

The General Retirement System of the City of Detroit

GASB Statement Nos. 67 and 68 Accounting and Financial
Reporting for Pension Plans of Component I
June 30, 2019



November 8, 2019

Board of Trustees
The General Retirement System of the City of Detroit

Dear Board Members:

This report provides information required for the General Retirement System of the City of Detroit in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67 “Financial Reporting for Pension Plans” and Statement No. 68 “Employer Reporting for Pension Plans.” These calculations have been made on a basis that is consistent with our understanding of these Statements. This information is subject to the System’s Auditor’s review. Please let us know if the System’s Auditor recommends any changes. This report covers the General Retirement System Plan known as Component I (also known as the Hybrid Plan). The Component II is detailed in a separate report.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of satisfying the requirements of GASB Statement Nos. 67 and 68. The calculation of the plan’s liability for this report is not applicable for the purpose of funding for the plan. A calculation of the plan’s liability for purposes other than satisfying the requirements of GASB Statement Nos. 67 and 68 may produce significantly different results. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. Gabriel, Roeder, Smith & Company is not responsible for unauthorized use of this report.

This report is based upon information, furnished to us by System staff, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. This report is based on the valuation date of June 30, 2018. The total pension liability was rolled-forward from the valuation date to the plan year ending June 30, 2019 using generally accepted actuarial principles. The asset information as of June 30, 2019 was provided by the System. This information was checked for internal consistency, but it was not audited by Gabriel, Roeder, Smith & Company. A description of certain adjustments that we made to the data is provided in the June 30, 2018 actuarial valuation report issued March 21, 2019. If, in your view, those adjustments are not reasonable, please let us know and do not rely on this report until you are satisfied that the adjustments are reasonable. GRS is not responsible for the accuracy of the data provided by the Retirement System.

At the direction of the System and approval of the System’s Auditor, the long-term expected return on assets used to determine the discount rate is 7.38% net of investment expenses as of June 30, 2019, the same rate, net of investment expenses, as of June 30, 2019. We have reviewed this assumption based on the System’s asset allocation and have determined it is reasonable for the purpose of the measurement being taken.

The benefit provisions reflected in this valuation for the development of the end of year Total Pension Liability (TPL) are those in effect for Component I as of the end of the plan year on June 30, 2018. There were no changes in benefit provisions between the June 30, 2018 GASB Statement Nos. 67 and 68 valuation and this valuation.

To the best of our knowledge, the information contained within this report is accurate and fairly represents the actuarial position of the System on the measurement date for purposes of GASB Statement Nos. 67 and 68 reporting. 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.

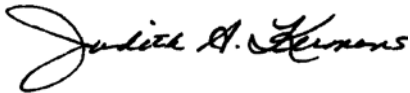
The signing individuals are independent of the plan sponsor.

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

Respectfully submitted,



David T. Kausch, FSA, EA, FCA, MAAA, PhD
Senior Consultant and Chief Actuary



Judith A. Kermans, EA, FCA, MAAA
President and Senior Consultant



Kenneth G. Alberts
Consultant

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SECTION A

EXECUTIVE SUMMARY

Executive Summary as of June 30, 2019

Actuarial Valuation Date	June 30, 2018
Measurement Date of the Net Pension Liability	June 30, 2019
Employer's Fiscal Year Ending Date (GASB No. 68 Reporting Date)	June 30, 2020

Membership

Number of	
- Retirees and Beneficiaries	247
- Legacy Disabled Members	122
- Inactive, Nonretired Members	899
- Active Members	5,629
- Total	6,897
Covered Payroll	\$ 263,291,986

Net Pension Liability

Total Pension Liability	\$ 134,403,855
Plan Fiduciary Net Position	130,263,912
Net Pension Liability	\$ 4,139,943
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	96.92%
Net Pension Liability as a Percentage of Covered Payroll	1.57%

Development of the Single Discount Rate

Single Discount Rate	7.38%
Long-Term Expected Rate of Investment Return	7.38%
Long-Term Municipal Bond Rate*	3.13%
Last year ending June 30 in the 2020 to 2119 projection period for which projected benefit payments are fully funded	2119

Total Pension Expense	\$ 2,163,254
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Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ 12,083,428	\$ 3,879,684
Changes in assumptions	2,521,770	4,532,757
Net difference between projected and actual earnings on pension plan investments	4,399,942	4,293,404
Total	\$ 19,005,140	\$ 12,705,845

*Source: Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 28, 2019. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 taxexempt securities.

Discussion

Changes to the Actuarial Assumptions

For purposes of determining the Total Pension Liability (TPL) as of June 30, 2019, we note the following differences from those used in the June 30, 2018 funding valuation:

- At the direction of the System and approval of the System's Auditor, the long-term expected return on assets was 7.38% net of investment expenses, as of June 30, 2019 (it was 6.75% net of investment and administrative expenses, in the June 30, 2018 funding valuation, as required by the Plan of Adjustment).
- Administrative expenses are assumed to be 3.0% of Component I payroll, shared 60% with Component II and 40% with Component I. This was reflected in our modeling, where appropriate.
- Attribution period for normal cost starts at the later of date of hire or July 1, 2014 (plan effective date) for each individual.

All other actuarial assumptions were the same as those used in the June 30, 2018 actuarial valuation (the funding valuation). There were no assumption changes from those used in the June 30, 2018 GASB Statement Nos. 67 and 68 valuation.

Changes to the Plan Provisions

There were no changes in benefit provisions during the year affecting the Total Pension Liability.

Funding

Employee contributions are initially set to 4.0% of payroll but can be increased if necessary to maintain funding levels at 100%. Employer contributions are initially set at 5.0% of payroll. Employer contributions are actuarially determined beginning in 2024 to be the amount necessary to fund the plan on an actuarial basis.

Post Retirement COLA

This plan has a post retirement COLA feature known as the Variable Pension Improvement Factor or VPIF of a 2% simple COLA. It can be granted beginning July 1, 2018 only if a five-year projection shows the plan funded status at 100% based upon a 6.75% future investment return. Beginning in fiscal 2024, employer contributions will be actuarially determined. It is reasonable to assume that there will be years in which a 2% simple COLA will be granted, however, it is unlikely to be granted every year. For purposes of the TPL, we have therefore assumed a 0.50% simple COLA beginning July 1, 2019 to model the potential average COLA over time. In the Notes section we report the TPL based on 1) 0% VPIF, and 2) 2% simple VPIF beginning July 1, 2019.

Data Approximations and Assumptions

A description of the data approximations and assumptions used in making this report are included in the June 30, 2018 funding valuation report.

Magnitude of Administrative Expenses

Administrative expenses are assumed to be 3.0% of Component I payroll, shared 60% with Component II and 40% with Component I. The allocation is consistent with this year's allocation as shown in the assets.

Transfers of Assets from Component II

In the event that the rate of interest credited to the Annuity Savings Fund (ASF) of the Component II (Legacy) Plan is less than the rate earned by the Component II portion of the trust, a transfer of the difference (in rates applied to the Component II ASF balance) to the Component I portion of the trust may occur to fund transition liabilities. For purposes of this valuation, future transfers were assumed not to occur. Historic transfers related to this activity are shown below:

- Fiscal Year Ending June 30, 2019: \$9,015,677
 - General: \$4,537,434
 - DOT: \$2,565,553
 - DWSD: \$1,260,469
 - Library: \$652,221

Development of Employer Proportionate Shares

Consistent with past instructions, we have developed the proportionate employer shares as follows:

- General, DOT, DWSD, and Library have contribution rates assessed on separate relationships and are therefore accounted for separately under Paragraph 49 of GASB No. 68.
- The component units in the General Division were 1) General City; 2) Parking; and 3) Airport.
- Proportionate shares in the General Division were determined by prorating based on salary.

Plan

The General Retirement System has two components. It is our understanding that Component I and Component II are separate plans and that the assets from one plan cannot be used to satisfy the liabilities of the other, even though assets may be pooled for investment purposes. Therefore, this report only includes the liabilities and reported assets of Component I. The liabilities and reported assets of Component II are detailed in a separate report.

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 General Retirement System of the City of Detroit subsequent to the measurement date of June 30, 2019.

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 certain changes in 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-employee payroll; and
- a comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

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, 2018, rolled forward to the plan year end of June 30, 2019.

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 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 7.38%; the municipal bond rate is 3.13% (based on the daily rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting Single Discount Rate is 7.38%.

For purposes of calculating the SDR, the following simplifications were made to the projections:

- 1) Voluntary employee contributions were excluded.
- 2) The VPIF was assumed to be a 0.50% simple increase each year beginning in Fiscal Year 2020.
- 3) Mandatory employee contributions were assumed to be fixed at the current rate of 4%.
- 4) The VPIF reduction under Section 9.5 of the plan was assumed not to occur.
- 5) Employer contributions were determined in a manner to fully fund the liabilities beginning in 2024, in accordance with the plan.

Limitation of Assets as a Percent of Total Pension Liability Measurements

This report includes a measure of the plan fiduciary net position as a percent of total pension liability (96.92% as of June 30, 2019). Unless otherwise indicated, with regard to any such measurements in this report:

- (1) This measurement is not intended to be a funded ratio or a measure of funded progress.
- (2) This measurement is inappropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations.
- (3) The measurement is inappropriate for assessing the need for or amount of future employer contributions.

Limitations of Project Scope

Actuarial Standards do not require the actuary to evaluate the ability of the Plan sponsor or other contributing entities to make required contributions when due. Such an evaluation was not within the scope of this project and is not within our area of expertise.

SECTION B

FINANCIAL STATEMENTS

This information is subject to the System's Auditor's review. Please let us know if the System's Auditor recommends any changes.

Statement of Fiduciary Net Position as of June 30, 2019

Assets

Cash and Cash Equivalents	\$ 49,781,983
Receivables	\$ 3,354,674
Investments at Fair Value	\$ 76,816,322
Cash and Investments held as collateral for securities lending	\$ 5,191,886
Capital Assets - Net	<u>\$ 776,512</u>
Total Assets	<u><u>\$ 135,921,377</u></u>

Liabilities

Accounts Payable	<u>\$ 5,657,465</u>
Total Liabilities	<u><u>\$ 5,657,465</u></u>

Total Fund Balances	<u><u>\$ 130,263,912</u></u>
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Accumulated Voluntary Contribution Fund	\$ 24,083,200
Other Reserves	<u>\$ 106,180,712</u>
Plan Fiduciary Net Position	<u><u>\$ 130,263,912</u></u>

Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2019

Additions

Contributions

Employer	\$ 12,205,700
Mandatory Employee	9,765,911
Voluntary Employee	<u>5,804,274</u>
Total Contributions	<u>\$ 27,775,885</u>

Investment Income

Net Appreciation in Fair Value of Investments	\$ 2,044,956
Interest and Dividends	1,860,770
Less Investment Expense	<u>(634,865)</u>
Net Investment Income	<u>\$ 3,270,861</u>

Other	<u>\$ 9,066,287</u>
Total Additions	<u>\$ 40,113,033</u>

Deductions

Benefit Payments, including Refunds of Mandatory Employee Contributions	\$ 1,920,550
Pension Plan Administrative Expense	1,942,063
Voluntary Contributions, Benefit Payments and Refunds	<u>1,618,834</u>
Total Deductions	<u>\$ 5,481,447</u>

Net Increase in Net Position	\$ 34,631,586
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Net Position Restricted for Pensions

Total Fund Balances Beginning of Year	<u>\$ 95,632,326</u>
Total Fund Balances End of Year	<u><u>\$ 130,263,912</u></u>

Statement of Pension Expense Under GASB Statement No. 68

Fiscal Year Ended June 30, 2019*

A. Expense	General		DOT		DWSD		Library		Total
1. Service Cost [#]	\$	17,279,739	\$	4,790,491	\$	2,767,712	\$	1,137,928	\$ 25,975,870
2. Interest on the Total Pension Liability		4,629,905		1,360,076		1,152,253		389,166	7,531,400
3. Current-Period Benefit Changes		0		0		0		0	0
4. Employee Contributions (made negative for addition here) [#]		(10,703,559)		(2,707,309)		(1,762,867)		(396,450)	(15,570,185)
5. Projected Earnings on Plan Investments (made negative for addition here)		(5,225,827)		(1,383,780)		(1,219,028)		(386,241)	(8,214,876)
6. Pension Plan Administrative Expense		1,227,779		323,362		299,865		91,057	1,942,063
7. Other Changes in Plan Fiduciary Net Position		(4,569,430)		(2,573,980)		(1,268,283)		(654,594)	(9,066,287)
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		1,299,730		22,164		(1,421,780)		(46,437)	(146,323)
9. Recognition of Outflow (Inflow) of Resources due to Assets		(96,857)		(65,339)		(109,584)		(16,628)	(288,408)
10. Total Pension Expense	\$	3,841,480	\$	(234,315)	\$	(1,561,712)	\$	117,801	\$ 2,163,254

* Totals may not add due to rounding.

