

# 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, 2018



October 31, 2018

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). Since Component II is a separate plan, it 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. GRS 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, 2017. The total pension liability was rolled-forward from the valuation date to the plan year ending June 30, 2018 using generally accepted actuarial principles. The asset information as of June 30, 2018 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, 2017 actuarial valuation report issued May 30, 2018. 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, 2018, up from 6.91%, net of investment expenses as of June 30, 2017. We have determined this rate is not unreasonable based on a price inflation assumption of 2.50%, the System’s asset allocation, and 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, 2017. There were no changes in benefit provisions between the June 30, 2017 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.

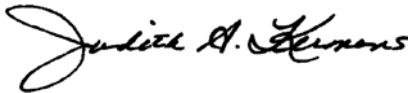
The signing individuals are independent of the plan sponsor.

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.

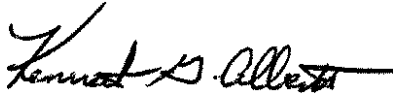
Respectfully submitted,



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# SECTION A

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## EXECUTIVE SUMMARY

# Executive Summary as of June 30, 2018

Actuarial Valuation Date	June 30, 2017
Measurement Date of the Net Pension Liability	June 30, 2018
Employer's Fiscal Year Ending Date (Reporting Date)	June 30, 2019

## Membership

Number of	
- Retirees and Beneficiaries	200
- Inactive, Nonretired Members	933
- Active Members	5,117
- Total	6,250
Covered Payroll	\$ 229,954,351

## Net Pension Liability

Total Pension Liability	\$ 96,879,111
Plan Fiduciary Net Position	95,632,326
Net Pension Liability	\$ 1,246,785
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	98.71%
Net Pension Liability as a Percentage of Covered Payroll	0.54%

## 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*	3.62%
Last year ending June 30 in the 2019 to 2118 projection period for which projected benefit payments are fully funded	2118

<b>Total Pension Expense</b>	<b>\$ 8,140,344</b>
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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	\$ 6,519,146	\$ 5,718,590
Changes in assumptions	3,222,669	5,533,649
Net difference between projected and actual earnings on pension plan investments	988,288	6,114,173
Total	\$ 10,730,103	\$ 17,366,412

\*Source: "20-Bond GO Index" is the Bond Buyer Index, general obligation, 20 years to maturity, mixed quality. In describing this index, the Bond Buyer notes that the bonds' average credit quality is roughly equivalent to Moody's Investors Service's Aa2 rating and Standard & Poor's Corp.'s AA. The rate shown is as of June 29, 2018, the most recent date available on or before the measurement date.

# Discussion

## Changes to the Actuarial Assumptions

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, 2018 (it was 6.75% net of investment and administrative expenses, in the June 30, 2017 funding valuation, as required by the Plan of Adjustment). While this assumption is not unreasonable, it is important to note that the direction and magnitude of the change is not consistent with the industry trend.

There was an administrative change in the splitting of the administrative expenses between Component I and Component II. Administrative expenses are assumed to remain proportionate to pay. This change was reflected in our modeling where appropriate. Other assumptions are the same as those used in the June 30, 2017 GASB 67 and 68 report.

## 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, 2018 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, 2018.

## Data Approximations and Assumptions

A description of the data approximations and assumptions used in making this report are included in the June 30, 2017 funding valuation report.

## Magnitude of Administrative Expenses

The Component I (Hybrid) payroll has significantly increased since the last valuation. As a result, for this valuation, we have adjusted the administrative expense as a percent of payroll assumption to bring the assumption in line with current experience. This brought the expenses as a percent of Component I payroll down from 3.55% back to the previous assumption of 3.0%. In addition, we allocated 60% of the expenses to Component II and 40% to Component I, 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. We understand no transfers have occurred in the past.

## 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, 2017.

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, 2017, rolled to the plan year end of June 30, 2018.

## Single Discount Rate

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

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.38%; the municipal bond rate is 3.62% (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 2019.
- 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 (98.71% as of June 30, 2018). 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 contribution.

## 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

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### 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, 2018

### Assets

Cash and Cash Equivalents	\$ 26,996,676
Receivables	\$ 3,093,018
Investments at Fair Value	\$ 65,971,459
Cash and Investments held as collateral for securities lending	\$ 3,184,046
Capital Assets - Net	<u>\$ 300,441</u>
<b>Total Assets</b>	<u><u>\$ 99,545,640</u></u>

### Liabilities

Accounts Payable	<u>\$ 3,913,314</u>
<b>Total Liabilities</b>	<u><u>\$ 3,913,314</u></u>

<b>Total Fund Balances</b>	<u><u>\$ 95,632,326</u></u>
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Accumulated Voluntary Contribution Fund	\$ 18,854,925
Other Reserves	<u>\$ 76,777,401</u>
<b>Plan Fiduciary Net Position</b>	<u><u>\$ 95,632,326</u></u>

# Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2018

## Additions

### Contributions

Employer	\$ 14,673,644
Mandatory Employee	8,837,967
Voluntary Employee	5,302,650
Total Contributions	<u>\$ 28,814,261</u>

### Investment Income

Net Appreciation in Fair Value of Investments	\$ 7,686,853
Interest and Dividends	1,092,050
Less Investment Expense	(333,313)
Net Investment Income	<u>\$ 8,445,590</u>

Other	<u>\$ 12,436</u>
<b>Total Additions</b>	<u><b>\$ 37,272,287</b></u>

## Deductions

Benefit Payments, including Refunds of Mandatory Employee Contributions	\$ 1,308,550
Pension Plan Administrative Expense	2,171,693
Voluntary Contributions, Benefit Payments and Refunds	1,082,042
<b>Total Deductions</b>	<u><b>\$ 4,562,285</b></u>

<b>Net Increase in Net Position</b>	<b>\$ 32,710,002</b>
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## Net Position Restricted for Pensions

Total Fund Balances Beginning of Year	<u>\$ 62,922,324</u>
Total Fund Balances End of Year	<u><u>\$ 95,632,326</u></u>

# Statement of Pension Expense Under GASB Statement No. 68

## Fiscal Year Ended June 30, 2018\*

A. Expense	General		DOT		DWSD		Library		Total
1. Service Cost <sup>#</sup>	\$	13,674,724	\$	4,369,999	\$	3,128,059	\$	1,186,600	\$ 22,359,382
2. Interest on the Total Pension Liability		3,031,910		1,024,594		1,089,198		292,359	5,438,061
3. Current-Period Benefit Changes		0		0		0		0	0
4. Employee Contributions (made negative for addition here) <sup>#</sup>		(9,306,263)		(2,689,383)		(1,681,415)		(463,556)	(14,140,617)
5. Projected Earnings on Plan Investments (made negative for addition here)		(3,211,413)		(897,437)		(840,169)		(237,249)	(5,186,268)
6. Pension Plan Administrative Expense		1,303,011		387,583		382,260		98,839	2,171,693
7. Other Changes in Plan Fiduciary Net Position		(7,462)		(2,219)		(2,189)		(566)	(12,436)
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		565,900		(23,009)		(1,683,304)		(71,845)	(1,212,258)
9. Recognition of Outflow (Inflow) of Resources due to Assets		(745,132)		(203,759)		(256,134)		(72,188)	(1,277,213)
<b>10. Total Pension Expense</b>	<b>\$</b>	<b>5,305,275</b>	<b>\$</b>	<b>1,966,369</b>	<b>\$</b>	<b>136,306</b>	<b>\$</b>	<b>732,394</b>	<b>\$ 8,140,344</b>

\* 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, 2018\*

## 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	\$ 6,985,621	\$ 167,430	\$ (2,555,229)	\$ (50,957)	\$ 4,546,865
2. Assumption Changes (gains) or losses	\$ (3,699,006)	\$ (888,595)	\$ (855,251)	\$ (315,337)	\$ (5,758,189)
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	8.1547	6.9149	3.7274	6.6506	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	\$ 856,637	\$ 24,213	\$ (685,526)	\$ (7,662)	\$ 187,662
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	\$ (453,604)	\$ (128,504)	\$ (229,450)	\$ (47,415)	\$ (858,973)
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	\$ 403,033	\$ (104,291)	\$ (914,976)	\$ (55,077)	\$ (671,311)
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	\$ 6,128,984	\$ 143,217	\$ (1,869,703)	\$ (43,295)	\$ 4,359,203
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	\$ (3,245,402)	\$ (760,091)	\$ (625,801)	\$ (267,922)	\$ (4,899,216)
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	\$ 2,883,582	\$ (616,874)	\$ (2,495,504)	\$ (311,217)	\$ (540,013)

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

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ (2,051,221)	\$ (280,526)	\$ (684,045)	\$ (243,530)	\$ (3,259,322)
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	\$ (410,244)	\$ (56,105)	\$ (136,809)	\$ (48,706)	\$ (651,864)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ (1,640,977)	\$ (224,421)	\$ (547,236)	\$ (194,824)	\$ (2,607,458)

\* Totals may not add due to rounding.

# Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2018 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	\$ 1,244,855	\$ 678,955	\$ 565,900
2. Due to Assets	294,435	1,039,567	(745,132)
<b>3. Total</b>	<b>\$ 1,539,290</b>	<b>\$ 1,718,522</b>	<b>\$ (179,232)</b>

## 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	\$ 902,051	\$ 156,312	\$ 745,739
2. Assumption Changes	342,804	522,643	(179,839)
3. Net Difference between projected and actual earnings on pension plan investments	294,435	1,039,567	(745,132)
<b>4. Total</b>	<b>\$ 1,539,290</b>	<b>\$ 1,718,522</b>	<b>\$ (179,232)</b>

## 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	\$ 6,374,242	\$ 886,823	\$ 5,487,419
2. Assumption Changes	1,907,691	3,575,608	(1,667,917)
3. Net Difference between projected and actual earnings on pension plan investments	537,125	3,528,948	(2,991,823)
<b>4. Total</b>	<b>\$ 8,819,058</b>	<b>\$ 7,991,379</b>	<b>\$ 827,679</b>

## 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
2019	\$ (179,230)
2020	(230,979)
2021	(473,669)
2022	155,655
2023	580,889
Thereafter	975,013
<b>Total</b>	<b>\$ 827,679</b>

# Recognition of Deferred Outflows and Inflows of Resources

## Fiscal Year Ended June 30, 2018

### General

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
<b>Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities</b>					
2014	\$ 0	0.0000	\$ 0	\$ 0	0.0000
2015	0	8.7829	0	0	4.7829
2016	381,500	8.4005	45,414	245,258	5.4005
2017	(1,199,447)	7.6734	(156,312)	(886,823)	5.6734
2018	6,985,621	8.1547	856,637	6,128,984	7.1547
<b>Total</b>			<b>745,739</b>	<b>5,487,419</b>	
<b>Deferred Outflow (Inflow) due to Assumption Changes</b>					
2014	\$ 0	0.0000	\$ 0	\$ 0	0.0000
2015	(606,362)	8.7829	(69,039)	(330,206)	4.7829
2016	1,144,153	8.4005	136,201	735,550	5.4005
2017	1,585,347	7.6734	206,603	1,172,141	5.6734
2018	(3,699,006)	8.1547	(453,604)	(3,245,402)	7.1547
<b>Total</b>			<b>(179,839)</b>	<b>(1,667,917)</b>	
<b>Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments</b>					
2014	\$ 0	5.0000	\$ 0	\$ 0	0.0000
2015	258,732	5.0000	51,746	51,748	1.0000
2016	1,213,444	5.0000	242,689	485,377	2.0000
2017	(3,146,617)	5.0000	(629,323)	(1,887,971)	3.0000
2018	(2,051,221)	5.0000	(410,244)	(1,640,977)	4.0000
<b>Total</b>			<b>(745,132)</b>	<b>(2,991,823)</b>	

# Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2018 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	\$ 137,109	\$ 160,118	\$ (23,009)
2. Due to Assets	78,642	282,401	(203,759)
<b>3. Total</b>	<b>\$ 215,751</b>	<b>\$ 442,519</b>	<b>\$ (226,768)</b>

## 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	\$ 24,590	\$ 8,914	\$ 15,676
2. Assumption Changes	112,519	151,204	(38,685)
3. Net Difference between projected and actual earnings on pension plan investments	78,642	282,401	(203,759)
<b>4. Total</b>	<b>\$ 215,751</b>	<b>\$ 442,519</b>	<b>\$ (226,768)</b>

## 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	\$ 144,904	\$ 35,493	\$ 109,411
2. Assumption Changes	481,564	838,511	(356,947)
3. Net Difference between projected and actual earnings on pension plan investments	146,128	903,308	(757,180)
<b>4. Total</b>	<b>\$ 772,596</b>	<b>\$ 1,777,312</b>	<b>\$ (1,004,716)</b>

## 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
2019	\$ (226,770)
2020	(237,922)
2021	(305,409)
2022	(67,387)
2023	(71,809)
Thereafter	(95,419)
<b>Total</b>	<b>\$ (1,004,716)</b>

# Recognition of Deferred Outflows and Inflows of Resources

## Fiscal Year Ended June 30, 2018

### DOT

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
<b>Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities</b>					
2014	\$ 0	0.0000	\$ 0	\$ 0	0.0000
2015	0	7.4547	0	0	3.4547
2016	(62,235)	6.9818	(8,914)	(35,493)	3.9818
2017	2,441	6.4760	377	1,687	4.4760
2018	167,430	6.9149	24,213	143,217	5.9149
<b>Total</b>			<b>15,676</b>	<b>109,411</b>	
<b>Deferred Outflow (Inflow) due to Assumption Changes</b>					
2014	\$ 0	0.0000	\$ 0	\$ 0	0.0000
2015	(169,220)	7.4547	(22,700)	(78,420)	3.4547
2016	311,819	6.9818	44,662	177,833	3.9818
2017	439,445	6.4760	67,857	303,731	4.4760
2018	(888,595)	6.9149	(128,504)	(760,091)	5.9149
<b>Total</b>			<b>(38,685)</b>	<b>(356,947)</b>	
<b>Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments</b>					
2014	\$ 0	5.0000	\$ 0	\$ 0	0.0000
2015	55,763	5.0000	11,153	11,151	1.0000
2016	337,444	5.0000	67,489	134,977	2.0000
2017	(1,131,479)	5.0000	(226,296)	(678,887)	3.0000
2018	(280,526)	5.0000	(56,105)	(224,421)	4.0000
<b>Total</b>			<b>(203,759)</b>	<b>(757,180)</b>	

# Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2018 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	\$ 204,191	\$ 1,887,495	\$ (1,683,304)
2. Due to Assets	139,782	395,916	(256,134)
<b>3. Total</b>	<b>\$ 343,973</b>	<b>\$ 2,283,411</b>	<b>\$ (1,939,438)</b>

## 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	\$ -	\$ 1,616,774	\$ (1,616,774)
2. Assumption Changes	204,191	270,721	(66,530)
3. Net Difference between projected and actual earnings on pension plan investments	139,782	395,916	(256,134)
<b>4. Total</b>	<b>\$ 343,973</b>	<b>\$ 2,283,411</b>	<b>\$ (1,939,438)</b>

## 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	\$ -	\$ 4,494,818	\$ (4,494,818)
2. Assumption Changes	627,749	813,403	(185,654)
3. Net Difference between projected and actual earnings on pension plan investments	250,075	1,324,556	(1,074,481)
<b>4. Total</b>	<b>\$ 877,824</b>	<b>\$ 6,632,777</b>	<b>\$ (5,754,953)</b>

## 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
2019	\$ (1,939,438)
2020	(1,968,927)
2021	(1,427,415)
2022	(317,716)
2023	(101,457)
Thereafter	-
<b>Total</b>	<b>\$ (5,754,953)</b>

