534)	(48,533)	146,566	\$(180,292)	
(9e) From Four Years Ago	25,258	225,084	(422,534)	(48,535)	146,566	\$(180,291)
(9f) Adjustment to Recognize 25% Corridor	0	0				
(9g) Total Recognized Investment Gain	(74,161)	(279,709)				
(10) Change in Valuation Assets =(4)+(7)+9[g]	(807,096)	(345,551)				
End of Year:						
(3) Market Value	18,358,402	17,391,101				
(11) Valuation Assets (2) + (10)	18,537,723	18,192,172				
Rate of Return Based on Valuation Method	7.6%	4.9%				
Rate of Return Based on Market Value	12.7%	1.5%				
Ratio of Valuation Assets to Market Value	1.01	1.05				

SUMMARY OF CURRENT ASSET INFORMATION REPORTED FOR VALUATION

MARKET VALUE OF ASSETS

	June 30, 2015 Market Value
Cash and Equivalents	\$ 175,514
Stocks	8,871,041
Bonds	3,933,271
Real Estate	677,065
Contributions Receivable	3,464,682
Accrued Interest	44,496
Other	225,061
Total	17,391,130
Less Accounts Payable	29
Total Assets Reported	\$17,391,101

REVENUES AND EXPENSES

	2014-2015	2013-2014
Balance - July 1	\$18,358,402	\$18,358,507
Audit Adjustment	-	-
Revenues		
Employees' Contributions	272,176	395,148
Employer Contributions	3,464,682	3,332,855
Net Investment Income	284,004	2,268,422
Miscellaneous	-	-
Expenses		
Benefit Payments	4,942,633 *	5,064,208 *
Refunds of Member Contributions	25,018	856,603
Administrative Expenses	20,512	75,719
Miscellaneous	-	-
Balance - June 30	\$17,391,101	\$18,358,402

* Current annual benefit payments for retirees exceed 25% of the market value of assets. **Receipt of contributions is mission critical.**

ASSET INFORMATION REPORTED FOR VALUATION COMPARATIVE STATEMENT

Year Ended June 30	Revenues				Expenses				Assets Year-End
	Employee Contrib.	Employer Contrib.	Investment Income	Misc. Income	Retirement Benefits	Health Insurance	Contrib. Refunds	Misc. Expenses	
1991	\$324,845	\$ 1,228,623	\$ 2,004,139	\$ 0	\$ 1,253,683	\$259,097	\$ 140,536	\$ 63,431	\$24,063,124
1992	357,561	1,431,185	1,987,391	0	1,364,742	308,731	270,247	81,561	25,813,980
1993	338,970	1,140,704	1,816,553	0	1,450,973	388,803	287,724	59,552	26,923,155
1994	372,381	690,897	2,521,451	0	1,749,539	0	732,893	73,641	27,951,811
1995	374,571	686,595	1,870,830	0	1,811,934	165,500	202,445	186,546	28,517,382
1996	392,665	706,641	3,030,693	0	1,925,152	0	240,463	171,887	30,309,879
1997	434,342	714,869	6,045,626	3,065,997 #	2,051,028	0	439,859	181,464	37,898,362
1998	434,492	699,970	5,651,127	0	2,219,750	0	551,663	179,828	41,732,710
1999	429,394	740,458	5,028,433	0	2,303,573	0	353,405	203,551	45,070,466
2000	424,677	659,208	3,737,935	0	2,299,271	0	159,596	330,746	47,102,673
2001	454,699	550,791	(912,035)	10,947	2,441,163	0	492,497	292,859	40,858,439
2002	459,376	631,219	(4,258,126)	0	2,413,436	0	200,933	270,384	37,928,272
2003	481,937	683,282	446,657	0	2,427,467	0	189,937	69,427	36,853,317
2004	489,258	834,494	3,635,556	0	2,634,594	0	1,733,732	46,720	37,397,579
2005	509,635	928,116	1,550,103	0	3,691,247	0	5,615,772	20,756	31,057,658
2006	431,886	1,315,588	1,246,065	0	4,312,461	0	44,505	23,777	29,670,451
2007	299,696	1,900,854	3,860,532	0	4,395,933	0	613,377	62,414	30,659,808
2008	448,633	2,172,141	(1,823,404)	0	5,265,554	0	0	29,475	26,162,149
2009	391,700	2,354,705	(4,345,205)	0	4,664,400	0	52,404	24,600	19,821,945
2010	411,002	2,569,039	2,104,490	0	4,591,796	0	364,543	75,057	19,875,080
2011	378,346	2,947,238	2,926,039	0	4,663,411	0	524,177	20,351	20,918,764
2012	392,247	3,086,121	(366,878)	0	4,551,204	0	0	20,059	19,458,991
2013	429,357	3,186,996	1,648,762	0	4,721,065	0	1,341,805	302,729	18,358,507
2014	395,148	3,332,855	2,268,422	0	5,064,208	0	856,603	75,719	18,358,402
2015	272,176	3,464,682	284,004	0	4,942,633	0	25,018	20,512	17,391,101

Accumulated Unrealized Gains.

RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS COMPARATIVE STATEMENT

Year Ended	Added to Rols		Removed from Rols		Rols End of Year		% Incr.	Average Annual Benefit	Present Value of Benefits	Expected Removals	
	No.	Annual Benefits	Post-Ret. Increases *	No.	Annual Benefits	No.					Annual Benefits
6/30/1992	5	\$ 162,103		4	\$ 45,248	69	\$ 1,365,338	9.4 %	\$19,788	\$ 15,295,241	1.7
6/30/1993	6	141,089		1	29,748	74	1,476,679	8.2	19,955	14,255,987	1.5
6/30/1994	9	296,586				83	1,773,265	20.1	21,365	17,272,025	1.7
6/30/1995	2	82,490	\$ 8,732			85	1,864,487	5.1	21,935	17,932,070	1.9
6/30/1996	3	94,913	7,175			88	1,966,575	5.5	22,347	18,747,360	2.3
6/30/1997	5	160,648	900	2	52,860	91	2,075,263	5.5	22,805	20,011,825	2.3
6/30/1998	6	179,474	4,740			97	2,259,477	8.9	23,294	22,265,717	2.6
6/30/1999	3	68,809	5,850	1	36,686	99	2,297,450	1.7	23,207	22,292,296	2.8
6/30/2000	6	121,504	15,505	2	39,863	103	2,394,596	4.2	23,249	22,933,228	3.5
6/30/2001	5	111,000	4,202	5	88,821	103	2,420,977	1.1	23,505	23,153,622	3.5
6/30/2002	5	92,597	10,185	4	107,469	104	2,416,290	(0.2)	23,234	22,756,079	3.4
6/30/2003	1	37,835	6,455	1	21,015	104	2,439,565	1.0	23,457	22,778,165	3.5
6/30/2004	10	327,188	9,768	2	32,734	112	2,743,787	12.5	24,498	25,979,040	3.8
6/30/2004 @	32	1,525,721				144	4,269,508	75.0	29,649	44,739,700	3.8
6/30/2005	3	21,797	(5,239)	2	21,832	145	4,264,234	(0.1)	29,409	42,131,435	4.2
6/30/2006			23,101			145	4,287,335	0.5	29,568	41,995,229	4.8
6/30/2007	5	196,021	19,149	3	51,845	147	4,450,660	3.8	30,277	44,401,236	4.7
6/30/2008	4	149,933	8,773	2	43,890	149	4,565,476	2.6	30,641	45,430,256	5.0
6/30/2009	2	94,781	4,054	7	138,492	144	4,525,819	(0.9)	31,429	45,949,113	5.0
6/30/2010	1	55,566	34,113	3	114,935	142	4,500,563	(0.6)	31,694	44,847,961	5.0
6/30/2011	3	150,163	38,096	5	103,581	140	4,585,240	1.9	32,752	45,521,790	5.3
6/30/2012	5	59,601	20,850	5	92,529	140	4,573,162	(0.3)	32,665	44,802,374	5.4
6/30/2013	8	401,877	21,894	5	70,047	143	4,926,886	7.7	34,454	48,627,857	5.3
6/30/2014	6	137,289	23,406	3	89,584	146	4,997,997	1.4	34,233	61,867,800	5.3
6/30/2015	3	78,955	25,200	3	24,615	146	5,077,537	1.6	34,778	62,700,881	3.8

@ Population at conclusion of window.

* Includes reductions in benefits due to deaths of retirees with surviving beneficiaries.