Includes voluntary member contributions made during the year.

Statement of Outflows and Inflows Arising from Current Reporting Period Fiscal Year Ended June 30, 2019*

A. Outflows (Inflows) of Resources due to Liabilities

	General	DOT	DWSD	Library	Total
1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ 6,026,142	\$ 297,728	\$ 1,064,454	\$ 168,534	\$ 7,556,858
2. Assumption Changes (gains) or losses	\$ -	\$ -	\$ -	\$ -	\$ -
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	8.2119	6.5909	4.0702	6.6330	N/A
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	\$ 733,830	\$ 45,173	\$ 261,524	\$ 25,408	\$ 1,065,935
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	\$ 733,830	\$ 45,173	\$ 261,524	\$ 25,408	\$ 1,065,935
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	\$ 5,292,312	\$ 252,555	\$ 802,930	\$ 143,126	\$ 6,490,923
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	\$ 5,292,312	\$ 252,555	\$ 802,930	\$ 143,126	\$ 6,490,923

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ 3,241,366	\$ 692,108	\$ 732,750	\$ 277,791	\$ 4,944,015
2. Recognition period for Assets {in years}	5.0000	5.0000	5.0000	5.0000	5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	\$ 648,273	\$ 138,422	\$ 146,550	\$ 55,558	\$ 988,803
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ 2,593,093	\$ 553,686	\$ 586,200	\$ 222,233	\$ 3,955,212

* Totals may not add due to rounding.

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2019 General

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	\$ 1,978,685	\$ 678,955	\$ 1,299,730
2. Due to Assets	942,710	1,039,567	(96,857)
3. Total	\$ 2,921,395	\$ 1,718,522	\$ 1,202,873

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	\$ 1,635,881	\$ 156,312	\$ 1,479,569
2. Assumption Changes	342,804	522,643	(179,839)
3. Net Difference between projected and actual earnings on pension plan investments	942,710	1,039,567	(96,857)
4. Total	\$ 2,921,395	\$ 1,718,522	\$ 1,202,873

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

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	\$ 10,764,503	\$ 730,511	\$ 10,033,992
2. Assumption Changes	1,564,887	3,052,965	(1,488,078)
3. Net Difference between projected and actual earnings on pension plan investments	2,835,781	2,489,381	346,400
4. Total	\$ 15,165,171	\$ 6,272,857	\$ 8,892,314

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

Year Ending June 30	Net Deferred Outflows of Resources
2020	\$ 1,151,124
2021	908,434
2022	1,537,758
2023	1,962,993
2024	1,243,459
Thereafter	2,088,546
Total	\$ 8,892,314

Recognition of Deferred Outflows and Inflows of Resources

Fiscal Year Ended June 30, 2019

General

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2015	\$ -	8.7829	\$ -	\$ -	3.7829
2016	381,500	8.4005	45,414	199,844	4.4005
2017	(1,199,447)	7.6734	(156,312)	(730,511)	4.6734
2018	6,985,621	8.1547	856,637	5,272,347	6.1547
2019	6,026,142	8.2119	733,830	5,292,312	7.2119
Total			\$ 1,479,569	\$ 10,033,992	
Deferred Outflow (Inflow) due to Assumption Changes					
2015	\$ (606,362)	8.7829	\$ (69,039)	\$ (261,167)	3.7829
2016	1,144,153	8.4005	136,201	599,349	4.4005
2017	1,585,347	7.6734	206,603	965,538	4.6734
2018	(3,699,006)	8.1547	(453,604)	(2,791,798)	6.1547
2019	-	8.2119	-	-	7.2119
Total			\$ (179,839)	\$ (1,488,078)	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2015	\$ 258,732	5.0000	\$ 51,748	\$ -	0.0000
2016	1,213,444	5.0000	242,689	242,688	1.0000
2017	(3,146,617)	5.0000	(629,323)	(1,258,648)	2.0000
2018	(2,051,221)	5.0000	(410,244)	(1,230,733)	3.0000
2019	3,241,366	5.0000	648,273	2,593,093	4.0000
Total			\$ (96,857)	\$ 346,400	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2019 DOT

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	\$ 182,282	\$ 160,118	\$ 22,164
2. Due to Assets	217,062	282,401	(65,339)
3. Total	\$ 399,344	\$ 442,519	\$ (43,175)

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	\$ 69,763	\$ 8,914	\$ 60,849
2. Assumption Changes	112,519	151,204	(38,685)
3. Net Difference between projected and actual earnings on pension plan investments	217,062	282,401	(65,339)
4. Total	\$ 399,344	\$ 442,519	\$ (43,175)

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

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	\$ 372,869	\$ 26,579	\$ 346,290
2. Assumption Changes	369,045	687,307	(318,262)
3. Net Difference between projected and actual earnings on pension plan investments	621,174	620,907	267
4. Total	\$ 1,363,088	\$ 1,334,793	\$ 28,295

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

Year Ending June 30	Net Deferred Outflows of Resources
2020	\$ (54,327)
2021	(121,814)
2022	116,208
2023	111,784
2024	(50,246)
Thereafter	26,690
Total	\$ 28,295

Recognition of Deferred Outflows and Inflows of Resources

Fiscal Year Ended June 30, 2019

DOT

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2015	\$ -	7.4547	\$ -	\$ -	2.4547
2016	(62,235)	6.9818	(8,914)	(26,579)	2.9818
2017	2,441	6.4760	377	1,310	3.4760
2018	167,430	6.9149	24,213	119,004	4.9149
2019	297,728	6.5909	45,173	252,555	5.5909
Total			\$ 60,849	\$ 346,290	
Deferred Outflow (Inflow) due to Assumption Changes					
2015	\$ (169,220)	7.4547	\$ (22,700)	\$ (55,720)	2.4547
2016	311,819	6.9818	44,662	133,171	2.9818
2017	439,445	6.4760	67,857	235,874	3.4760
2018	(888,595)	6.9149	(128,504)	(631,587)	4.9149
2019	-	6.5909	-	-	5.5909
Total			\$ (38,685)	\$ (318,262)	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2015	\$ 55,763	5.0000	\$ 11,151	\$ -	0.0000
2016	337,444	5.0000	67,489	67,488	1.0000
2017	(1,131,479)	5.0000	(226,296)	(452,591)	2.0000
2018	(280,526)	5.0000	(56,105)	(168,316)	3.0000
2019	692,108	5.0000	138,422	553,686	4.0000
Total			\$ (65,339)	\$ 267	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2019 DWSD

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	\$ 465,715	\$ 1,887,495	\$ (1,421,780)
2. Due to Assets	286,332	395,916	(109,584)
3. Total	\$ 752,047	\$ 2,283,411	\$ (1,531,364)

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	\$ 261,524	\$ 1,616,774	\$ (1,355,250)
2. Assumption Changes	204,191	270,721	(66,530)
3. Net Difference between projected and actual earnings on pension plan investments	286,332	395,916	(109,584)
4. Total	\$ 752,047	\$ 2,283,411	\$ (1,531,364)

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

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	\$ 802,930	\$ 2,878,044	\$ (2,075,114)
2. Assumption Changes	423,558	542,682	(119,124)
3. Net Difference between projected and actual earnings on pension plan investments	696,493	928,640	(232,147)
4. Total	\$ 1,922,981	\$ 4,349,366	\$ (2,426,385)

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

Year Ending June 30	Net Deferred Outflows of Resources
2020	\$ (1,560,853)
2021	(1,019,341)
2022	90,358
2023	63,451
2024	-
Thereafter	-
Total	\$ (2,426,385)

Recognition of Deferred Outflows and Inflows of Resources

Fiscal Year Ended June 30, 2019

DWSD

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2015	\$ -	8.5457	\$ -	\$ -	3.5457
2016	(1,577,654)	7.5653	(208,538)	(743,502)	3.5653
2017	(3,118,495)	4.3150	(722,710)	(950,365)	1.3150
2018	(2,555,229)	3.7274	(685,526)	(1,184,177)	1.7274
2019	1,064,454	4.0702	261,524	802,930	3.0702
Total			\$ (1,355,250)	\$ (2,075,114)	
Deferred Outflow (Inflow) due to Assumption Changes					
2015	\$ (352,686)	8.5457	\$ (41,271)	\$ (146,331)	3.5457
2016	521,263	7.5653	68,902	245,655	3.5653
2017	583,770	4.3150	135,289	177,903	1.3150
2018	(855,251)	3.7274	(229,450)	(396,351)	1.7274
2019	-	4.0702	-	-	3.0702
Total			\$ (66,530)	\$ (119,124)	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2015	\$ 147,445	5.0000	\$ 29,489	\$ -	0.0000
2016	551,465	5.0000	110,293	110,293	1.0000
2017	(1,295,534)	5.0000	(259,107)	(518,213)	2.0000
2018	(684,045)	5.0000	(136,809)	(410,427)	3.0000
2019	732,750	5.0000	146,550	586,200	4.0000
Total			\$ (109,584)	\$ (232,147)	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2019 Library

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	\$ 66,793	\$ 113,230	\$ (46,437)
2. Due to Assets	86,257	102,885	(16,628)
3. Total	\$ 153,050	\$ 216,115	\$ (63,065)

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	\$ 25,408	\$ 56,906	\$ (31,498)
2. Assumption Changes	41,385	56,324	(14,939)
3. Net Difference between projected and actual earnings on pension plan investments	86,257	102,885	(16,628)
4. Total	\$ 153,050	\$ 216,115	\$ (63,065)

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

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	\$ 143,126	\$ 244,550	\$ (101,424)
2. Assumption Changes	164,280	249,803	(85,523)
3. Net Difference between projected and actual earnings on pension plan investments	246,494	254,476	(7,982)
4. Total	\$ 553,900	\$ 748,829	\$ (194,929)

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

Year Ending June 30	Net Deferred Outflows of Resources
2020	\$ (69,503)
2021	(93,764)
2022	(39,585)
2023	8,523
2024	(16,686)
Thereafter	16,086
Total	\$ (194,929)

Recognition of Deferred Outflows and Inflows of Resources

Fiscal Year Ended June 30, 2019

Library

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2015	\$ -	8.2882	\$ -	\$ -	3.2882
2016	(5,371)	7.5909	(708)	(2,539)	3.5909
2017	(351,986)	7.2520	(48,536)	(206,378)	4.2520
2018	(50,957)	6.6506	(7,662)	(35,633)	4.6506
2019	168,534	6.6330	25,408	143,126	5.6330
Total			\$ (31,498)	\$ (101,424)	
Deferred Outflow (Inflow) due to Assumption Changes					
2015	\$ (73,841)	8.2882	\$ (8,909)	\$ (29,296)	3.2882
2016	134,216	7.5909	17,681	63,492	3.5909
2017	171,900	7.2520	23,704	100,788	4.2520
2018	(315,337)	6.6506	(47,415)	(220,507)	4.6506
2019	-	6.6330	-	-	5.6330
Total			\$ (14,939)	\$ (85,523)	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2015	\$ 32,182	5.0000	\$ 6,438	\$ -	0.0000
2016	121,305	5.0000	24,261	24,261	1.0000
2017	(270,895)	5.0000	(54,179)	(108,358)	2.0000
2018	(243,530)	5.0000	(48,706)	(146,118)	3.0000
2019	277,791	5.0000	55,558	222,233	4.0000
Total			\$ (16,628)	\$ (7,982)	

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2019 Total

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	\$ 2,693,475	\$ 2,839,798	\$ (146,323)
2. Due to Assets	1,532,361	1,820,769	(288,408)
3. Total	\$ 4,225,836	\$ 4,660,567	\$ (434,731)

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	\$ 1,992,576	\$ 1,838,906	\$ 153,670
2. Assumption Changes	700,899	1,000,892	(299,993)
3. Net Difference between projected and actual earnings on pension plan investments	1,532,361	1,820,769	(288,408)
4. Total	\$ 4,225,836	\$ 4,660,567	\$ (434,731)

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

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	\$ 12,083,428	\$ 3,879,684	\$ 8,203,744
2. Assumption Changes	2,521,770	4,532,757	(2,010,987)
3. Net Difference between projected and actual earnings on pension plan investments	4,399,942	4,293,404	106,538
4. Total	\$ 19,005,140	\$ 12,705,845	\$ 6,299,295

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

Year Ending June 30	Net Deferred Outflows of Resources
2020	\$ (533,559)
2021	(326,485)
2022	1,704,739
2023	2,146,751
2024	1,176,527
Thereafter	2,131,322
Total	\$ 6,299,295

Schedule of Proportionate Employer Share for Year Ended June 30, 2019 General Subgroup

