The General Retirement System of the City of Detroit

GASB Statement No. 67 Plan Reporting and Accounting Schedules of Component I

June 30, 2017

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November 15, 2017

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." These calculations have been made on a basis that is consistent with our understanding of this Statement. 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 (as defined by GASB Statement No. 67), 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 No. 67. 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 No. 67 may produce significantly different results. In particular, this report is not a funding report and nothing in this report should be construed as a funding recommendation. 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, 2016. The total pension liability was rolled-forward from the valuation date to the plan year ending June 30, 2017 using generally accepted actuarial principles. The asset information as of June 30, 2017 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 this report (either directly or by reference). 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.

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 6.91% net of investment expenses as of June 30, 2016, down from 7.23%, net of investment expenses as of June 30, 2016. We have determined this rate to be reasonable based on a price inflation assumption of 2.50%, the System's asset allocation and the purpose of the measurement.

The benefit provisions reflected in this valuation for the development of the end of year Total Pension Liability are those in effect as of the end of the plan year on June 30, 2017.

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 No. 67 reporting. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

The signing individuals are independent of the plan sponsor.

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

Respectfully submitted,

David T Kausch

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

Judith A. Kermans

Judith A. Kermans, EA, FCA, MAAA

Kenneth G. Alberts

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DTK:bd

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SECTION A

EXECUTIVE SUMMARY

Executive Summary
as of June 30, 2017

Actuarial Valuation Date		June 30, 2016
Pension Plan's Fiscal Year Ending Date (Measurement Date & Reporting Date)		June 30, 2017
Membership		
Number of		
- Retirees and Beneficiaries		125
- Inactive, Nonretired Members		1,073
- Active Members		4,235
- Total		5,433
Covered Payroll	$	169,014,411
Net Pension Liability		
Total Pension Liability	$	72,683,584
Plan Fiduciary Net Position		62,922,324
Net Pension Liability	$	9,761,260
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		86.57%
Net Pension Liability as a Percentage of Covered Payroll		5.78%
Development of the Single Discount Rate as of June 30, 2017		
Single Discount Rate (SDR)		6.91%
Long-Term Expected Rate of Return		6.91%
Long-Term Municipal Bond Rate *		3.56%
Last year ending June 30 in the 2018 to 2117 projection period for which projected benefit payments are fully funded		2117

**Source: Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 30, 2017. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax-exempt securities.*

Discussion

Changes to the Actuarial Assumptions

The Single Discount Rate (SDR) changed to 6.91% at the end of the year from 7.23% at the beginning of the year.

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, 2016 GASB 67 Valuation.

Changes to the Plan Provisions

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

Funding

Employee contributions are initially set to 4.0% but can be increased if necessary to maintain funding levels at 100%. Employer contributions are initially set at 5.0%. 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 indicate 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, 2016 funding valuation report.

Magnitude of Administrative Expenses

Combined Component I (Hybrid) and Component II (Legacy) administrative expenses for the 2017 fiscal year are approximately 30% higher when compared to the 2016 fiscal year. We understand that this increase is temporary. In addition, ongoing payroll (Component I payroll) has decreased with the departure of GLWA. For this valuation, we have adjusted the assumption as a percent to prevent the projected dollars from decreasing due to the lower payroll. This brings the expenses as a percent of Component I payroll up from 3.0% to 3.55% due to the lower payroll. In addition, we allocated 71% of the expenses to Component II and 29% to Component I, consistent with this year's allocation as shown in the assets. We will be monitoring actual expenses as a percent of ongoing payroll and may recommend an increase in this assumption in future valuations.

Additional Employer Contribution

The City has elected to make an additional contribution (above what is required by the Plan) of $3.1 million on or before June 30, 2018 to improve the Plan's funding status. We commend the City's decision. This anticipated contribution has been taken into account in determining the Single Discount Rate. It is not reflected in the Plan Fiduciary Net Position or Total Pension Liability as of June 30, 2017, since it will be contributed after the measurement date.

Beginning of Year TPL

In the June 30, 2016 GASB 67 report (dated December 2, 2016) the TPL was determined to be $49,198,806. Subsequent to the issuance of that report, we received revised assets for purposes of performing the June 30, 2016 GASB 68 valuation. The revision was related to the portion of the assets allocated to the accumulated voluntary member contributions and refunds made during the year, it changed the TPL reported in the June 30, 2016 GASB 68 report to $49,160,645 (a decrease of $38,161). The System's auditor requested that we show the updated TPL reported in the June 30, 2016 GASB 68 as the beginning of year TPL in this report.

Restatement of Historic Schedules

Historic schedules in this report were updated for consistency with the GASB 68 reports.

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 trust, a transfer (of the difference in rates applied to the Component II ASF balance) to the Component I 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.

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 of employers and non-employer contributing entities for benefits provided through the pension plan.

The following discussion provides a summary of the information that is required to be disclosed under this new accounting standard. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report, and your internal staff will be responsible for preparing that information to comply with this accounting standard.

Financial Statements

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

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

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

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

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

Notes to Financial Statements

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

- a description of the types of benefits provided by the plan, as well as automatic or ad hoc COLAs;
- the number and classes of employees covered by the benefit terms;
- the composition of the pension plan's Board and the authority under which benefit terms may be amended;
- a description of the plan's funding policy, which includes member and employer contribution requirements;
- the pension plan's investment policies;
- a description of how fair value is determined;
- concentrations of investments greater than or equal to 5%;
- annual money-weighted rate of return on pension plan investments;
- the portion of the present value of benefits to be provided through the pension plan to current active and inactive plan members;
- the pension plan's fiduciary net position;
- the net pension liability;
- the pension plan's fiduciary net position as a percentage of the total pension liability;
- significant assumptions and methods used to calculate the total pension liability;
- inputs to the discount rates;
- certain information about mortality assumptions and the dates of experience studies; and
- A description of the terms of the plan's Deferred Retirement Option Program (DROP) and the total DROP balance for those members currently participating in the DROP. (The General Retirement System does not have a DROP program.)

