

**CITY OF GRAND RAPIDS GENERAL RETIREMENT SYSTEM**  
**GASB STATEMENT NOS. 67 AND 68 ACCOUNTING AND**  
**FINANCIAL REPORTING FOR PENSIONS**  
**JUNE 30, 2016**

December 1, 2016

Mr. Jeff Dood, Deputy Chief Financial Officer  
Board of Trustees  
City of Grand Rapids General  
Retirement System  
Grand Rapids, Michigan

Dear Mr. Dood:

This report provides accounting and financial reporting information that is intended to comply with the Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68 for the City of Grand Rapids General Retirement System. These calculations have been made on a basis that is consistent with our understanding of these Statements.

GASB Statement No. 67 is the accounting standard that applies to the stand-alone financial reports issued by retirement systems. GASB Statement No. 68 establishes accounting and financial reporting for state and local government employers who provide their employees (including former employees) pension benefits through a trust.

This report was prepared at the request of the City and is intended for use by the Retirement System and those designated or approved by the City. This report may be provided to parties other than the System only in its entirety and only with the permission of the City. GRS is not responsible for unauthorized use of this report.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB Statement Nos. 67 and 68. The calculation of the plan's liability for this report is not applicable for funding purposes of the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement No. 67 may produce significantly different results.

The valuation was based upon information furnished by the City and Plan Administrator, concerning Retirement System benefits, financial transactions, plan provisions, and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the City.

This report complements the actuarial valuation report that was provided to the Board and should be considered in conjunction with that report. Please see the actuarial valuation report as of June 30, 2016 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

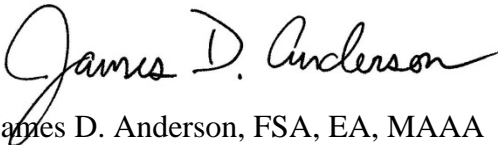
Mr. Jeff Dood, Deputy Chief Financial Officer  
Board of Trustees  
December 1, 2016  
Page 2

To the best of our knowledge, the information contained within this report is accurate and fairly represents the actuarial position of the City of Grand Rapids General Retirement System. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

The signing individuals are independent of the plan sponsor.

James D. Anderson is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



James D. Anderson, FSA, EA, MAAA



David L. Hoffman

JDA\DLH:bd

## TABLE OF CONTENTS

		<u>Page</u>
<b>Section A</b>	Executive Summary	
	Executive Summary.....	1
	Discussion.....	2-5
<b>Section B</b>	Financial Statements	
	Statement of Pension Expense.....	7
	Statement of Outflows and Inflows Arising from Current Reporting Period.....	8
	Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods .....	9
	Statement of Fiduciary Net Position.....	10
	Statement of Changes in Fiduciary Net Position.....	11
<b>Section C</b>	Required Supplementary Information	
	Schedule of Changes in Net Pension Liability and Related Ratios Current Reporting Period ..	13
	Schedule of Changes in Net Pension Liability and Related Ratios .....	14
	Schedule of Net Pension Liability .....	15
	Schedule of Contributions .....	16
	Notes to Schedule of Contributions.....	17
<b>Section D</b>	Notes to Financial Statements	
	Long-Term Expected Return on Plan Assets.....	19
	Sensitivity of Net Pension Liability to the Single Discount Rate Assumption .....	20
	Summary of Population Statistics.....	21
<b>Section E</b>	Summary of Benefits .....	23-34
<b>Section F</b>	Actuarial Cost Method and Actuarial Assumptions	
	Valuation Methods, Entry Age Normal.....	36
	Actuarial Assumptions, Input to Discount Rates, Mortality Assumptions, and Experience Studies.....	37-40
	Miscellaneous and Technical Assumptions.....	41
<b>Section G</b>	Calculation of the Single Discount Rate	
	Calculation of the Single Discount Rate.....	43
	Projection of Contributions .....	44
	Projection of Plan Fiduciary Net Position .....	45
	Present Values of Projected Benefits.....	46-47
	Projection of Plan Net Position and Benefit Payments .....	48
<b>Section H</b>	Glossary of Terms .....	50-53

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## **SECTION A**

### **EXECUTIVE SUMMARY**

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## EXECUTIVE SUMMARY

### AS OF JUNE 30, 2016

Actuarial Valuation Date	June 30, 2016
Measurement Date of the Net Pension Liability	June 30, 2016
Employer's Fiscal Year Ending Date (Reporting Date)	June 30, 2016

**Membership**

Number of	
- Retirees and Beneficiaries	1,159
- Inactive, Nonretired Members	102
- Active Members	586
- Total	1,847
Covered Payroll <sup>(1)</sup>	\$ 35,760,078

**Net Pension Liability**

Total Pension Liability	\$ 510,324,266
Plan Fiduciary Net Position	390,189,761
Net Pension Liability	\$ 120,134,505
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	76.46%
Net Pension Liability as a Percentage of Covered Payroll	335.95%

**Development of the Single Discount Rate**

Single Discount Rate	7.25%
Long-Term Expected Rate of Investment Return	7.25%
Long-Term Municipal Bond Rate <sup>(2)</sup>	2.85%
Year when the Plan Fiduciary Net Position is projected to no longer be sufficient to make Projected Benefit Payments	N/A

<b>Total Pension Expense</b>	<b>\$ 22,666,782</b>
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**Deferred Outflows of Resources and Deferred Inflows of Resources**

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ 8,942,722	\$ 753,299
Changes in assumptions	13,661,338	-
Net difference between projected and actual earnings on pension plan investments	34,933,679	14,987,506
<b>Total</b>	<b>\$ 57,537,739</b>	<b>\$ 15,740,805</b>

<sup>(1)</sup> The amount provided represents the annual pays for members active on the valuation date and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 and 68.

<sup>(2)</sup> Source: "20-Bond GO Index" is the Bond Buyer Index, general obligation, 20 years to maturity, mixed quality. In describing this index, the Bond Buyer notes that the bonds' average credit quality is roughly equivalent to Moody's Investors Service's Aa2 rating and Standard & Poor's Corp.'s AA. The rate shown is as of June 30, 2016, the most recent date available on or before the measurement date.

## DISCUSSION

### Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

### Financial Statements

GASB Statement No. 68 requires state or local governments to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to the System subsequent to the measurement date of June 30, 2016.

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the liability and investment experience.

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The *statement of fiduciary net position* presents the assets and liabilities of the pension plan at the end of the pension plan's reporting period. The *statement of changes in fiduciary net position* presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.

## Notes to Financial Statements

GASB Statement No. 68 requires the notes of the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions.

GASB Statement Nos. 67 and 68 require the notes of the financial statements for the employers and pension plans to include certain additional information. The list of disclosure items should include:

- a description of benefits provided by the plan;
- the type of employees and number of members covered by the pension plan;
- a description of the plan's funding policy, which includes member and employer contribution requirements;
- the pension plan's investment policies;
- the pension plan's fiduciary net position and the net pension liability;
- the net pension liability using a discount rate that is 1% higher and 1% lower than used to calculate the total pension liability and net pension liability for financial reporting purposes;
- significant assumptions and methods used to calculate the total pension liability;
- inputs to the discount rates; and
- certain information about mortality assumptions and the dates of experience studies.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- the composition of the pension plan's Board and the authority under which benefit terms may be amended;
- a description of how fair value is determined;
- information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables, and insurance contracts excluded from plan assets; and
- annual money-weighted rate of return.



**Required Supplementary Information**

GASB Statement No. 67 requires a 10-year fiscal history of:

- sources of changes in the net pension liability;
- information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered payroll; and
- a comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

**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 7.25% on the actuarial value of assets), then the following outcomes are expected:

1. The employer normal cost as a percentage of pay is expected to remain level as a percentage of payroll.
2. The unfunded liability is expected to be paid off in approximately 29 years, which is the number of years remaining in the closed amortization schedule of the unfunded liability.
3. The funded status of the plan is expected to reach a 100% funded ratio in approximately 29 years, which is the number of years remaining in the closed amortization schedule of the unfunded liability.

This funding policy results in the expectation that the plan's assets will be able to fully pay for promised benefits through at least 2116. The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

**Timing of the Valuation**

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. The net pension liability and pension expense should be measured as of the pension plan's fiscal year end (measurement date) on a date that is within the employer's prior fiscal year. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2016 and a measurement date of June 30, 2016.

**Single Discount Rate**

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating (which is published by the Bond Buyer Index) as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.25%; the municipal bond rate is 2.85% (based on the weekly rate closest to but not later than the measurement date of the "20-Bond GO Index" rate from the Bond Buyer Index, general obligation, 20 years to maturity, mixed quality); and the resulting Single Discount Rate is 7.25%.

**Effective Date and Transition**

GASB Statement Nos. 67 and 68 became effective for fiscal years beginning after June 15, 2013, and June 15, 2014 respectively.