RETIREES AND BENEFICIARIES - JUNE 30, 2015
BY TYPE OF BENEFITS BEING PAID

Type of Benefits Being Paid	No.	Annual Benefits Being Paid	Average Annual Benefit
Age and Service Benefits			
Regular benefit - benefit terminating at death of retiree	15	\$ 570,480	\$ 38,032
Regular benefit - automatic 50% survivor benefit	94	3,874,084	41,214
EDRO alternate payees	12	190,445	15,870
Survivor beneficiary of deceased retiree	<u>17</u>	<u>242,978</u>	<u>14,293</u>
Total age and service benefits	138	\$ 4,877,987	\$35,348
Casualty Benefits			
Duty disability	4	167,541	41,885
Non-duty disability	1	9,683	9,683
Duty death - widow	2	10,393	5,197
Non-duty death - widow	<u>1</u>	<u>11,933</u>	<u>11,933</u>
Total casualty benefits	8	\$ 199,550	\$24,944
Total Benefits Being Paid	146	\$ 5,077,537	\$34,778

RETIREES AND BENEFICIARIES -- BY ATTAINED AGES
JUNE 30, 2015

Attained Ages	Age and Service Retired*		Disability Retirants		Survivor Beneficiaries	
	No.	Annual Pensions	No.	Annual Pensions	No.	Annual Pensions
31					1	\$ 25,092
37			1	\$ 33,634		
47	2	\$ 70,734				
48	2	39,792				
49	3	92,778				
50	2	111,329	2	88,156		
51	1	52,750				
52	2	102,376				
53	2	86,224				
54	4	167,276				
55	2	64,177				
56	3	129,585				
57	5	235,063				
58	6	315,279				
59	11	532,087				
60	3	88,898			1	21,994
61	7	371,544				
62	2	63,802				
63	4	164,599				
64	3	136,261			1	19,977
65	5	167,547	1	45,750		
66	4	153,567				
67	4	200,063				
68	3	82,829			1	20,045
69	3	126,686			1	14,874
70	3	122,120				
71	4	139,424				
72	3	77,310			1	11,933
73	1	33,150			1	20,893
74	1	12,559			1	6,235
75	3	78,007				
76	1	35,180			1	7,219
77	2	61,562			1	11,526
78	1	32,319				
79	1	29,724	1	9,683	1	13,959
80	2	93,148				
81	1	26,523			1	9,821
82	1	9,683				
84	2	45,143			1	15,225
85	2	44,816			2	29,461
86	3	109,732			2	17,079
87	4	82,002			1	6,767
88	1	14,569				
90	1	23,109			1	9,046
91					1	4,158
96	1	9,683				
TOTALS	121	\$4,635,009	5	\$ 177,224	20	\$265,304

* Includes alternate payees under EDROS.

VESTED TERMINATED MEMBERS -- BY ATTAINED AGES
JUNE 30, 2015

Attained Ages	No.	Estimated Annual Benefits
33	1	\$18,471
38	1	23,250
44	2	49,111
47	1	57,830
Totals	5	\$148,662

ACTIVE MEMBERS - JUNE 30, 2015
TABULATED BY VALUATION DIVISIONS

Valuation Division	No.	Annual Payroll	Average Age	Average Service	Average Pay
Police	38	\$2,078,683	40.2 yrs.	12.7 yrs.	\$54,702
Fire	<u>18</u>	<u>1,045,813</u>	42.5	13.5	58,101
Totals	56	\$3,124,496			

ACTIVE MEMBERS INCLUDED IN VALUATION

Valuation Date	Active Members	Vested	Valuation Payroll	Average			% Increase
		Term. Members		Age	Service	Pay	
6/30/2002	97	0	\$ 5,610,788	41.0	15.2	\$ 57,843	3.5 %
6/30/2003	96	0	5,587,927	41.9	16.1	58,208	0.6
6/30/2004	94	0	5,365,196	41.2	15.4	57,077	(1.9)
6/30/2004 *	82	0	4,347,159	34.5	8.4	53,014	(8.9)
6/30/2005	84	0	4,293,082	35.4	9.1	51,108	(3.6)
6/30/2006	83	0	4,969,547	36.4	10.1	59,874	17.2
6/30/2007	75	2	4,454,818	37.1	10.7	59,398	(0.8)
6/30/2008	79	1	4,733,544	36.6	10.0	59,918	0.9
6/30/2009	80	1	4,805,056	37.5	10.5	60,063	0.2
6/30/2010	80	1	4,864,949	38.5	11.5	60,812	1.2
6/30/2011	77	1	4,691,970	39.0	11.9	60,935	0.2
6/30/2012	76	1	4,752,332	39.9	12.8	62,531	2.6
6/30/2013	66	1	4,119,461	39.9	12.6	62,416	(0.2)
6/30/2014	58	2	3,551,594	40.9	13.4	61,234	(1.9)
6/30/2015	56	5	3,124,496	41.0	13.0	55,795	(8.9)