# Recognition of Deferred Outflows and Inflows of Resources

## Fiscal Year Ended June 30, 2018

### DWSD

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
<b>Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities</b>					
2014	\$ 0	0.0000	\$ 0	\$ 0	0.0000
2015	0	8.5457	0	0	4.5457
2016	(1,577,654)	7.5653	(208,538)	(952,040)	4.5653
2017	(3,118,495)	4.3150	(722,710)	(1,673,075)	2.3150
2018	(2,555,229)	3.7274	(685,526)	(1,869,703)	2.7274
<b>Total</b>			<b>(1,616,774)</b>	<b>(4,494,818)</b>	
<b>Deferred Outflow (Inflow) due to Assumption Changes</b>					
2014	\$ 0	0.0000	\$ 0	\$ 0	0.0000
2015	(352,686)	8.5457	(41,271)	(187,602)	4.5457
2016	521,263	7.5653	68,902	314,557	4.5653
2017	583,770	4.3150	135,289	313,192	2.3150
2018	(855,251)	3.7274	(229,450)	(625,801)	2.7274
<b>Total</b>			<b>(66,530)</b>	<b>(185,654)</b>	
<b>Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments</b>					
2014	\$ 0	5.0000	\$ 0	\$ 0	0.0000
2015	147,445	5.0000	29,489	29,489	1.0000
2016	551,465	5.0000	110,293	220,586	2.0000
2017	(1,295,534)	5.0000	(259,107)	(777,320)	3.0000
2018	(684,045)	5.0000	(136,809)	(547,236)	4.0000
<b>Total</b>			<b>(256,134)</b>	<b>(1,074,481)</b>	

# Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2018 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	\$ 41,385	\$ 113,230	\$ (71,845)
2. Due to Assets	30,697	102,885	(72,188)
<b>3. Total</b>	<b>\$ 72,082</b>	<b>\$ 216,115</b>	<b>\$ (144,033)</b>

## 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	\$ -	\$ 56,906	\$ (56,906)
2. Assumption Changes	41,385	56,324	(14,939)
3. Net Difference between projected and actual earnings on pension plan investments	30,697	102,885	(72,188)
<b>4. Total</b>	<b>\$ 72,082</b>	<b>\$ 216,115</b>	<b>\$ (144,033)</b>

## 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	\$ -	\$ 301,456	\$ (301,456)
2. Assumption Changes	205,665	306,127	(100,462)
3. Net Difference between projected and actual earnings on pension plan investments	54,960	357,361	(302,401)
<b>4. Total</b>	<b>\$ 260,625</b>	<b>\$ 964,944</b>	<b>\$ (704,319)</b>

## 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
2019	\$ (144,031)
2020	(150,469)
2021	(174,730)
2022	(120,551)
2023	(72,444)
Thereafter	(42,094)
<b>Total</b>	<b>\$ (704,319)</b>

# Recognition of Deferred Outflows and Inflows of Resources

## Fiscal Year Ended June 30, 2018

### Library

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
<b>Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities</b>					
2014	\$ 0	0.0000	\$ 0	\$ 0	0.0000
2015	0	8.2882	0	0	4.2882
2016	(5,371)	7.5909	(708)	(3,247)	4.5909
2017	(351,986)	7.2520	(48,536)	(254,914)	5.2520
2018	(50,957)	6.6506	(7,662)	(43,295)	5.6506
<b>Total</b>			<b>(56,906)</b>	<b>(301,456)</b>	
<b>Deferred Outflow (Inflow) due to Assumption Changes</b>					
2014	\$ 0	0.0000	\$ 0	\$ 0	0.0000
2015	(73,841)	8.2882	(8,909)	(38,205)	4.2882
2016	134,216	7.5909	17,681	81,173	4.5909
2017	171,900	7.2520	23,704	124,492	5.2520
2018	(315,337)	6.6506	(47,415)	(267,922)	5.6506
<b>Total</b>			<b>(14,939)</b>	<b>(100,462)</b>	
<b>Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments</b>					
2014	\$ 0	5.0000	\$ 0	\$ 0	0.0000
2015	32,182	5.0000	6,436	6,438	1.0000
2016	121,305	5.0000	24,261	48,522	2.0000
2017	(270,895)	5.0000	(54,179)	(162,537)	3.0000
2018	(243,530)	5.0000	(48,706)	(194,824)	4.0000
<b>Total</b>			<b>(72,188)</b>	<b>(302,401)</b>	

# Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended June 30, 2018 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	\$ 1,627,540	\$ 2,839,798	\$ (1,212,258)
2. Due to Assets	543,556	1,820,769	(1,277,213)
<b>3. Total</b>	<b>\$ 2,171,096</b>	<b>\$ 4,660,567</b>	<b>\$ (2,489,471)</b>

## 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	\$ 926,641	\$ 1,838,906	\$ (912,265)
2. Assumption Changes	700,899	1,000,892	(299,993)
3. Net Difference between projected and actual earnings on pension plan investments	543,556	1,820,769	(1,277,213)
<b>4. Total</b>	<b>\$ 2,171,096</b>	<b>\$ 4,660,567</b>	<b>\$ (2,489,471)</b>

## 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	\$ 6,519,146	\$ 5,718,590	\$ 800,556
2. Assumption Changes	3,222,669	5,533,649	(2,310,980)
3. Net Difference between projected and actual earnings on pension plan investments	988,288	6,114,173	(5,125,885)
<b>4. Total</b>	<b>\$ 10,730,103</b>	<b>\$ 17,366,412</b>	<b>\$ (6,636,309)</b>

## 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
2019	\$ (2,489,469)
2020	(2,588,297)
2021	(2,381,223)
2022	(349,999)
2023	335,179
Thereafter	837,500
<b>Total</b>	<b>\$ (6,636,309)</b>

# Schedule of Proportionate Employer Share for Year Ended June 30, 2018 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
\$ 155,838,870	General City	97.99%	\$ (1,962,317)	\$ 6,246,120	\$ 526,329	\$ 1,869,346	\$ 290,389	\$ 8,932,184
2,932,795	Parking	1.84%	(36,847)	117,286	9,883	35,102	-	162,271
264,793	Airport	0.17%	(3,404)	10,836	913	3,243	586	15,578
<b>\$ 159,036,458</b>	<b>Total for All Employers</b>	<b>100.00%</b>	<b>\$ (2,002,568)</b>	<b>\$ 6,374,242</b>	<b>\$ 537,125</b>	<b>\$ 1,907,691</b>	<b>\$ 290,975</b>	<b>\$ 9,110,033</b>

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	\$ 868,997	\$ 3,458,016	\$ 3,503,738	\$ -	\$ 7,830,751	\$ 5,198,639	\$ 44,063	\$ 5,242,702
Parking	16,318	64,933	65,791	267,867	414,909	97,617	(40,671)	56,946
Airport	1,508	5,999	6,079	23,108	36,694	9,019	(3,392)	5,627
<b>Total for All Employers</b>	<b>\$ 886,823</b>	<b>\$ 3,528,948</b>	<b>\$ 3,575,608</b>	<b>\$ 290,975</b>	<b>\$ 8,282,354</b>	<b>\$ 5,305,275</b>	<b>\$ -</b>	<b>\$ 5,305,275</b>

## Schedule of Proportionate Employer Share for Year Ended June 30, 2018 General Subgroup

Employer	Employer Allocation Percentage	Schedule of Deferred Inflows and Outflows						
		2019	2020	2021	2022	2023	Thereafter	Total
General City	97.99%	\$ (131,564)	\$ (182,273)	\$ (420,085)	\$ 196,589	\$ 613,182	\$ 1,025,583	\$ 1,101,432
Parking	1.84%	(43,969)	(44,921)	(49,387)	(37,807)	(29,865)	(46,690)	(252,638)
Airport	0.17%	(3,697)	(3,785)	(4,197)	(3,127)	(2,428)	(3,880)	(21,115)
<b>TOTAL</b>	<b>100.00%</b>	<b>\$ (179,230)</b>	<b>\$ (230,979)</b>	<b>\$ (473,669)</b>	<b>\$ 155,655</b>	<b>\$ 580,889</b>	<b>\$ 975,013</b>	<b>\$ 827,679</b>