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## **SECTION B**

### FINANCIAL STATEMENTS

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**PENSION EXPENSE UNDER GASB STATEMENT NO. 68**  
**FISCAL YEAR ENDED JUNE 30, 2016**

**A. Expense**

1. Service Cost	\$ 5,546,388
2. Interest on the Total Pension Liability	35,127,721
3. Current Period Benefit Changes	0
4. Employee Contributions (made negative for addition here)	(3,428,169)
5. Projected Earnings on Plan Investments (made negative for addition here)	(29,165,469)
6. Pension Plan Administrative Expense	568,895
7. Other Changes in Plan Fiduciary Net Position	-
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	11,791,700
9. Recognition of Outflow (Inflow) of Resources due to Assets	<u>2,225,716</u>
<b>10. Total Pension Expense</b>	<b>\$22,666,782</b>

**Statement of Outflows and Inflows Arising from the  
Current Reporting Period  
Fiscal Year Ended June 30, 2016**

**A. Outflows (Inflows) of Resources due to Liabilities**

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ 6,361,929
2. Assumption Changes (gains) or losses	\$ -
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	3.1
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the difference between expected and actual experience of the Total Pension Liability	\$ 2,052,235
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	\$ -
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	<u>\$ 2,052,235</u>
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the difference between expected and actual experience of the Total Pension Liability	\$ 4,309,694
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	\$ -
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	<u>\$ 4,309,694</u>

**B. Outflows (Inflows) of Resources due to Assets**

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ 28,876,365
2. Recognition period for Assets {in years}	5.0
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	\$ 5,775,273
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ 23,101,092

**Statement of Outflows and Inflows Arising from the  
Current and Prior Reporting Periods  
Fiscal Year Ended June 30, 2016**

**A. Outflows and Inflows of Resources due to Liabilities and Assets to be Recognized in Current Pension Expense**

	<u>Outflows of Resources</u>	<u>Inflows of Resources</u>	<u>Net Outflows of Resources</u>
1. Due to Liabilities	\$ 12,813,627	\$ 1,021,927	\$ 11,791,700
2. Due to Assets	9,719,468	7,493,752	2,225,716
<b>3. Total</b>	<b>\$ 22,533,095</b>	<b>\$ 8,515,679</b>	<b>\$ 14,017,416</b>

**B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense**

	<u>Outflows of Resources</u>	<u>Inflows of Resources</u>	<u>Net Outflows of Resources</u>
1. Differences between expected and actual experience	\$ 4,777,545	\$ 1,021,927	\$ 3,755,618
2. Assumption Changes	8,036,082	-	8,036,082
3. Net Difference between projected and actual earnings on pension plan investments	9,719,468	7,493,752	2,225,716
<b>4. Total</b>	<b>\$ 22,533,095</b>	<b>\$ 8,515,679</b>	<b>\$ 14,017,416</b>

**C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses**

	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>	<u>Net Deferred Outflows of Resources</u>
1. Differences between expected and actual experience	\$ 8,942,722	\$ 753,299	\$ 8,189,423
2. Assumption Changes	13,661,338	-	13,661,338
3. Net Difference between projected and actual earnings on pension plan investments	34,933,679	14,987,506	19,946,173
<b>4. Total</b>	<b>\$ 57,537,739</b>	<b>\$ 15,740,805</b>	<b>\$ 41,796,934</b>

**D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses**

<u>Year Ending June 30</u>	<u>Net Deferred Outflows of Resources</u>
2017	\$ 14,286,044
2018	11,810,923
2019	9,924,694
2020	5,775,273
2021	-
Thereafter	-
<b>Total</b>	<b>\$ 41,796,934</b>

**STATEMENT OF FIDUCIARY NET POSITION  
AS OF JUNE 30, 2016**

**Assets**

Cash and Deposits	\$ 4,925,891
Receivables	
Accounts Receivable - Sale of Investments	\$ 1,362,284
Accrued Interest and Other Dividends	431,446
Contributions	458,692
Accounts Receivable - Other	-
Total Receivables	<u>\$ 2,252,422</u>
Investments	
Fixed Income	\$ 97,223,045
Domestic Equities	243,247,847
Real Estate	19,770,678
Other	24,437,069
Total Investments	<u>\$ 384,678,639</u>
<b>Total Assets</b>	<u><u>\$ 391,856,952</u></u>

**Liabilities**

Payables	
Accounts Payable - Purchase of Investments	\$ 1,334,139
Accrued Expenses	333,052
Accounts Payable - Other	-
<b>Total Liabilities</b>	<u>\$ 1,667,191</u>
<b>Net Position Restricted for Pensions</b>	<u><u>\$ 390,189,761</u></u>

**STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR YEAR ENDED JUNE 30, 2016**

**Additions**

Contributions	
Employer	\$ 9,295,104
Member	3,428,169
Other	-
Total Contributions	<u>\$ 12,723,273</u>
Investment Income	
Net Appreciation in Fair Value of Investments	\$ (3,577,784)
Interest and Dividends	4,828,791
Less Investment Expense	(961,903)
Net Investment Income	<u>\$ 289,104</u>
Other	\$ -
<b>Total Additions</b>	<u>\$ 13,012,377</u>

**Deductions**

Benefit Payments and Refunds	\$ 36,917,726
Pension Plan Administrative Expense	568,895
Other	-
<b>Total Deductions</b>	<u>\$ 37,486,621</u>
<b>Net Increase in Net Position</b>	\$ (24,474,244)

**Net Position Restricted for Pensions**

Beginning of Year	<u>\$ 414,664,005</u>
End of Year	<u><u>\$ 390,189,761</u></u>



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**SECTION C**

REQUIRED SUPPLEMENTARY INFORMATION

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**SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS**  
**FISCAL YEAR ENDED JUNE 30, 2016**

<b>A. Total pension liability</b>	
1. Service Cost	\$ 5,546,388
2. Interest on the Total Pension Liability	35,127,721
3. Changes of benefit terms	0
4. Differences between expected and actual experience of the Total Pension Liability	6,361,929
5. Changes of assumptions	0
6. Benefit payments, including refunds of employee contributions	(36,917,726)
7. Net change in total pension liability	\$ 10,118,312
8. Total pension liability – beginning	500,205,954
9. Total pension liability – ending	<u><u>\$ 510,324,266</u></u>
<b>B. Plan fiduciary net position</b>	
1. Contributions – employer	\$ 9,295,104
2. Contributions – employee	3,428,169
3. Net investment income	289,104
4. Benefit payments, including refunds of employee contributions	(36,917,726)
5. Pension Plan Administrative Expense	(568,895)
6. Other	-
7. Net change in plan fiduciary net position	\$ (24,474,244)
8. Plan fiduciary net position – beginning	414,664,005
9. Plan fiduciary net position – ending	<u><u>\$ 390,189,761</u></u>
<b>C. Net pension liability</b>	<u><u>\$ 120,134,505</u></u>
<b>D. Plan fiduciary net position as a percentage of the total pension liability</b>	<b>76.46%</b>
<b>E. Covered-employee payroll*</b>	<b>\$ 35,760,078</b>
<b>F. Net pension liability as a percentage of covered employee payroll</b>	<b>335.95%</b>

\* The amount provided represents the annual pays for members active on the valuation date and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 and 68.

**SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY AND RELATED RATIOS**

**Last 10 Fiscal Years (which may be built prospectively)**

Measurement Date - June 30,	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
<b>Total Pension Liability</b>										
Service Cost	\$ 5,546,388	\$ 6,348,067	\$ 6,904,650	\$ 7,294,537						
Interest on the Total Pension Liability	35,127,721	33,287,484	33,394,709	32,920,147						
Benefit Changes	-	20,882	-	-						
Difference between Expected and Actual Experience of the Total Pension Liability	6,361,929	10,083,648	(7,420,169)	(6,012,166)						
Assumption Changes	-	29,733,502	-	-						
Benefit Payments	(36,708,883)	(39,570,343)	(28,055,439)	(27,037,516)						
Refunds	(208,843)	(283,087)	(152,273)	(114,916)						
<b>Net Change in Total Pension Liability</b>	<b>10,118,312</b>	<b>39,620,153</b>	<b>4,671,478</b>	<b>7,050,086</b>						
<b>Total Pension Liability - Beginning</b>	<b>\$ 500,205,954</b>	<b>460,585,801</b>	<b>455,914,323</b>	<b>448,864,237</b>						
<b>Total Pension Liability - Ending (a)</b>	<b>\$ 510,324,266</b>	<b>\$ 500,205,954</b>	<b>\$ 460,585,801</b>	<b>\$ 455,914,323</b>						
<b>Plan Fiduciary Net Position</b>										
Contributions - Employer	\$ 9,295,104	\$ 11,327,704	\$ 8,771,032	\$ 8,135,843						
Contributions - Member	3,428,169	3,473,382	3,737,014	3,933,341						
Pension Plan Net Investment Income	289,104	11,478,680	65,337,996	44,058,818						
Benefit Payments	(36,708,883)	(39,570,343)	(28,055,439)	(27,037,516)						
Refunds	(208,843)	(283,087)	(152,273)	(114,916)						
Pension Plan Administrative Expense	(568,895)	(567,869)	(523,086)	(476,059)						
Other	-	-	(21,741)	(15,873)						
<b>Net Change in Plan Fiduciary Net Position</b>	<b>(24,474,244)</b>	<b>(14,141,533)</b>	<b>49,093,503</b>	<b>28,483,638</b>						
<b>Plan Fiduciary Net Position - Beginning</b>	<b>414,664,005</b>	<b>428,805,538</b>	<b>379,712,035</b>	<b>351,228,397</b>						
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ 390,189,761</b>	<b>\$ 414,664,005</b>	<b>\$ 428,805,538</b>	<b>\$ 379,712,035</b>						
<b>Net Pension Liability - Ending (a) - (b)</b>	<b>\$ 120,134,505</b>	<b>\$ 85,541,949</b>	<b>\$ 31,780,263</b>	<b>\$ 76,202,288</b>						
<b>Plan Fiduciary Net Position as a Percentage of Total Pension Liability</b>	76.46 %	82.90 %	93.10 %	83.29 %						
<b>Covered Payroll #</b>	\$ 35,760,078	\$ 38,492,586	\$ 40,510,955	\$ 43,783,450						
<b>Net Pension Liability as a Percentage of Covered-Employee Payroll</b>	335.95 %	222.23 %	78.45 %	174.04 %						

## Notes to Schedule:

N/A

# The amount provided represents the annual pays for members active on the valuation date and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 and 68.

**SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF THE EMPLOYERS' NET PENSION LIABILITY**

<b>FY Ending June 30,</b>	<b>Total Pension Liability</b>	<b>Plan Net Position</b>	<b>Net Pension Liability</b>	<b>Plan Net Position as a % of Total Pension Liability</b>	<b>Covered Payroll#</b>	<b>Net Pension Liability as a % of Covered Payroll</b>
2013	\$ 455,914,323	\$ 379,712,035	\$ 76,202,288	83.29%	\$ 43,783,450	174.04%
2014	460,585,801	428,805,538	31,780,263	93.10%	40,510,955	78.45%
2015	500,205,954	414,664,005	85,541,949	82.90%	38,492,586	222.23%
2016	510,324,266	390,189,761	120,134,505	76.46%	35,760,078	335.95%

### SCHEDULE OF CONTRIBUTIONS

<b>FY Ending June 30,</b>	<b>Actuarially Determined Contribution</b>	<b>Actual Contribution*</b>	<b>Contribution Deficiency (Excess)</b>	<b>Covered Payroll #</b>	<b>Actual Contribution as a % of Covered Payroll</b>
2013	\$8,135,843	\$8,135,843	\$ -	\$43,783,450	18.58%
2014	8,771,032	8,771,032	-	40,510,955	21.65%
2015	11,327,704	11,327,704	-	38,492,586	29.43%
2016	9,295,104	9,295,104	-	35,760,078	25.99%

\* Actual contributions are based on covered payroll at the time of the contribution. Since it was reported to the actuary that the City's practice is to contribute the percent-of-payroll employer contribution rate shown in the actuarial valuation report, the annual required contributions shown in the Schedule of Employer Contributions are the actual contributions made by the City in the fiscal year.

# The amount provided represents the annual pays for members active on the valuation date and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 and 68.

## NOTES TO SCHEDULE OF CONTRIBUTIONS

<b>Valuation Date:</b>	June 30, 2016
Notes	Actuarially determined contribution rates are calculated as of June 30, which is 1 year prior to the beginning of the fiscal year in which contributions are reported.
<b>Methods and Assumptions used to Determine Contribution Rates:</b>	
Actuarial Cost Method	Individual Entry Age Normal
Amortization Method	Level Dollar, Closed
Remaining Amortization Period	29 years
Asset Valuation Method	5-Year Smoothed Market
Inflation	2.75% -- approximate; No explicit price inflation assumption is used in this valuation.
Salary Increases	3.5% to 7.7% including inflation
Investment Rate of Return	7.25%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2015 valuation pursuant to an experience study of the period 2010 - 2014.
Mortality	RP-2014 Healthy Annuitant Mortality Table projected to 2019 using MP-2014 mortality improvement scale.
<b>Other Information:</b>	
Notes	

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**SECTION D**

NOTES TO FINANCIAL STATEMENTS

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### Long-Term Expected Return on Plan Assets

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

Based on information provided by the System's Investment Advisor, we used capital market expectations for each major asset class that is included in the plan's current asset allocation as of June 30, 2015; the best estimates for the long-term expected return are summarized in the following table:

Asset Class	Asset Allocation	
	Target Allocation	Long-Term Expected Real Rate of Return
U.S. Stocks	22.50%	6.00%
Global Stocks	22.50%	6.22%
Private Markets	5.00%	10.98%
Core Bonds	12.50%	1.78%
LT Core Bonds	12.50%	2.60%
TIPS	10.00%	1.38%
U.S. RE Securities	5.00%	4.80%
Commodities	5.00%	3.13%
MLP	5.00%	8.95%
Total	100.00%	
Total Real Rate of Return		4.84%
Plus: Price Inflation - Actuary's Assumption		2.75%
Less: Investment Expenses (Passive)		0.25%
Net Expected Return		7.34%



**Single Discount Rate**

A Single Discount Rate of 7.25% was used to measure the total pension liability. This Single Discount Rate was based on the expected rate of return on pension plan investments of 7.25%. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan’s fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan’s net pension liability, calculated using a Single Discount Rate of 7.25%, as well as what the plan’s net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

**Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption**

	<b>1% Decrease</b>	<b>Current Single Discount</b>	<b>1% Increase</b>
	<b>6.25%</b>	<b>Rate Assumption</b>	<b>8.25%</b>
	<b>6.25%</b>	<b>7.25%</b>	<b>8.25%</b>
<b>Total Pension Liability</b>	\$ 566,599,996	\$ 510,324,266	\$ 462,756,645
<b>Plan Net Position</b>	390,189,761	390,189,761	390,189,761
<b>Net Pension Liability</b>	\$ 176,410,235	\$ 120,134,505	\$ 72,566,884

**Summary of Population Statistics**

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	1,159
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	102
Active Plan Members	<u>586</u>
Total Plan Members	1,847

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## **SECTION E**

### **SUMMARY OF BENEFITS**

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## SUMMARY OF BENEFIT PROVISIONS EVALUATED (JUNE 30, 2016)

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***Voluntary Retirement.*** A member may retire after 30 years of service regardless of age, or after attaining age 62 and completing 8 years of service. Effective January 1, 2001, members covered by the Emergency Communications Operators Bargaining Unit, may retire after attaining age 55 and completing 8 years of service.

***Final Average Salary (FAS).*** The average of member's highest annual salary rates, all before completion of the calendar year in which the member attains 40 years of service or reaches the benefit cap, during the three calendar years of credited service when such salary rates were the highest.

Members of the Crime Scene Technicians group have an additional sum added to their FAS, effective July 1, 2000. The sum is calculated based on an average of the group's additional compensation items during the previous three calendar years and the average of the group's valuation payroll as of June 30 for the five-year period immediately preceding the valuation.

Emergency Communication Operators I, II, and III also have an additional sum added to their FAS, effective July 1, 2005. The sum is calculated based on an average of the group's additional compensation items during the previous five calendar years and the average of the group's valuation payroll as of June 30 for the five-year period immediately preceding the valuation.

Members who retire with 10 or more years of continuous service may use up to two thousand eighty (2,080) hours (1,265 for Crime Scene Technician members) of accumulated sick leave to purchase up to one (1) year of additional credited service, on a pro rata basis.

***Full Age and Service Allowance.*** The members' benefit multipliers, used to compute full age and service allowance, are shown in the tables on the following page.

In lieu of this single life-level amount form of payment, a retiring member may elect from several optional forms of payment, each of which is the actuarial equivalent of this single life-level payment form.

**SUMMARY OF BENEFIT PROVISIONS EVALUATED  
(JUNE 30, 2016) (CONTINUED)**

<b>Covered Employee Group</b>	<b>Date of Termination</b>	<b>Benefit Multiplier</b>	<b>Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]</b>
ECO's I, II and III	January 1, 2002 – March 31, 2012	2.7%	100% applicable to ECO's I, II and III hired on or before May 6, 2002  90% applicable to ECO's I, II, and III hired from May 7, 2002 – January 23, 2012
ECO's I, II and III	April 1, 2012	2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after April 1, 2012 depending on the individual election made by the employee as provided in Section 1.229(10)  Bargaining unit members hired on or after January 24, 2012 do not participate in the Retirement System	
GRPOA-Crime Scene Tech/Latent Print Examiners	July 1, 2002 – July 7, 2012	2.7%	100% applicable to CST's hired prior to January 1, 2002  90% applicable to CST's hired from January 1, 2002 – November 14, 2011
GRPOA-Crime Scene Tech/Latent Print Examiners	July 8, 2012	2.7% or 2.5% or 2.2% or 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(9)  Bargaining unit members hired on or after November 15, 2011 do not participate in the Retirement System	100% applicable to CST's hired prior to January 1, 2002  90% applicable to CST's hired from January 1, 2002 – November 14, 2011
APAGR	January 1, 2003 – December 31, 2004	2.6%	97.5% for employees hired prior to January 1, 2005
APAGR	January 1, 2005 – June 11, 2011	2.7%	97.5% for employees hired prior to January 1, 2005  94.5% for employees hired from January 1, 2005 – June 30, 2014
APAGR	June 12, 2011	2.7% or 2.5% or 2.2% for future service from and after June 12, 2011, depending on the individual election made by the employee as provided in Section 1.229(3)  2.0% for members hired or re-entering service on or after June 12, 2011	