Deferred Outflows of Resources								
Salary	Employer	Prop. Share	Net Pension Liability	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assum.	Changes in Proportion and Differences Between Employer Cont. and Share of Cont.	Total Deferred Outflows of Resources
\$ 184,704,857	General City	98.26%	\$ 1,151,985	\$ 10,577,201	\$ 2,786,439	\$ 1,537,658	\$ 335,140	\$ 15,236,438
2,939,510	Parking	1.56%	18,289	167,926	44,238	24,412	-	236,576
330,652	Airport	0.18%	2,110	19,376	5,104	2,817	464	27,761
\$ 187,975,019	Total for All Employers	100.00%	\$ 1,172,384	\$ 10,764,503	\$ 2,835,781	\$ 1,564,887	\$ 335,604	\$ 15,500,775

Deferred Inflows of Resources						Pension Expense		
Employer	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	Changes of Assum.	Changes in Proportion and Differences Between Employer Cont. and Share of Cont.	Total Deferred Inflows of Resources	Prop. Share of Plan Pension Expense	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Cont. and Proportionate Share of Cont.	Total Employer Pension Expense
General City	\$ 717,800	\$ 2,446,066	\$ 2,999,844	\$ -	\$ 6,163,710	\$ 3,774,638	\$ 56,378	\$ 3,831,016
Parking	11,396	38,834	47,626	300,555	398,411	59,927	(50,843)	9,084
Airport	1,315	4,481	5,495	35,049	46,340	6,915	(5,535)	1,380
Total for All Employers	\$ 730,511	\$ 2,489,381	\$ 3,052,965	\$ 335,604	\$ 6,608,461	\$ 3,841,480	\$ -	\$ 3,841,480

Schedule of Proportionate Employer Share for Year Ended June 30, 2019 General Subgroup

Employer	Employer Allocation Percentage	Schedule of Deferred Inflows and Outflows						
		2020	2021	2022	2023	2024	Thereafter	Total
General City	98.26%	\$ 1,187,472	\$ 949,005	\$ 1,567,379	\$ 1,985,121	\$ 1,270,478	\$ 2,113,272	\$ 9,072,728
Parking	1.56%	(32,885)	(36,671)	(26,854)	(20,102)	(24,243)	(21,079)	(161,835)
Airport	0.18%	(3,463)	(3,900)	(2,767)	(2,026)	(2,776)	(3,648)	(18,579)
TOTAL	100.00%	\$ 1,151,124	\$ 908,434	\$ 1,537,758	\$ 1,962,993	\$ 1,243,459	\$ 2,088,546	\$ 8,892,314

Determination of Employer Contribution Allocation for Year Ended June 30, 2019

Employer	General City	Parking	Airport	General Total	DOT	DWSD	Library	Total
Contributions Before General Breakdown				\$8,731,163	\$1,554,503	\$1,329,961	\$590,073	\$12,205,700
General Employer Allocation Percent	100.00%	0.00%	0.00%	100.00%	N/A	N/A	N/A	N/A
Times General Total	\$8,731,163	\$8,731,163	\$8,731,163	\$8,731,163	N/A	N/A	N/A	N/A
Contribution Allocation Dollar	\$8,731,163	\$ 0	\$ 0	\$8,731,163	\$1,554,503	\$1,329,961	\$590,073	\$12,205,700

We understand that the General contributions should be split between the General Component units (General City, Parking and Airport) according to the above schedule. Please let us know if a different allocation should be used.

Recognition of Deferred Outflows and Inflows of Resources Due to Employer Specific Change in Proportion Fiscal Year Ended June 30, 2019

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
General City					
2015	\$ 3,767	8.7829	\$ 429	\$ 1,622	3.7829
2016	80,472	8.4005	9,579	42,156	4.4005
2017	36,533	7.6734	4,761	22,250	4.6734
2018	238,886	8.1547	29,294	180,298	6.1547
2019	101,128	8.2119	12,315	88,814	7.2119
Total			\$ 56,378	\$ 335,140	
Parking					
2015	\$ (4,841)	8.7829	\$ (551)	\$ (2,086)	3.7829
2016	(72,760)	8.4005	(8,661)	(38,116)	4.4005
2017	(34,338)	7.6734	(4,475)	(20,913)	4.6734
2018	(220,049)	8.1547	(26,984)	(166,081)	6.1547
2019	(83,530)	8.2119	(10,172)	(73,359)	7.2119
Total			\$ (50,843)	\$ (300,555)	
Airport					
2015	\$ 1,074	8.7829	\$ 122	\$ 464	3.7829
2016	(7,712)	8.4005	(918)	(4,040)	4.4005
2017	(2,195)	7.6734	(286)	(1,337)	4.6734
2018	(18,837)	8.1547	(2,310)	(14,217)	6.1547
2019	(17,598)	8.2119	(2,143)	(15,455)	7.2119
Total			\$ (5,535)	\$ (34,585)	

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in Net Pension Liability and Related Ratios Current Period

Fiscal Year Ended June 30, 2019[^]

A. Total pension liability	General		DOT		DWSD		Library		Total
1. Service cost									
1a. Normal Cost	\$	13,673,159	\$	3,316,444	\$	2,074,670	\$	1,107,323	\$ 20,171,596
1b. Voluntary Employee Contributions		3,606,580		1,474,047		693,042		30,605	5,804,274
1c. Service Cost (Total)	\$	17,279,739	\$	4,790,491	\$	2,767,712	\$	1,137,928	\$ 25,975,870
2. Interest on the Total Pension Liability (and Service Cost)		4,629,905		1,360,076		1,152,253		389,166	7,531,400
3. Changes of benefit terms		0		0		0		0	0
4. Difference between expected and actual experience of the Total Pension Liability		6,026,142		297,728		1,064,454		168,534	7,556,858
5. Changes of assumptions		0		0		0		0	0
6. Benefit payments, including refunds of employee contributions		(2,073,245)		(858,012)		(557,569)		(50,558)	(3,539,384)
7. Net change in total pension liability	\$	25,862,541	\$	5,590,283	\$	4,426,850	\$	1,645,070	\$ 37,524,744
8. Total pension liability – beginning		58,456,538		18,294,218		15,378,321		4,750,034	96,879,111
9. Total pension liability – ending	\$	84,319,079	\$	23,884,501	\$	19,805,171	\$	6,395,104	\$ 134,403,855
B. Plan fiduciary net position									
1. Contributions – employer	\$	8,731,163	\$	1,554,503	\$	1,329,961	\$	590,073	\$ 12,205,700
2. Contributions – employee mandatory		7,096,979		1,233,262		1,069,825		365,845	9,765,911
3. Net investment income		1,984,461		691,672		486,278		108,450	3,270,861
4. Benefit payments, including refunds of employee contributions		(1,226,302)		(344,437)		(300,980)		(48,831)	(1,920,550)
5. Benefit Payments and Refunds based on Voluntary Contributions		(846,943)		(513,575)		(256,589)		(1,727)	(1,618,834)
6. Pension Plan Administrative Expense		(1,227,779)		(323,362)		(299,865)		(91,057)	(1,942,063)
7. Voluntary Employee Contributions		3,606,580		1,474,047		693,042		30,605	5,804,274
8. Other		4,569,430		2,573,980		1,268,283		654,594	9,066,287
9. Net change in plan fiduciary net position	\$	22,687,589	\$	6,346,090	\$	3,989,955	\$	1,607,952	\$ 34,631,586
10. Plan fiduciary net position – beginning		60,459,106		15,923,201		14,766,153		4,483,866	95,632,326
11. Plan fiduciary net position – ending	\$	83,146,695	\$	22,269,291	\$	18,756,108	\$	6,091,818	\$ 130,263,912
C. Net pension liability	\$	1,172,384	\$	1,615,210	\$	1,049,063	\$	303,286	\$ 4,139,943
D. Plan fiduciary net position as a percentage of the total pension liability									
		98.61%		93.24%		94.70%		95.26%	96.92%
E. Covered-employee payroll	\$	187,975,019	\$	35,390,439	\$	26,810,527	\$	13,116,001	\$ 263,291,986
F. Net pension liability as a percentage of covered-employee payroll									
		0.62%		4.56%		3.91%		2.31%	1.57%

[^] Totals may not add due to rounding.

* Includes voluntary member contributions made during the year.

A Special Funding Situation may occur if a non-city entity has a legal obligation to contribute directly to the Retirement System. The Net Pension Liability shown here has not been adjusted for any potential special funding situation.

Schedules of Required Supplementary Information

Schedule of Changes in Net Pension Liability and Related Ratios Multiyear

Ultimately 10 Fiscal Years Will Be Displayed

Fiscal year ending June 30,	2019	2018	2017	2016	2015
Total Pension Liability					
Service Cost					
1a. Normal Cost	\$ 20,171,596	\$ 17,056,732	\$ 18,417,036	\$ 18,302,706	\$ 19,318,576
1b. Voluntary Employee Contributions	5,804,274	5,302,650	5,043,347	5,213,744	5,775,885
1c. Service Cost (Total)	\$ 25,975,870	\$ 22,359,382	\$ 23,460,383	\$ 23,516,450	\$ 25,094,461
Interest on the Total Pension Liability (and Service Cost)	7,531,400	5,438,061	4,084,390	2,495,896	695,469
Benefit Changes	-	-	-	-	-
Difference between Expected and Actual Experience	7,556,858	4,546,865	(4,667,487)	(1,263,760)	-
Assumption Changes	-	(5,758,189)	2,780,462	2,111,451	(1,202,108)
Benefit Payments	(518,565)	(399,127)	(288,290)	(40,162)	-
Refunds	(3,020,819)	(1,991,465)	(1,846,519)	(2,247,052)	-
Net Change in Total Pension Liability	37,524,744	24,195,527	23,522,939	24,572,823	24,587,822
Total Pension Liability - Beginning	96,879,111	72,683,584	49,160,645	24,587,822	-
Total Pension Liability - Ending (a)	\$ 134,403,855	\$ 96,879,111	\$ 72,683,584	\$ 49,160,645	\$ 24,587,822
Plan Fiduciary Net Position					
Employer Contributions	\$ 12,205,700	\$ 14,673,644	\$ 9,484,992	\$ 9,048,831	\$ 8,811,369
Mandatory Employee Contributions	9,765,911	8,837,967	7,752,057	7,345,515	6,970,544
Pension Plan Net Investment Income	3,270,861	8,445,590	9,100,741	(76,608)	20,690
Benefit Payments	(518,565)	(399,127)	(288,290)	(40,162)	-
Refunds of Mandatory Contributions	(1,401,985)	(909,423)	(733,557)	(990,898)	-
Benefit Payments and Refunds based on Voluntary Contributions	(1,618,834)	(1,082,042)	(1,112,962)	(1,256,154)	(10,603)
Pension Plan Administrative Expense	(1,942,063)	(2,171,693)	(2,639,392)	(3,094,197)	(1,481,589)
Voluntary Employee Contributions	5,804,274	5,302,650	5,043,347	5,213,744	5,786,488
Other	9,066,287	12,436	61,833	6,586	-
Net Change in Plan Fiduciary Net Position	34,631,586	32,710,002	26,668,769	16,156,657	20,096,899
Plan Fiduciary Net Position - Beginning	95,632,326	62,922,324	36,253,555	20,096,898	-
Plan Fiduciary Net Position - Ending (b)	\$ 130,263,912	\$ 95,632,326	\$ 62,922,324	\$ 36,253,555	\$ 20,096,899
Net Pension Liability - Ending (a) - (b)	\$ 4,139,943	\$ 1,246,785	\$ 9,761,260	\$ 12,907,090	\$ 4,490,923
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	96.92 %	98.71 %	86.57 %	73.75 %	81.74 %
Covered-Employee Payroll	\$ 263,291,986	\$ 229,954,351	\$ 169,014,411	\$ 199,135,119	\$ 203,507,079
Net Pension Liability as a Percentage of Covered-Employee Payroll	1.57 %	0.54 %	5.78 %	6.48 %	2.21 %
Notes to Schedule:					
N/A					

A Special Funding Situation may occur if a non-city entity has a legal obligation to contribute directly to the Retirement System. The Net Pension Liability shown here has not been adjusted for any potential special funding situation.

Schedules of Required Supplementary Information

Schedule of the Net Pension Liability Multiyear

Ultimately 10 Fiscal Years Will Be Displayed

<u>FY Ending June 30,</u>	<u>Total Pension Liability</u>	<u>Plan Net Position</u>	<u>Net Pension Liability</u>	<u>Plan Net Position as a % of Total Pension Liability</u>	<u>Covered Payroll*</u>	<u>Net Pension Liability as a % of Covered Payroll</u>
2015	\$ 24,587,822	\$ 20,096,899	\$ 4,490,923	81.74%	\$ 203,507,079	2.21%
2016	49,160,645	36,253,555	12,907,090	73.75%	199,135,119	6.48%
2017	72,683,584	62,922,324	9,761,260	86.57%	169,014,411	5.78%
2018	96,879,111	95,632,326	1,246,785	98.71%	229,954,351	0.54%
2019	134,403,855	130,263,912	4,139,943	96.92%	263,291,986	1.57%

* Covered payroll shown is the reported payroll from the actuarial valuation date (census date). Actual covered payroll paid during the year was unavailable.