## Determination of Employer Contribution Allocation for Year Ended June 30, 2018

Employer	General City	Parking	Airport	General Total	DOT	DWSD	Library	Total
Contributions Before General Breakdown				\$10,770,604	\$1,778,316	\$1,328,993	\$795,731	\$14,673,644
General Employer Allocation Percent	100.00%	0.00%	0.00%	100.00%	N/A	N/A	N/A	N/A
Times General Total	\$10,770,604	\$10,770,604	\$10,770,604	\$10,770,604	N/A	N/A	N/A	N/A
Contribution Allocation Dollar	\$10,770,604	\$ 0	\$ 0	\$10,770,604	\$1,778,316	\$1,328,993	\$795,731	\$14,673,644

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, 2018

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
<b>General City</b>					
2014	\$ 0	0.0000	\$ 0	\$ 0	0.0000
2015	3,767	8.7829	429	2,051	4.7829
2016	80,472	8.4005	9,579	51,735	5.4005
2017	36,533	7.6734	4,761	27,011	5.6734
2018	238,886	8.1547	29,294	209,592	7.1547
<b>Total</b>			<b>44,063</b>	<b>290,389</b>	
<b>Parking</b>					
2014	\$ 0	0.0000	\$ 0	\$ 0	0.0000
2015	(4,841)	8.7829	(551)	(2,637)	4.7829
2016	(72,760)	8.4005	(8,661)	(46,777)	5.4005
2017	(34,338)	7.6734	(4,475)	(25,388)	5.6734
2018	(220,049)	8.1547	(26,984)	(193,065)	7.1547
<b>Total</b>			<b>(40,671)</b>	<b>(267,867)</b>	
<b>Airport</b>					
2014	\$ 0	0.0000	\$ 0	\$ 0	0.0000
2015	1,074	8.7829	122	586	4.7829
2016	(7,712)	8.4005	(918)	(4,958)	5.4005
2017	(2,195)	7.6734	(286)	(1,623)	5.6734
2018	(18,837)	8.1547	(2,310)	(16,527)	7.1547
<b>Total</b>			<b>(3,392)</b>	<b>(22,522)</b>	

## SECTION C

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### REQUIRED SUPPLEMENTARY INFORMATION

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

## Fiscal Year Ended June 30, 2018<sup>^</sup>

	General	DOT	DWSD	Library	Total
<b>A. Total pension liability</b>					
1. Service Cost*	\$ 13,674,724	\$ 4,369,999	\$ 3,128,059	\$ 1,186,600	\$ 22,359,382
2. Interest on the Total Pension Liability (and Service Cost)	3,031,910	1,024,594	1,089,198	292,359	5,438,061
3. Changes of benefit terms	0	0	0	0	0
4. Difference between expected and actual experience of the Total Pension Liability	6,985,621	167,430	(2,555,229)	(50,957)	4,546,865
5. Changes of assumptions	(3,699,006)	(888,595)	(855,251)	(315,337)	(5,758,189)
6. Benefit payments, including refunds of employee contributions	(1,338,099)	(566,868)	(463,955)	(21,670)	(2,390,592)
7. Net change in total pension liability	\$ 18,655,150	\$ 4,106,560	\$ 342,822	\$ 1,090,995	\$ 24,195,527
8. Total pension liability – beginning	39,801,388	14,187,658	15,035,499	3,659,039	72,683,584
9. Total pension liability – ending	<b>\$ 58,456,538</b>	<b>\$ 18,294,218</b>	<b>\$ 15,378,321</b>	<b>\$ 4,750,034</b>	<b>\$ 96,879,111</b>
<b>B. Plan fiduciary net position</b>					
1. Contributions – employer	\$ 10,770,604	\$ 1,778,316	\$ 1,328,993	\$ 795,731	\$ 14,673,644
2. Contributions – employee mandatory	6,178,912	1,227,934	993,710	437,411	8,837,967
3. Net investment income	5,262,634	1,177,963	1,524,214	480,779	8,445,590
4. Benefit payments, including refunds of employee contributions	(830,820)	(187,011)	(271,283)	(19,436)	(1,308,550)
5. Benefit Payments and Refunds based on Voluntary Contributions	(507,279)	(379,857)	(192,672)	(2,234)	(1,082,042)
6. Pension Plan Administrative Expense	(1,303,011)	(387,583)	(382,260)	(98,839)	(2,171,693)
7. Voluntary Employee Contributions	3,127,351	1,461,449	687,705	26,145	5,302,650
8. Other	7,462	2,219	2,189	566	12,436
9. Net change in plan fiduciary net position	\$ 22,705,853	\$ 4,693,430	\$ 3,690,596	\$ 1,620,123	\$ 32,710,002
10. Plan fiduciary net position – beginning	37,753,253	11,229,771	11,075,557	2,863,743	62,922,324
11. Plan fiduciary net position – ending	<b>\$ 60,459,106</b>	<b>\$ 15,923,201</b>	<b>\$ 14,766,153</b>	<b>\$ 4,483,866</b>	<b>\$ 95,632,326</b>
<b>C. Net pension liability</b>	<b>\$ (2,002,568)</b>	<b>\$ 2,371,017</b>	<b>\$ 612,168</b>	<b>\$ 266,168</b>	<b>\$ 1,246,785</b>
<b>D. Plan fiduciary net position as a percentage of the total pension liability</b>	<b>103.43%</b>	<b>87.04%</b>	<b>96.02%</b>	<b>94.40%</b>	<b>98.71%</b>
<b>E. Covered-employee payroll</b>	<b>\$ 159,036,458</b>	<b>\$ 36,288,121</b>	<b>\$ 22,726,143</b>	<b>\$ 11,903,629</b>	<b>\$ 229,954,351</b>
<b>F. Net pension liability as a percentage of covered-employee payroll</b>	<b>-1.26%</b>	<b>6.53%</b>	<b>2.69%</b>	<b>2.24%</b>	<b>0.54%</b>

<sup>^</sup> 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,	2018	2017	2016	2015
<b>Total Pension Liability</b>				
Service Cost*	\$ 22,359,382	\$ 23,460,383	\$ 23,516,450	\$ 25,094,461
Interest on the Total Pension Liability (and Service Cost)	5,438,061	4,084,390	2,495,896	695,469
Benefit Changes	-	-	-	-
Difference between Expected and Actual Experience	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	(399,127)	(288,290)	(40,162)	-
Refunds	(1,991,465)	(1,846,519)	(2,247,052)	-
<b>Net Change in Total Pension Liability</b>	<b>24,195,527</b>	<b>23,522,939</b>	<b>24,572,823</b>	<b>24,587,822</b>
<b>Total Pension Liability - Beginning</b>	<b>72,683,584</b>	<b>49,160,645</b>	<b>24,587,822</b>	<b>-</b>
<b>Total Pension Liability - Ending (a)</b>	<b>\$ 96,879,111</b>	<b>\$ 72,683,584</b>	<b>\$ 49,160,645</b>	<b>\$ 24,587,822</b>
<b>Plan Fiduciary Net Position</b>				
Employer Contributions	\$ 14,673,644	\$ 9,484,992	\$ 9,048,831	\$ 8,811,369
Mandatory Employee Contributions	8,837,967	7,752,057	7,345,515	6,970,544
Pension Plan Net Investment Income	8,445,590	9,100,741	(76,608)	20,690
Benefit Payments	(399,127)	(288,290)	(40,162)	-
Refunds of Mandatory Contributions	(909,423)	(733,557)	(990,898)	-
Benefit Payments and Refunds based on Voluntary Contributions	(1,082,042)	(1,112,962)	(1,256,154)	(10,603)
Pension Plan Administrative Expense	(2,171,693)	(2,639,392)	(3,094,197)	(1,481,589)
Voluntary Employee Contributions	5,302,650	5,043,347	5,213,744	5,786,488
Other	12,436	61,833	6,586	-
<b>Net Change in Plan Fiduciary Net Position</b>	<b>32,710,002</b>	<b>26,668,769</b>	<b>16,156,657</b>	<b>20,096,899</b>
<b>Plan Fiduciary Net Position - Beginning</b>	<b>62,922,324</b>	<b>36,253,555</b>	<b>20,096,898</b>	<b>-</b>
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ 95,632,326</b>	<b>\$ 62,922,324</b>	<b>\$ 36,253,555</b>	<b>\$ 20,096,899</b>
<b>Net Pension Liability - Ending (a) - (b)</b>	<b>\$ 1,246,785</b>	<b>\$ 9,761,260</b>	<b>\$ 12,907,090</b>	<b>\$ 4,490,923</b>
<b>Plan Fiduciary Net Position as a Percentage of Total Pension Liability</b>	<b>98.71 %</b>	<b>86.57 %</b>	<b>73.75 %</b>	<b>81.74 %</b>
<b>Covered-Employee Payroll</b>	<b>\$ 229,954,351</b>	<b>\$ 169,014,411</b>	<b>\$ 199,135,119</b>	<b>\$ 203,507,079</b>
<b>Net Pension Liability as a Percentage of Covered-Employee Payroll</b>	<b>0.54 %</b>	<b>5.78 %</b>	<b>6.48 %</b>	<b>2.21 %</b>
<b>Notes to Schedule:</b>				
N/A				