**SUMMARY OF BENEFIT PROVISIONS EVALUATED  
(JUNE 30, 2016) (CONTINUED)**

<b>Covered Employee Group</b>	<b>Date of Termination</b>	<b>Benefit Multiplier</b>	<b>Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]</b>
APAGR 61st Dist. Court	January 1, 2003 – December 31, 2004	2.6%	97.5% for employees hired prior to January 1, 2005
APAGR 61st Dist. Court	January 1, 2005 – July 7, 2012	2.7%	97.5% for employees hired prior to January 1, 2005  94.5% for employees hired on or after January 1, 2005 – September 12, 2011
APAGR 61st Dist. Court	July 8, 2012	2.7%, or 2.5%, or 2.2%, or 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(8)  Bargaining unit members hired on or after September 13, 2011 do not participate in the Retirement System	
Non-Represented Members as defined in Section 1.192(18.1)	January 1, 2005 – September 4, 2010	2.7%	97.5% for employees hired prior to January 1, 2005  94.5% for employees hired on or after January 1, 2005
Non-Represented Members as defined in Section 1.192(18.1)	September 5, 2010	2.7% or 2.5% or 2.2% for future service from and after September 5, 2010, depending on the individual election made by the employee as provided in Section 1.229(1)  2.0% for non-represented members hired or re-entering service from September 5, 2010 through June 30, 2011  Bargaining unit members hired on or after July 1, 2011 do not participate in the Retirement System	97.5% for employees hired prior to January 1, 2005  94.5% for employees hired from January 1, 2005 – June 30, 2011
61 <sup>st</sup> District Court Judges	January 1, 2005 – January 8, 2011	2.7%	97.5%

**SUMMARY OF BENEFIT PROVISIONS EVALUATED  
(JUNE 30, 2016) (CONTINUED)**

<b>Covered Employee Group</b>	<b>Date of Termination</b>	<b>Benefit Multiplier</b>	<b>Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]</b>
61 <sup>st</sup> District Court Judges	January 9, 2011	2.7% or 2.5% or 2.2% for future service from and after January 9, 2011, depending on the individual election made by the employee as provided in Section 1.229(2)	97.5%
Museum Full-Time Supervisory and Administrative Staff and Museum Non-Supervisory Staff	January 1, 2005 – June 30, 2006	2.7%	97.5% for employees hired prior to January 1, 2005  94.5% for employees hired on or after January 1, 2005
Library Management and Confidential Employees	January 1, 2005 – September 4, 2010	2.7%	
EC Supervisors	January 1, 2006 – January 7, 2012	2.7%	
EC Supervisors	January 8, 2012	2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after January 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(5)  Bargaining unit members hired on or after September 13, 2011 do not participate in the Retirement System	90% applicable for all employees entering this unit after July 1, 2004
GREIU	January 1, 2005 – July 7, 2012	2.7%	
GREIU	July 8, 2012	2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(4)  Bargaining unit members hired on or after May 25, 2011 do not participate in the Retirement System	97.5% for employees hired prior to January 1, 2005  94.5% for employees hired from January 1, 2005 – May 24, 2011

**SUMMARY OF BENEFIT PROVISIONS EVALUATED  
(JUNE 30, 2016) (CONTINUED)**

<b>Covered Employee Group</b>	<b>Date of Termination</b>	<b>Benefit Multiplier</b>	<b>Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]</b>
GREIU - Public Library Rank & File and Supervisory Bargaining Units	January 1, 2006 – July 7, 2012	2.7%	97.5% for employees hired prior to January 1, 2005  94.5% for employees hired from January 1, 2005 – September 1, 2011
GREIU - Public Library Rank & File and Supervisory Bargaining Units	July 8, 2012	2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(6)  Bargaining unit members hired on or after September 2, 2011 do not participate in the Retirement System	
GREIU - 61st District Court	January 1, 2005 – July 7, 2012	2.7%	97.5% for employees hired prior to January 1, 2005  94.5% for employees hired from January 1, 2005 – September 12, 2011
GREIU - 61st District Court	July 8, 2012	2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(7)  Bargaining unit members hired on or after September 13, 2011 do not participate in the Retirement System	



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## SUMMARY OF BENEFIT PROVISIONS EVALUATED (JUNE 30, 2016) (CONTINUED)

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**Early Allowance.** If a member leaves covered employment after either (i) completing 20 years of credited service, or (ii) both attaining age 55 and completing 10 years or more of credited service, he can receive an immediate early allowance, computed in the same manner as an age and service allowance based upon salary and service to time of termination but actuarially reduced to reflect the fact that the age when payments begin is younger than age 62.

**Deferred Retirement.** A member with 8 or more years of credited service who terminates employment before voluntary retirement age and does not withdraw accumulated contributions will be eligible for a deferred allowance beginning at age 62, based upon service and final average salary at time of termination.

**Death Benefit.** If the member's termination of employment is because of death, a benefit equal to the termination benefit is payable to a beneficiary or estate, as follows:

A refund of accumulated contributions. In addition, a "termination bonus" equivalent to a certain percent of member contributions without interest may be payable. Such percent is 25%, plus 7.5% for each whole year of credited service in excess of 10 years, to a maximum of 100% for 20 or more years of service, times an age-based Termination Bonus Percent.

If the member was eligible for normal or early retirement at the time of death, in lieu of the lump sum death benefit an eligible beneficiary will begin receiving a B-100 joint and survivor pension computed in the same manner as a service retirement pension as if the member had retired the last day of his life.

Or, if the member was not represented by any collective bargaining unit or was represented by the Association of Public Administrators, the Grand Rapids Employees Independent Union or the 61<sup>st</sup> District Court Employee's Association, and the primary beneficiary was the surviving spouse, the benefit will be computed in the manner described in the preceding paragraph, except that the member will have been assumed to have reached the age for minimum service retirement at the date of his death.

The total amount of death benefit payable cannot exceed 90% of the member's annual rate of compensation at the time of death reduced by any worker's compensation or social security payments.

**SUMMARY OF BENEFIT PROVISIONS EVALUATED  
(JUNE 30, 2016) (CONTINUED)**

**Disability Benefit.** If a member has 10 or more years of credited service before attaining the minimum service retirement age and becomes totally and permanently disabled, a benefit computed in the same manner as a full age and service benefit is payable. If disablement is a result of performance of duty, the 10-year minimum credited service requirement is waived and the benefit is computed as above with a minimum benefit of 50% (62% for those represented by police bargaining units) of final average salary.

The total amount of benefit payable due to disablement cannot exceed 90% of the member's annual rate of compensation at the time of disablement reduced by any worker's compensation payments, Social Security benefits, (disability benefits), and remuneration from any gainful employment.

**Member Contributions.** The contribution rates used are defined in the following table:

Member Classification	Period	Contribution Rate
Non-Represented Members, as defined in Section 1.192(18.1), excluding secretarial or clerical members designated as management non-union for payroll purposes, and excluding the Executive Administrative Assistant at the Grand Rapids Public Library	On or before July 1, 1977	3%
	July 2, 1977 to December 31, 1994	4%
	January 1, 1995 to December 31, 1996	3%
	January 1, 1997 to December 31, 2004	3.28%
	January 1, 2005 to September 4, 2010	4.93%
	On or after September 5, 2010	10.20%, or 8.95% or 7.28%, depending on the individual election made by the member as provided in Section 1.229(1)  6.15% for those non-represented members hired or re-entering service from September 5, 2010 through June 30, 2011

**SUMMARY OF BENEFIT PROVISIONS EVALUATED  
(JUNE 30, 2016) (CONTINUED)**

Member Classification	Period	Contribution Rate
Non-Represented Members, as defined in Section 1.192(18.1), including only secretarial or clerical members designated as management non-union for payroll purposes, and including the Executive Administrative Assistant at the Grand Rapids Public Library	On or before July 1, 1977	3%
	July 2, 1977 to December 31, 1994	4%
	January 1, 1995 to December 31, 1996	3%
	January 1, 1997 to December 31, 2004	3.28%
	January 1, 2005 to September 4, 2010	4.93%
	September 5, 2010 to July 23, 2011	10.20%, or 8.95% or 7.28%, depending on the individual election made by the member as provided in Section 1.229(1)
	On or after July 24, 2011	6.15% for those non-represented members hired or re-entering service from September 5, 2010 through June 30, 2011  8.10% for members who elected a 2.7% multiplier under Section 1.229(1); 6.85% for members who elected a 2.5% multiplier under Section 1.229(1); 5.18% for members who elected a 2.2% multiplier under Section 1.229(1); 4.05% for members with a 2.0% multiplier who were hired or re-entered service from September 5, 2010 through June 30, 2011
Emergency Communications Operators I, II and III represented by GRPOLC	On or before July 1, 1977	3%
	July 2, 1977 to January 1, 1990	4%
	January 2, 1990 to January 1, 1991	3%
	January 2, 1991 to December 31, 1996	2%
	January 1, 1997 to June 30, 2005	2.28%
	July 1, 2005 to March 31, 2012	5.36%
	On or after April 1, 2012	10.63%, or 9.38%, or 7.71%, or 6.58%, or 5.36%, depending on the individual election made by the member as provided in Section 1.229(10)