ADDITIONS TO AND REMOVALS FROM ACTIVE MEMBERSHIP ACTUAL AND EXPECTED NUMBERS

Year Ended	Number Added During Year		Normal Retirement		Disability Retirement		Died-In-Service		Terminations		Active Members End of Year
	A	E	A	E	A	E	A	E	A	E	
	6/30/2002	2	1	1	2.0	0	0.2	0	0.2	0	
6/30/2003	0	1	1	2.4	0	0.2	0	0.2	0	1.7	96
6/30/2004	5	7	7	3.1	0	0.2	0	0.2	0	1.4	94
6/30/2004 *	25	39	39	39.0	0	0.2	0	0.2	0	1.4	82
6/30/2005	2	0	0	0.2	0	0.1	0	0.1	0	0.5	84
6/30/2006	0	1	0	0.2	0	0.1	0	0.1	1	0.9	83
6/30/2007	0	8	3	0.8	0	0.1	0	0.1	5	0.8	75
6/30/2008	8	4	3	0.5	0	0.1	0	0.1	1	1.1	79
6/30/2009	5	4	1	0.2	0	0.1	0	0.1	3	1.3	80
6/30/2010	0	0	0	0.2	0	0.1	0	0.1	0	1.2	80
6/30/2011	0	3	3	1.1	0	0.1	0	0.1	0	0.9	77
6/30/2012	0	1	1	0.5	0	0.1	0	0.1	0	0.8	76
6/30/2013	0	10	7	0.8	1	0.1	0	0.1	2	0.7	66
6/30/2014	0	8	3	0.2	0	0.1	0	0.1	5	0.5	58
6/30/2015	<u>6</u>	<u>8</u>	<u>0</u>	<u>0.2</u>	<u>2</u>	<u>0.1</u>	<u>0</u>	<u>0.0</u>	<u>6</u>	<u>0.3</u>	56
5-year Totals	6	30	14	2.8	3	0.5	0	0.4	13	3.2	

* Population at conclusion of window, 12/31/2004, including 20 replacement lives.

A represents actual number.

E represents expected number based on assumptions outlined in Section C.

ACTIVE MEMBERS - JUNE 30, 2015
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
25-29	2							2	\$ 77,872
30-34	3	4	2					9	416,517
35-39		3	7	1				11	576,794
40-44			9	4	1			14	813,676
45-49		2	1	7	7			17	1,060,831
50-54			1	1	1			3	178,806
55-59									
Totals	5	9	20	13	9			56	\$ 3,124,496

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 41.0 years.

Service: 13.0 years.

Annual Pay: \$55,795

SECTION C

FINANCIAL PRINCIPLES, ACTUARIAL VALUATION
PROCESS, ACTUARIAL COST METHODS,
ACTUARIAL ASSUMPTIONS AND
DEFINITIONS OF TECHNICAL TERMS

BASIC FINANCIAL PRINCIPLES AND OPERATION OF THE RETIREMENT SYSTEM

Benefit Promises Made Which Must Be Paid For. A retirement program is an orderly means of handing out, keeping track of and financing pension promises to a group of employees. As each member of the retirement program acquires a unit of service credit the member is, in effect, handed an "IOU" which reads: "The City of Lincoln Park Police Officers and Firefighters Retirement System promises to pay you one unit of retirement benefits, payments in cash commencing when you retire."

The principal related financial question is: When shall the money required to cover the "IOU" be contributed? This year, when the benefit of the member's service is received? Or, some future year when the "IOU" becomes a cash demand?

The Constitution of the State of Michigan is directed to the question:

"Financial benefits arising on account of service rendered in each fiscal year shall be funded during that year and such funding shall not be used for financing unfunded accrued liabilities."

This retirement system meets this requirement by having as its ***financial objective the establishment and receipt of contributions, expressed as percents of active member payroll, which will remain approximately level*** from year-to-year and will not have to be increased for future generations of taxpayers.

Translated into actuarial terminology, a level percent-of-payroll contributions objective means that the contribution rate must be at least:

Normal Cost (the present value of future benefits assigned to members' service being rendered in the current year)

... plus ...

Interest on the Unfunded Actuarial Accrued Liability (the difference between the actuarial accrued liability and current system assets).

If contributions to the retirement program are less than the preceding amount, the difference, *plus investment earnings not realized thereon*, will have to be contributed at some later time (or benefits will have to be reduced) to satisfy the fundamental fiscal equation under which all retirement programs must operate:

$$\mathbf{B = C + I - E}$$

The aggregate amount of Benefit payments to any group of members and their beneficiaries cannot exceed the sum of:

The aggregate amount of Contributions received on behalf of the group.

. . . plus . . .

Investment earnings on contributions received and not required for immediate cash payments of benefits.

. . . minus . . .

The Expenses of operating the program.

There are retirement programs designed to defer the bulk of contributions far into the future. The present contribution rate for such systems is artificially low. The fact that the contribution rate is destined to increase relentlessly to a much higher level, is often ignored.