Schedule of Contributions Multiyear

Last 10 Fiscal Years

FY Ending June 30,	Actuarially Determined Contribution[#]	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll*	Actual Contribution as a % of Covered Payroll
2015	N/A	\$ 8,811,369	N/A	\$ 203,507,079	4.33%
2016	N/A	9,048,831	N/A	199,135,119	4.54%
2017	N/A	9,484,992	N/A	169,014,411	5.61%
2018	N/A	14,673,644	N/A	229,954,351	6.38%
2019	N/A	12,205,700	N/A	263,291,986	4.64%

* Covered payroll shown is the reported payroll from the actuarial valuation date (census date). Actual covered payroll paid during the year was unavailable.

Employer contribution amounts are set in the plan until Fiscal Year 2024.

Notes to Schedule of Contributions

Employers Contribution: 5% of Compensation commencing July 1, 2014 and ending June 30, 2023, to be split between the Pension Accumulation Fund (PAF) and the Rate Stabilization Reserve (RSR). For Plan years 2024 and later, contributions shall be determined by an Actuary using reasonable and appropriate assumptions approved by the Board and the Investment Committee. We understand that 100% of the employer contributions has gone to PAF and 0% to the RSR.

Schedule of Investment Returns

This information should be provided by the Plan's investment consultant.

SECTION D

NOTES TO FINANCIAL STATEMENTS

Single Discount Rate

The projection of contributions used to determine the Single Discount Rate assumed that the Single Discount Rate of 7.38% was used to measure the total pension liability as of June 30, 2019. This Single Discount Rate was based on the expected rate of return on pension plan investments of 7.38% as directed by the System and approved by the System's Auditor. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at 4.00% of compensation and that employer contributions will be made at 5.00% of compensation through June 30, 2023. Beyond 2023, the employer contributions will be actuarially determined, however, the Board does not have a funding policy at this time. For purposes of the GASB projections only, the employer contribution shown in this report is the rate which, when applied to the closed group payroll, is sufficient to fund the benefits. The rate as determined is 5.19% of the closed group payroll. The actual contributions to this plan will be on open group payroll under different assumptions and methods and are expected to be at a lower rate. The distortion caused by the required GASB projection should not be interpreted as a funding recommendation or requirement. Based on these assumptions, the pension plan's fiduciary net position was determined 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 7.38%, 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 Net Pension Liability to the Single Discount Rate Assumption

	1% Decrease 6.38%	Current Single Discount Rate Assumption 7.38%	1% Increase 8.38%
Total Pension Liability (TPL)	\$152,926,106	\$134,403,855	\$119,387,798
Net Position Restricted for Pensions	130,263,912	130,263,912	130,263,912
Net Pension Liability (NPL)	\$ 22,662,194	\$ 4,139,943	\$(10,876,114)

The interest rates shown above (other than the current assumption) are shown for purposes of demonstrating sensitivity. Their inclusion in this report does not imply we believe them to be reasonable estimates of future investment returns.

Expected Real Returns by Asset Class

This information should be provided by the Plan's investment consultant.

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	247
Inactive Plan Members - Legacy Disabled Members	122
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	899
Active Plan Members	<u>5,629</u>

Additional information regarding the plan population may be found in the June 30, 2018 actuarial valuation of the System.

Additional Note

Liabilities and reported assets for Component II are not included in this report and will be detailed in a separate report.

The Total Pension Liability in this report is based on an average assumed VPIF of 0.5% simple increase per year beginning July 1, 2019.

The Total Pension Liability is sensitive to the assumption regarding the VPIF. The sensitivity may increase as the plan matures. To illustrate the sensitivity, we are showing the Total Pension Liability below based on two alternate VPIF assumptions: 1) 0%, and 2) 2% beginning July 1, 2019 (the maximum amount payable).

VPIF Assumption

	Minimum (0%)	Current Assumption (0.5% beginning 7/1/2019)	Maximum (2% beginning 7/1/2019)
Total Pension Liability (TPL)	\$130,065,380	\$134,403,855	\$147,473,412
Net Position Restricted for Pensions	130,263,912	130,263,912	130,263,912
Net Pension Liability (NPL)	\$ (198,532)	\$ 4,139,943	\$ 17,209,500

SECTION E

SUMMARY OF BENEFITS

City of Detroit General Retirement System

Summary of Component I Benefit Provisions Evaluated

Plan Year

The Plan Year is the 12-month period commencing on July 1, and ending on June 30. The first plan year starts July 1, 2014.

Full Time Employees

Full Time Employees are individuals who are required to work 600 hours per year. Part time transit operators working 25 hours per week are not full time employees. Special Service Operators are required to work 1,440 hours per year. However, once a Special Service Operator meets the requirement in any year, he or she is deemed to meet it in all future years.

Plan Membership

The membership of the Retirement System shall consist of all persons who are full time employees of the City of Detroit except persons who are members of the Police and Fire Retirement System of the City of Detroit and those individuals who are active members in any other public employee pension plan adopted by either the State of Michigan (other than the Michigan National Guard), or any other political subdivision of the State of Michigan.

Service Credit

Credited Service: A member is credited with one month of Credited Service for each calendar month in which the individual performs 140 hours or more of service for the employer as an employee. Credited Service is recorded from the later of July 1, 2014, or the date of hire, whichever is later.

Prior Service: Refers to service credit awarded to a member prior to July 1, 2014 under the terms of the Retirement System in effect on June 30, 2014.

Vesting Service: A member is credited with a year of vesting service for each Plan Year commencing on or after July 1, 2014 during which the member performs 1,000 or more hours of work for the employer. Prior Service, as defined above, is also Vesting Service.

Military Service: A member who enters the military while employed by the City and returns to employment with the City following military service receives service credit in the Retirement System for the military service time as though there had been no interruption of employment. In order to receive such service credit, the individual must pay contributions to the Retirement System for the military service time upon return to employment.

City of Detroit General Retirement System

Summary of Component I Benefit Provisions Evaluated

Average Final Compensation

Compensation: Compensation is base salary or wages, excluding bonuses, overtime pay, payment of unused accrued sick leave, longevity pay, payment for unused accrued vacation, the cost or value of fringe benefits, termination or severance pay, reimbursement of expenses or other extra payment of any kind. Compensation includes deferred compensation and “picked up” employee contributions to the Retirement System. Compensation is limited by IRC Section 401(a)(17).

Average Final Compensation: The average of the compensation received during the 10 consecutive years of Credited Service (including Prior Service) immediately preceding the date of the members last termination with the employer. If the member has less than ten years of Credited Service (including Prior Service), the Average Final Compensation is the average of the compensation received during all years of Credited Service.

Normal Retirement

Normal Retirement Age: The Normal Retirement Age is 62. For individuals who were active employees and who had 10 or more years of Vesting Service as of June 30, 2014 the normal retirement age is reduced as follows.

<u>Age as of July 1, 2014</u>	<u>Normal Retirement Age</u>
52 years or younger	62 Years
53 years	61 years and 9 months
54 years	61 years and 6 months
55 years	61 years and 3 months
56 years	61 years
57 years	60 years and 9 months
58 years	60 years and 6 months
59 years	60 years and 3 months
60 years	60 years
61 years	60 years

Normal Retirement Date: The later of 10 years of Vesting Service and attainment of Normal Retirement Age.

Normal Retirement Amount: The retirement allowance payable to a member who retires on or after the normal retirement date is 1.5% times average final compensation times Credited Service (after June 30, 2014) measured to the nearest month.

Early Retirement

Eligibility: Age 55 with 30 or more years of credited service plus prior service.

Early Retirement Amount: *The early retirement amount is the actuarial equivalent of the deferred retirement allowance that would be payable to the member on the Normal Retirement Date, assuming that the member terminated employment on the early retirement date.*

City of Detroit General Retirement System

Summary of Component I Benefit Provisions Evaluated

Deferred Retirement (Vested Benefit)

Eligibility: 10 years of Vesting Service.

Benefit Commencement: Age 62.

Annual Amount: Same as Normal Retirement but based on Average Final Compensation and Credited Service at the time of termination.

Disability Retirement

Eligibility: The individual must be eligible for long term disability benefits under a policy or plan of insurance or self-insurance maintained by the employer.

Amount: The Normal Retirement Allowance payable at Age 62. For members disabled in the line of duty, credited service accrues while a member is entitled to receive long term disability under the employer's plan or policy.

Accidental (Line of Duty) Death Before Retirement

Eligibility: Death resulting directly from performance of duty in the service of the employer or as a result of illness contracted or injuries received while in the service of the employer.

Amount: The surviving spouse is eligible to receive a monthly amount equal to the member's Retirement Allowance at time of death (minimum 10% of Average Final Compensation), unreduced for early payment, and payable until the surviving Spouse's death. Amounts payable from Worker's Comp or similar programs are offset against the amount payable to the spouse.

Ordinary (Other than Line of Duty) Death Before Retirement

Eligibility: 10 or more years of credited service (or death during disability, but prior to commencement of the retirement allowance). The individual must be employed by the employer at time of death.

Amount: The Surviving Spouse shall receive a retirement allowance computed as though the member had retired the day before death, notwithstanding that the death was prior to the Normal retirement Date, elected the Joint and 100% Option in favor of the spouse, and then died. Amounts payable from Worker's Comp or similar programs are offset against the amount payable to the spouse.

City of Detroit General Retirement System

Summary of Component I Benefit Provisions Evaluated

Refund of Mandatory Contributions

A member who ceases to be an employee for reasons other than retirement, death, or disability, may elect to receive a refund of mandatory Accumulated Contributions (without interest) in lieu of any other Component I benefit payable. In the case of a member who dies while employed by the City, or following termination of employment with the City, if no Surviving Spouse benefit is payable, the accumulated mandatory Employee Contributions (without interest) are paid to the member's estate.

Variable Pension Improvement Factor (VPIF Escalator)

Eligibility: Attainment of at least Age 62, and in receipt of a retirement allowance for at least 12 months as of the first day of the Plan Year.

Amount: Beginning July 1, 2018 and effective the first date of each Plan year thereafter, the Board may determine that a retiree's Component I Retirement Allowance shall be increased by 2% of the original retirement allowance. The VPIF Escalator may not be awarded in the event that the funding level of Component I of the Retirement System projected over a 5-year period falls below 100%. The VPIF escalator is not compounded.

Contributions

Members: 4% of Compensation. Member contributions are "picked up" in accordance with IRC 414(h).

Employers: 5% of Compensation commencing July 1, 2014 and ending June 30, 2023, to be split between the Pension Accumulation Fund and the Rate Stabilization reserve. For Plan years beginning July 1, 2023 and later, contributions shall be determined by an Actuary using reasonable and appropriate assumptions approved by the Board and the Investment Committee.

Voluntary Employee Contributions

Eligibility: Non-union member, or union member with Coverage by a collective bargaining agreement that permits the member to make Voluntary Employee Contributions to Component I.

Amount: 3%, 5%, or 7% of compensation at the election of the member. All voluntary employee contributions are made on an after-tax basis.

Earnings Crediting: Each Plan Year, accounts are credited with earnings at a rate equal to the net investment rate of return of Retirement System Assets for the second Plan Year immediately preceding the Plan Year in which earnings are to be credited. The earnings rate may not be less than 0% and may not exceed 5.25%.

Distribution: Upon termination of employment, accounts may be distributed in a lump sum, in equal monthly installments for a period not exceeding three years, or, at the option of the member, in the form of an actuarially equivalent life annuity payable in the same form as and added to the member's Retirement Allowance. The determination of actuarial equivalent for this purpose is based upon market rates of investment return and other market related assumptions. In case of a member who dies before receiving a distribution of his or her voluntary account, the value of the account is payable to the nominated beneficiary, or to the estate.

City of Detroit General Retirement System

Summary of Component I Benefit Provisions Evaluated

Forms of Payment

Normal Form of Payment: The normal form of payment is a straight life allowance with no death benefit, and, in particular, no residual refund of mandatory employee contributions. Until the date the first Retirement Allowance payment check is issued, any Member may elect to receive payment either in the Normal Form or in the Actuarial Equivalent of the Normal Form computed as of the effective date of retirement and payable in one of the forms described below.