**SUMMARY OF BENEFIT PROVISIONS EVALUATED  
(JUNE 30, 2016) (CONTINUED)**

<b>Member Classification</b>	<b>Period</b>	<b>Contribution Rate</b>
Emergency Communication Supervisors	On or before December 31, 2005	3.28%
	January 1, 2006 to January 7, 2012	6.27%
	On or after January 8, 2012	11.54%, or 10.29%, or 8.62%, or 7.49%, or 6.27%, depending on the individual election made by the member as provided in Section 1.229(5)
Crime Scene Techs/Latent Print Examiners represented by the GRPOA	On or before July 1, 1977	3%
	July 2, 1977 to July 1, 1989	4%
	July 2, 1989 to July 1, 1990	3%
	July 2, 1990 to July 7, 2012	2%
	July 8, 2012 – June 30, 2014	7.27%, or 6.02%, or 4.35%, or 3.22%, or 2.00%, depending on the individual election made by the member as provided in Section 1.229(9)
On or after July 1, 2014	8.27%, or 7.02%, or 5.35%, or 4.22%, or 3.00%, depending on the individual election made by the member as provided in Section 1.229(9)	
GREIU	On or before July 1, 1977	3%
	July 2, 1977 to January 1, 1990	4%
	January 2, 1990 to December 31, 1996	3%
	January 1, 1997 to December 31, 2004	3.28%
	January 1, 2005 to July 7, 2012	3.89%
	On or after July 8, 2012	9.16%, or 7.91%, or 6.24%, or 5.11%, or 3.89%, depending on the individual election made by the member as provided in Section 1.229(4)
GREIU - 61st District Court	Prior to January 1, 1990	4%
	January 1, 1990 to December 31, 1996	3%
	January 1, 1997 to May 31, 2005	3.28%
	June 1, 2005 to July 7, 2012	4%
	On or after July 8, 2012	9.16%, or 7.91%, or 6.24%, or 5.11%, or 3.89%, depending on the individual election made by the member as provided in Section 1.229(7)

**SUMMARY OF BENEFIT PROVISIONS EVALUATED  
(JUNE 30, 2016) (CONTINUED)**

<b>Member Classification</b>	<b>Period</b>	<b>Contribution Rate</b>
GREIU – Public Library Rank & File and Supervisory Bargaining Units	On or before July 1, 1977	3%
	July 2, 1977 to January 1, 1988	4%
	January 2, 1988 to May 13, 1990	4.91%
	May 14, 1990 to December 31, 1996	4%
	January 1, 1997 to December 31, 2005	3.28%
	January 1, 2006 to July 7, 2012	3.63%
	On or after July 8, 2012	8.90%, or 7.65%, or 5.98%, or 4.85%, or 3.63%, depending on the individual election made by the member as provided in Section 1.229(6)
Library Management and Confidential Employees	On or before July 1, 1977	3%
	July 2, 1977 to January 1, 1988	4%
	January 2, 1988 to May 13, 1990	4.91%
	May 14, 1990 to December 31, 1996	4%
	January 1, 1997 to December 31, 2004	3.28%
	January 1, 2005 to September 4, 2010	4.93%
APAGR 61st District Court	Prior to January 1, 1990	4%
	January 1, 1990 to December 31, 1996	3%
	January 1, 1997 to December 31, 2004	3.28%
	January 1, 2005 to July 7, 2012	4%
	On or after July 8, 2012	9.27%, or 8.02%, or 6.35%, or 5.22%, or 4.00%, depending on the individual election made by the member as provided in Section 1.229(8)

**SUMMARY OF BENEFIT PROVISIONS EVALUATED  
(JUNE 30, 2016) (CONTINUED)**

<b>Member Classification</b>	<b>Period</b>	<b>Contribution Rate</b>
Non-Represented Members of the 61 <sup>st</sup> District Court	January 1, 2005 to September 4, 2010	4%
61 <sup>st</sup> District Court Judges	January 1, 2005 to January 8, 2011	4%
61 <sup>st</sup> District Court Judges	On or after January 9, 2011	10.20%, or 8.95% or 7.28%, depending on the individual election made by the member as provided in Section 1.229(2)
Association of Public Administrators of GR (APAGR)*	Prior to December 31, 1994	4%
	January 1, 1995 to December 31, 1996	3%
	January 1, 1997 to December 31, 2004	3.28%
	January 1, 2005 to June 11, 2011	3.99%
	On or after June 12, 2011	9.26%, or 8.01% or 6.34%, depending on the individual election made by the member as provided in Section 1.229(3)  6.15% for those APAGR members hired or re-entering service on or after June 12, 2011

*\*[No contribution after completing 39 years of service.]*

## SUMMARY OF BENEFIT PROVISIONS EVALUATED (JUNE 30, 2016) (CONCLUDED)

If a member terminates employment before any allowance is payable, accumulated contributions (contributions plus regular interest) are refunded.

**Employer Contributions.** The City contributes the remainder amounts necessary to maintain the Retirement System in sound financial condition in accordance with its funding objectives.

**Compensation.** Compensation recognized for retirement system purposes includes base pay and longevity pay.

**Post Retirement Increases.** Post retirement benefit increases are 0% unless otherwise stated:

Member Classification	Termination Date	Escalator
GREIU and GREIU-61 <sup>st</sup> District Court	On or after March 24, 2009	1.0%, 4 year delay
GREIU Public Library Rank and File & Supervisory Employees	On or after July 9, 2009	1.0%, 4 year delay
Crime Scene Techs/Latent Print Examiners represented by the GRPOA	On or after May 12, 2009	1.0%, 6 year delay
Association of Public Administrators and APA 61 <sup>st</sup> District Court	On or after October 21, 2008	1.0%, 4 year delay
EC Supervisors	On or after September 13, 2011	1.0%, 6 year delay
Non-Represented Members	On or after July 1, 2014	1.0%, 7 year delay

**13th Check.** One-half of net investment income over 8% which is attributable to retired life assets is distributed annually (in January) to retired members and beneficiaries who have been on the retirement rolls for 5 years in the form of a 13th check. Net investment income is based on a market value rate of return averaged over the preceding 5 plan years. The distribution is in proportion to points. An individual's points are determined by multiplying (i) the number of full years of retirement, to a maximum of 15, by (ii) the number of years, and fractions thereof, of service at retirement. Only member classification groups not covered by the post-retirement increase participate in the 13<sup>th</sup> check program.

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## **SECTION F**

### **ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS**

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## VALUATION METHODS

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*Age and Service Benefits and Casualty Benefits.* Normal cost and the allocation of benefit values between service rendered before and after the valuation date was 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 date of employment to the date of retirement, are sufficient to accumulate the 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.

*Financing of Unfunded Actuarial Accrued Liabilities.* Unfunded actuarial accrued liabilities were amortized by (principal & interest combined) level dollar contributions over a period of 29 years. This closed level dollar 30-year amortization period as of the June 30, 2015 valuation report is resetting the previous 25-year closed level dollar amortization period that was established as of the June 30, 2013 valuation report. This change was made by the City per City Code Section 1.221

According to City Code Section 1.221, "The pension reserves so determined less the applicable balance in the employer accumulation fund shall be amortized over a period of years, as determined by the employer, to determine the employer's accrued service contribution."

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## ACTUARIAL ASSUMPTIONS USED FOR THE VALUATION ADOPTED BY THE BOARD OF TRUSTEES

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The actuary calculates the contribution requirements and benefit values of the System by applying financial assumptions to the benefit provisions and people information furnished, using the valuation methods described on the previous page.

The principal areas of financial risk which require assumptions about future experiences 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, retirants and beneficiaries,
- (iv) rates of withdrawal of active members (without entitlement to a retirement benefit),
- (v) rates of disability among members, and
- (vi) the age patterns of actual retirement.

In 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.

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Actual experience of the System will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions, or the skill of the actuary and the precision of the many calculations made. 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 it becomes appropriate to modify one or more of the assumptions, to reflect experience trends (but not random year-to-year fluctuations).

The rationale for the assumptions used in this valuation is included in the 5-year experience study ending June 30, 2014, approved by the Board in November 2015. All assumptions are expectations of future experience, not market measures.

*The rates of salary increase* used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefit amounts will be based.

<b>Salary Increase Assumptions for an Individual Member</b>			
<b>Sample Ages</b>	<b>Merit &amp; Seniority</b>	<b>Base (Economic)</b>	<b>Increase Next Year</b>
20	4.2%	3.5%	7.7%
25	2.9	3.5	6.4
30	2.0	3.5	5.5
35	1.5	3.5	5.0
40	1.1	3.5	4.6
45	0.7	3.5	4.2
50	0.3	3.5	3.8
55	0.1	3.5	3.6
60	0.0	3.5	3.5
65	--	3.5	3.5

<b>Service at Beginning of Year</b>	<b>Additional Service Based Merit/Seniority Portion of Annual Increases</b>
	<b>Present</b>
1	4.00%
2	3.00%
3	1.75%
4	1.75%
5	1.75%

If the number of active members remains constant, then the total active member payroll will increase 3.5% annually, the base portion of the individual salary increase assumptions. Increasing payroll was recognized in amortizing unfunded actuarial accrued liabilities. The 3.5% assumption was first used for the June 30, 2006 valuation.

*The rate of investment return* was 7.25% a year compounded yearly and was first used for the June 30, 2015 valuation.

*The mortality tables* were the RP-2014 Healthy Annuitant Mortality Table projected to 2019 using the MP-2014 mortality improvement scale. (These tables were first used for the June 30, 2015 valuation and benefit computations starting July 1, 2016.) The RP-2014 Disabled Retirees Table projected to 2019 using the MP-2014 mortality improvement scale were used for disabled members.

Sample Ages	Value at Retirement of \$1 Monthly for Life		Future Life Expectancy (Years)	
	Men	Women	Men	Women
50	\$146.94	\$151.22	33.25	35.95
55	140.29	145.28	28.92	31.44
60	132.17	137.63	24.73	27.02
65	122.10	128.02	20.70	22.74
70	109.89	116.29	16.85	18.67
75	95.54	102.46	13.26	14.86
80	79.46	86.81	10.01	11.41

This assumption is used to measure the probabilities of each benefit payment being made after retirement. For purposes of the pre-retirement death benefit, the RP-2014 Mortality Tables for Employees projected to 2019 using the MP-2014 mortality improve scale was used and it was assumed that 100% of members were married at the time of death.