\* 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 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%

\* 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

<b>FY Ending June 30,</b>	<b>Actuarially Determined Contribution<sup>#</sup></b>	<b>Actual Contribution</b>	<b>Contribution Deficiency (Excess)</b>	<b>Covered Payroll*</b>	<b>Actual Contribution as a % of Covered Payroll</b>
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%

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

<sup>#</sup> 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 was not available to Gabriel, Roeder, Smith & Company for this report.

## SECTION D

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### 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, 2018. 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 5.33% 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)	\$109,894,702	\$96,879,111	\$86,309,820
Net Position Restricted for Pensions	95,632,326	95,632,326	95,632,326
Net Pension Liability (NPL)	\$ 14,262,376	\$ 1,246,785	\$ (9,322,506)

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 was not available to Gabriel, Roeder, Smith & Company for this report.

## Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	200
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	933
Active Plan Members	5,117
Total Plan Members	6,250

Additional information regarding the plan population may be found in the June 30, 2017 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, 2018.

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, 2018 (the maximum amount payable).

### VPIF Assumption

	Minimum (0%)	Current Assumption (0.5% beginning 7/1/2018)	Maximum (2% beginning 7/1/2018)
Total Pension Liability (TPL)	\$93,780,651	\$96,879,111	\$106,079,578
Net Position Restricted for Pensions	95,632,326	95,632,326	95,632,326
Net Pension Liability (NPL)	\$ (1,851,675)	\$ 1,246,785	\$ 10,447,252

## SECTION E

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### 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

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### **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 5.33% 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.

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***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, 2017. 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 and 41. 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 2017	Future Life Expectancy (years)	
	Men	Women
45	38.51	41.86
50	33.56	36.81
55	28.80	31.91
60	24.26	27.17
65	19.97	22.60
70	15.99	18.30
75	12.37	14.34
80	9.19	10.84

# 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

Sample Ages	Years of Service	% of Active Members Separating Within Next Year			
		E.M.S.	D.O.T.	Withdrawal	
				Men	Others
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

<b>Benefit Service</b>	Exact Fractional service is used to determine the amount of benefit payable.
<b>Decrement Operation</b>	Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal also do not operate during retirement eligibility.
<b>Decrement Timing</b>	Decrement of all types are assumed to occur mid-year.
<b>Eligibility Testing</b>	Eligibility for benefits is determined based upon the age nearest birthday and rounded service on the date the decrement is assumed to occur.
<b>Forfeitures</b>	None.
<b>Marriage Assumption</b>	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.
<b>Normal Form of Benefit</b>	Straight life is the normal form of benefit.
<b>Service Credit Accruals</b>	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.
<b>Administrative Expenses</b>	3.00% of Component I payroll. 60% was allocated to Component II and 40% to Component I.
<b>Sick Leave</b>	None.
<b>Pay Increase Timing</b>	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.
<b>Disability Benefits</b>	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.
<b>Workers Compensation</b>	Workers compensation for duty death-in-service benefits was assumed to equally offset the 10% AFC minimum benefit.
<b>Actuarial Equivalent</b>	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.
<b>IRC Section 415 Limit</b>	No adjustments have been made for 415 limits. The limit is assumed to grow with wage inflation.
<b>IRC Section 401(a)(17) Limit</b>	All of the member salary provided falls below the 401(a)(17) limit. The limit is assumed to grow with wage inflation.
<b>IRC Section 401(h) Limit</b>	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 COLA's will be 0.5%. The rationale for this assumption is that COLA's 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.

## **SECTION G**

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### **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 3.62%; and the resulting Single Discount Rate is 7.38% as of June 30, 2018.

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, 2018, 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 5.33% 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 VPIF reduction under Section 9.5 of the plan was 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, 2018, the benefit payments reflect the plan provisions in force as of June 30, 2018.

# 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
2019	\$ 194,319,423	\$ 7,772,777	\$ 8,660,398	\$ 2,331,833	\$ (1,276,260)	\$ 17,488,748
2020	178,066,583	7,122,663	7,832,910	2,136,799	(1,066,380)	16,025,992
2021	165,459,436	6,618,377	7,156,897	1,985,513	(869,438)	14,891,349
2022	155,425,964	6,217,039	6,587,897	1,865,112	(681,711)	13,988,337
2023	147,426,637	5,897,065	6,111,149	1,769,120	(508,937)	13,268,397
2024	140,210,760	5,608,430	5,687,449	1,682,529	98,333	13,076,741
2025	133,018,195	5,320,728	5,284,542	1,596,218	204,440	12,405,927
2026	126,169,235	5,046,769	4,901,262	1,514,031	305,097	11,767,160
2027	118,677,008	4,747,080	4,498,205	1,424,124	398,988	11,068,398
2028	111,233,338	4,449,334	4,104,345	1,334,800	485,686	10,374,165
2029	104,410,778	4,176,431	3,741,972	1,252,929	566,527	9,737,860
2030	97,949,436	3,917,977	3,403,148	1,175,393	638,725	9,135,243
2031	91,724,353	3,668,974	3,082,974	1,100,692	702,021	8,554,662
2032	85,744,954	3,429,798	2,781,704	1,028,939	756,553	7,996,994
2033	80,016,105	3,200,644	2,499,544	960,193	802,312	7,462,693
2034	74,627,659	2,985,106	2,243,638	895,532	835,864	6,960,140
2035	69,611,877	2,784,475	2,013,960	835,343	858,566	6,492,344
2036	64,901,292	2,596,052	1,804,394	778,816	873,750	6,053,012
2037	60,395,421	2,415,817	1,613,503	724,745	878,708	5,632,772
2038	56,138,641	2,245,546	1,439,221	673,664	877,333	5,235,764
2039	52,106,077	2,084,243	1,281,863	625,273	868,288	4,859,667
2040	48,300,094	1,932,004	1,139,171	579,601	853,927	4,504,703
2041	44,749,721	1,789,989	1,012,162	536,997	834,430	4,173,578
2042	41,321,475	1,652,859	895,925	495,858	809,201	3,853,843
2043	38,004,649	1,520,186	789,104	456,056	779,153	3,544,499
2044	34,786,356	1,391,454	691,558	417,436	743,898	3,244,346
2045	31,643,139	1,265,726	601,408	379,718	704,342	2,951,194
2046	28,521,318	1,140,853	518,284	342,256	658,644	2,660,038
2047	25,291,242	1,011,650	438,680	303,495	604,960	2,358,785
2048	22,106,401	884,256	365,119	265,277	547,099	2,061,751
2049	19,153,408	766,136	301,313	229,841	489,050	1,786,340
2050	16,411,490	656,460	245,389	196,938	431,830	1,530,616
2051	13,853,631	554,145	196,598	166,244	375,070	1,292,057
2052	11,504,439	460,178	155,401	138,053	319,329	1,072,960
2053	9,412,307	376,492	120,293	112,948	268,105	877,838
2054	7,595,142	303,806	91,853	91,142	221,560	708,360
2055	6,033,162	241,326	69,413	72,398	179,544	562,682
2056	4,708,782	188,351	51,253	56,505	143,055	439,164
2057	3,611,330	144,453	37,188	43,336	111,833	336,810
2058	2,728,032	109,121	26,596	32,736	85,977	254,430
2059	2,038,718	81,549	19,191	24,465	64,936	190,141
2060	1,501,626	60,065	13,506	18,020	48,458	140,049
2061	1,080,827	43,233	9,425	12,970	35,175	100,803
2062	764,986	30,599	6,614	9,180	24,953	71,346
2063	536,578	21,463	4,586	6,439	17,555	50,044
2064	374,469	14,979	3,168	4,494	12,284	34,925
2065	260,428	10,417	2,173	3,125	8,574	24,289
2066	181,389	7,256	1,376	2,177	6,109	16,917
2067	126,405	5,056	851	1,517	4,365	11,789
2068	87,567	3,503	594	1,051	3,020	8,167