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

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

Measurement of the Net Pension Liability

The net pension liability is to be measured as the total pension liability, less the amount of the pension plan's fiduciary net position. In actuarial terms, this will be the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Timing of the Valuation

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

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2016, rolled to the plan year end of June 30, 2017.

Single Discount Rate

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

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.91%; the municipal bond rate is 3.56% (based on the weekly rate closest to but not later than the plan year end of the 20-year Municipal GO AA Index); and the resulting Single Discount Rate is 6.91% as of June 30, 2017.

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 actuarially 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 (84.96% as of June 30, 2017). Unless otherwise indicated, with regard to any such measurements in this report:

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

Limitations of Project Scope

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

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.

SECTION B

FINANCIAL STATEMENTS

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

Statement of Fiduciary Net Position
as of June 30, 2017

Assets		
Cash and Cash Equivalents	$	5,789,004
Receivables	$	2,769,305
Investments at Fair Value	$	55,047,299
Cash and Investments held as collateral for securities lending	$	2,254,729
Total Assets	$	65,860,337
Liabilities		
Accounts Payable	$	2,938,013
Total Liabilities	$	2,938,013
Total Fund Balances	$	62,922,324
Accumulated Voluntary Contribution Fund	$	14,413,593
Other Reserves	$	48,508,731
Plan Fiduciary Net Position	$	62,922,324

Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2017

Additions		
Contributions		
Employer	$	9,484,992
Mandatory Employee		7,752,057
Voluntary Employee		5,043,347
Total Contributions	$	22,280,396
Investment Income		
Net Appreciation in Fair Value of Investments	$	8,376,106
Interest and Dividends		1,015,308
Less Investment Expense		(290,673)
Net Investment Income	$	9,100,741
Other	$	61,833
Total Additions	$	31,442,970
Deductions		
Benefit Payments, including Refunds of Mandatory Employee Contributions	$	1,021,847
Pension Plan Administrative Expense		2,639,392
Voluntary Contributions Benefit Payments and Refunds		1,112,962
Total Deductions	$	4,774,201
Net Increase in Net Position	$	26,668,769
Net Position Restricted for Pensions		
Total Fund Balances Beginning of Year	$	36,253,555
Total Fund Balances End of Year	$	62,922,324

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

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

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,	2017	2016#	2015#
Total Pension Liability			
Service Cost*	$ 23,460,383	$ 23,516,450	$ 25,094,461
Interest on the Total Pension Liability (and Service Cost)	4,084,390	2,495,896	695,469
Benefit Changes	-	-	-
Difference between Expected and Actual Experience	(4,667,487)	(1,263,760)	-
Assumption Changes	2,780,462	2,111,451	(1,202,108)
Benefit Payments	(288,290)	(40,162)	-
Refunds	(1,846,519)	(2,247,052)	-
Net Change in Total Pension Liability	23,522,939	24,572,823	24,587,822
Total Pension Liability - Beginning^	49,160,645	24,587,822	-
Total Pension Liability - Ending (a)	$ 72,683,584	$ 49,160,645	$ 24,587,822
Plan Fiduciary Net Position			
Employer Contributions	$ 9,484,992	$ 9,048,831	$ 8,811,369
Mandatory Employee Contributions	7,752,057	7,345,515	6,970,544
Pension Plan Net Investment Income	9,100,741	(76,608)	20,690
Benefit Payments	(288,290)	(40,162)	-
Refunds of Mandatory Contributions	(733,557)	(990,898)	-
Benefit Payments and Refunds based on Voluntary Contributions	(1,112,962)	(1,256,154)	(10,603)
Pension Plan Administrative Expense	(2,639,392)	(3,094,197)	(1,481,589)
Voluntary Employee Contributions	5,043,347	5,213,744	5,786,488
Other	61,833	6,586	-
Net Change in Plan Fiduciary Net Position	26,668,769	16,156,657	20,096,899
Plan Fiduciary Net Position - Beginning	36,253,555	20,096,898	-
Plan Fiduciary Net Position - Ending (b)	$ 62,922,324	$ 36,253,555	$ 20,096,899
Net Pension Liability - Ending (a) - (b)	$ 9,761,260	$ 12,907,090	$ 4,490,923
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	86.57 %	73.75 %	81.74 %
Covered-Employee Payroll	$ 169,014,411	$ 199,135,119	$203,507,079
Net Pension Liability as a Percentage of Covered-Employee Payroll	5.78 %	6.48 %	2.21 %

Notes to Schedule:

N/A

* *Service cost includes net voluntary member contributions made during the year.*

^ *2017 value includes a post-2016 GASB 67 valuation change of $(38,161) related to a post 2016 GASB 67 change in allocation of accumulated voluntary contributions.*

Historic schedules where updated to maintain consistency with GASB 68 reports.