*The rates of retirement* used to measure the probability of eligible members retiring during the next year were as follows. These rates were first used for the June 30, 2015 valuation.

A member is eligible for retirement after completing 30 or more years of service or after both attaining age 62 and completing 8 or more years of service. Prior to the above eligibility, members who are eligible for early reduced retirement are assumed to elect this option at a 3% rate per year until eligible for Normal Retirement.

#### Normal Unreduced Retirement

Retirement Ages	Percent Retiring	Retirement Ages	Percent Retiring
50	40%	60	40%
51	40	61	40
52	40	62	40
53	40	63	40
54	40	64	40
55	40	65	50
56	40	66	60
57	40	67	70
58	40	68	80
59	40	69	90
		70-79	100
		80	100

*Rates of separation from active membership* were as follows:

(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. These rates were first used for the June 30, 2015 valuation.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Men	Women
ALL	0	15.00%	15.00%
	1	8.00	8.00
	2	7.00	7.00
	3	6.00	6.00
	4	5.00	5.00
20	5 & Over	3.53	7.94
25		3.44	7.72
30		3.29	7.22
35		3.05	6.28
40		2.72	5.15
45		2.30	3.98
50		1.61	2.56
55		0.61	0.94
60		0.06	0.09

*The rates of disability* were as follows:

Sample Ages	% of Active Members Becoming Disabled within Next Year		
20	0.01%		
25	0.01		
30	0.01		
35	0.04		
40	0.07		
45	0.16		
50	0.31		
55	0.47		
60	0.61		
		<b>Duty Related</b>	<b>Non-Duty Related</b>
Cause of Disability:	Men	30%	70%
	Women	30%	70%

## MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

### JUNE 30, 2016

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<b>Marriage Assumption:</b>	100% of males and females are assumed to be married for purposes of death-in-service benefits.
<b>Pay Increase Timing:</b>	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
<b>Decrement Timing:</b>	Decrements of all types are assumed to occur in the middle of the year.
<b>Eligibility Testing:</b>	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
<b>Benefit Service:</b>	Exact fractional service is used to determine the amount of benefit payable.
<b>Decrement Relativity:</b>	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
<b>Decrement Operation:</b>	Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal do not operate during retirement eligibility.
<b>Normal Form of Benefit:</b>	The assumed normal form of benefit is the straight life form.
<b>Other Adjustments:</b>	Actuarial accrued liabilities were adjusted as a provision for subsidized service purchases, pending refunds, and other contingent events. Retirement present values were also adjusted for Crime Scene Technicians and ECO to reflect the "gross up factor."
<b>Incidence of Contributions:</b>	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.
<b>Multiplier Election:</b>	Most active members have the option to make higher member contributions and receive a higher benefit multiplier. Individual elections are reported and reflected in the valuation results.
<b>13<sup>th</sup> Check Payments:</b>	Future liabilities of members in the 13 <sup>th</sup> Check program were increased by 5% to account for future payments.
<b>Service Purchases:</b>	Liabilities were increased by \$5 million to load for service purchases made to date.

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## **SECTION G**

### **CALCULATION OF THE SINGLE DISCOUNT RATE**

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## CALCULATION OF THE SINGLE DISCOUNT RATE

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the Fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating (which is published by the Bond Buyer Index) as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.25%; the municipal bond rate is 2.85%; and the resulting Single Discount Rate is 7.25%.

The tables in this section provide background for the development of the Single Discount Rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities).

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

The **Present Values of Projected Benefit Payments** table shows the development of the SDR. It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.



**SINGLE DISCOUNT RATE DEVELOPMENT**  
**PROJECTION OF CONTRIBUTIONS BEGINNING JULY 1, 2016**

Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost and Expense Contributions	UAL Contributions	Total Contributions	Admin Expenses	Total EANC
2017	\$ 35,760,078	\$ 2,896,970	\$ 2,623,255	\$ 9,682,100	\$ 15,202,326	\$ -	\$ 5,520,226
2018	33,899,531	2,743,500	2,437,616	9,682,100	14,863,217	-	5,181,116
2019	32,316,579	2,615,376	2,299,815	9,682,100	14,597,291	-	4,915,191
2020	31,000,394	2,497,757	2,171,907	9,682,100	14,351,765	-	4,669,665
2021	29,623,312	2,368,750	2,036,655	9,682,100	14,087,505	-	4,405,404
2022	28,063,311	2,225,010	1,894,627	9,682,100	13,801,737	-	4,119,637
2023	26,331,648	2,081,351	1,755,494	9,682,100	13,518,945	-	3,836,845
2024	24,703,173	1,939,638	1,618,721	9,682,100	13,240,460	-	3,558,359
2025	22,998,442	1,794,565	1,479,050	9,682,100	12,955,716	-	3,273,615
2026	21,268,455	1,652,419	1,343,882	9,682,100	12,678,402	-	2,996,301
2027	19,598,802	1,515,460	1,218,621	9,682,100	12,416,182	-	2,734,081
2028	18,039,500	1,374,646	1,094,496	9,682,100	12,151,242	-	2,469,142
2029	16,305,180	1,226,518	967,963	9,682,100	11,876,581	-	2,194,481
2030	14,572,548	1,077,574	845,868	9,682,100	11,605,542	-	1,923,441
2031	12,802,890	934,573	733,541	9,682,100	11,350,215	-	1,668,114
2032	11,222,986	813,517	638,727	9,682,100	11,134,345	-	1,452,244
2033	9,919,104	712,631	558,481	9,682,100	10,953,213	-	1,271,113
2034	8,744,941	611,271	478,526	9,682,100	10,771,898	-	1,089,798
2035	7,414,874	520,034	406,797	9,682,100	10,608,932	-	926,831
2036	6,514,579	451,953	352,338	9,682,100	10,486,392	-	804,291
2037	5,696,265	385,647	298,337	9,682,100	10,366,085	-	683,984
2038	4,731,634	315,383	241,507	9,682,100	10,238,991	-	556,890
2039	3,785,165	250,789	190,814	9,682,100	10,123,704	-	441,603
2040	3,017,977	196,724	148,235	9,682,100	10,027,059	-	344,958
2041	2,342,614	143,255	107,477	9,682,100	9,932,832	-	250,732
2042	1,583,022	95,786	72,506	9,682,100	9,850,392	-	168,292
2043	1,082,734	64,362	49,085	9,682,100	9,795,547	-	113,447
2044	735,624	41,207	31,562	9,682,100	9,754,869	-	72,769
2045	435,599	24,240	18,448	9,682,100	9,724,789	-	42,688
2046	252,754	13,979	10,609	-	24,588	-	24,589
2047	143,549	7,933	6,024	-	13,957	-	13,958
2048	81,053	4,426	3,361	-	7,787	-	7,787
2049	44,211	2,387	1,814	-	4,201	-	4,201
2050	23,378	1,248	944	-	2,192	-	2,192
2051	11,882	640	464	-	1,104	-	1,103
2052	6,022	327	251	-	578	-	578
2053	2,983	161	112	-	273	-	273
2054	1,390	73	50	-	123	-	123
2055	612	31	21	-	52	-	52
2056	270	13	11	-	24	-	24
2057	112	5	3	-	8	-	8
2058	41	2	-	-	2	-	2
2059	12	0	-	-	0	-	0
2060	2	0	-	-	0	-	0
2061	0	0	-	-	0	-	0
2062	-	-	-	-	-	-	0
2063	-	-	-	-	-	-	0
2064	-	-	-	-	-	-	0
2065	-	-	-	-	-	-	0
2066	-	-	-	-	-	-	0

