

**CITY OF TROY EMPLOYEES RETIREMENT SYSTEM**  
GASB STATEMENT NO. 67 PLAN REPORTING AND  
ACCOUNTING SCHEDULES  
JUNE 30, 2014



October 3, 2014

Mr. Thomas Darling  
Director of Financial Services  
City of Troy  
500 West Big Beaver Road  
Troy, Michigan 48084

**Subject: GASB 67 Reporting and Disclosure Information**

Dear Tom:

This report provides information required by the Retirement System in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67 “Financial Reporting for Pension Plans.” The information provided herein was prepared for the purpose of assisting the City of Troy Employees Retirement System to comply with the financial reporting and disclosure requirements of GASB Statement No. 67.

The calculation of the liability associated with the benefits described in this report was performed for the purpose of satisfying the requirements of GASB Statement No. 67 and is not applicable for purposes of funding the Retirement System. A calculation of the Retirement System’s liability for other purposes may produce significantly different results. This report may be provided to parties other than the City of Troy Employees Retirement System only in its entirety and only with the permission of the City of Troy Employees Retirement System.

The total pension liability, net pension liability, and certain sensitivity information shown in this report are based on an actuarial valuation performed as of December 31, 2013. The total pension liability was rolled-forward from the valuation date to the fiscal year ending June 30, 2014 using generally accepted actuarial principals. There were no significant events or changes in benefit provisions that required an adjustment to the roll-forward liabilities. It is our opinion that the recommended assumptions are internally consistent, reasonable, and comply with the requirements under GASB Statement No. 67.

This report is based upon information, furnished to us by the City of Troy Employees Retirement System, which include benefit provisions, membership information, and financial data. We did not audit this data and information, but we did apply a number of tests and concluded that it was reasonable and consistent. GRS is not responsible for the accuracy or completeness of the information provided to us by the City of Troy Employees Retirement System.

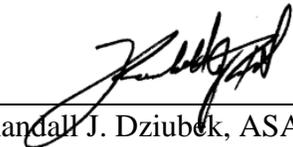
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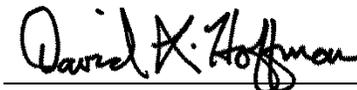
This report compliments the actuarial valuation report that was provided to the City of Troy Employees Retirement System and should be considered together as a complete report for the fiscal year ending June 30, 2014. Please see the actuarial valuation report as of December 31, 2013 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

To the best of our knowledge, the information contained with this report is accurate and fairly represents the actuarial position of the City of Troy Employees 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. Randall J. Dziubek 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 opinion contained herein. The signing actuaries are independent of the plan sponsor.

This information is presented in draft form for review by the Retirement System's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the Retirement System's financial statements.

Respectfully submitted,

By   
Randall J. Dziubek, ASA, EA, MAAA

By   
David L. Hoffman

RJD/DLH:mrh

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**SECTION A**  
EXECUTIVE SUMMARY

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## EXECUTIVE SUMMARY AS OF JUNE 30, 2014

	<b>2014</b>
Actuarial Valuation Date	December 31, 2013
Pension Plan's Fiscal Year Ending Date (Measurement Date & Reporting Date)	June 30, 2014
 <b>Membership</b>	
Number of	
- Retirees and Beneficiaries	325
- Inactive, Nonretired Members	10
- Active Members	58
- Total	393
Covered Payroll	\$ 4,768,908
 <b>Net Pension Liability</b>	
Total Pension Liability	\$ 153,182,874
Plan Fiduciary Net Position	189,829,600
Net Pension Liability	\$ (36,646,726)
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	123.92%
Net Pension Liability as a Percentage of Covered Payroll	(768.45)%
 <b>Development of the Single Discount Rate</b>	
Single Discount Rate	6.50%
Long-Term Expected Rate of Return	6.50%
Long-Term Municipal Bond Rate	4.29%
Last year ending June 30 in the 2015 to 2114 projection period for which projected benefit payments are fully funded	2114

## DISCUSSION

### Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67, “Financial Reporting for Pension Plans,” replaces the requirements of Statement No. 25, “Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans,” and Statement No. 50, “Pension Disclosures.” Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability of employers and non-employer contributing entities for benefits provided through the pension plan.

The following discussion provides a summary of the information that is required to be disclosed under this new accounting standard. 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 your internal staff will be responsible for preparing that information to comply with this accounting standard.