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
2069	\$ 60,134	\$ 2,405	\$ 328	\$ 722	\$ 2,153	\$ 5,608
2070	40,801	1,632	150	490	1,534	3,805
2071	27,377	1,095	143	329	987	2,553
2072	18,264	731	20	219	734	1,703
2073	11,917	477	12	143	480	1,111
2074	7,624	305	8	91	307	711
2075	4,844	194	(10)	58	210	452
2076	2,948	118	(26)	35	148	275
2077	1,723	69	(27)	21	98	161
2078	890	36	(36)	11	72	83
2079	345	14	(14)	4	28	32
2080	100	4	(4)	1	8	9
2081	18	1	(1)	-	2	2
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	-	-	-	-	-	-

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)
2019	\$ 76,777,401	\$ 17,488,748	\$ 2,042,600	\$ 2,331,833	\$ 6,141,477	\$ 96,033,193
2020	96,033,193	16,025,992	2,490,744	2,136,799	7,500,366	114,932,009
2021	114,932,009	14,891,349	2,919,767	1,985,513	8,843,910	133,761,988
2022	133,761,988	13,988,337	3,359,321	1,865,112	10,189,267	152,715,159
2023	152,715,159	13,268,397	3,959,310	1,769,120	11,543,651	171,798,778
2024	171,798,778	13,076,741	4,688,077	1,682,529	12,921,802	191,426,714
2025	191,426,714	12,405,927	5,497,952	1,596,218	14,319,807	211,058,278
2026	211,058,278	11,767,160	6,383,625	1,514,031	15,716,344	230,644,126
2027	230,644,126	11,068,398	7,319,335	1,424,124	17,105,800	250,074,864
2028	250,074,864	10,374,165	8,734,811	1,334,800	18,466,563	268,845,981
2029	268,845,981	9,737,860	10,132,301	1,252,929	19,781,127	286,979,738
2030	286,979,738	9,135,243	11,591,755	1,175,393	21,047,473	304,395,306
2031	304,395,306	8,554,662	13,089,789	1,100,692	22,260,113	321,019,600
2032	321,019,600	7,996,994	14,663,426	1,028,939	23,412,342	336,736,570
2033	336,736,570	7,462,693	16,299,721	960,193	24,496,076	351,435,426
2034	351,435,426	6,960,140	17,854,453	895,532	25,508,633	365,154,213
2035	365,154,213	6,492,344	19,302,843	835,343	26,453,812	377,962,183
2036	377,962,183	6,053,012	20,712,812	778,816	27,334,064	389,857,631
2037	389,857,631	5,632,772	22,180,759	724,745	28,145,474	400,730,374
2038	400,730,374	5,235,764	23,608,786	673,664	28,883,588	410,567,277
2039	410,567,277	4,859,667	25,001,034	625,273	29,547,215	419,347,852
2040	419,347,852	4,504,703	26,320,187	579,601	30,136,202	427,088,969
2041	427,088,969	4,173,578	27,577,820	536,997	30,651,458	433,799,188
2042	433,799,188	3,853,843	28,875,915	495,858	31,089,528	439,370,786
2043	439,370,786	3,544,499	30,139,237	456,056	31,445,156	443,765,149
2044	443,765,149	3,244,346	31,357,565	417,436	31,715,825	446,950,318
2045	446,950,318	2,951,194	32,470,128	379,718	31,901,310	448,952,976
2046	448,952,976	2,660,038	33,481,449	342,256	32,003,258	449,792,567
2047	449,792,567	2,358,785	34,449,006	303,495	32,020,639	449,419,490
2048	449,419,490	2,061,751	35,382,888	265,277	31,949,879	447,782,955
2049	447,782,955	1,786,340	36,314,246	229,841	31,786,650	444,811,858
2050	444,811,858	1,530,616	37,275,539	196,938	31,524,467	440,394,463
2051	440,394,463	1,292,057	38,312,666	166,244	31,153,340	434,360,950
2052	434,360,950	1,072,960	39,333,439	138,053	30,664,152	426,626,570
2053	426,626,570	877,838	40,132,717	112,948	30,058,224	417,316,968
2054	417,316,968	708,360	40,645,528	91,142	29,347,238	406,635,895
2055	406,635,895	562,682	40,970,230	72,398	28,542,606	394,698,555
2056	394,698,555	439,164	41,082,344	56,505	27,653,666	381,652,537
2057	381,652,537	336,810	40,931,393	43,336	26,693,108	367,707,726
2058	367,707,726	254,430	40,535,216	32,736	25,675,739	353,069,943
2059	353,069,943	190,141	39,892,718	24,465	24,616,726	337,959,627
2060	337,959,627	140,049	39,126,887	18,020	23,527,759	322,482,527
2061	322,482,527	100,803	38,255,094	12,970	22,415,906	306,731,173
2062	306,731,173	71,346	37,196,383	9,180	21,290,897	290,887,854
2063	290,887,854	50,044	35,998,363	6,439	20,164,408	275,097,504
2064	275,097,504	34,925	34,713,595	4,494	19,045,166	259,459,506
2065	259,459,506	24,289	33,376,179	3,125	17,939,219	244,043,709
2066	244,043,709	16,917	32,005,790	2,177	16,850,967	228,903,627
2067	228,903,627	11,789	30,612,699	1,517	15,783,957	214,085,157
2068	214,085,157	8,167	29,205,451	1,051	14,741,243	199,628,065

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)
2069	\$ 199,628,065	\$ 5,608	\$ 27,790,753	\$ 722	\$ 13,725,502	\$ 185,567,701
2070	185,567,701	3,805	26,374,470	490	12,739,121	171,935,666
2071	171,935,666	2,553	24,961,652	329	11,784,242	158,760,481
2072	158,760,481	1,703	23,556,925	219	10,862,799	146,067,839
2073	146,067,839	1,111	22,164,854	143	9,976,516	133,880,469
2074	133,880,469	711	20,789,390	91	9,126,927	122,218,626
2075	122,218,626	452	19,434,321	58	8,315,387	111,100,085
2076	111,100,085	275	18,103,274	35	7,543,074	100,540,125
2077	100,540,125	161	16,799,513	21	6,810,998	90,551,750
2078	90,551,750	83	15,526,474	11	6,119,992	81,145,339
2079	81,145,339	32	14,287,644	4	5,470,697	72,328,421
2080	72,328,421	9	13,086,566	1	4,863,539	64,105,401
2081	64,105,401	2	11,926,989	-	4,298,706	56,477,120
2082	56,477,120	-	10,812,659	-	3,776,126	49,440,587
2083	49,440,587	-	9,747,197	-	3,295,446	42,988,836
2084	42,988,836	-	8,733,909	-	2,856,031	37,110,958
2085	37,110,958	-	7,775,587	-	2,456,976	31,792,347
2086	31,792,347	-	6,874,508	-	2,097,121	27,014,960
2087	27,014,960	-	6,032,563	-	1,775,065	22,757,461
2088	22,757,461	-	5,251,304	-	1,489,177	18,995,334
2089	18,995,334	-	4,531,841	-	1,237,607	15,701,100
2090	15,701,100	-	3,874,758	-	1,018,308	12,844,650
2091	12,844,650	-	3,280,097	-	829,054	10,393,606
2092	10,393,606	-	2,747,296	-	667,477	8,313,788
2093	8,313,788	-	2,275,142	-	531,099	6,569,745
2094	6,569,745	-	1,861,667	-	417,374	5,125,453
2095	5,125,453	-	1,504,078	-	323,746	3,945,121
2096	3,945,121	-	1,198,883	-	247,699	2,993,937
2097	2,993,937	-	942,064	-	186,809	2,238,682
2098	2,238,682	-	729,208	-	138,786	1,648,260
2099	1,648,260	-	555,605	-	101,505	1,194,160
2100	1,194,160	-	416,381	-	73,038	850,817
2101	850,817	-	306,677	-	51,675	595,815
2102	595,815	-	221,820	-	35,932	409,927
2103	409,927	-	157,453	-	24,546	277,020
2104	277,020	-	109,607	-	16,472	183,884
2105	183,884	-	74,778	-	10,860	119,966
2106	119,966	-	49,982	-	7,042	77,026
2107	77,026	-	32,737	-	4,498	48,788
2108	48,788	-	21,027	-	2,838	30,599
2109	30,599	-	13,269	-	1,777	19,107
2110	19,107	-	8,260	-	1,111	11,958
2111	11,958	-	5,112	-	697	7,543
2112	7,543	-	3,181	-	441	4,804
2113	4,804	-	2,017	-	281	3,068
2114	3,068	-	1,325	-	178	1,922
2115	1,922	-	912	-	109	1,119
2116	1,119	-	659	-	59	519
2117	519	-	538	-	19	-
2118	-	-	-	-	-	-