**SINGLE DISCOUNT RATE DEVELOPMENT**  
**PROJECTION OF PLAN FIDUCIARY NET POSITION BEGINNING JULY 1, 2016**

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.25%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2017	\$ 390,189,761	\$ 15,202,326	\$ 33,090,380	\$ 546,266	\$ 28,197,927	\$ 399,953,368
2018	399,953,368	14,863,217	34,309,717	559,935	28,863,952	408,810,885
2019	408,810,885	14,597,291	35,407,741	572,335	29,469,944	416,898,045
2020	416,898,045	14,351,765	36,330,591	583,657	30,025,973	424,361,534
2021	424,361,534	14,087,505	37,354,660	594,106	30,531,640	431,031,913
2022	431,031,913	13,801,737	38,588,868	603,445	30,970,446	436,611,784
2023	436,611,784	13,518,945	39,793,340	611,256	31,329,828	441,055,961
2024	441,055,961	13,240,460	40,955,531	617,478	31,606,942	444,330,354
2025	444,330,354	12,955,716	42,115,826	622,062	31,797,454	446,345,635
2026	446,345,635	12,678,402	43,300,654	624,884	31,894,308	446,992,807
2027	446,992,807	12,416,182	44,218,237	625,790	31,900,114	446,465,076
2028	446,465,076	12,151,242	45,120,384	625,051	31,819,548	444,690,432
2029	444,690,432	11,876,581	46,011,007	622,567	31,646,899	441,580,339
2030	441,580,339	11,605,542	46,902,424	618,212	31,375,662	437,040,905
2031	437,040,905	11,350,215	47,661,822	611,857	31,004,057	431,121,499
2032	431,121,499	11,134,345	48,156,342	603,570	30,541,312	424,037,243
2033	424,037,243	10,953,213	48,477,609	593,652	29,999,892	415,919,087
2034	415,919,087	10,771,898	48,657,202	582,287	29,387,107	406,838,602
2035	406,838,602	10,608,932	48,670,400	569,574	28,709,785	396,917,345
2036	396,917,345	10,486,392	48,344,429	555,684	27,983,849	386,487,473
2037	386,487,473	10,366,085	47,906,012	541,082	27,224,411	375,630,874
2038	375,630,874	10,238,991	47,458,424	525,883	26,433,523	364,319,081
2039	364,319,081	10,123,704	46,838,683	510,047	25,615,548	352,709,603
2040	352,709,603	10,027,059	46,037,101	493,793	24,782,715	340,988,483
2041	340,988,483	9,932,832	45,124,161	477,384	23,945,683	329,265,453
2042	329,265,453	9,850,392	44,067,229	460,972	23,114,058	317,701,703
2043	317,701,703	9,795,547	42,786,335	444,782	22,303,164	306,569,297
2044	306,569,297	9,754,869	41,345,538	429,197	21,530,345	296,079,776
2045	296,079,776	9,724,789	39,824,941	414,512	20,808,256	286,373,368
2046	286,373,368	24,588	38,149,132	400,923	19,805,157	267,653,059
2047	267,653,059	13,957	36,363,493	374,714	18,484,945	249,413,754
2048	249,413,754	7,787	34,527,792	349,179	17,202,220	231,746,790
2049	231,746,790	4,201	32,682,269	324,446	15,962,234	214,706,511
2050	214,706,511	2,192	30,841,719	300,589	14,768,438	198,334,833
2051	198,334,833	1,104	28,998,044	277,669	13,624,196	182,684,420
2052	182,684,420	578	27,172,191	255,758	12,532,641	167,789,690
2053	167,789,690	273	25,389,462	234,906	11,495,403	153,660,998
2054	153,660,998	123	23,657,582	215,125	10,512,969	140,301,383
2055	140,301,383	52	21,981,953	196,422	9,585,370	127,708,431
2056	127,708,431	24	20,369,873	178,792	8,712,165	115,871,956
2057	115,871,956	8	18,825,001	162,221	7,892,471	104,777,213
2058	104,777,213	2	17,349,383	146,688	7,125,125	94,406,268
2059	94,406,268	0	15,942,504	132,169	6,408,819	84,740,414
2060	84,740,414	0	14,602,365	118,637	5,742,242	75,761,655
2061	75,761,655	0	13,336,121	106,066	5,123,810	67,443,278
2062	67,443,278	-	12,137,667	94,421	4,551,766	59,762,956
2063	59,762,956	-	11,005,573	83,668	4,024,511	52,698,226
2064	52,698,226	-	9,938,458	73,778	3,540,433	46,226,423
2065	46,226,423	-	8,935,105	64,717	3,097,902	40,324,503
2066	40,324,503	-	7,994,464	56,454	2,695,252	34,968,836