### Financial Statements

Statement No. 67 requires defined benefit pension plans to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position.

The *statement of fiduciary net position* presents the following items as of the end of the pension plan’s reporting period, such as:

- assets;
- deferred inflows and outflows of resources;
- liabilities; and
- fiduciary net position (assets, plus deferred outflows, minus liabilities, minus deferred inflows).

The *statement of changes in fiduciary net position* presents the following for the plan’s reporting period:

- additions, such as contributions and investment income;
- deductions, such as benefit payments and expenses; and
- net increase or decrease in the fiduciary net position (the difference between additions and deductions).

## Notes to Financial Statements

Statement No. 67 also requires the notes of the plan's financial statements to include additional disclosure information. This disclosure information should include:

- a description of the types of benefits provided by the plan, as well as automatic or ad hoc COLAs;
- the number and classes of employees covered by the benefit terms;
- the composition of the pension plan's board and the authority under which benefit terms may be amended;
- a description of the plan's funding policy, which includes member and employer contribution requirements;
- the pension plan's investment policies;
- a description of how fair value is determined;
- concentrations of investments greater than or equal to 5%;
- annual money-weighted rate of return on pension plan investments;
- the portion of the present value of benefits to be provided through the pension plan to current active and inactive plan members;
- the pension plan's fiduciary net position;
- the net pension liability;
- the pension plan's fiduciary net position as a percentage of the total pension liability;
- 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.

## Required Supplementary Information

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-employee payroll;
- comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy; and
- the annual money-weighted rate of return on pension plan investments for each year.

While the first two tables may be built prospectively as the information becomes available, sufficient information is currently available for the third and fourth tables.

**Measurement of the Net Pension Liability**

The net pension liability is to be measured as the total pension liability, less the amount of the pension plan's fiduciary net position. In actuarial terms, this will be 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).

**Timing of the Valuation**

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. If the actuarial valuation is not calculated as of the plan's fiscal year end, the total pension liability is required to be rolled forward from the actuarial valuation date to the pension plan's fiscal year end.

The total pension liability shown in this report is based on an actuarial valuation performed as of December 31, 2013 and a measurement date of June 30, 2014.

**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 Federal Reserve) 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 6.500%; the municipal bond rate is 3.480% (based on the weekly rate closest to but not later than the measurement date of the 20-Year Bond Buyer Index as published by the Federal Reserve); and the resulting single discount rate is 6.500%.

**Effective Date and Transition**

GASB Statement No. 67 is effective for a pension plan's fiscal years beginning after June 15, 2013; however, earlier application is encouraged by the GASB.

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**SECTION B**

FINANCIAL STATEMENTS

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**STATEMENT OF FIDUCIARY NET POSITION  
AS OF JUNE 30, 2014**

	<b>2014</b>
<b>Assets</b>	
Cash and Deposits	\$ 7,342,966
Receivables	\$ 52,737
Investments	
Fixed Income	\$ 4,952,774
Domestic Equities	125,373,405
International Equities	-
Real Estate	-
Other	74,723,840
Total Investments	\$ 205,050,019
<b>Total Assets</b>	<b>\$ 212,445,723</b>
<b>Liabilities</b>	
Payables	
Accounts Payable - Due from other funds	1,405,818
Accounts Payable - Other	51,196
Total Liabilities	<b>\$ 1,457,014</b>
<b>Net Position</b>	\$ 210,988,709
<b>Assets Restricted for Health Care</b>	<b>\$ 21,159,109</b>
<b>Net Position Restricted for Pensions</b>	<b>\$ 189,829,600</b>

**STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR YEAR ENDED JUNE 30, 2014**

	<b>2014</b>
<b>Additions</b>	
Contributions	
Employer	\$ 1,867,473
Employee	174,214
Other	-
<b>Total Contributions</b>	<b>\$ 2,041,687</b>
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 31,070,073
Interest and Dividends	4,489,515
Less Investment Expense	-
<b>Net Investment Income</b>	<b>\$ 35,559,588</b>
Other	\$ 109,324
<b>Total Additions</b>	<b>\$ 37,710,599</b>
 <b>Deductions</b>	
Benefit payments, including refunds of employee contributions	\$ 10,955,507
Pension Plan Administrative Expense	216,992
Other	25,030
<b>Total Deductions</b>	<b>\$ 11,197,530</b>
<b>Net Increase in Net Position</b>	<b>\$ 26,513,069</b>
 <b>Net Position Restricted for Pensions</b>	
Beginning of Year	\$ 163,316,531
End of Year	<b>\$ 189,829,600</b>