This method of financing is prohibited in Michigan by the state constitution.

Computed Contribution Rate Needed to Finance Benefits. From a given schedule of benefits and from the data furnished, the actuary calculates the contribution rate *by means of an actuarial valuation* - the technique of assigning monetary values to the risks assumed in operating a retirement program.

ACTUARIAL COST METHODS USED FOR THE VALUATION

All Benefits. Normal cost and the allocation of actuarial present values between service rendered before and after the valuation date were determined using an individual entry-age actuarial cost method having the following characteristics:

- (i) the annual normal costs for each individual active member, payable from the member's actual date of employment to projected date of retirement, are sufficient to accumulate the actuarial present value of the member's benefit at the time of retirement; and
- (ii) each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

Amortization of Unfunded Actuarial Accrued Liabilities. Unfunded actuarial accrued liabilities were amortized as a level dollar amount over a closed period of 20 years beginning with contributions payable in the fiscal year ending June 30, 2016. The characteristics of this method of amortizing unfunded actuarial accrued liabilities are illustrated on page C-4.

Under the previous amortization method, unfunded actuarial accrued liabilities were amortized as a level percent of active member payroll over an open period of 30 years, and the impact of the early retirement window offered in 2004 was amortized as a level percent-of-payroll over a closed period of 20 years beginning in 2004.

**FINANCING UNFUNDED ACTUARIAL ACCRUED LIABILITIES
WHICH WERE CALCULATED USING
AN INVESTMENT RETURN ASSUMPTION OF 6.50% COMPOUNDED ANNUALLY**

**LEVEL DOLLAR AMORTIZATION:
19-YEAR CLOSED AMORTIZATION**

Fiscal Year	Active Employee Payroll	Unfunded Actuarial Accrued Liability	Annual UAAL Contributions		UAAL as % of Payroll
			Dollars	% of Payroll	
(\$ in Thousands)					
2016	\$ 3,218	\$60,567	\$ 4,726	146.86 %	1,882.0 %
2017	3,315	59,625	5,381	162.34	1,798.8
2018	3,414	57,947	5,381	157.61	1,697.2
2019	3,517	56,159	5,381	153.02	1,596.9
2020	3,622	54,255	5,381	148.56	1,497.9
2021	3,731	52,227	5,381	144.24	1,399.9
2022	3,843	50,068	5,381	140.04	1,302.9
2023	3,958	47,768	5,381	135.96	1,206.9
2024	4,077	45,319	5,381	132.00	1,111.6
2025	4,199	42,710	5,381	128.15	1,017.1
2026	4,325	39,932	5,381	124.42	923.3
2027	4,455	36,973	5,381	120.80	830.0
2028	4,588	33,822	5,381	117.28	737.1
2029	4,726	30,466	5,381	113.86	644.6
2030	4,868	26,892	5,381	110.55	552.4
2031	5,014	23,086	5,381	107.33	460.4
2032	5,164	19,032	5,381	104.20	368.5
2033	5,319	14,715	5,381	101.16	276.6
2034	5,479	10,117	5,381	98.22	184.7
2035	5,643	5,221	5,381	95.36	92.5
2036	5,812	0	0	0.00	0.0

This schedule reflects a 1-year delay between the valuation date and the first year in which the employer rate is to be determined. Contributions for Fiscal Year 2016 are the estimated dollars that were actually contributed towards the UAAL during the year (total Contributions net of estimated Normal Cost).

ACTUARIAL ASSUMPTIONS IN THE VALUATION PROCESS

The actuary calculates contribution requirements and actuarial present values for a retirement system by applying actuarial assumptions to the benefit provisions and people information of the system, using the actuarial cost methods described on page C-3. All actuarial assumptions are set by the Board.

The principal areas of risk which require assumptions about future experience are:

- (i) Long-term rates of investment return to be generated by the assets of the system,
- (ii) patterns of pay increases to members,
- (iii) rates of mortality among members, retirees and beneficiaries,
- (iv) rates of withdrawal of active members,
- (v) rates of disability among active members, and
- (vi) the age patterns of actual retirements.

In making a valuation, the actuary calculates the monetary effect of each assumption for as long as a present covered person survives - - - a period of time which can be as long as a century.

The employer contribution rate has been computed to remain level from year-to-year so long as benefits and the basic experience and make-up of members do not change. Examples of favorable experience which would tend to reduce the employer contribution rate are:

- (1) Investment returns in excess of 6.5% per year.
- (2) Member non-vested terminations at a higher rate than outlined on page C-11.
- (3) Mortality among retirees and beneficiaries at a higher rate than indicated by the RP-2014 Mortality Tables with 2-dimensional, fully generation improvements with the MP-2014 Mortality Improvement Scales
- (4) Increases in the number of active members.