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

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll*	Net Pension Liability as a % of Covered Payroll
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%

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

 # Historic schedules where updated to maintain consistency with GASB 68 reports.

Schedule of Employer Contributions Multiyear

Last 10 Fiscal Years

FY Ending June 30,	Actuarially Determined Contribution#	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll*	Actual Contribution as a % of Covered Payroll
2015^	N/A	$ 8,811,369	N/A	$203,507,079	4.33%
2016^	N/A	9,048,831	N/A	199,135,119	4.54%
2017	N/A	9,484,992	N/A	169,014,411	5.61%

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

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

^ *Historic schedules where updated to maintain consistency with GASB 68 reports.*

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 have 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

NOTES TO 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.

Single Discount Rate

The projection of contributions used to determine this Single Discount Rate assumed that a Single Discount Rate of 6.91% was used to measure the total pension liability as of June 30, 2017. This Single Discount Rate was based on the expected rate of return on pension plan investments of 6.91% 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 9.03% 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 6.91%, 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 5.91%	Current Single Discount Rate Assumption 6.91%	1% Increase 7.91%
Total Pension Liability (TPL)	$82,614,649	$72,683,584	$64,568,727
Net Position Restricted for Pensions	62,922,324	62,922,324	62,922,324
Net Pension Liability (NPL)	$19,692,325	$9,761,260	$ 1,646,403

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	125
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	1,073
Active Plan Members	4,235
Total Plan Members	5,433

Additional information regarding the plan population may be found in the June 30, 2016 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)	$70,331,001	$72,683,584	$79,741,822
Net Position Restricted for Pensions	62,922,324	62,922,324	62,922,324
Net Pension Liability (NPL)	$7,408,677	$9,761,260	$16,819,498

SECTION E

SUMMARY OF BENEFITS

City of Detroit General Retirement System
Summary of Component I Benefit Provisions Evaluated

Plan Year

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

Full Time Employees

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

Plan Membership

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

Service Credit

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

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

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

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

City of Detroit General Retirement System
Summary of Component I Benefit Provisions Evaluated

Average Final Compensation

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

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

Normal Retirement

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

Age as of July 1, 2014	Normal Retirement Age
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: *A*ge 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.

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.

City of Detroit General Retirement System
Summary of Component I Benefit Provisions Evaluated

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.

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.

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

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

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

City of Detroit General Retirement System
Summary of Component I Benefit Provisions Evaluated

Rehire Before or After Retirement

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

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

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

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

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

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Summary of Assumptions and Methods Used for GASB Valuation

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.

Economic Assumptions

The investment return rate used in making the valuation was 6.91% 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 2.25% assumed price inflation.

Pay increase assumptions for individual active members are shown on page 25. 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 2.25% 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 26 and 27. 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 (including *death-in-service* and *disability*) are shown for sample ages on page 29. The rationale is based on the 2002-2007 Experience Study for the Component II plan.

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 9.03% of compensation for purposes of illustrating that actuarially determined employer contributions will not result in a crossover date for the GASB No. 67 required projection. This is not a funding recommendation. Recommendations on employer and member funding requirements will be included in the actuarial funding reports.

Present assets are set equal to the Market Value.

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

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 2016	Future Life Expectancy (years)	
	Males	Females
45	38.40	41.76
50	33.45	36.71
55	28.69	31.82
60	24.17	27.08
65	19.88	22.51
70	15.91	18.21
75	12.29	14.26
80	9.12	10.76

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	Percent of Eligible Active Members Retiring Within Next Year with Unreduced Benefits		
Ages	EMS	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	
	EMS 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%
63	12%
64	12%
Ref	1649

Sample Rates of Separation from Active Employment Before Retirement

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

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

Miscellaneous and Technical Assumptions

Benefit Service	Exact Fractional service is used to determine the amount of benefit payable.
Decrement Operation	Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal also do not operate during retirement eligibility.
Decrement Timing	Decrements of all types are assumed to occur mid-year.
Eligibility Testing	Eligibility for benefits is determined based upon the age nearest birthday and rounded service on the date the decrement is assumed to occur.
Forfeitures	None.
Marriage Assumption	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Normal Form of Benefit	Straight life is the normal form of benefit.
Service Credit Accruals	Service accruals for calculating benefits begin as of June 30, 2014 for Component I liabilities. However, service in Component II may be used to satisfy benefit eligibility requirement in Component I.
Administrative Expenses	3.55% of Component I payroll. 71% was allocated to Component II and 29% to Component I.
Sick Leave	None.
Pay Increase Timing	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ending on the valuation date.
Disability Benefits	Duty Disability benefits were increased by 3.5% to account for the Death While Disabled provision. The 3.5% increase was determined by examining the effect of the Death While Disabled provision on several hypothetical test cases.
Workers Compensation	Workers compensation for duty death-in-service benefits was assumed to equally offset the 10% AFC minimum benefit.
Actuarial Equivalent	No adjustments have been made for actuarial equivalent benefits. The Board has not adopted a definition of actuarial equivalent.
IRC Section 415 Limit	No adjustments have been made for 415 limits. The limit is assumed to grow with wage inflation.
IRC Section 401(a)(17) Limit	All of the member salary provided falls below the 401(a)(17) limit. The limit is assumed to grow with wage inflation.
IRC Section 401(h) Limit	We did not test for the IRC Section 401(h) limit on employer contributions for medical benefits. No such employer contributions are anticipated in this valuation.

SECTION G

CALCULATION OF THE SINGLE DISCOUNT RATE

Calculation of the Single Discount Rate at End of Year

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

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

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.91% net of investment expenses; the municipal bond rate is 3.56%; and the resulting Single Discount Rate is 6.91% as of June 30, 2017.

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, 2017, 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 9.03% 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, 2017, the benefit payments reflect the plan provisions in force as of June 30, 2017.