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## **SECTION C**

### **REQUIRED SUPPLEMENTARY INFORMATION**

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**SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS MULTIYEAR**

**Ultimately 10 Fiscal Years Will Be Displayed (which may be built prospectively)**

Fiscal year ending June 30,	<u>2014</u>
<b>Total Pension Liability</b>	
Service Cost	\$ 985,140
Interest on the Total Pension Liability	9,635,941
Benefit Changes	-
Difference between Expected and Actual Experience	286,868
Assumption Changes	-
Benefit Payments	(10,955,507)
Refunds	-
<b>Net Change in Total Pension Liability</b>	<u>(47,558)</u>
<b>Total Pension Liability - Beginning</b>	<u>153,230,433</u>
<b>Total Pension Liability - Ending (a)</b>	<u>\$ 153,182,874</u>
<b>Plan Fiduciary Net Position</b>	
Employer Contributions	\$ 1,867,473
Employee Contributions	174,214
Pension Plan Net Investment Income	35,559,588
Benefit Payments	(10,955,507)
Refunds	-
Pension Plan Administrative Expense	(216,992)
Other	84,293
<b>Net Change in Plan Fiduciary Net Position</b>	<u>26,513,069</u>
<b>Plan Fiduciary Net Position - Beginning</b>	<u>163,316,531</u>
<b>Plan Fiduciary Net Position - Ending (b)</b>	<u>\$ 189,829,600</u>
<b>Net Pension Liability - Ending (a) - (b)</b>	<u>(36,646,726)</u>
<b>Plan Fiduciary Net Position as a Percentage</b>	
<b>of Total Pension Liability</b>	123.92 %
<b>Covered Employee Payroll</b>	\$ 4,768,908
<b>Net Pension Liability as a Percentage</b>	
<b>of Covered Employee Payroll</b>	(768.45)%
<b>Notes to Schedule:</b>	
N/A	

**SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION  
SCHEDULE OF THE NET PENSION LIABILITY MULTIYEAR**

**Ultimately 10 Fiscal Years Will Be Displayed (which may be built prospectively)**

<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>
2012	\$ 153,304,399	\$ 146,047,162	\$ 7,257,237	95.27%	\$ 5,427,637	133.71%
2013	153,230,433	163,316,531	(10,086,099)	106.58%	5,069,499	(198.96)%
2014	153,182,874	189,829,600	(36,646,726)	123.92%	4,768,908	(768.45)%

## SCHEDULE OF CONTRIBUTIONS MULTIYEAR

### Ultimately 10 Fiscal Years Will Be Displayed

<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>
2012	\$ 2,157,379	\$ 2,195,477	\$ (38,098)	\$ 5,427,637	40.45%
2013	1,883,530	1,883,530	-	5,069,499	37.15%
2014	1,845,880	1,867,473	(21,593)	4,768,908	39.16%

## NOTES TO SCHEDULE OF CONTRIBUTIONS

<b>Valuation Date:</b>	June 30, 2014
Notes	Actuarially determined contribution rates are calculated as of December 31 which is 18 months 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	Aggregate
Amortization Method	N/A
Remaining Amortization Period	N/A
Asset Valuation Method	5-Year smoothed market;
Inflation	3.5%; No explicit price inflation assumption is used in this valuation.
Salary Increases	3.50% to 7.50% including inflation
Investment Rate of Return	6.50%
Retirement Age	Age-based table of rates that are specific to the type of eligibility condition. First used for the 1973 valuation; Classified, Exempt and Command Officers first used for the 1981 valuation; Non-Classified/Exempt General members first used for the 1986 valuation.
Mortality	RP-2000 Combined Healthy Mortality Tables, for healthy males and females, and the RP-2000 Disabled Mortality Table, for impaired males and females.
 <b>Other Information:</b>	
Notes	N/A There were no benefit changes during the year.