Option One. Modified Cash Refund Annuity: If a Retiree who elected a Modified Cash Refund Annuity dies before payment has been received in an aggregate amount equal to, but not exceeding the Retiree's Accumulated Mandatory Employee Contributions at the time of retirement, the difference between said Accumulated Mandatory Employee Contributions and the aggregate amount of annuity payments already received, shall be paid in a single lump sum to a Beneficiary nominated by written designation duly executed by the Member and filed with the Board. If there are no such designated Beneficiaries surviving said Retiree, any such difference shall be paid to the Retiree's estate.

Option Two. Joint and One Hundred Percent Survivor Allowance: Upon the death of a Retiree who elected a Joint and One Hundred Percent Survivor Allowance, one hundred percent of the reduced Retirement Allowance shall be paid to and continued throughout the life of the Beneficiary nominated by written designation duly executed and filed with the Board prior to the date the first payment of the Retirement Allowance becomes due.

Option "A". Joint and Seventy-Five Percent Survivor Allowance: Upon the death of a Retiree who elected a Joint and Seventy-Five Percent Survivor Allowance, seventy-five percent of the reduced Retirement Allowance shall be continued throughout the life of and paid to the Beneficiary nominated by written designation duly executed by the Member and filed with the Board prior to the date the first payment of the Retirement Allowance becomes due.

Option Three. Joint and Fifty Percent Survivor Allowance: Upon the death of a Retiree who elected a Joint and Fifty Percent Survivor Allowance, fifty percent of the reduced Retirement Allowance shall be continued throughout the life of and paid to the Beneficiary nominated by written designation duly executed by the Member and filed with the Board prior to the date the first payment of the Retirement Allowance becomes due.

Option "B". Joint and Twenty-Five Percent Survivor Allowance: Upon the death of a Retiree who elected a Joint and Twenty-Five Percent Survivor Allowance, twenty-five percent of the reduced Retirement Allowance shall be paid throughout the life of the Beneficiary nominated by written designation duly executed and filed with the Board prior to the date the first payment of the Retirement Allowance becomes due.

Joint and Survivor Optional Forms of Payment: The Joint and Survivor Optional Forms of Payment provided under the Retirement System shall be made available in either the standard form or the pop-up form, as follows:

Standard Form: Under the Standard Form, the reduced Retirement Allowance shall be paid throughout the lifetime of the Retiree.

City of Detroit General Retirement System

Summary of Component I Benefit Provisions Evaluated

Pop-up Form: Under the Pop-up Form, the reduced Retirement Allowance shall be paid throughout the lifetime of the Retiree and the designated Beneficiary. In the event of the death of the designated Beneficiary during the lifetime of the Retiree, the amount of the Retirement Allowance shall be changed to the amount that would have been payable had the Retiree elected the Straight Life Retirement Allowance Form of Payment.

Coordination of Benefits: According to such rules and regulations as the Board shall adopt, until the first payment of a Retirement Allowance becomes due, but not thereafter, a Member under age sixty-five may elect to have the Member's Straight Life Retirement Allowance provided for under Component I equated on an Actuarial Equivalent basis to provide an increased Retirement Allowance payable to age sixty-two or age sixty-five, and to provide a decreased Retirement Allowance thereafter. The increased Retirement Allowance payable to such age shall approximate the total of the decreased Retirement Allowance payable thereafter and the estimated Social Security benefit. If a Member elects to receive increased and then decreased Retirement Allowance payments provided for in this paragraph, he or she may also elect to have such payments reduced by electing one of the optional forms of payment described above.

Disposition of Residue: If under a Joint and One Hundred Percent Survivor allowance, a Joint and Seventy-Five Percent Survivor allowance, a Joint and Fifty Percent Survivor allowance, or a Joint and Twenty-Five Percent Survivor allowance as provided above, both the Retiree and the Beneficiary die before they have received, in Retirement Allowance payments, an aggregate amount equal to the Retiree's Accumulated Mandatory Employee Contributions at the time of retirement, the difference between the said Accumulated Mandatory Employee Contributions and the aggregate amount of Retirement Allowances paid to the Retiree and Beneficiary, shall be paid in a single lump sum to such person or persons nominated by written designation of the Retiree duly executed and filed with the Board. If there are no such person or persons surviving the Retiree and the Beneficiary, any such difference shall be paid to the estate of the second to die of the Retiree or Beneficiary.

City of Detroit General Retirement System

Summary of Component I Benefit Provisions Evaluated

Rehire Before or After Retirement

A non-vested former member who is reemployed (except as a part time transit operator) within 6 years of termination may repay mandatory contributions. In such case, forfeited Credited Service and Vesting service are restored. If the member is reemployed more than 6 years following separation, mandatory contributions cannot be repaid. Vesting Service and Credited Service start over beginning with the date of reemployment.

A former member who is vested but has not yet begun to receive a Retirement Allowance and who is rehired **prior to being separated for six years** shall have the benefit pertaining to total Credited Service earned on and after July 1, 2014 calculated in accordance with the terms of Component I of the Retirement System in effect at the time of the last separation from service. If the former member has previously withdrawn mandatory accumulated contributions, and such withdrawn contributions are not repaid within two years of the rehire date, only the Credited Service earned on and after the rehire date shall be taken into consideration in determining the retirement allowance.

A former member who is vested but has not begun to receive a Retirement Allowance and **who is rehired after being separated for more than six years** shall be entitled to two separate and distinct pension benefits under Component I, each to be calculated in accordance with the provisions of Component I of the Retirement System in effect at the time of each separation from service. If the former member has previously withdrawn mandatory accumulated contributions, and such withdrawn contributions are not repaid within two years of the rehire date, only the Credited Service earned on and after the rehire date shall be taken into consideration in determining the retirement allowance.

Retirement benefits for a Retiree who returns to active full time employment with an Employer shall be subject to the following provisions:

- A Retiree who returns to work will have the Retirement Allowance suspended upon re-employment. The variable pension improvement factor (escalator) shall not be added to the amount of the original Retirement Allowance during the Retiree's re-employment period.
- A Retiree who returns to work will be entitled to receive a second Retirement Allowance in accordance with the provisions of the Retirement System in effect during the re-employment period.
- A Retiree's Average Final Compensation for purposes of determining the second Retirement Allowance will be based upon the Compensation earned by the Retiree after the return to work.
- An individual who retires for a second time will not be allowed to change the payment option selected with respect to the original Retirement Allowance. However, the individual may select a separate payment option with respect to the second Retirement Allowance.
- The Coordination of Benefits (Equated Social Security) option will not be available with respect to payment of the second Retirement Allowance.

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Summary of Assumptions and Methods Used for GASB Valuation

Funding Methods

The entry age actuarial cost method was used in determining age & service pension liabilities and normal cost, vesting liabilities and normal cost, and casualty pension liabilities and normal cost. Under this method, each individual's normal cost is determined as a level percent of pay from plan entry to retirement. Plan entry is the later of date of hire or plan effective date.

Unfunded Actuarial Accrued Liabilities - Actual employer contributions through June 30, 2023 are set at 5.0% of pay. The amortization period and method after 2023 has not yet been established by the Board. For the purposes of the projection of employer contributions, employer contributions after June 30, 2023 were set at 5.19% of compensation for purposes of illustrating that actuarially determined employer contributions will not result in a crossover date for the GASB Statement No. 67 required projection. This is not a funding recommendation. Recommendations on employer and member funding requirements will be included in actuarial funding reports.

Present assets are set equal to the Market Value.

The data about persons now covered and about present assets were furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

Summary of Assumptions and Methods Used for GASB Valuation Adopted by Board of Trustees

All demographic assumptions are estimates of future experience except as noted. The rationale for the assumptions is based on the 2002-2007 experience study of the Component II plan unless noted otherwise. The Board has elected to defer the next experience study until the five-year period of experience after the City's bankruptcy from July 1, 2015 through June 30, 2020 in order to avoid any distortions during the bankruptcy.

Economic Assumptions

Actuarial Assumptions

The assumptions and methods are those adopted by the Board with the exception of the discount rate. For purposes of plan funding, the discount rate is 6.75% as prescribed by Section 1.16(3) of the Combined GRS Plan.

The investment return rate used in making the valuation was 7.38% per year, compounded annually (net after investment expenses) as of June 30, 2019. This is a prescribed assumption set by another party. We determined it to be reasonable when using 2.50% assumed price inflation.

Pay increase assumptions for individual active members are shown on page 39. Part of the assumption for each age is for a merit and/or seniority increase, and the other recognizes wage inflation (as of June 30, 2014 assumed to be 2.00% for five years, 2.50% for the next five years after that and 3.00% thereafter). The rationale for this assumption is that it is consistent with expectations by the employer used during the plan design.

Price inflation is not directly used in the valuation. For purposes of assessing the reasonableness of the assumed rate of return, we assumed a price inflation of 2.50% per year.

Non-Economic Assumptions

The mortality table used to measure retired life mortality was 100% of the RP-2014 Blue Collar Annuitant Table set-forward 1 year for males and 100% of the RP-2014 Blue Collar Annuitant Table set-forward 1 year for females. Tables were extended below age 50 with a cubic spline to the published Juvenile rates. Pre-retirement mortality is based on the corresponding Employee tables. The tables are projected to be fully generational, based on the 2-dimensional, sex distinct mortality improvement scale MP-2014 (which was published and intended to be used with RP-2014). For disabled members, the same tables are used. The rationale for the mortality assumption is provided in the 2008-2013 Mortality Experience Study issued February 4, 2015.

The probabilities of retirement for members eligible to retire are shown on pages 40 through 42. The rationale is based on the 2002-2007 Experience Study modified as necessary to account for the difference in eligibility of the Component I plan.

The probabilities of separation from service (excluding *death-in-service* and including *disability*) are shown for sample ages on page 43. The rationale is based on the 2002-2007 Experience Study for the Component II plan.

Sample Salary Adjustment Rates

Sample Ages	Salary Increase Assumptions For an Individual Member		
	Merit & Seniority	Wage* (Economic)	Increase Next Year
20	4.9%	3.0%	7.9%
25	4.9%	3.0%	7.9%
30	4.1%	3.0%	7.1%
35	3.0%	3.0%	6.0%
40	2.3%	3.0%	5.3%
45	1.8%	3.0%	4.8%
50	1.3%	3.0%	4.3%
55	0.9%	3.0%	3.9%
60	0.5%	3.0%	3.5%
Ref	81		

* Select and ultimate wage inflation rates as of June 30, 2014 are assumed to be 2.00% for five years, 2.50% for the next five years after that and 3.00% thereafter.

Single Life Retirement Values

Based on RP-2014 Blue Collar
100% of Male Rates Set-Forward 1 Year
100% of Female Rates Set-Forward 1 Year

Sample Attained Ages in 2018	Future Life Expectancy (years)	
	Men	Women
45	38.62	41.96
50	33.66	36.91
55	28.90	32.01
60	24.35	27.26
65	20.05	22.69
70	16.07	18.38
75	12.45	14.42
80	9.26	10.91

Probabilities of Age/Service Retirement for Members with More Than 20 years of Eligibility Service and Eligible to Retire in Component II Before Age 60 on June 30, 2014

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year with Unreduced Benefits		
	E.M.S.	D.O.T.	Others
45	25%		
46	25%		
47	25%		
48	22%		
49	20%		
50	18%	55%	50%
51	15%	50%	50%
52	15%	50%	45%
53	15%	50%	45%
54	15%	55%	40%
55	15%	50%	30%
56	15%	50%	30%
57	15%	50%	30%
58	15%	50%	30%
59	15%	55%	40%
60	40%	40%	25%
61	30%	30%	25%
62	30%	30%	25%
63	30%	30%	25%
64	30%	30%	25%
65	30%	30%	35%
66	30%	30%	30%
67	30%	30%	25%
68	30%	50%	25%
69	30%	50%	25%
70	100%	100%	20%
71			20%
72			20%
73			20%
74			20%
75			20%
76			20%
77			20%
78			20%
79			20%
80			100%
Ref	537	1648	1647

Members eligible to retire under Component II as described above are assumed to defer any Component I vested benefits until normal retirement age.

Note that the groups detailed above have different eligibility conditions under Component II.

The rationale for the retirement probabilities is the 2002-2007 Experience Study modified to account for the different eligibility in Component I and split to estimate which eligibility (Component I or Component II) would influence members based on the relative service under each component.

Probabilities of Age/Service Retirement for Members with Less Than 20 years of Eligibility Service or Not Eligible to Retire in Component II Before age 60 on June 30, 2014

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year with Unreduced Benefits	
	E.M.S. and D.O.T.	Others
62	40%	30%
63	40%	30%
64	40%	30%
65	40%	30%
66	40%	30%
67	40%	30%
68	40%	30%
69	40%	30%
70	100%	30%
71		30%
72		30%
73		30%
74		30%
75		30%
76		30%
77		30%
78		30%
79		30%
80		100%
Ref	851	1292

The rationale for the retirement probabilities is the 2002-2007 Experience Study modified to account for the different eligibility in Component I and split to estimate which eligibility (Component I or Component II) would influence members based on the relative service under each component.