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
2018	$ 150,644,166	$ 6,025,767	$ 8,426,666	$ 1,566,699	$ 638,843	$ 16,657,975
2019	138,814,864	5,552,595	7,715,343	1,443,675	(2,218,274)	12,493,338
2020	128,359,080	5,134,363	7,063,631	1,334,934	(1,980,611)	11,552,317
2021	119,601,481	4,784,059	6,492,997	1,243,855	(1,756,778)	10,764,133
2022	112,059,522	4,482,381	5,984,334	1,165,419	(1,546,777)	10,085,357
2023	105,424,393	4,216,976	5,529,815	1,096,414	(1,355,009)	9,488,195
2024	98,897,728	3,955,909	5,094,055	1,028,536	2,807,938	12,886,438
2025	92,443,892	3,697,756	4,675,498	961,416	2,710,829	12,045,499
2026	86,422,973	3,456,919	4,287,708	898,799	2,617,543	11,260,969
2027	80,407,578	3,216,303	3,907,425	836,239	2,517,192	10,477,159
2028	74,753,967	2,990,159	3,550,084	777,441	2,422,806	9,740,490
2029	69,446,960	2,777,878	3,217,392	722,248	2,331,466	9,048,984
2030	64,370,972	2,574,839	2,903,915	669,458	2,239,367	8,387,579
2031	59,481,842	2,379,274	2,607,634	618,611	2,145,004	7,750,522
2032	54,800,487	2,192,019	2,332,304	569,925	2,046,290	7,140,539
2033	50,303,690	2,012,148	2,073,339	523,158	1,945,959	6,554,603
2034	46,085,511	1,843,420	1,837,676	479,289	1,844,587	6,004,972
2035	42,188,429	1,687,537	1,626,570	438,760	1,744,312	5,497,179
2036	38,572,363	1,542,895	1,437,621	401,153	1,644,335	5,026,004
2037	35,171,262	1,406,850	1,265,444	365,781	1,544,762	4,582,838
2038	32,012,780	1,280,511	1,111,493	332,933	1,446,349	4,171,286
2039	29,090,590	1,163,624	973,848	302,542	1,350,509	3,790,523
2040	26,376,394	1,055,056	851,889	274,314	1,255,603	3,436,861
2041	23,888,614	955,545	744,195	248,442	1,164,520	3,112,702
2042	21,570,281	862,811	648,592	224,331	1,074,887	2,810,622
2043	19,375,857	775,034	561,714	201,509	986,429	2,524,687
2044	17,287,198	691,488	483,547	179,787	897,711	2,252,533
2045	15,284,658	611,386	411,999	158,960	809,255	1,991,601
2046	13,329,004	533,160	346,475	138,622	718,521	1,736,778
2047	11,462,116	458,485	286,864	119,206	628,967	1,493,521
2048	9,780,632	391,225	236,310	101,719	545,169	1,274,423
2049	8,276,203	331,048	192,659	86,073	468,615	1,078,395
2050	6,919,905	276,796	155,280	71,967	397,625	901,668
2051	5,678,402	227,136	123,286	59,055	330,422	739,899
2052	4,561,396	182,456	95,609	47,439	268,849	594,353
2053	3,591,332	143,653	73,088	37,350	213,862	467,953
2054	2,786,540	111,462	54,661	28,980	167,986	363,088
2055	2,133,988	85,360	40,845	22,193	129,662	278,060
2056	1,596,075	63,843	29,698	16,599	97,829	207,970
2057	1,155,230	46,209	21,111	12,014	71,193	150,527
2058	818,044	32,722	14,916	8,508	50,446	106,592
2059	571,211	22,848	10,248	5,941	35,391	74,429
2060	395,367	15,815	7,171	4,112	24,419	51,517
2061	273,486	10,939	4,978	2,844	16,874	35,635
2062	189,071	7,563	3,361	1,966	11,746	24,636
2063	130,197	5,208	2,268	1,354	8,135	16,965
2064	88,871	3,555	1,607	924	5,494	11,580
2065	60,435	2,417	955	629	3,874	7,875
2066	41,416	1,657	664	431	2,644	5,397
2067	28,215	1,129	416	293	1,839	3,676

Employer contributions as shown may differ substantially from those determined by a funding valuation.

Single Discount Rate Development
Projection of Contributions End of Year (Concluded)
(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
2068	$ 18,915	$ 757	$ 224	$ 197	$ 1,287	$ 2,465
2069	12,377	495	94	129	895	1,613
2070	7,836	313	85	81	542	1,021
2071	4,810	192	53	50	331	627
2072	2,943	118	8	31	227	383
2073	1,783	71	(21)	19	163	232
2074	1,011	40	(19)	11	99	132
2075	471	19	(13)	5	50	61
2076	152	6	(6)	2	18	20
2077	37	1	(1)	-	5	5
2078	-	-	-	-	-	-
2079	-	-	-	-	-	-
2080	-	-	-	-	-	-
2081	-	-	-	-	-	-
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	-	-	-	-	-	-

Employer contributions as shown may differ substantially from those determined by a funding valuation.