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 <sup>a</sup> ((a)-.5)	(g)=(e)*vf <sup>a</sup> ((a)-.5)	(h)=(c)/(1+sdr) <sup>a</sup> ((a)-.5)
2019	\$ 76,777,401	\$ 2,042,600	\$ 2,042,600	\$ -	\$ 1,971,159	\$ -	\$ 1,971,159
2020	96,033,193	2,490,744	2,490,744	-	2,238,433	-	2,238,433
2021	114,932,009	2,919,767	2,919,767	-	2,443,654	-	2,443,654
2022	133,761,988	3,359,321	3,359,321	-	2,618,301	-	2,618,301
2023	152,715,159	3,959,310	3,959,310	-	2,873,851	-	2,873,851
2024	171,798,778	4,688,077	4,688,077	-	3,168,955	-	3,168,955
2025	191,426,714	5,497,952	5,497,952	-	3,460,978	-	3,460,978
2026	211,058,278	6,383,625	6,383,625	-	3,742,328	-	3,742,328
2027	230,644,126	7,319,335	7,319,335	-	3,995,975	-	3,995,975
2028	250,074,864	8,734,811	8,734,811	-	4,441,005	-	4,441,005
2029	268,845,981	10,132,301	10,132,301	-	4,797,471	-	4,797,471
2030	286,979,738	11,591,755	11,591,755	-	5,111,285	-	5,111,285
2031	304,395,306	13,089,789	13,089,789	-	5,375,145	-	5,375,145
2032	321,019,600	14,663,426	14,663,426	-	5,607,504	-	5,607,504
2033	336,736,570	16,299,721	16,299,721	-	5,804,848	-	5,804,848
2034	351,435,426	17,854,453	17,854,453	-	5,921,529	-	5,921,529
2035	365,154,213	19,302,843	19,302,843	-	5,961,907	-	5,961,907
2036	377,962,183	20,712,812	20,712,812	-	5,957,713	-	5,957,713
2037	389,857,631	22,180,759	22,180,759	-	5,941,464	-	5,941,464
2038	400,730,374	23,608,786	23,608,786	-	5,889,350	-	5,889,350
2039	410,567,277	25,001,034	25,001,034	-	5,808,022	-	5,808,022
2040	419,347,852	26,320,187	26,320,187	-	5,694,241	-	5,694,241
2041	427,088,969	27,577,820	27,577,820	-	5,556,271	-	5,556,271
2042	433,799,188	28,875,915	28,875,915	-	5,417,961	-	5,417,961
2043	439,370,786	30,139,237	30,139,237	-	5,266,341	-	5,266,341
2044	443,765,149	31,357,565	31,357,565	-	5,102,648	-	5,102,648
2045	446,950,318	32,470,128	32,470,128	-	4,920,553	-	4,920,553
2046	448,952,976	33,481,449	33,481,449	-	4,725,097	-	4,725,097
2047	449,792,567	34,449,006	34,449,006	-	4,527,514	-	4,527,514
2048	449,419,490	35,382,888	35,382,888	-	4,330,649	-	4,330,649
2049	447,782,955	36,314,246	36,314,246	-	4,139,171	-	4,139,171
2050	444,811,858	37,275,539	37,275,539	-	3,956,734	-	3,956,734
2051	440,394,463	38,312,666	38,312,666	-	3,787,319	-	3,787,319
2052	434,360,950	39,333,439	39,333,439	-	3,620,996	-	3,620,996
2053	426,626,570	40,132,717	40,132,717	-	3,440,656	-	3,440,656
2054	417,316,968	40,645,528	40,645,528	-	3,245,130	-	3,245,130
2055	406,635,895	40,970,230	40,970,230	-	3,046,241	-	3,046,241
2056	394,698,555	41,082,344	41,082,344	-	2,844,643	-	2,844,643
2057	381,652,537	40,931,393	40,931,393	-	2,639,403	-	2,639,403
2058	367,707,726	40,535,216	40,535,216	-	2,434,211	-	2,434,211
2059	353,069,943	39,892,718	39,892,718	-	2,230,981	-	2,230,981
2060	337,959,627	39,126,887	39,126,887	-	2,037,766	-	2,037,766
2061	322,482,527	38,255,094	38,255,094	-	1,855,431	-	1,855,431
2062	306,731,173	37,196,383	37,196,383	-	1,680,091	-	1,680,091
2063	290,887,854	35,998,363	35,998,363	-	1,514,229	-	1,514,229
2064	275,097,504	34,713,595	34,713,595	-	1,359,831	-	1,359,831
2065	259,459,506	33,376,179	33,376,179	-	1,217,583	-	1,217,583
2066	244,043,709	32,005,790	32,005,790	-	1,087,344	-	1,087,344
2067	228,903,627	30,612,699	30,612,699	-	968,538	-	968,538
2068	214,085,157	29,205,451	29,205,451	-	860,509	-	860,509