**SCHEDULE OF INVESTMENT RETURNS MULTIYEAR****Ultimately 10 Fiscal Years  
will be Displayed**

<b>FY Ending June 30,</b>	<b>Annual Return<sup>1</sup></b>
2012	(1.06)%
2013	18.15 %
2014	22.23 %

<sup>1</sup> Annual money-weighted rate of return, net of investment expenses

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**SECTION D**

NOTES TO FINANCIAL STATEMENTS

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### Single Discount Rate

A single discount rate of 6.500% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on investments of 6.500%. The projection of cash flows used to determine this single discount rate assumed that 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 fiduciary net position was projected to be available to make all projected future benefit payments of current members. Therefore, the long-term expected rate of return on the Retirement System's 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 net pension liability, calculated using a single discount rate of 6.500%, as well as what the net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

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

	Current Single Discount	
1% Decrease	Rate Assumption	1% Increase
<b>5.50%</b>	<b>6.50%</b>	<b>7.50%</b>
-\$20,518,932	-\$36,646,726	-\$50,343,520

**Summary of Population Statistics**

Inactive Members or Beneficiaries Currently Receiving Benefits	325
Inactive Members Entitled to But Not Yet Receiving Benefits	10
Active Members	<u>58</u>
Total Members	393

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## **SECTION E**

### **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 “risk-free” 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 Federal Reserve) 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 6.500%; the municipal bond rate is 3.480%; and the resulting single discount rate is 6.500%.

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 Single Discount Rate (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

Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost and Expense		UAL Contributions	Total Contributions
			Contributions	Contributions		
0	\$ 4,738,349					
1	4,654,423	\$ 161,930	\$ 792,840	\$ 658,358	\$ 1,613,128	
2	4,489,620	159,263	773,343	(459,318)	473,288	
3	4,331,159	155,037	747,396	(747,396)	155,037	
4	4,271,660	152,250	730,308	(730,308)	152,250	
5	4,224,531	151,431	723,031	(723,031)	151,431	
6	3,996,697	148,265	702,618	(702,618)	148,265	
7	3,565,674	137,804	647,194	(647,194)	137,804	
8	3,021,363	119,956	560,027	(560,027)	119,956	
9	2,449,684	98,770	459,423	(459,423)	98,770	
10	2,010,472	79,919	369,655	(369,655)	79,919	
11	1,685,717	65,686	302,946	(302,946)	65,686	
12	1,354,418	53,438	246,640	(246,640)	53,438	
13	1,021,580	41,377	190,620	(190,620)	41,377	
14	751,356	30,118	139,497	(139,497)	30,118	
15	498,047	19,969	95,179	(95,179)	19,969	
16	322,446	11,749	59,471	(59,471)	11,749	
17	261,884	7,359	40,006	(40,006)	7,359	
18	170,151	5,137	28,984	(28,984)	5,137	
19	91,152	2,896	17,205	(17,205)	2,896	
20	67,132	1,550	9,973	(9,973)	1,550	
21	47,303	1,072	7,077	(7,077)	1,072	
22	42,287	773	5,322	(5,322)	773	
23	40,253	647	4,703	(4,703)	647	
24	34,207	570	4,213	(4,213)	570	
25	27,500	473	3,493	(3,493)	473	
26	25,385	404	2,986	(2,986)	404	
27	12,182	290	2,143	(2,143)	290	
28	-	96	709	(709)	96	
29	-	-	-	-	-	
30	-	-	-	-	-	
31	-	-	-	-	-	
32	-	-	-	-	-	
33	-	-	-	-	-	
34	-	-	-	-	-	
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43	-	-	-	-	-	
44	-	-	-	-	-	
45	-	-	-	-	-	
46	-	-	-	-	-	
47	-	-	-	-	-	
48	-	-	-	-	-	
49	-	-	-	-	-	
50	-	-	-	-	-	