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 6.91%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2018	$ 48,508,731	$ 16,657,975	$ 1,121,892	$ 1,566,699	$ 3,826,534	$ 66,304,650
2019	66,304,650	12,493,338	1,439,578	1,443,675	4,908,134	80,822,869
2020	80,822,869	11,552,317	1,790,508	1,334,934	5,871,146	95,120,889
2021	95,120,889	10,764,133	2,199,998	1,243,855	6,821,545	109,262,714
2022	109,262,714	10,085,357	2,702,083	1,165,419	7,761,292	123,241,861
2023	123,241,861	9,488,195	3,374,534	1,096,414	8,686,463	136,945,571
2024	136,945,571	12,886,438	4,109,696	1,028,536	9,726,168	154,419,945
2025	154,419,945	12,045,499	4,931,326	961,416	10,879,445	171,452,147
2026	171,452,147	11,260,969	5,766,172	898,799	12,003,483	188,051,629
2027	188,051,629	10,477,159	6,911,256	836,239	13,087,102	203,868,395
2028	203,868,395	9,740,490	8,071,386	777,441	14,117,598	218,877,657
2029	218,877,657	9,048,984	9,222,791	722,248	15,094,004	233,075,605
2030	233,075,605	8,387,579	10,448,226	669,458	16,012,775	246,358,276
2031	246,358,276	7,750,522	11,697,926	618,611	16,868,236	258,660,497
2032	258,660,497	7,140,539	12,996,968	569,925	17,655,118	269,889,262
2033	269,889,262	6,554,603	14,345,634	523,158	18,366,891	279,941,964
2034	279,941,964	6,004,972	15,612,485	479,289	19,001,312	288,856,474
2035	288,856,474	5,497,179	16,765,930	438,760	19,562,244	296,711,208
2036	296,711,208	5,026,004	17,875,750	401,153	20,052,573	303,512,881
2037	303,512,881	4,582,838	18,993,291	365,781	20,470,748	309,207,396
2038	309,207,396	4,171,286	20,058,156	332,933	20,815,197	313,802,790
2039	313,802,790	3,790,523	21,053,837	302,542	21,087,009	317,323,943
2040	317,323,943	3,436,861	21,991,061	274,314	21,287,425	319,782,853
2041	319,782,853	3,112,702	22,846,378	248,442	21,418,144	321,218,879
2042	321,218,879	2,810,622	23,655,193	224,331	21,480,452	321,630,430
2043	321,630,430	2,524,687	24,425,419	201,509	21,473,785	321,001,973
2044	321,001,973	2,252,533	25,149,431	179,787	21,397,254	319,322,543
2045	319,322,543	1,991,601	25,790,480	158,960	21,251,270	316,615,974
2046	316,615,974	1,736,778	26,277,600	138,622	21,039,731	312,976,261
2047	312,976,261	1,493,521	26,644,573	119,206	20,768,155	308,474,158
2048	308,474,158	1,274,423	26,981,000	101,719	20,438,781	303,104,642
2049	303,104,642	1,078,395	27,247,648	86,073	20,052,561	296,901,877
2050	296,901,877	901,668	27,487,719	71,967	19,610,269	289,854,128
2051	289,854,128	739,899	27,751,819	59,055	19,109,240	281,892,394
2052	281,892,394	594,353	27,963,530	47,439	18,547,342	273,023,119
2053	273,023,119	467,953	28,020,872	37,350	17,928,576	263,361,426
2054	263,361,426	363,088	27,841,987	28,980	17,263,752	253,117,299
2055	253,117,299	278,060	27,492,818	22,193	16,565,087	242,445,435
2056	242,445,435	207,970	27,088,786	16,599	15,839,196	231,387,215
2057	231,387,215	150,527	26,608,341	12,014	15,089,599	220,006,986
2058	220,006,986	106,592	25,958,052	8,508	14,323,944	208,470,962
2059	208,470,962	74,429	25,162,754	5,941	13,552,818	196,929,514
2060	196,929,514	51,517	24,275,573	4,112	12,784,728	185,486,073
2061	185,486,073	35,635	23,323,757	2,844	12,025,826	174,220,933
2062	174,220,933	24,636	22,341,075	1,966	11,280,445	163,182,974
2063	163,182,974	16,965	21,338,029	1,354	10,551,559	152,412,114
2064	152,412,114	11,580	20,323,002	924	9,841,607	141,941,376
2065	141,941,376	7,875	19,302,365	629	9,152,638	131,798,894
2066	131,798,894	5,397	18,281,818	431	8,486,386	122,008,427
2067	122,008,427	3,676	17,266,979	293	7,844,288	112,589,120

Employer contributions as shown may differ substantially from those determined by a funding valuation.

Single Discount Rate Development
Projection of Plan Fiduciary Net Position End of Year (Concluded)