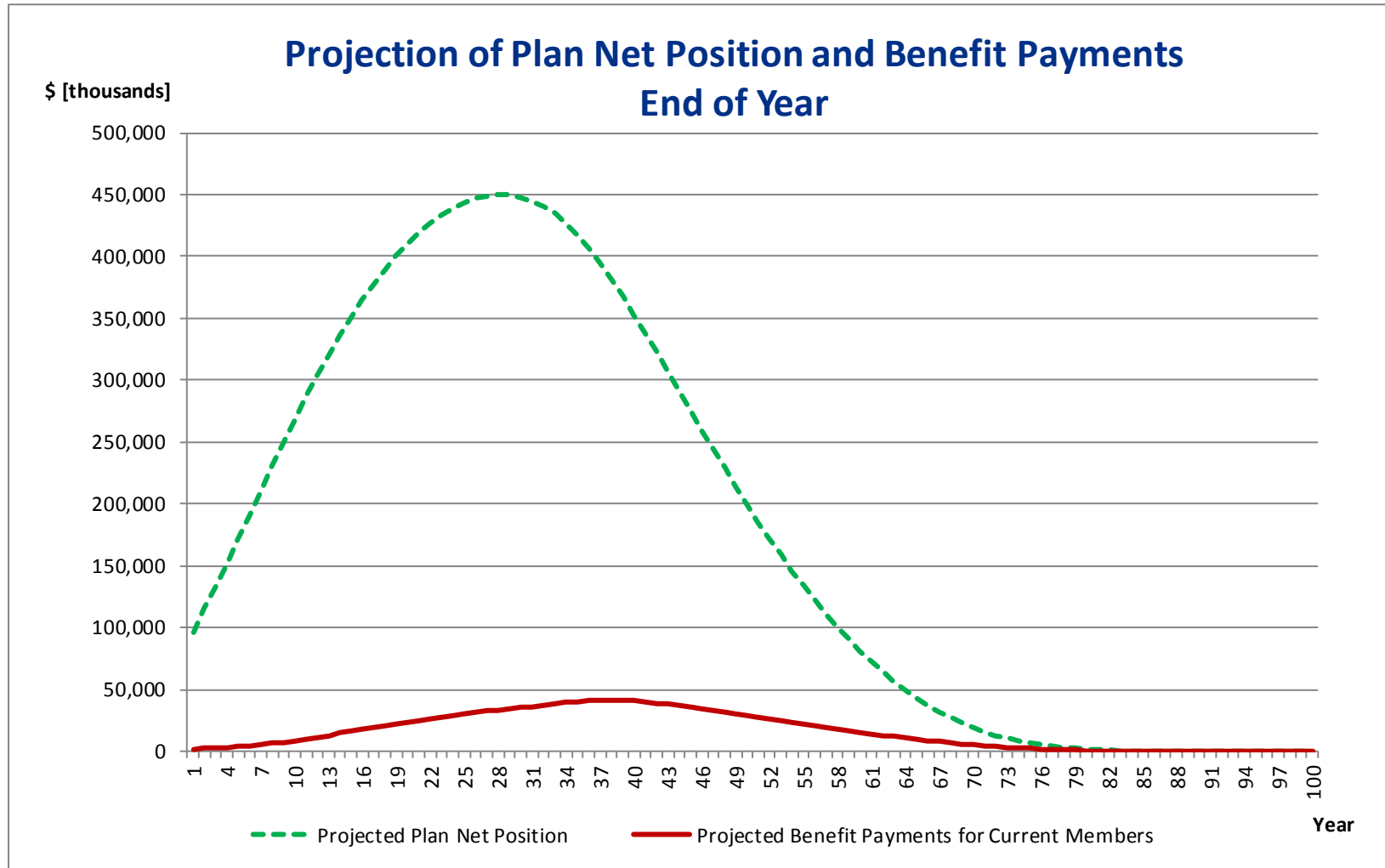
Based on 0.5% VPIF.

# 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)
2069	\$ 199,628,065	\$ 27,790,753	\$ 27,790,753	\$ -	\$ 762,551	\$ -	\$ 762,551
2070	185,567,701	26,374,470	26,374,470	-	673,952	-	673,952
2071	171,935,666	24,961,652	24,961,652	-	594,011	-	594,011
2072	158,760,481	23,556,925	23,556,925	-	522,056	-	522,056
2073	146,067,839	22,164,854	22,164,854	-	457,446	-	457,446
2074	133,880,469	20,789,390	20,789,390	-	399,570	-	399,570
2075	122,218,626	19,434,321	19,434,321	-	347,854	-	347,854
2076	111,100,085	18,103,274	18,103,274	-	301,760	-	301,760
2077	100,540,125	16,799,513	16,799,513	-	260,782	-	260,782
2078	90,551,750	15,526,474	15,526,474	-	224,456	-	224,456
2079	81,145,339	14,287,644	14,287,644	-	192,351	-	192,351
2080	72,328,421	13,086,566	13,086,566	-	164,073	-	164,073
2081	64,105,401	11,926,989	11,926,989	-	139,257	-	139,257
2082	56,477,120	10,812,659	10,812,659	-	117,570	-	117,570
2083	49,440,587	9,747,197	9,747,197	-	98,701	-	98,701
2084	42,988,836	8,733,909	8,733,909	-	82,362	-	82,362
2085	37,110,958	7,775,587	7,775,587	-	68,285	-	68,285
2086	31,792,347	6,874,508	6,874,508	-	56,223	-	56,223
2087	27,014,960	6,032,563	6,032,563	-	45,946	-	45,946
2088	22,757,461	5,251,304	5,251,304	-	37,247	-	37,247
2089	18,995,334	4,531,841	4,531,841	-	29,935	-	29,935
2090	15,701,100	3,874,758	3,874,758	-	23,835	-	23,835
2091	12,844,650	3,280,097	3,280,097	-	18,791	-	18,791
2092	10,393,606	2,747,296	2,747,296	-	14,657	-	14,657
2093	8,313,788	2,275,142	2,275,142	-	11,304	-	11,304
2094	6,569,745	1,861,667	1,861,667	-	8,614	-	8,614
2095	5,125,453	1,504,078	1,504,078	-	6,481	-	6,481
2096	3,945,121	1,198,883	1,198,883	-	4,811	-	4,811
2097	2,993,937	942,064	942,064	-	3,520	-	3,520
2098	2,238,682	729,208	729,208	-	2,538	-	2,538
2099	1,648,260	555,605	555,605	-	1,801	-	1,801
2100	1,194,160	416,381	416,381	-	1,257	-	1,257
2101	850,817	306,677	306,677	-	862	-	862
2102	595,815	221,820	221,820	-	581	-	581
2103	409,927	157,453	157,453	-	384	-	384
2104	277,020	109,607	109,607	-	249	-	249
2105	183,884	74,778	74,778	-	158	-	158
2106	119,966	49,982	49,982	-	98	-	98
2107	77,026	32,737	32,737	-	60	-	60
2108	48,788	21,027	21,027	-	36	-	36
2109	30,599	13,269	13,269	-	21	-	21
2110	19,107	8,260	8,260	-	12	-	12
2111	11,958	5,112	5,112	-	7	-	7
2112	7,543	3,181	3,181	-	4	-	4
2113	4,804	2,017	2,017	-	2	-	2
2114	3,068	1,325	1,325	-	1	-	1
2115	1,922	912	912	-	1	-	1
2116	1,119	659	659	-	1	-	1
2117	519	538	538	-	0	-	0
2118	-	-	-	-	-	-	-
<b>Totals</b>					\$ 192,315,429	\$ -	\$ 192,315,429

Based on 0.5% VPIF.



## SECTION H

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### GLOSSARY OF TERMS

## Glossary of Terms

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

## Glossary of Terms

<b><i>Amortization Method</i></b>	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).
<b><i>Amortization Payment</i></b>	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
<b><i>APTE</i></b>	Association of Professional and Technical Employees.
<b><i>ASF</i></b>	Annuity Savings Fund of the Component II (Legacy) Plan.
<b><i>Cost-of-Living Adjustments (COLA)</i></b>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<b><i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i></b>	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
<b><i>Covered-Employee Payroll</i></b>	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
<b><i>Deferred Inflows and Outflows</i></b>	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
<b><i>Discount Rate</i></b>	<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"><li>1. The benefit payments to be made while the pension plans’ fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and</li><li>2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.</li></ol>
<b><i>D.O.T.</i></b>	Department of Transportation.
<b><i>E.M.S.</i></b>	Emergency Medical Service.

## Glossary of Terms

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

## Glossary of Terms

<b><i>Other Postemployment Benefits (OPEB)</i></b>	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.
<b><i>POA</i></b>	The 8th Amended Plan for the Adjustment of the Debt of the City of Detroit.
<b><i>Real Rate of Return</i></b>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<b><i>Reserve Account</i></b>	An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.
<b><i>RSF</i></b>	Rate Stabilization Fund.
<b><i>Service Cost</i></b>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year. Also known as normal cost.
<b><i>Total Pension Expense</i></b>	<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"><li>1. Service Cost</li><li>2. Interest on the Total Pension Liability</li><li>3. Current-Period Benefit Changes</li><li>4. Employee Contributions (made negative for addition here)</li><li>5. Projected Earnings on Plan Investments (made negative for addition here)</li><li>6. Pension Plan Administrative Expense</li><li>7. Other Changes in Plan Fiduciary Net Position</li><li>8. Recognition of Outflow (Inflow) of Resources due to Liabilities</li><li>9. Recognition of Outflow (Inflow) of Resources due to Assets</li></ol>
<b><i>Total Pension Liability (TPL)</i></b>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<b><i>Unfunded Actuarial Accrued Liability (UAAL)</i></b>	The UAAL is the difference between actuarial accrued liability and valuation assets.
<b><i>Valuation Assets</i></b>	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of the GASB Statement No. 67, the valuation asset is equal to the market value of assets.
<b><i>VPIF</i></b>	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).