## SINGLE DISCOUNT RATE DEVELOPMENT PROJECTION OF PLAN FIDUCIARY NET POSITION

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 6.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
1	\$ 189,829,600	\$ 1,613,128	\$ 11,098,387	\$ -	\$ 12,035,506	\$ 192,379,847
2	192,379,847	473,288	11,160,763	-	12,162,815	193,855,187
3	193,855,187	155,037	11,257,925	-	12,245,424	194,997,723
4	194,997,723	152,250	11,324,269	-	12,317,477	196,143,181
5	196,143,181	151,431	11,350,689	-	12,391,061	197,334,983
6	197,334,983	148,265	11,411,065	-	12,466,495	198,538,679
7	198,538,679	137,804	11,579,932	-	12,538,999	199,635,550
8	199,635,550	119,956	11,842,383	-	12,601,329	200,514,452
9	200,514,452	98,770	12,134,306	-	12,648,442	201,127,358
10	201,127,358	79,919	12,363,672	-	12,680,341	201,523,946
11	201,523,946	65,686	12,488,214	-	12,701,680	201,803,098
12	201,803,098	53,438	12,557,098	-	12,717,230	202,016,668
13	202,016,668	41,377	12,610,520	-	12,729,017	202,176,542
14	202,176,542	30,118	12,625,042	-	12,738,584	202,320,202
15	202,320,202	19,969	12,587,525	-	12,748,797	202,501,444
16	202,501,444	11,749	12,493,242	-	12,763,331	202,783,282
17	202,783,282	7,359	12,303,303	-	12,787,586	203,274,925
18	203,274,925	5,137	12,051,793	-	12,827,517	204,055,785
19	204,055,785	2,896	11,781,354	-	12,886,852	205,164,180
20	205,164,180	1,550	11,460,911	-	12,969,105	206,673,924
21	206,673,924	1,072	11,109,926	-	13,078,451	208,643,521
22	208,643,521	773	10,739,778	-	13,218,306	211,122,821
23	211,122,821	647	10,330,901	-	13,392,535	214,185,103
24	214,185,103	570	9,893,419	-	13,605,576	217,897,830
25	217,897,830	473	9,435,186	-	13,861,558	222,324,674
26	222,324,674	404	8,958,402	-	14,164,552	227,531,229
27	227,531,229	290	8,472,101	-	14,518,530	233,577,949
28	233,577,949	96	7,981,616	-	14,927,251	240,523,679
29	240,523,679	-	7,479,800	-	15,394,773	248,438,651
30	248,438,651	-	6,971,309	-	15,925,512	257,392,854
31	257,392,854	-	6,465,958	-	16,523,700	267,450,596
32	267,450,596	-	5,967,695	-	17,193,392	278,676,293
33	278,676,293	-	5,480,280	-	17,938,654	291,134,667
34	291,134,667	-	5,007,171	-	18,763,582	304,891,078
35	304,891,078	-	4,551,419	-	19,672,328	320,011,987
36	320,011,987	-	4,115,591	-	20,669,128	336,565,524
37	336,565,524	-	3,701,747	-	21,758,346	354,622,123
38	354,622,123	-	3,311,397	-	22,944,512	374,255,238
39	374,255,238	-	2,945,544	-	24,232,367	395,542,061
40	395,542,061	-	2,604,791	-	25,626,911	418,564,182
41	418,564,182	-	2,289,389	-	27,133,438	443,408,230
42	443,408,230	-	1,999,276	-	28,757,581	470,166,536
43	470,166,536	-	1,734,112	-	30,505,353	498,937,777
44	498,937,777	-	1,493,340	-	32,383,186	529,827,624
45	529,827,624	-	1,276,263	-	34,397,970	562,949,330
46	562,949,330	-	1,082,068	-	36,557,093	598,424,355
47	598,424,355	-	909,804	-	38,868,480	636,383,031
48	636,383,031	-	758,379	-	41,340,638	676,965,289
49	676,965,289	-	626,533	-	43,982,702	720,321,459
50	720,321,459	-	512,848	-	46,804,490	766,613,100