Probabilities of Early Retirement for Members Eligible for Early Retirement

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year with Reduced Benefits
55	7%
56	8%
57	9%
58	10%
59	12%
60	12%
61	12%
62	12%
Ref	1649

Sample Rates of Separation from Active Employment Before Retirement

		% of Active Members Separating Within Next Year			
		Withdrawal			
Sample Ages	Years of Service	E.M.S.	D.O.T.	Others	
				Men	Women
ALL	0	11.00%	18.00%	18.00%	20.00%
	1	10.00%	16.00%	15.00%	16.00%
	2	8.00%	14.00%	13.00%	14.00%
	3	8.00%	11.00%	11.00%	12.00%
	4	7.00%	9.00%	10.00%	10.00%
25	5 & Over	6.70%	8.00%	7.60%	7.60%
30		5.90%	7.60%	7.22%	7.22%
35		5.20%	5.56%	5.28%	5.28%
40		4.40%	4.26%	4.05%	4.05%
45		3.40%	3.69%	3.51%	3.51%
50		2.40%	3.50%	3.33%	3.33%
55		2.00%	3.50%	3.33%	3.33%
60		0.00%	3.50%	3.33%	3.33%
Ref		338	143	584	188
		1068	212	212 x 0.95	212 x 0.95

Sample Ages	% of Active Members Becoming Disabled Within Next Year											
	D.O.T.						Others					
	Ordinary			Duty			Ordinary			Duty		
25	0.02%			0.03%			0.01%			0.25%		
30	0.05%			0.08%			0.04%			0.29%		
35	0.14%			0.21%			0.11%			0.34%		
40	0.27%			0.42%			0.21%			0.39%		
45	0.51%			0.79%			0.40%			0.45%		
50	0.66%			1.03%			0.51%			0.52%		
55	0.76%			1.18%			0.59%			0.60%		
60	0.86%			1.34%			0.67%			0.70%		
Ref	23	x	0.45	23	x	0.70	23	x	0.35	423	x	0.90

Miscellaneous and Technical Assumptions

Benefit Service	Exact Fractional service is used to determine the amount of benefit payable.
Decrement Operation	Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal also do not operate during retirement eligibility.
Decrement Timing	Decrement of all types are assumed to occur mid-year.
Eligibility Testing	Eligibility for benefits is determined based upon the age nearest birthday and rounded service on the date the decrement is assumed to occur.
Forfeitures	None.
Marriage Assumption	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Normal Form of Benefit	Straight life is the normal form of benefit.
Service Credit Accruals	Service accruals for calculating benefits begin as of June 30, 2014 for Component I liabilities. However, service in Component II may be used to satisfy benefit eligibility requirement in Component I.
Administrative Expenses	3.00% of Component I payroll. 60% was allocated to Component II and 40% to Component I.
Sick Leave	None.
Pay Increase Timing	End of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year starting on the valuation date.
Disability Benefits	Duty Disability benefits were increased by 3.5% to account for the Death While Disabled provision. The 3.5% increase was determined by examining the effect of the Death While Disabled provision on several hypothetical test cases.
Workers Compensation	Workers compensation for duty death-in-service benefits was assumed to equally offset the 10% AFC minimum benefit.
Actuarial Equivalent	No adjustments have been made for Actuarial Equivalent benefits. The Board adopted assumptions for Actuarial Equivalence to be a 80%/20% unisex blend of RP-2014 mortality (Male/Female) with Blue Collar Adjustment, set ahead 1 year for males and females, projected 11 years with MP-2014, an interest rate of 6.75, and a 0.5% simple COLA starting the later of 1 year after retirement or age 62 for optional forms of payment and early retirement reduction. Assumptions for annuitizing member contributions are the same except for using a 60%/40% unisex blend, a 5.25% assumed rate of interest, and no COLA.
IRC Section 415 Limit	No adjustments have been made for 415 limits. The limit is assumed to grow with wage inflation.
IRC Section 401(a)(17) Limit	All of the member salary provided falls below the 401(a)(17) limit. The limit is assumed to grow with wage inflation.
IRC Section 401(h) Limit	We did not test for the IRC Section 401(h) limit on employer contributions for medical benefits. No such employer contributions are anticipated in this valuation.

Miscellaneous and Technical Assumptions (Concluded)

COLA (VPIF)	The valuation assumption is that on average future COLAs will be 0.5%. The rationale for this assumption is that COLAs are not guaranteed. This assumption was set based on some scenario analysis at plan inception and will be reviewed as experience emerges and the plan evolves. Unless otherwise stated, all costs shown in this report are based on a 0.5% VPIF. Transition Costs are based on a 0.0% VPIF.
Voluntary Contributions	For the valuation, future voluntary contributions will be reflected in future valuations as they occur. No adjustments have been made to reflect future interest crediting to voluntary contributions. For fiscal responsibility calculation, see Section C of the valuation report for assumptions.
New Entrant Assumption	New entrants are assumed to replace the current workforce as members separate from service under current valuation assumptions. Total payroll is expected to grow with wage inflation.
Pop-Up Benefits	For current retirees with a pop-up benefit, the value of the pop-up was estimated by valuing a non-pop-up option and increasing the associated liabilities by 2%.

SECTION G

CALCULATION OF THE SINGLE DISCOUNT RATE

Calculation of the Single Discount Rate at End of Year

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 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 7.38% net of investment expenses; the municipal bond rate is 3.13%; and the resulting Single Discount Rate is 7.38% as of June 30, 2019.

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 benefits). For purposes of determining the discount rate as of June 30, 2019, the employer contributions for the 10-year period ending June 30, 2023 are set at 5.00% of payroll. Subsequent employer contributions were set at 5.19% of payroll including contributions for expenses for the purpose of these projections. The actual employer rate will be determined by future funding valuations and is expected to be lower when based on an open group payroll. Member contributions were set at 4.00% for the entire period. The voluntary member contributions were excluded for the projections (and assets). The VPIF was assumed to be 0.50% simple each year beginning in fiscal year 2019. The remedial actions under Section 9.5 of the plan were assumed not to occur. Note that contributions shown in this report are strictly for the purpose of projecting for a GASB crossover date. Nothing in this report should be construed as a recommendation for plan funding requirements. For purposes of these projections, voluntary employee contributions are excluded from the plan fiduciary net position and total pension liability.

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. For purposes of determining the discount rate as of June 30, 2019, the benefit payments reflect the plan provisions in force as of June 30, 2019.

Single Discount Rate Development

Projection of Contributions End of Year

(Excluding Voluntary Employee Contributions)

Fiscal Year Ending June 30,	Payroll for Current Employees	Projected Contributions from Current Employees	Projected Employer Service Cost Contribution	Employer Administrative Expense Contributions	Projected Employer UAL Contributions	Projected Total Contributions
2020	\$ 222,437,723	\$ 8,897,509	\$ 9,447,915	\$ 2,669,253	\$ (995,282)	\$ 20,019,395
2021	204,922,775	8,196,911	8,570,524	2,459,073	(783,458)	18,443,050
2022	191,268,623	7,650,745	7,854,365	2,295,223	(586,157)	17,214,176
2023	180,796,989	7,231,880	7,272,407	2,169,564	(402,122)	16,271,729
2024	172,216,078	6,888,643	6,787,292	2,066,593	92,135	15,834,663
2025	164,250,209	6,570,008	6,342,643	1,971,003	218,576	15,102,230
2026	156,966,347	6,278,654	5,933,643	1,883,596	336,612	14,432,504
2027	149,051,815	5,962,073	5,505,880	1,788,622	448,216	13,704,791
2028	140,498,413	5,619,937	5,061,751	1,685,981	550,667	12,918,336
2029	132,087,390	5,283,496	4,631,100	1,585,049	645,327	12,144,971
2030	124,281,603	4,971,264	4,228,819	1,491,379	735,795	11,427,257
2031	116,844,109	4,673,764	3,852,816	1,402,129	814,696	10,743,405
2032	109,695,179	4,387,807	3,496,519	1,316,342	885,419	10,086,086
2033	102,789,482	4,111,579	3,156,399	1,233,474	949,679	9,451,132
2034	96,326,925	3,853,077	2,849,675	1,155,923	998,248	8,856,922
2035	90,339,070	3,613,563	2,574,371	1,084,069	1,034,357	8,306,360
2036	84,691,041	3,387,642	2,323,598	1,016,292	1,059,512	7,787,044
2037	79,244,261	3,169,770	2,089,881	950,931	1,075,649	7,286,231
2038	74,086,110	2,963,444	1,878,153	889,033	1,081,327	6,811,958
2039	69,231,075	2,769,243	1,686,790	830,773	1,078,748	6,365,554
2040	64,613,722	2,584,549	1,512,174	775,365	1,068,917	5,941,005
2041	60,248,453	2,409,938	1,353,374	722,981	1,053,340	5,539,634
2042	56,051,408	2,242,056	1,209,384	672,617	1,029,673	5,153,730
2043	52,036,569	2,081,463	1,077,092	624,439	1,001,586	4,784,580
2044	48,170,025	1,926,801	957,327	578,040	966,896	4,429,065
2045	44,341,326	1,773,653	845,196	532,096	926,084	4,077,029
2046	40,551,238	1,622,050	740,174	486,615	879,705	3,728,544
2047	36,741,302	1,469,652	643,063	440,896	824,622	3,378,234
2048	32,768,695	1,310,748	548,056	393,224	760,939	3,012,966
2049	28,802,074	1,152,083	459,523	345,625	691,019	2,648,250
2050	25,070,794	1,002,832	380,276	300,850	621,214	2,305,171
2051	21,547,862	861,914	310,454	258,574	550,307	1,981,250
2052	18,262,146	730,486	249,163	219,146	480,345	1,679,140
2053	15,291,715	611,669	197,302	183,501	413,548	1,406,019
2054	12,675,228	507,009	154,133	152,103	352,197	1,165,443
2055	10,400,709	416,028	118,528	124,809	296,943	956,309
2056	8,430,361	337,214	90,705	101,164	246,058	775,142
2057	6,743,571	269,743	68,160	80,923	201,222	620,048
2058	5,334,511	213,380	50,851	64,014	162,244	490,490
2059	4,170,693	166,828	37,177	50,048	129,427	383,481
2060	3,208,198	128,328	27,145	38,498	101,012	294,983
2061	2,397,457	95,898	19,364	28,769	76,407	220,438
2062	1,737,814	69,513	13,906	20,854	55,513	159,786
2063	1,232,852	49,314	9,613	14,794	39,635	113,356
2064	866,005	34,640	6,641	10,392	27,953	79,626
2065	607,416	24,297	4,575	7,289	19,689	55,850
2066	425,534	17,021	3,143	5,106	13,856	39,126
2067	297,091	11,884	2,208	3,565	9,660	27,316
2068	207,060	8,282	1,457	2,485	6,814	19,038
2069	143,756	5,750	918	1,725	4,825	13,218

Employer contributions as shown may differ substantially from those determined by a funding valuation. Based on 0.5% VPIF.

Single Discount Rate Development

Projection of Contributions End of Year

(Excluding Voluntary Employee Contributions) (Concluded)

Fiscal Year Ending June 30,	Payroll for Current Employees	Projected Contributions from Current Employees	Projected Employer Service Cost Contribution	Employer Administrative Expense Contributions	Projected Employer UAL Contributions	Projected Total Contributions
2070	\$ 99,143	\$ 3,966	\$ 499	\$ 1,190	\$ 3,461	\$ 9,116
2071	68,018	2,721	359	816	2,358	6,254
2072	46,497	1,860	65	558	1,792	4,275
2073	31,536	1,261	(10)	378	1,270	2,900
2074	21,147	846	49	254	795	1,944
2075	14,035	561	133	168	428	1,290
2076	9,230	369	78	111	291	849
2077	6,002	240	(62)	72	301	552
2078	3,591	144	(124)	43	268	330
2079	1,725	69	(69)	21	138	159
2080	600	24	(24)	7	48	55
2081	116	5	(5)	1	10	11
2082	-	-	-	-	-	-
2083	-	-	-	-	-	-
2084	-	-	-	-	-	-
2085	-	-	-	-	-	-
2086	-	-	-	-	-	-
2087	-	-	-	-	-	-
2088	-	-	-	-	-	-
2089	-	-	-	-	-	-
2090	-	-	-	-	-	-
2091	-	-	-	-	-	-
2092	-	-	-	-	-	-
2093	-	-	-	-	-	-
2094	-	-	-	-	-	-
2095	-	-	-	-	-	-
2096	-	-	-	-	-	-
2097	-	-	-	-	-	-
2098	-	-	-	-	-	-
2099	-	-	-	-	-	-
2100	-	-	-	-	-	-
2101	-	-	-	-	-	-
2102	-	-	-	-	-	-
2103	-	-	-	-	-	-
2104	-	-	-	-	-	-
2105	-	-	-	-	-	-
2106	-	-	-	-	-	-
2107	-	-	-	-	-	-
2108	-	-	-	-	-	-
2109	-	-	-	-	-	-
2110	-	-	-	-	-	-
2111	-	-	-	-	-	-
2112	-	-	-	-	-	-
2113	-	-	-	-	-	-
2114	-	-	-	-	-	-
2115	-	-	-	-	-	-
2116	-	-	-	-	-	-
2117	-	-	-	-	-	-
2118	-	-	-	-	-	-
2119	-	-	-	-	-	-

Employer contributions as shown may differ substantially from those determined by a funding valuation.
Based on 0.5% VPIF.