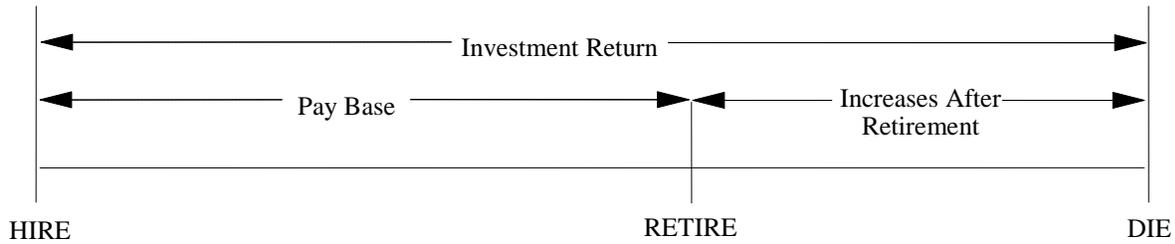
Examples of unfavorable experience which would tend to increase the employer contribution rate are:

- (1) Pay increases in excess of the rates outlined on page C-9.
 - (2) An increase in the rate of retirement over the rates outlined on page C-12.
 - (3) A pattern of hiring employees at older ages than in the past.
 - (4) A decline in total payroll.
-

Actual experience of the System will not coincide exactly with assumed experience, regardless of the choice of the assumptions, the skill of the actuary or the precision of the calculations. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time-to-time one or more of the assumptions is modified to reflect experience trends (but not random or temporary year-to-year fluctuations).

RELATIONSHIP OF ECONOMIC ASSUMPTIONS IN COMPUTING CONTRIBUTIONS TO A RETIREMENT SYSTEM



Investment Return

An increase in this assumption reduces computed contributions. The assumption operates over all parts of an employee's lifetime.

Pay Base

An increase in this assumption increases computed contributions. However, a 1% increase in this assumption, coupled with a 1% increase in Investment Return reduces computed contributions. This is because the Pay Base assumption operates only over an employee's working lifetime, while the Investment Return assumption operates over the employee's entire lifetime, and therefore has a greater effect.

Increases After Retirement

An increase in this element increases computed contributions.

If Investment Return, Pay Base, and Increases After Retirement are each increased by equal amounts, computed contributions remain the same (except in plans using Final Average Pay as a factor in computing benefits; the multi-year average used for Final Average Pay causes computed contributions to decrease slightly).

If Investment Return and Pay Base are increased by equal amounts, with no change in Increases After Retirement, computed contributions decrease – sometimes significantly. The decreases represent the projected devaluation of an employee's benefits following retirement.

ACTUARIAL ASSUMPTIONS USED FOR THE VALUATION

All actuarial assumptions are expectations of future experience, not market measures. The rationale for the actuarial assumption is based on the System's investment policy, capital market expectations, and demographic experience. Actuarial assumptions were updated with the June 30, 2014 actuarial valuation.

Investment Return. The investment return used for valuation calculations was 6.5% net of administrative and investment expenses, compounded annually. The assumed rate of price inflation is 2.75% per year resulting in a real rate of return of 3.75% per year. The assumed rate of wage inflation and payroll growth is 3.0% per year.

	Year Ended June 30,					3-Year Average	5-Year Average
	2015	2014	2013	2012	2011		
Valuation Rate of Investment Return	4.9%	7.6%	3.6%	0.2%	3.5%	5.4%	4.0%
Market Rate of Investment Return	1.5%	12.7%	7.4%	(1.9)%	15.3%	7.2%	7.0%

This assumption is used to equate the value of payments due at different points in time and was first used for the June 30, 2014 valuation. Approximate rates of investment return, for the purpose of comparisons with assumed rates, are shown below.

The nominal rate of return was computed using the approximate formula $i = I \text{ divided by } 1/2 (A + B - I)$, where I is actual investment income net of expenses, A is the beginning of year asset value, and B is the end of year asset value (based on valuation assets).

These rates of return should not be used for measurement of an investment advisor's performance or for comparisons with other systems -- *to do so will mislead.*

Pay Projections. These assumptions are used to project current pays to those upon which benefits will be based. The assumptions were first used for the June 30, 2014 valuation.