## SINGLE DISCOUNT RATE DEVELOPMENT PRESENT VALUES OF PROJECTED BENEFITS

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)-.5)</sup>	(g)=(e)*vf <sup>((a)-.5)</sup>	(h)=(c)/(1+sdr) <sup>((a)-.5)</sup>
1	\$ 189,829,600	\$ 11,098,387	\$ 11,098,387	\$ -	\$ 10,754,372	\$ -	\$ 10,754,372
2	192,379,847	11,160,763	11,160,763	-	10,154,756	-	10,154,756
3	193,855,187	11,257,925	11,257,925	-	9,617,990	-	9,617,990
4	194,997,723	11,324,269	11,324,269	-	9,084,197	-	9,084,197
5	196,143,181	11,350,689	11,350,689	-	8,549,663	-	8,549,663
6	197,334,983	11,411,065	11,411,065	-	8,070,554	-	8,070,554
7	198,538,679	11,579,932	11,579,932	-	7,690,128	-	7,690,128
8	199,635,550	11,842,383	11,842,383	-	7,384,431	-	7,384,431
9	200,514,452	12,134,306	12,134,306	-	7,104,659	-	7,104,659
10	201,127,358	12,363,672	12,363,672	-	6,797,140	-	6,797,140
11	201,523,946	12,488,214	12,488,214	-	6,446,581	-	6,446,581
12	201,803,098	12,557,098	12,557,098	-	6,086,517	-	6,086,517
13	202,016,668	12,610,520	12,610,520	-	5,739,352	-	5,739,352
14	202,176,542	12,625,042	12,625,042	-	5,395,269	-	5,395,269
15	202,320,202	12,587,525	12,587,525	-	5,050,926	-	5,050,926
16	202,501,444	12,493,242	12,493,242	-	4,707,131	-	4,707,131
17	202,783,282	12,303,303	12,303,303	-	4,352,644	-	4,352,644
18	203,274,925	12,051,793	12,051,793	-	4,003,442	-	4,003,442
19	204,055,785	11,781,354	11,781,354	-	3,674,747	-	3,674,747
20	205,164,180	11,460,911	11,460,911	-	3,356,617	-	3,356,617
21	206,673,924	11,109,926	11,109,926	-	3,055,232	-	3,055,232
22	208,643,521	10,739,778	10,739,778	-	2,773,184	-	2,773,184
23	211,122,821	10,330,901	10,330,901	-	2,504,794	-	2,504,794
24	214,185,103	9,893,419	9,893,419	-	2,252,323	-	2,252,323
25	217,897,830	9,435,186	9,435,186	-	2,016,903	-	2,016,903
26	222,324,674	8,958,402	8,958,402	-	1,798,107	-	1,798,107
27	227,531,229	8,472,101	8,472,101	-	1,596,712	-	1,596,712
28	233,577,949	7,981,616	7,981,616	-	1,412,462	-	1,412,462
29	240,523,679	7,479,800	7,479,800	-	1,242,871	-	1,242,871
30	248,438,651	6,971,309	6,971,309	-	1,087,679	-	1,087,679
31	257,392,854	6,465,958	6,465,958	-	947,261	-	947,261
32	267,450,596	5,967,695	5,967,695	-	820,907	-	820,907
33	278,676,293	5,480,280	5,480,280	-	707,849	-	707,849
34	291,134,667	5,007,171	5,007,171	-	607,268	-	607,268
35	304,891,078	4,551,419	4,551,419	-	518,305	-	518,305
36	320,011,987	4,115,591	4,115,591	-	440,069	-	440,069
37	336,565,524	3,701,747	3,701,747	-	371,660	-	371,660
38	354,622,123	3,311,397	3,311,397	-	312,177	-	312,177
39	374,255,238	2,945,544	2,945,544	-	260,739	-	260,739
40	395,542,061	2,604,791	2,604,791	-	216,503	-	216,503
41	418,564,182	2,289,389	2,289,389	-	178,674	-	178,674
42	443,408,230	1,999,276	1,999,276	-	146,509	-	146,509
43	470,166,536	1,734,112	1,734,112	-	119,322	-	119,322
44	498,937,777	1,493,340	1,493,340	-	96,483	-	96,483
45	529,827,624	1,276,263	1,276,263	-	77,425	-	77,425
46	562,949,330	1,082,068	1,082,068	-	61,638	-	61,638
47	598,424,355	909,804	909,804	-	48,662	-	48,662
48	636,383,031	758,379	758,379	-	38,087	-	38,087
49	676,965,289	626,533	626,533	-	29,545	-	29,545
50	720,321,459	512,848	512,848	-	22,708	-	22,708