Fiscal Year Ending	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 6.91%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2068	$ 112,589,120	$ 2,465	$ 16,262,288	$ 197	$ 7,227,508	$ 103,556,607
2069	103,556,607	1,613	15,271,611	129	6,636,991	94,923,470
2070	94,923,470	1,021	14,298,425	81	6,073,484	86,699,470
2071	86,699,470	627	13,345,805	50	5,537,557	78,891,799
2072	78,891,799	383	12,416,531	31	5,029,609	71,505,230
2073	71,505,230	232	11,513,256	19	4,549,880	64,542,067
2074	64,542,067	132	10,638,331	11	4,098,446	58,002,302
2075	58,002,302	61	9,793,725	5	3,675,240	51,883,874
2076	51,883,874	20	8,980,960	2	3,280,067	46,182,998
2077	46,182,998	5	8,201,321	-	2,912,623	40,894,305
2078	40,894,305	-	7,456,030	-	2,572,493	36,010,768
2079	36,010,768	-	6,746,164	-	2,259,157	31,523,761
2080	31,523,761	-	6,072,734	-	1,971,983	27,423,010
2081	27,423,010	-	5,436,667	-	1,710,231	23,696,573
2082	23,696,573	-	4,838,810	-	1,473,045	20,330,808
2083	20,330,808	-	4,279,847	-	1,259,460	17,310,420
2084	17,310,420	-	3,760,167	-	1,068,406	14,618,659
2085	14,618,659	-	3,279,805	-	898,725	12,237,579
2086	12,237,579	-	2,838,506	-	749,184	10,148,257
2087	10,148,257	-	2,435,793	-	618,494	8,330,958
2088	8,330,958	-	2,071,015	-	505,311	6,765,253
2089	6,765,253	-	1,743,339	-	408,253	5,430,167
2090	5,430,167	-	1,451,678	-	325,907	4,304,397
2091	4,304,397	-	1,194,654	-	256,848	3,366,591
2092	3,366,591	-	970,624	-	199,656	2,595,623
2093	2,595,623	-	777,727	-	152,936	1,970,832
2094	1,970,832	-	613,901	-	115,328	1,472,259
2095	1,472,259	-	476,866	-	85,533	1,080,926
2096	1,080,926	-	364,101	-	62,322	779,148
2097	779,148	-	272,921	-	44,567	550,794
2098	550,794	-	200,592	-	31,245	381,447
2099	381,447	-	144,397	-	21,452	258,503
2100	258,503	-	101,684	-	14,408	171,227
2101	171,227	-	69,956	-	9,455	110,726
2102	110,726	-	46,954	-	6,056	69,828
2103	69,828	-	30,710	-	3,782	42,900
2104	42,900	-	19,550	-	2,300	25,651
2105	25,651	-	12,098	-	1,361	14,914
2106	14,914	-	7,272	-	784	8,426
2107	8,426	-	4,243	-	438	4,621
2108	4,621	-	2,403	-	238	2,456
2109	2,456	-	1,319	-	125	1,262
2110	1,262	-	700	-	63	626
2111	626	-	359	-	31	298
2112	298	-	179	-	15	134
2113	134	-	85	-	6	55
2114	55	-	37	-	3	20
2115	20	-	14	-	1	6
2116	6	-	7	-	0	0
2117	0	-	-	-	0	0

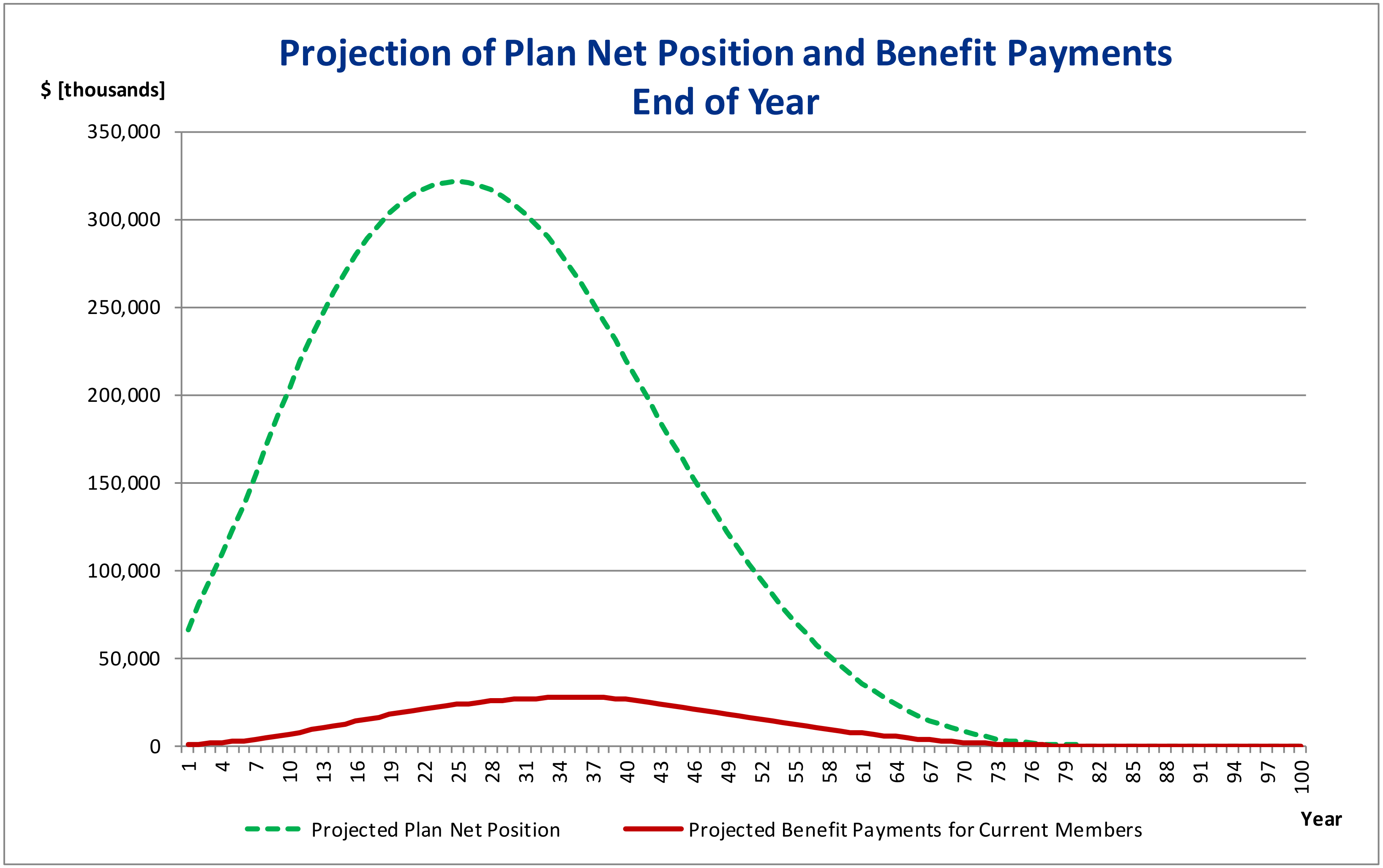
Employer contributions as shown may differ substantially from those determined by a funding valuation.