Sample Ages	Annual Rate of Pay Increase for Sample Ages		
	Base (Economic)	Merit & Longevity	Total
20	3.0 %	3.8 %	6.8 %
25	3.0	3.1	6.1
30	3.0	2.7	5.7
35	3.0	2.4	5.4
40	3.0	2.1	5.1
45	3.0	1.7	4.7
50	3.0	1.1	4.1
55	3.0	0.7	3.7
60	3.0	0.2	3.2
65	3.0	0.0	3.0

If the number of active members remains constant, the total active member payroll will increase 3.0% annually, the base portion of the individual pay increase assumptions.

Changes actually experienced in average pay and total payroll have been as follows:

Increase in	Year Ended June 30					3-Year Average	5-Year Average
	2015	2014	2013	2012	2011		
Average pay*	(1.5) %	(1.5) %	2.3 %	2.8 %	1.2 %	(0.2) %	0.7 %
Total payroll	(12.0)	(13.8)	(13.3)	1.3	(3.6)	(13.0)	(8.3)

* Based on persons who were active members at both the beginning and end of the year.

Mortality Table. The RP-2014 Healthy Annuitant Mortality Table for males and females with 2-dimensional, fully generational improvements projected with the MP-2014 Mortality Improvement Scales. Sample values follow:

Age on June 30, 2015	Actuarial Present Value of \$1 Monthly for Life		Future Life Expectancy (Years)	
	Men	Women	Men	Women
50	\$160.54	\$165.56	35.38	38.24
55	\$152.64	\$158.47	30.63	33.32
60	\$143.05	\$149.41	26.06	28.51
65	\$131.29	\$138.10	21.68	23.86
70	\$117.12	\$124.40	17.52	19.44
75	\$100.64	\$108.48	13.65	15.35
80	\$82.50	\$90.72	10.19	11.66

This assumption is used to measure the probabilities of each benefit payment being made after retirement and for projecting disability costs.

For death-in-service mortality, the RP-2014 Employee Mortality Table for males and females with 2-dimensional, fully generational improvements with the MP-2014 Mortality Improvement Scales is used.

		Duty- Related	Non-Duty Related	Percent Married
Death Before Retirement:	Male	75%	25%	80%
	Female	75%	25%	80%

This assumption is used to measure the probabilities of members dying before retirement.

Rates of separation from active membership. The rates do not apply to members eligible to retire and do not include separation on account of death or disability. This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	Percent Separating within Next Year
ALL	0	6.00 %
	1	4.00
	2	3.50
	3	3.00
	4	2.50
25	5 & Over	1.85
30		1.60
35		0.94
40		0.37
45		0.21
50		0.21
55		0.21
60		0.21

The rates were first used for the June 30, 2005 valuation.

Rates of Disability. These assumptions represent the probabilities of active members becoming disabled.

Sample Ages	Percent Becoming Disabled within Next Year	
	Men	Women
20	0.08 %	0.10 %
25	0.08	0.10
30	0.08	0.10
35	0.08	0.10
40	0.20	0.36
45	0.27	0.41
50	0.49	0.57
55	0.89	0.77
60	1.41	1.02

29% of disability retirements were projected to receive a pension not less than the minimum duty disability pension.

These rates were first used for the December 31, 1976 valuation.

		Duty-Related	Non-Duty Related
Cause of Disability:	Male	29%	71%
	Female	29%	71%

Rates of Retirement. These rates are used to measure the probabilities of an eligible member retiring during the next year.

Early Retirement Ages	Percents of Active Members Retiring within Next Year	Retirement Ages	Percents of Active Members Retiring within Next Year	Service	Percents of Active Members Retiring within Next Year
40	2 %	55	30 %	28	30 %
41	2	56	30	29	30
42	2	57	30	30	30
43	2	58	30	31	30
44	2	59	30	32	30
45	2	60	100	33	30
46	2			34	30
47	2			35	30
48	2			36	30
49	2			37	30
50	2			38	100
51	2				
52	2				
53	2				
54	2				

A member was assumed to be eligible for retirement after 28 years of service, or, after attaining age 55 with 25 or more years of service, or after attaining age 60 regardless of service.

These rates were first used for the June 30, 1998 valuation.

**SUMMARY OF ASSUMPTIONS USED
JUNE 30, 2015**

Pensions in an Inflationary Environment

**Value of \$3,000/month Retirement Benefit
with an Annual COLA of \$300
to an Individual Who Retires at Age 50
in an Environment of 2.75% Inflation**

<u>Age</u>	<u>Value</u>
50	\$3,000
51	2,944
52	2,889
53	2,835
54	2,781
55	2,729
60	2,478
65	2,247
70	2,034
75	1,840
80	1,662
85	1,499

The life expectancy of a male retiree age 50 in 2015 is age 85. The life expectancy of a female retiree age 50 in 2015 is age 88. Half of the people will outlive their life expectancy. The effects of even moderate amounts of inflation can be significant for those who live to an advanced age.