Single Discount Rate Development

Projection of Plan Fiduciary Net Position End of Year (Excluding Voluntary Employee Contributions)

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.38%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2020	\$ 106,180,712	\$ 20,019,395	\$ 2,674,143	\$ 2,669,253	\$ 8,368,042	\$ 129,224,753
2021	129,224,753	18,443,050	3,315,145	2,459,073	9,995,946	151,889,530
2022	151,889,530	17,214,176	3,884,158	2,295,223	11,609,384	174,533,709
2023	174,533,709	16,271,729	4,549,051	2,169,564	13,226,823	197,313,647
2024	197,313,647	15,834,663	5,305,486	2,066,593	14,868,458	220,644,690
2025	220,644,690	15,102,230	6,299,908	1,971,003	16,531,167	244,007,176
2026	244,007,176	14,432,504	7,356,788	1,883,596	18,195,909	267,395,205
2027	267,395,205	13,704,791	8,470,779	1,788,622	19,858,638	290,699,232
2028	290,699,232	12,918,336	9,679,880	1,685,981	21,509,870	313,761,577
2029	313,761,577	12,144,971	11,369,363	1,585,049	23,126,268	336,078,404
2030	336,078,404	11,427,257	13,091,659	1,491,379	24,688,211	357,610,833
2031	357,610,833	10,743,405	14,859,132	1,402,129	26,191,695	378,284,672
2032	378,284,672	10,086,086	16,717,843	1,316,342	27,629,344	397,965,917
2033	397,965,917	9,451,132	18,641,033	1,233,474	28,992,108	416,534,650
2034	416,534,650	8,856,922	20,483,097	1,155,923	30,276,993	434,029,546
2035	434,029,546	8,306,360	22,221,786	1,084,069	31,487,751	450,517,802
2036	450,517,802	7,787,044	23,908,216	1,016,292	32,627,097	466,007,435
2037	466,007,435	7,286,231	25,684,316	950,931	33,690,078	480,348,497
2038	480,348,497	6,811,958	27,392,974	889,033	34,671,575	493,550,023
2039	493,550,023	6,365,554	29,018,069	830,773	35,572,882	505,639,618
2040	505,639,618	5,941,005	30,621,071	775,365	36,393,617	516,577,803
2041	516,577,803	5,539,634	32,170,266	722,981	37,132,059	526,356,249
2042	526,356,249	5,153,730	33,742,356	672,617	37,784,570	534,879,575
2043	534,879,575	4,784,580	35,216,174	624,439	38,348,542	542,172,084
2044	542,172,084	4,429,065	36,641,495	578,040	38,823,868	548,205,481
2045	548,205,481	4,077,029	38,076,136	532,096	39,206,043	552,880,321
2046	552,880,321	3,728,544	39,355,063	486,615	39,493,712	556,260,898
2047	556,260,898	3,378,234	40,486,596	440,896	39,691,148	558,402,788
2048	558,402,788	3,012,966	41,700,037	393,224	39,793,730	559,116,224
2049	559,116,224	2,648,250	42,961,659	345,625	39,789,163	558,246,353
2050	558,246,353	2,305,171	44,282,686	300,850	39,666,277	555,634,266
2051	555,634,266	1,981,250	45,782,745	258,574	39,408,930	550,983,128
2052	550,983,128	1,679,140	47,330,379	219,146	39,000,065	544,112,808
2053	544,112,808	1,406,019	48,614,514	183,501	38,437,887	535,158,699
2054	535,158,699	1,165,443	49,520,078	152,103	37,736,672	524,388,633
2055	524,388,633	956,309	50,126,674	124,809	36,913,266	512,006,724
2056	512,006,724	775,142	50,520,060	101,164	35,979,514	498,140,156
2057	498,140,156	620,048	50,635,922	80,923	34,947,075	482,990,434
2058	482,990,434	490,490	50,425,029	64,014	33,832,586	466,824,466
2059	466,824,466	383,481	49,958,989	50,048	32,653,056	449,851,966
2060	449,851,966	294,983	49,415,747	38,498	31,417,385	432,110,089
2061	432,110,089	220,438	48,864,916	28,769	30,125,650	413,562,492
2062	413,562,492	159,786	48,068,031	20,854	28,783,807	394,417,200
2063	394,417,200	113,356	46,941,258	14,794	27,410,260	374,984,765
2064	374,984,765	79,626	45,555,369	10,392	26,025,312	355,523,942
2065	355,523,942	55,850	44,025,407	7,289	24,643,805	336,190,900
2066	336,190,900	39,126	42,429,719	5,106	23,274,332	317,069,533
2067	317,069,533	27,316	40,785,739	3,565	21,922,386	298,229,932
2068	298,229,932	19,038	39,106,435	2,485	20,592,626	279,732,676
2069	279,732,676	13,218	37,403,063	1,725	19,289,081	261,630,187

Employer contributions as shown may differ substantially from those determined by a funding valuation. Based on 0.5% VPIF.

Single Discount Rate Development

Projection of Plan Fiduciary Net Position End of Year (Excluding Voluntary Employee Contributions) (Concluded)

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.38%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2070	\$ 261,630,187	\$ 9,116	\$ 35,684,731	\$ 1,190	\$ 18,015,266	\$ 243,968,647
2071	243,968,647	6,254	33,958,768	816	16,774,308	226,789,626
2072	226,789,626	4,275	32,231,670	558	15,569,030	210,130,702
2073	210,130,702	2,900	30,509,392	378	14,401,979	194,025,810
2074	194,025,810	1,944	28,797,167	254	13,275,464	178,505,798
2075	178,505,798	1,290	27,099,703	168	12,191,588	163,598,805
2076	163,598,805	849	25,421,269	111	11,152,270	149,330,544
2077	149,330,544	552	23,765,967	72	10,159,256	135,724,313
2078	135,724,313	330	22,138,214	43	9,214,105	122,800,491
2079	122,800,491	159	20,542,329	21	8,318,161	110,576,461
2080	110,576,461	55	18,982,630	7	7,472,553	99,066,432
2081	99,066,432	11	17,464,006	1	6,678,151	88,280,587
2082	88,280,587	-	15,991,636	-	5,935,519	78,224,470
2083	78,224,470	-	14,570,634	-	5,244,879	68,898,716
2084	68,898,716	-	13,205,679	-	4,606,109	60,299,146
2085	60,299,146	-	11,900,823	-	4,018,753	52,417,076
2086	52,417,076	-	10,659,633	-	3,482,041	45,239,484
2087	45,239,484	-	9,485,378	-	2,994,893	38,748,999
2088	38,748,999	-	8,381,094	-	2,555,918	32,923,823
2089	32,923,823	-	7,349,571	-	2,163,406	27,737,658
2090	27,737,658	-	6,393,237	-	1,815,328	23,159,749
2091	23,159,749	-	5,513,914	-	1,509,348	19,155,183
2092	19,155,183	-	4,712,616	-	1,242,852	15,685,419
2093	15,685,419	-	3,989,463	-	1,012,993	12,708,949
2094	12,708,949	-	3,343,523	-	816,740	10,182,166
2095	10,182,166	-	2,772,566	-	650,957	8,060,557
2096	8,060,557	-	2,273,165	-	512,482	6,299,874
2097	6,299,874	-	1,841,114	-	398,203	4,856,963
2098	4,856,963	-	1,471,782	-	305,102	3,690,283
2099	3,690,283	-	1,160,182	-	230,294	2,760,394
2100	2,760,394	-	900,934	-	171,064	2,030,525
2101	2,030,525	-	688,383	-	124,904	1,467,046
2102	1,467,046	-	516,862	-	89,535	1,039,719
2103	1,039,719	-	380,856	-	62,928	721,791
2104	721,791	-	275,023	-	43,300	490,069
2105	490,069	-	194,291	-	29,125	324,904
2106	324,904	-	134,026	-	19,120	209,998
2107	209,998	-	90,119	-	12,232	132,110
2108	132,110	-	58,960	-	7,613	80,763
2109	80,763	-	37,458	-	4,603	47,908
2110	47,908	-	23,059	-	2,700	27,549
2111	27,549	-	13,737	-	1,535	15,347
2112	15,347	-	7,917	-	846	8,276
2113	8,276	-	4,413	-	451	4,314
2114	4,314	-	2,376	-	232	2,171
2115	2,171	-	1,236	-	115	1,050
2116	1,050	-	624	-	55	481
2117	481	-	305	-	24	200
2118	200	-	208	-	7	-
2119	-	-	-	-	-	-

Employer contributions as shown may differ substantially from those determined by a funding valuation.
Based on 0.5% VPIF.

Single Discount Rate Development

Present Values of Projected Benefits End of Year

Fiscal Year	Projected			Unfunded Portion	Present Value of	Present Value of	Present Value of
Ending June 30,	Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	of Benefit Payments	Funded Benefit Payments using Expected Return Rate (v)	Unfunded Benefit Payments using Municipal Bond Rate (vf)	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)
2020	\$ 106,180,712	\$ 2,674,143	\$ 2,674,143	\$ -	\$ 2,580,613	\$ -	\$ 2,580,613
2021	129,224,753	3,315,145	3,315,145	-	2,979,322	-	2,979,322
2022	151,889,530	3,884,158	3,884,158	-	3,250,786	-	3,250,786
2023	174,533,709	4,549,051	4,549,051	-	3,545,593	-	3,545,593
2024	197,313,647	5,305,486	5,305,486	-	3,850,967	-	3,850,967
2025	220,644,690	6,299,908	6,299,908	-	4,258,489	-	4,258,489
2026	244,007,176	7,356,788	7,356,788	-	4,631,121	-	4,631,121
2027	267,395,205	8,470,779	8,470,779	-	4,965,899	-	4,965,899
2028	290,699,232	9,679,880	9,679,880	-	5,284,709	-	5,284,709
2029	313,761,577	11,369,363	11,369,363	-	5,780,479	-	5,780,479
2030	336,078,404	13,091,659	13,091,659	-	6,198,677	-	6,198,677
2031	357,610,833	14,859,132	14,859,132	-	6,552,007	-	6,552,007
2032	378,284,672	16,717,843	16,717,843	-	6,864,956	-	6,864,956
2033	397,965,917	18,641,033	18,641,033	-	7,128,597	-	7,128,597
2034	416,534,650	20,483,097	20,483,097	-	7,294,681	-	7,294,681
2035	434,029,546	22,221,786	22,221,786	-	7,369,979	-	7,369,979
2036	450,517,802	23,908,216	23,908,216	-	7,384,330	-	7,384,330
2037	466,007,435	25,684,316	25,684,316	-	7,387,687	-	7,387,687
2038	480,348,497	27,392,974	27,392,974	-	7,337,638	-	7,337,638
2039	493,550,023	29,018,069	29,018,069	-	7,238,727	-	7,238,727
2040	505,639,618	30,621,071	30,621,071	-	7,113,620	-	7,113,620
2041	516,577,803	32,170,266	32,170,266	-	6,959,877	-	6,959,877
2042	526,356,249	33,742,356	33,742,356	-	6,798,278	-	6,798,278
2043	534,879,575	35,216,174	35,216,174	-	6,607,578	-	6,607,578
2044	542,172,084	36,641,495	36,641,495	-	6,402,505	-	6,402,505
2045	548,205,481	38,076,136	38,076,136	-	6,195,925	-	6,195,925
2046	552,880,321	39,355,063	39,355,063	-	5,963,902	-	5,963,902
2047	556,260,898	40,486,596	40,486,596	-	5,713,704	-	5,713,704
2048	558,402,788	41,700,037	41,700,037	-	5,480,492	-	5,480,492
2049	559,116,224	42,961,659	42,961,659	-	5,258,244	-	5,258,244
2050	558,246,353	44,282,686	44,282,686	-	5,047,430	-	5,047,430
2051	555,634,266	45,782,745	45,782,745	-	4,859,759	-	4,859,759
2052	550,983,128	47,330,379	47,330,379	-	4,678,746	-	4,678,746
2053	544,112,808	48,614,514	48,614,514	-	4,475,402	-	4,475,402
2054	535,158,699	49,520,078	49,520,078	-	4,245,453	-	4,245,453
2055	524,388,633	50,126,674	50,126,674	-	4,002,102	-	4,002,102
2056	512,006,724	50,520,060	50,520,060	-	3,756,296	-	3,756,296
2057	498,140,156	50,635,922	50,635,922	-	3,506,156	-	3,506,156
2058	482,990,434	50,425,029	50,425,029	-	3,251,586	-	3,251,586
2059	466,824,466	49,958,989	49,958,989	-	3,000,125	-	3,000,125
2060	449,851,966	49,415,747	49,415,747	-	2,763,552	-	2,763,552
2061	432,110,089	48,864,916	48,864,916	-	2,544,931	-	2,544,931
2062	413,562,492	48,068,031	48,068,031	-	2,331,373	-	2,331,373
2063	394,417,200	46,941,258	46,941,258	-	2,120,249	-	2,120,249
2064	374,984,765	45,555,369	45,555,369	-	1,916,233	-	1,916,233
2065	355,523,942	44,025,407	44,025,407	-	1,724,601	-	1,724,601
2066	336,190,900	42,429,719	42,429,719	-	1,547,861	-	1,547,861
2067	317,069,533	40,785,739	40,785,739	-	1,385,629	-	1,385,629
2068	298,229,932	39,106,435	39,106,435	-	1,237,267	-	1,237,267
2069	279,732,676	37,403,063	37,403,063	-	1,102,044	-	1,102,044