Single Discount Rate Development
Present Values of Projected Benefits End of Year

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)
2018	$ 48,508,731	$ 1,121,892	$ 1,121,892	$ -	$ 1,085,030	$ -	$ 1,085,030
2019	66,304,650	1,439,578	1,439,578	-	1,302,290	-	1,302,290
2020	80,822,869	1,790,508	1,790,508	-	1,515,063	-	1,515,063
2021	95,120,889	2,199,998	2,199,998	-	1,741,238	-	1,741,238
2022	109,262,714	2,702,083	2,702,083	-	2,000,397	-	2,000,397
2023	123,241,861	3,374,534	3,374,534	-	2,336,754	-	2,336,754
2024	136,945,571	4,109,696	4,109,696	-	2,661,893	-	2,661,893
2025	154,419,945	4,931,326	4,931,326	-	2,987,626	-	2,987,626
2026	171,452,147	5,766,172	5,766,172	-	3,267,622	-	3,267,622
2027	188,051,629	6,911,256	6,911,256	-	3,663,388	-	3,663,388
2028	203,868,395	8,071,386	8,071,386	-	4,001,802	-	4,001,802
2029	218,877,657	9,222,791	9,222,791	-	4,277,122	-	4,277,122
2030	233,075,605	10,448,226	10,448,226	-	4,532,246	-	4,532,246
2031	246,358,276	11,697,926	11,697,926	-	4,746,368	-	4,746,368
2032	258,660,497	12,996,968	12,996,968	-	4,932,604	-	4,932,604
2033	269,889,262	14,345,634	14,345,634	-	5,092,554	-	5,092,554
2034	279,941,964	15,612,485	15,612,485	-	5,184,055	-	5,184,055
2035	288,856,474	16,765,930	16,765,930	-	5,207,231	-	5,207,231
2036	296,711,208	17,875,750	17,875,750	-	5,193,082	-	5,193,082
2037	303,512,881	18,993,291	18,993,291	-	5,161,106	-	5,161,106
2038	309,207,396	20,058,156	20,058,156	-	5,098,181	-	5,098,181
2039	313,802,790	21,053,837	21,053,837	-	5,005,381	-	5,005,381
2040	317,323,943	21,991,061	21,991,061	-	4,890,281	-	4,890,281
2041	319,782,853	22,846,378	22,846,378	-	4,752,111	-	4,752,111
2042	321,218,879	23,655,193	23,655,193	-	4,602,326	-	4,602,326
2043	321,630,430	24,425,419	24,425,419	-	4,445,029	-	4,445,029
2044	321,001,973	25,149,431	25,149,431	-	4,280,972	-	4,280,972
2045	319,322,543	25,790,480	25,790,480	-	4,106,344	-	4,106,344
2046	316,615,974	26,277,600	26,277,600	-	3,913,482	-	3,913,482
2047	312,976,261	26,644,573	26,644,573	-	3,711,659	-	3,711,659
2048	308,474,158	26,981,000	26,981,000	-	3,515,596	-	3,515,596
2049	303,104,642	27,247,648	27,247,648	-	3,320,868	-	3,320,868
2050	296,901,877	27,487,719	27,487,719	-	3,133,596	-	3,133,596
2051	289,854,128	27,751,819	27,751,819	-	2,959,221	-	2,959,221
2052	281,892,394	27,963,530	27,963,530	-	2,789,071	-	2,789,071
2053	273,023,119	28,020,872	28,020,872	-	2,614,153	-	2,614,153
2054	263,361,426	27,841,987	27,841,987	-	2,429,580	-	2,429,580
2055	253,117,299	27,492,818	27,492,818	-	2,244,047	-	2,244,047
2056	242,445,435	27,088,786	27,088,786	-	2,068,159	-	2,068,159
2057	231,387,215	26,608,341	26,608,341	-	1,900,176	-	1,900,176
2058	220,006,986	25,958,052	25,958,052	-	1,733,923	-	1,733,923
2059	208,470,962	25,162,754	25,162,754	-	1,572,163	-	1,572,163
2060	196,929,514	24,275,573	24,275,573	-	1,418,700	-	1,418,700
2061	185,486,073	23,323,757	23,323,757	-	1,274,974	-	1,274,974
2062	174,220,933	22,341,075	22,341,075	-	1,142,322	-	1,142,322
2063	163,182,974	21,338,029	21,338,029	-	1,020,517	-	1,020,517
2064	152,412,114	20,323,002	20,323,002	-	909,150	-	909,150
2065	141,941,376	19,302,365	19,302,365	-	807,681	-	807,681
2066	131,798,894	18,281,818	18,281,818	-	715,534	-	715,534
2067	122,008,427	17,266,979	17,266,979	-	632,134	-	632,134