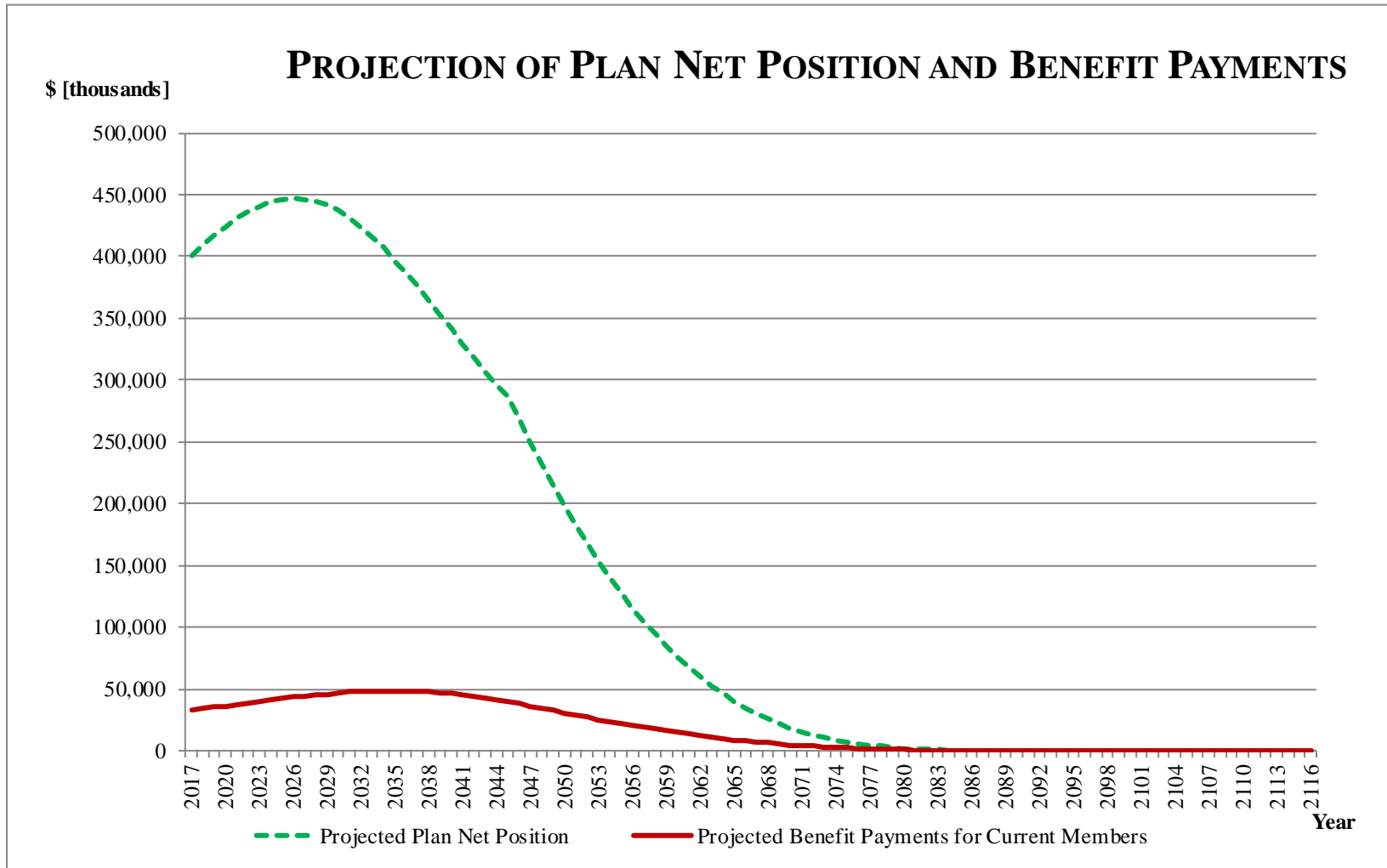
## SINGLE DISCOUNT RATE DEVELOPMENT

### PRESENT VALUES OF PROJECTED BENEFIT PAYMENTS BEGINNING JULY 1, 2016

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v <sup>a</sup> ((a)-.5)	(g)=(e)*vf <sup>a</sup> ((a)-.5)	(h)=((c)/(1+sdr) <sup>a</sup> (a-.5)
2017	\$ 390,189,761	\$ 33,090,380	\$ 33,090,380	\$ -	\$ 31,952,372	\$ -	\$ 31,952,372
2018	399,953,368	34,309,717	34,309,717	-	30,890,233	-	30,890,233
2019	408,810,885	35,407,741	35,407,741	-	29,723,843	-	29,723,843
2020	416,898,045	36,330,591	36,330,591	-	28,436,878	-	28,436,878
2021	424,361,534	37,354,660	37,354,660	-	27,261,951	-	27,261,951
2022	431,031,913	38,588,868	38,588,868	-	26,258,921	-	26,258,921
2023	436,611,784	39,793,340	39,793,340	-	25,248,055	-	25,248,055
2024	441,055,961	40,955,531	40,955,531	-	24,228,850	-	24,228,850
2025	444,330,354	42,115,826	42,115,826	-	23,231,019	-	23,231,019
2026	446,345,635	43,300,654	43,300,654	-	22,269,994	-	22,269,994
2027	446,992,807	44,218,237	44,218,237	-	21,204,584	-	21,204,584
2028	446,465,076	45,120,384	45,120,384	-	20,174,548	-	20,174,548
2029	444,690,432	46,011,007	46,011,007	-	19,182,070	-	19,182,070
2030	441,580,339	46,902,424	46,902,424	-	18,231,892	-	18,231,892
2031	437,040,905	47,661,822	47,661,822	-	17,274,671	-	17,274,671
2032	431,121,499	48,156,342	48,156,342	-	16,274,038	-	16,274,038
2033	424,037,243	48,477,609	48,477,609	-	15,275,159	-	15,275,159
2034	415,919,087	48,657,202	48,657,202	-	14,295,336	-	14,295,336
2035	406,838,602	48,670,400	48,670,400	-	13,332,600	-	13,332,600
2036	396,917,345	48,344,429	48,344,429	-	12,348,070	-	12,348,070
2037	386,487,473	47,906,012	47,906,012	-	11,408,942	-	11,408,942
2038	375,630,874	47,458,424	47,458,424	-	10,538,319	-	10,538,319
2039	364,319,081	46,838,683	46,838,683	-	9,697,625	-	9,697,625
2040	352,709,603	46,037,101	46,037,101	-	8,887,332	-	8,887,332
2041	340,988,483	45,124,161	45,124,161	-	8,122,230	-	8,122,230
2042	329,265,453	44,067,229	44,067,229	-	7,395,790	-	7,395,790
2043	317,701,703	42,786,335	42,786,335	-	6,695,401	-	6,695,401
2044	306,569,297	41,345,538	41,345,538	-	6,032,577	-	6,032,577
2045	296,079,776	39,824,941	39,824,941	-	5,417,914	-	5,417,914
2046	286,373,368	38,149,132	38,149,132	-	4,839,096	-	4,839,096
2047	267,653,059	36,363,493	36,363,493	-	4,300,787	-	4,300,787
2048	249,413,754	34,527,792	34,527,792	-	3,807,622	-	3,807,622
2049	231,746,790	32,682,269	32,682,269	-	3,360,469	-	3,360,469
2050	214,706,511	30,841,719	30,841,719	-	2,956,848	-	2,956,848
2051	198,334,833	28,998,044	28,998,044	-	2,592,160	-	2,592,160
2052	182,684,420	27,172,191	27,172,191	-	2,264,751	-	2,264,751
2053	167,789,690	25,389,462	25,389,462	-	1,973,113	-	1,973,113
2054	153,660,998	23,657,582	23,657,582	-	1,714,240	-	1,714,240
2055	140,301,383	21,981,953	21,981,953	-	1,485,150	-	1,485,150
2056	127,708,431	20,369,873	20,369,873	-	1,283,202	-	1,283,202
2057	115,871,956	18,825,001	18,825,001	-	1,105,718	-	1,105,718
2058	104,777,213	17,349,383	17,349,383	-	950,159	-	950,159
2059	94,406,268	15,942,504	15,942,504	-	814,088	-	814,088
2060	84,740,414	14,602,365	14,602,365	-	695,249	-	695,249
2061	75,761,655	13,336,121	13,336,121	-	592,038	-	592,038
2062	67,443,278	12,137,667	12,137,667	-	502,410	-	502,410
2063	59,762,956	11,005,573	11,005,573	-	424,755	-	424,755
2064	52,698,226	9,938,458	9,938,458	-	357,641	-	357,641
2065	46,226,423	8,935,105	8,935,105	-	299,799	-	299,799
2066	40,324,503	7,994,464	7,994,464	-	250,105	-	250,105

**SINGLE DISCOUNT RATE DEVELOPMENT**  
**PRESENT VALUES OF PROJECTED BENEFIT PAYMENTS BEGINNING JULY 1, 2016**  
**(CONCLUDED)**

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^(a)-.5)	(g)=(e)*vf^(a)-.5)	(h)=[(c)/(1+sdr)^(a)-.5]
2067	\$ 34,968,836	\$ 7,115,622	\$ 7,115,622	\$ -	\$ 207,563	\$ -	\$ 207,563
2068	30,135,026	6,297,724	6,297,724	-	171,286	-	171,286
2069	25,797,794	5,539,932	5,539,932	-	140,490	-	140,490
2070	21,930,893	4,841,436	4,841,436	-	114,477	-	114,477
2071	18,507,016	4,201,376	4,201,376	-	92,627	-	92,627
2072	15,497,763	3,618,735	3,618,735	-	74,389	-	74,389
2073	12,873,732	3,092,259	3,092,259	-	59,269	-	59,269
2074	10,604,685	2,620,365	2,620,365	-	46,829	-	46,829
2075	8,659,833	2,201,078	2,201,078	-	36,677	-	36,677
2076	7,008,200	1,831,987	1,831,987	-	28,463	-	28,463
2077	5,619,060	1,510,236	1,510,236	-	21,878	-	21,878
2078	4,462,418	1,232,590	1,232,590	-	16,649	-	16,649
2079	3,509,453	995,535	995,535	-	12,538	-	12,538
2080	2,732,897	795,397	795,397	-	9,340	-	9,340
2081	2,107,306	628,431	628,431	-	6,881	-	6,881
2082	1,609,273	490,879	490,879	-	5,011	-	5,011
2083	1,217,583	379,043	379,043	-	3,608	-	3,608
2084	913,314	289,354	289,354	-	2,568	-	2,568
2085	679,870	218,443	218,443	-	1,808	-	1,808
2086	502,938	163,200	163,200	-	1,259	-	1,259
2087	370,388	120,805	120,805	-	869	-	869
2088	272,133	88,754	88,754	-	595	-	595
2089	199,948	64,875	64,875	-	406	-	406
2090	147,259	47,323	47,323	-	276	-	276
2091	108,926	34,571	34,571	-	188	-	188
2092	81,021	25,381	25,381	-	129	-	129
2093	60,611	18,784	18,784	-	89	-	89
2094	45,552	14,039	14,039	-	62	-	62
2095	34,315	10,597	10,597	-	44	-	44
2096	25,829	8,062	8,062	-	31	-	31
2097	19,352	6,159	6,159	-	22	-	22
2098	14,377	4,701	4,701	-	16	-	16
2099	10,550	3,567	3,567	-	11	-	11
2100	7,621	2,676	2,676	-	8	-	8
2101	5,403	1,976	1,976	-	5	-	5
2102	3,748	1,431	1,431	-	4	-	4
2103	2,538	1,012	1,012	-	2	-	2
2104	1,674	698	698	-	2	-	2
2105	1,072	468	468	-	1	-	1
2106	665	305	305	-	1	-	1
2107	397	193	193	-	0	-	0
2108	227	118	118	-	0	-	0
2109	121	70	70	-	0	-	0
2110	57	40	40	-	0	-	0
2111	20	20	20	-	0	-	0
2112	-	-	-	-	-	-	-
2113	-	-	-	-	-	-	-
2114	-	-	-	-	-	-	-
2115	-	-	-	-	-	-	-
2116	-	-	-	-	-	-	-
<b>Totals</b>	<b>\$ 548,916,984</b>	<b>\$ -</b>	<b>\$ 548,916,984</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>



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## **SECTION H**

### **GLOSSARY OF TERMS**

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## GLOSSARY OF TERMS

<b><i>Accrued Service</i></b>	Service credited under the system that was rendered before the date of the actuarial valuation.
<b><i>Actuarial Accrued Liability (AAL)</i></b>	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
<b><i>Actuarial Assumptions</i></b>	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
<b><i>Actuarial Cost Method</i></b>	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
<b><i>Actuarial Equivalent</i></b>	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
<b><i>Actuarial Gain (Loss)</i></b>	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
<b><i>Actuarial Present Value (APV)</i></b>	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
<b><i>Actuarial Valuation</i></b>	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.
<b><i>Actuarial Valuation Date</i></b>	The date as of which an actuarial valuation is performed.
<b><i>Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)</i></b>	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

## GLOSSARY OF TERMS

<b><i>Amortization Method</i></b>	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).
<b><i>Amortization Payment</i></b>	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
<b><i>Cost-of-Living Adjustments</i></b>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<b><i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i></b>	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
<b><i>Covered Payroll</i></b>	The payroll of employees that are provided with pensions through the pension plan.
<b><i>Deferred Inflows and Outflows</i></b>	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
<b><i>Deferred Retirement Option Program (DROP)</i></b>	A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report.
<b><i>Discount Rate</i></b>	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: <ol style="list-style-type: none"> <li>1. The benefit payments to be made while the pension plans’ fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and</li> <li>2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.</li> </ol>



## GLOSSARY OF TERMS

<b><i>Entry Age Actuarial Cost Method (EAN)</i></b>	The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.
<b><i>Fiduciary Net Position</i></b>	The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.
<b><i>GASB</i></b>	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
<b><i>Long-Term Expected Rate of Return</i></b>	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
<b><i>Money-Weighted Rate of Return</i></b>	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
<b><i>Multiple-Employer Defined Benefit Pension Plan</i></b>	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
<b><i>Municipal Bond Rate</i></b>	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
<b><i>Net Pension Liability (NPL)</i></b>	The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.
<b><i>Non-Employer Contributing Entities</i></b>	Non-employer contributing entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.
<b><i>Normal Cost</i></b>	The portion of the actuarial present value allocated to a valuation year is called the normal cost. For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.

## GLOSSARY OF TERMS

<b><i>Other Postemployment Benefits (OPEB)</i></b>	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.
<b><i>Real Rate of Return</i></b>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<b><i>Service Cost</i></b>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
<b><i>Total Pension Expense</i></b>	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: <ol style="list-style-type: none"> <li>1. Service Cost</li> <li>2. Interest on the Total Pension Liability</li> <li>3. Current-Period Benefit Changes</li> <li>4. Employee Contributions (made negative for addition here)</li> <li>5. Projected Earnings on Plan Investments (made negative for addition here)</li> <li>6. Pension Plan Administrative Expense</li> <li>7. Other Changes in Plan Fiduciary Net Position</li> <li>8. Recognition of Outflow (Inflow) of Resources due to Liabilities</li> <li>9. Recognition of Outflow (Inflow) of Resources due to Assets</li> </ol>
<b><i>Total Pension Liability (TPL)</i></b>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<b><i>Unfunded Actuarial Accrued Liability (UAAL)</i></b>	The UAAL is the difference between actuarial accrued liability and valuation assets.
<b><i>Valuation Assets</i></b>	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.