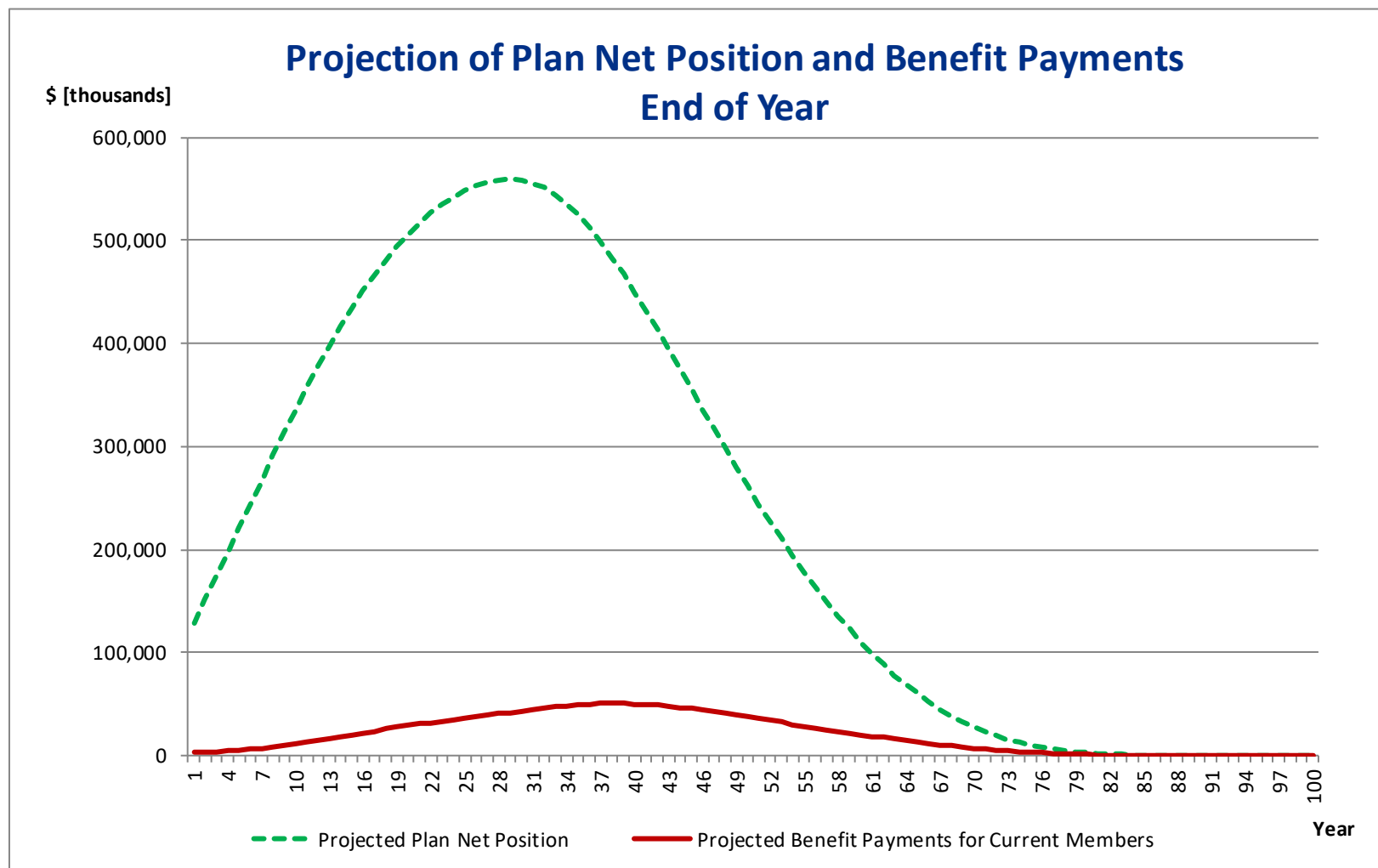
Based on 0.5% VPIF.

Single Discount Rate Development

Present Values of Projected Benefits (Concluded)

Fiscal Year Ending June 30,	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)
2070	\$ 261,630,187	\$ 35,684,731	\$ 35,684,731	\$ -	\$ 979,153	\$ -	\$ 979,153
2071	243,968,647	33,958,768	33,958,768	-	867,754	-	867,754
2072	226,789,626	32,231,670	32,231,670	-	767,016	-	767,016
2073	210,130,702	30,509,392	30,509,392	-	676,132	-	676,132
2074	194,025,810	28,797,167	28,797,167	-	594,326	-	594,326
2075	178,505,798	27,099,703	27,099,703	-	520,854	-	520,854
2076	163,598,805	25,421,269	25,421,269	-	455,014	-	455,014
2077	149,330,544	23,765,967	23,765,967	-	396,150	-	396,150
2078	135,724,313	22,138,214	22,138,214	-	343,656	-	343,656
2079	122,800,491	20,542,329	20,542,329	-	296,966	-	296,966
2080	110,576,461	18,982,630	18,982,630	-	255,559	-	255,559
2081	99,066,432	17,464,006	17,464,006	-	218,955	-	218,955
2082	88,280,587	15,991,636	15,991,636	-	186,716	-	186,716
2083	78,224,470	14,570,634	14,570,634	-	158,432	-	158,432
2084	68,898,716	13,205,679	13,205,679	-	133,722	-	133,722
2085	60,299,146	11,900,823	11,900,823	-	112,226	-	112,226
2086	52,417,076	10,659,633	10,659,633	-	93,613	-	93,613
2087	45,239,484	9,485,378	9,485,378	-	77,576	-	77,576
2088	38,748,999	8,381,094	8,381,094	-	63,833	-	63,833
2089	32,923,823	7,349,571	7,349,571	-	52,130	-	52,130
2090	27,737,658	6,393,237	6,393,237	-	42,230	-	42,230
2091	23,159,749	5,513,914	5,513,914	-	33,919	-	33,919
2092	19,155,183	4,712,616	4,712,616	-	26,997	-	26,997
2093	15,685,419	3,989,463	3,989,463	-	21,284	-	21,284
2094	12,708,949	3,343,523	3,343,523	-	16,612	-	16,612
2095	10,182,166	2,772,566	2,772,566	-	12,828	-	12,828
2096	8,060,557	2,273,165	2,273,165	-	9,795	-	9,795
2097	6,299,874	1,841,114	1,841,114	-	7,388	-	7,388
2098	4,856,963	1,471,782	1,471,782	-	5,500	-	5,500
2099	3,690,283	1,160,182	1,160,182	-	4,038	-	4,038
2100	2,760,394	900,934	900,934	-	2,920	-	2,920
2101	2,030,525	688,383	688,383	-	2,078	-	2,078
2102	1,467,046	516,862	516,862	-	1,453	-	1,453
2103	1,039,719	380,856	380,856	-	997	-	997
2104	721,791	275,023	275,023	-	670	-	670
2105	490,069	194,291	194,291	-	441	-	441
2106	324,904	134,026	134,026	-	283	-	283
2107	209,998	90,119	90,119	-	177	-	177
2108	132,110	58,960	58,960	-	108	-	108
2109	80,763	37,458	37,458	-	64	-	64
2110	47,908	23,059	23,059	-	37	-	37
2111	27,549	13,737	13,737	-	20	-	20
2112	15,347	7,917	7,917	-	11	-	11
2113	8,276	4,413	4,413	-	6	-	6
2114	4,314	2,376	2,376	-	3	-	3
2115	2,171	1,236	1,236	-	1	-	1
2116	1,050	624	624	-	1	-	1
2117	481	305	305	-	0	-	0
2118	200	208	208	-	0	-	0
2119	-	-	-	-	-	-	-
Totals					\$ 241,315,823	\$ -	\$ 241,315,823

Based on 0.5% VPIF.



SECTION H

GLOSSARY OF TERMS

Glossary of Terms

<i>Actuarial Accrued Liability (AAL)</i>	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.”
<i>Actuarial Assumptions</i>	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.
<i>Accrued Service</i>	Service credited under the system which was rendered before the date of the actuarial valuation.
<i>Actuarial Equivalent</i>	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.
<i>Actuarial Cost Method</i>	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.
<i>Actuarial Gain (Loss)</i>	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.
<i>Actuarial Present Value (APV)</i>	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.
<i>Actuarial Valuation</i>	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.
<i>Actuarial Valuation Date</i>	The date as of which an actuarial valuation is performed.
<i>Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)</i>	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.
<i>AFC</i>	Average Final Compensation.

Glossary of Terms

<i>Amortization Method</i>	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).
<i>Amortization Payment</i>	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
<i>APTE</i>	Association of Professional and Technical Employees.
<i>ASF</i>	Annuity Savings Fund of the Component II (Legacy) Plan.
<i>Cost-of-Living Adjustments (COLA)</i>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i>	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.
<i>Covered-Employee Payroll</i>	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
<i>Deferred Inflows and Outflows</i>	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.
<i>Discount Rate</i>	<p>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:</p> <ol style="list-style-type: none">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; and2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.
<i>D.O.T.</i>	Department of Transportation.
<i>E.M.S.</i>	Emergency Medical Service.

Glossary of Terms

<i>Entry Age Actuarial Cost Method (EAN)</i>	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 age(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.
<i>GASB</i>	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
<i>GLWA</i>	Great Lakes Water Authority.
<i>Fiduciary Net Position</i>	The fiduciary net position is the value of the assets of the trust.
<i>Long-Term Expected Rate of Return</i>	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.
<i>Money-Weighted Rate of Return</i>	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.
<i>Multiple-Employer Defined Benefit Pension Plan</i>	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
<i>Municipal Bond Rate</i>	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.
<i>Net Pension Liability (NPL)</i>	The NPL is the liability of employers and non-employer contribution entities to plan members for benefits provided through a defined benefit pension plan.
<i>Non-Employer Contribution Entities</i>	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.
<i>Normal Cost</i>	The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method. Also known as service cost.

Glossary of Terms

<i>Other Postemployment Benefits (OPEB)</i>	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.
<i>POA</i>	The 8th Amended Plan for the Adjustment of the Debt of the City of Detroit.
<i>Real Rate of Return</i>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<i>Reserve Account</i>	An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.
<i>RSF</i>	Rate Stabilization Fund.
<i>Service Cost</i>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year. Also known as normal cost.
<i>Total Pension Expense</i>	<p>The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year:</p> <ol style="list-style-type: none">1. Service Cost2. Interest on the Total Pension Liability3. Current-Period Benefit Changes4. Employee Contributions (made negative for addition here)5. Projected Earnings on Plan Investments (made negative for addition here)6. Pension Plan Administrative Expense7. Other Changes in Plan Fiduciary Net Position8. Recognition of Outflow (Inflow) of Resources due to Liabilities9. Recognition of Outflow (Inflow) of Resources due to Assets
<i>Total Pension Liability (TPL)</i>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<i>Unfunded Actuarial Accrued Liability (UAAL)</i>	The UAAL is the difference between actuarial accrued liability and valuation assets.
<i>Valuation Assets</i>	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.
<i>VPIF</i>	Variable Pension Improvement Factor. Discussed in Section 6.2 of the Plan Document. This is analogous to a post-retirement Cost-of-Living Adjustment (COLA).