## SINGLE DISCOUNT RATE DEVELOPMENT PRESENT VALUES OF PROJECTED BENEFITS (CONTINUED)

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)-.5)</sup>	(g)=(e)*vf <sup>((a)-.5)</sup>	(h)=((c)/(1+sdr) <sup>(a-.5)</sup>
51	\$ 766,613,100	\$ 415,800	\$ 415,800	\$ -	\$ 17,287	\$ -	\$ 17,287
52	816,013,851	333,791	333,791	-	13,031	-	13,031
53	868,710,283	265,227	265,227	-	9,722	-	9,722
54	924,902,740	208,543	208,543	-	7,178	-	7,178
55	984,806,205	162,218	162,218	-	5,243	-	5,243
56	1,048,651,201	124,808	124,808	-	3,787	-	3,787
57	1,116,684,728	94,967	94,967	-	2,706	-	2,706
58	1,189,171,230	71,468	71,468	-	1,912	-	1,912
59	1,266,393,606	53,209	53,209	-	1,337	-	1,337
60	1,348,654,280	39,225	39,225	-	925	-	925
61	1,436,276,329	28,653	28,653	-	635	-	635
62	1,529,604,721	20,758	20,758	-	432	-	432
63	1,629,007,606	14,940	14,940	-	292	-	292
64	1,734,877,682	10,688	10,688	-	196	-	196
65	1,847,633,701	7,600	7,600	-	131	-	131
66	1,967,722,049	5,368	5,368	-	87	-	87
67	2,095,618,442	3,757	3,757	-	57	-	57
68	2,231,829,764	2,603	2,603	-	37	-	37
69	2,376,896,012	1,780	1,780	-	24	-	24
70	2,531,392,416	1,200	1,200	-	15	-	15
71	2,695,931,684	799	799	-	9	-	9
72	2,871,166,418	524	524	-	6	-	6
73	3,057,791,694	338	338	-	4	-	4
74	3,256,547,806	214	214	-	2	-	2
75	3,468,223,192	134	134	-	1	-	1
76	3,693,657,561	82	82	-	1	-	1
77	3,933,745,219	47	47	-	0	-	0
78	4,189,438,609	26	26	-	0	-	0
79	4,461,752,093	15	15	-	0	-	0
80	4,751,765,963	9	9	-	0	-	0
81	5,060,630,741	5	5	-	0	-	0
82	5,389,571,733	3	3	-	0	-	0
83	5,739,893,893	1	1	-	0	-	0
84	6,112,986,994	0	0	-	0	-	0
85	6,510,331,149	0	0	-	0	-	0
86	6,933,502,673	0	0	-	0	-	0
87	7,384,180,347	0	0	-	0	-	0
88	7,864,152,069	0	0	-	0	-	0
89	8,375,321,954	-	-	-	-	-	-
90	8,919,717,881	-	-	-	-	-	-
91	9,499,499,543	-	-	-	-	-	-
92	10,116,967,014	-	-	-	-	-	-
93	10,774,569,869	-	-	-	-	-	-
94	11,474,916,911	-	-	-	-	-	-
95	12,220,786,510	-	-	-	-	-	-
96	13,015,137,633	-	-	-	-	-	-
97	13,861,121,580	-	-	-	-	-	-
98	14,762,094,482	-	-	-	-	-	-
99	15,721,630,624	-	-	-	-	-	-
100	16,743,536,614	-	-	-	-	-	-
<b>Totals</b>					\$ 159,848,233	\$ -	\$ 159,848,233

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## **SECTION F**

### **GLOSSARY OF TERMS**

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## GLOSSARY OF TERMS

<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>Accrued Service</i></b>	Service credited under the system which was rendered before the date of the actuarial valuation.
<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 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 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 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>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>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-Employee Payroll</i></b>	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
<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>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>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 funding 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>GASB</i></b>	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
<b><i>Fiduciary Net Position</i></b>	The fiduciary net position is the value of the assets of the trust.
<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 contribution entities to plan members for benefits provided through a defined benefit pension plan.
<b><i>Non-employer Contribution Entities</i></b>	Non-employer contribution 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 statement plan members are not considered non-employer contribution entities.
<b><i>Normal Cost</i></b>	The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method.

## 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 the GASB Statement No. 67, the valuation asset is equal to the market value of assets.

October 3, 2014

Mr. Thomas Darling  
Director of Financial Services  
City of Troy  
500 West Big Beaver Road  
Troy, Michigan 48084

Dear Tom,

Please find enclosed copies of the GASB Statement No. 67 Accounting and Financial Reporting for Pensions report of the City of Troy Employees Retirement System.

We will be happy to meet with the Board to discuss the results of this report.

Sincerely yours,



Randall J. Dziubek ASA, EA, MAAA

RJD:mrh  
Enclosures