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)
2068	$ 112,589,120	$ 16,262,288	$ 16,262,288	$ -	$ 556,873	$ -	$ 556,873
2069	103,556,607	15,271,611	15,271,611	-	489,149	-	489,149
2070	94,923,470	14,298,425	14,298,425	-	428,377	-	428,377
2071	86,699,470	13,345,805	13,345,805	-	373,994	-	373,994
2072	78,891,799	12,416,531	12,416,531	-	325,463	-	325,463
2073	71,505,230	11,513,256	11,513,256	-	282,281	-	282,281
2074	64,542,067	10,638,331	10,638,331	-	243,971	-	243,971
2075	58,002,302	9,793,725	9,793,725	-	210,084	-	210,084
2076	51,883,874	8,980,960	8,980,960	-	180,198	-	180,198
2077	46,182,998	8,201,321	8,201,321	-	153,919	-	153,919
2078	40,894,305	7,456,030	7,456,030	-	130,888	-	130,888
2079	36,010,768	6,746,164	6,746,164	-	110,772	-	110,772
2080	31,523,761	6,072,734	6,072,734	-	93,269	-	93,269
2081	27,423,010	5,436,667	5,436,667	-	78,103	-	78,103
2082	23,696,573	4,838,810	4,838,810	-	65,021	-	65,021
2083	20,330,808	4,279,847	4,279,847	-	53,793	-	53,793
2084	17,310,420	3,760,167	3,760,167	-	44,207	-	44,207
2085	14,618,659	3,279,805	3,279,805	-	36,067	-	36,067
2086	12,237,579	2,838,506	2,838,506	-	29,197	-	29,197
2087	10,148,257	2,435,793	2,435,793	-	23,435	-	23,435
2088	8,330,958	2,071,015	2,071,015	-	18,638	-	18,638
2089	6,765,253	1,743,339	1,743,339	-	14,675	-	14,675
2090	5,430,167	1,451,678	1,451,678	-	11,430	-	11,430
2091	4,304,397	1,194,654	1,194,654	-	8,798	-	8,798
2092	3,366,591	970,624	970,624	-	6,686	-	6,686
2093	2,595,623	777,727	777,727	-	5,011	-	5,011
2094	1,970,832	613,901	613,901	-	3,700	-	3,700
2095	1,472,259	476,866	476,866	-	2,688	-	2,688
2096	1,080,926	364,101	364,101	-	1,920	-	1,920
2097	779,148	272,921	272,921	-	1,346	-	1,346
2098	550,794	200,592	200,592	-	925	-	925
2099	381,447	144,397	144,397	-	623	-	623
2100	258,503	101,684	101,684	-	410	-	410
2101	171,227	69,956	69,956	-	264	-	264
2102	110,726	46,954	46,954	-	166	-	166
2103	69,828	30,710	30,710	-	101	-	101
2104	42,900	19,550	19,550	-	60	-	60
2105	25,651	12,098	12,098	-	35	-	35
2106	14,914	7,272	7,272	-	20	-	20
2107	8,426	4,243	4,243	-	11	-	11
2108	4,621	2,403	2,403	-	6	-	6
2109	2,456	1,319	1,319	-	3	-	3
2110	1,262	700	700	-	1	-	1
2111	626	359	359	-	1	-	1
2112	298	179	179	-	0	-	0
2113	134	85	85	-	0	-	0
2114	55	37	37	-	0	-	0
2115	20	14	14	-	0	-	0
2116	6	7	7	-	0	-	0
2117	0	-	-	-	-	-	-
				Totals	$ 157,883,380	$ -	$ 157,883,380


Projection of Plan Net Position and Benefit Payments
End of Year
$ [thousands]
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76 79 82 85 88 91 94 97 100
Year
Projected Plan Net Position
Projected Benefit Payments for Current Members

SECTION H

GLOSSARY OF TERMS

Glossary of Terms

Actuarial Accrued Liability (AAL) — 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."

Actuarial Assumptions — 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.

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

Actuarial Equivalent — 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.

Actuarial Cost Method — 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.

Actuarial Gain (Loss) — 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.

Actuarial Present Value (APV) — 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.

Actuarial Valuation — 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.

Actuarial Valuation Date — The date as of which an actuarial valuation is performed.

Actuarially Determined Contribution (ADC) — A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

Glossary of Terms

Amortization Payment	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
Amortization Method	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).
Cost-of-Living Adjustments	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)	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.
Covered-Employee Payroll	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
Deferred Inflows and Outflows	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.
Discount Rate	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: 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 2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

Glossary of Terms

Entry Age Actuarial Cost Method (EAN)	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.
GASB	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
Fiduciary Net Position	The fiduciary net position is the value of the assets of the trust.
Long-Term Expected Rate of Return	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.
Money-Weighted Rate of Return	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.
Multiple-Employer Defined Benefit Pension Plan	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Municipal Bond Rate	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.
Net Pension Liability (NPL)	The NPL is the liability of employers and non-employer contribution entities to plan members for benefits provided through a defined benefit pension plan.
Non-Employer Contribution Entities	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.
Normal Cost	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

Other Postemployment Benefits (OPEB)	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.
Real Rate of Return	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
Service Cost	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.
Total Pension Expense	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: 1. Service Cost 2. Interest on the Total Pension Liability 3. Current-Period Benefit Changes 4. Employee Contributions (made negative for addition here) 5. Projected Earnings on Plan Investments (made negative for addition here) 6. Pension Plan Administrative Expense 7. Other Changes in Plan Fiduciary Net Position 8. Recognition of Outflow (Inflow) of Resources due to Liabilities 9. Recognition of Outflow (Inflow) of Resources due to Assets
Total Pension Liability (TPL)	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
Unfunded Actuarial Accrued Liability (UAAL)	The UAAL is the difference between actuarial accrued liability and valuation assets.
Valuation Assets	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.