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Marriage Assumption: 80% of active members and 84% of retiring members are assumed to be married. Males are assumed to be three years older than their spouses.

Pay Increase Timing. Middle of (Fiscal) year.

Decrement Timing. Decrements of all types are assumed to occur mid-year.

Eligibility Testing. Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the valuation date.

Benefit Service. Exact fractional service is used to determine the amount of benefit payable.

Decrement Relativity. Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.

Decrement Operation. Disability and turnover decrements operate during early retirement eligibility but do not operate during normal retirement eligibility.

Incidence of Contributions. Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

Loads. Liabilities for active members were increased by 1.50% to account for subsidized service purchases.

Annuity Withdrawal. It was assumed that all future retirees eligible for the Annuity Withdrawal Option will elect to withdraw their employee contributions at retirement resulting in a corresponding reduction to the monthly annuity. A 4% interest rate assumption was used to determine the annuity equivalent of the member contribution balance at retirement.

Duty Death Before Retirement. It is assumed that the surviving spouse will receive a life annuity equal to 1/3 of final average compensation.

Workers Compensation. Workers compensation payments are not assumed to offset disability or death-in-service benefits for current or future retirees. If notified that a current retiree benefit is reduced by workers compensation payments, it is assumed that the benefit converts to Voluntary Retirement once the member would have reached the Voluntary Retirement conditions.

DEFINITIONS OF TECHNICAL TERMS

Accrued Service. Service credited under the system which was rendered before the date of the actuarial valuation.

Actuarial Accrued Liability. The difference between the actuarial present value of system benefits and the actuarial present value of future normal costs. Also referred to as "past service liability."

Actuarial Assumptions. Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future benefits" between future normal costs and actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent. One series of payments is said to be actuarially equivalent to another series of payments if the two series have the same actuarial present value.

Actuarial Gain (Loss). The difference between actual unfunded actuarial accrued liabilities and anticipated unfunded actuarial accrued liabilities -- during the period between two valuation dates. It is a measurement of the difference between actual and expected experience.

Actuarial Present Value. The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payments.

Alternate Payee. A spouse, former spouse, child or dependent of a participant under a judgement who is named in an eligible domestic relations order.

Amortization. Paying off an interest-discounted amount with periodic payments of interest and (generally) principal -- as opposed to paying off with a lump sum payment.

EDRO. Eligible Domestic Relations Order under Act 46 of 1991.

Credited Projected Benefit. The portion of a member's projected benefit attributable to service before the valuation date - allocated based on the ratio of accrued service to projected total service and based on anticipated future compensation.

Normal Cost. The portion of the actuarial present value of future benefits that is assigned to the current year by the actuarial cost method. Sometimes referred to as "current service cost."

Unfunded Actuarial Accrued Liabilities. The difference between actuarial accrued liabilities and valuation assets. Sometimes referred to as "unfunded past service liability" or "unfunded supplemental present value."

Most retirement systems have unfunded actuarial accrued liabilities. They arise each time new benefits are added and each time an actuarial loss occurs.

The existence of unfunded actuarial accrued liabilities is not in itself bad, any more than a mortgage on a house is bad. Unfunded actuarial accrued liabilities do not represent a debt that is payable today. What is important is the ability to amortize the unfunded actuarial accrued liabilities and the trend in their amount (after due allowance for devaluation of the dollar).

Valuation Assets. Also referred to as actuarial value of assets, funding value of assets or smoothed market value of assets.

Valuation assets recognize assumed investment return fully each year. Differences between actual and assumed investment return are phased in over a closed 5-year period. During periods when investment performance exceeds the assumed rate, valuation assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, valuation assets will tend to be greater than market value. If assumed rates are exactly realized for 4 consecutive years, valuation assets will become equal to market value.

October 7, 2016

Mr. Jeff Stacho
Chairperson
City of Lincoln Park Police Officers and
Firefighters Retirement System
1427 Cleophus
Lincoln Park, Michigan 48146

Dear Mr. Stacho:

Enclosed are ten copies of the Seventy-Third annual actuarial valuation report of the liabilities and contribution requirements associated with the City of Lincoln Park Police Officers and Firefighters Retirement System. Please be sure to have the Board members pay particular attention to the comments on pages A-6 and A-7 of our report.

We will be happy to meet with the Retirement Board to discuss the results of the valuation.

Sincerely,



Brad Lee Armstrong, ASA, EA, FCA, MAAA

BLA:bd
Enclosures

cc: Mr. Frank Judd, Esq.