City of Southfield Fire and Police Retirement System

GASB Statement Nos. 67 and 68 Accounting and Financial Reporting for Pensions

June 30, 2017

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November 16, 2017

Board of Trustees
City of Southfield Fire and Police Retirement System

Dear Board Members:

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

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

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB Statement Nos. 67 and 68. The Net Pension Liability is not an appropriate measure for measuring the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligation. The Net Pension Liability is not an appropriate measure for assessing the need for or amount of future employer contributions. The calculation of the plan's liability for this report is not applicable for funding purposes of the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement No. 67 may produce significantly different results. This report may be provided to parties other than the City of Southfield Fire and Police Retirement System only in its entirety and only with the permission of the City of Southfield Fire and Police Retirement System. GRS is not responsible for unauthorized use of this report.

This report is based upon information, furnished to us by the City of Southfield Fire and Police Retirement System, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. This information was checked for internal consistency, but it was not audited.

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

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

The signing actuaries are independent of the plan sponsor.

Jeffrey T. Tebeau and James R. Sparks 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,

Jeffrey T. Tebeau, ASA, EA, MAAA

James R. Sparks, ASA, MAAA

JTT/JRS:sc

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SECTION A

EXECUTIVE SUMMARY

Executive Summary

Actuarial Valuation Date	June 30, 2016
Measurement Date of the Net Pension Liability	June 30, 2017
Employer's Fiscal Year Ending Date (Reporting Date)	June 30, 2017

Membership	
Number of	
- Retirees and Beneficiaries	329
- Inactive, Nonretired Members	2
- Active Members	207
- Total	538
Covered Payroll (1)	$ 18,741,427
Net Pension Liability	
Total Pension Liability	$ 258,767,794
Plan Fiduciary Net Position (2)	197,237,717
Net Pension Liability	$ 61,530,077
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	76.22 %
Net Pension Liability as a Percentage of Covered Payroll	328.31 %
Development of the Single Discount Rate	
Single Discount Rate	7.50 %
Long-Term Expected Rate of Investment Return	7.50 %
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
Total Pension Expense	$ 15,485,816

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	$ 1,612,910	$ -
Changes in assumptions	3,096,700	-
Net difference between projected and actual earnings on pension plan investments	12,459,732	5,179,972
Total	$ 17,169,342	$ 5,179,972

* *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.

(1) *The amount provided is equal to the sum of the annual pays for members active on the valuation date.*

(2) *The Plan Fiduciary Net Position includes the following balances as of June 30, 2017:*
Active DROP Account Balances - $6,450,496
Reserve for Inflation Equity - $1,910,266
Retiree DROP and DC Account Balances to be Disbursed - $12,364,019

Discussion

Accounting Standard

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

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

Financial Statements

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

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to the City of Southfield Fire and Police Retirement System 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 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, net pension liability, and the pension plan's fiduciary net position as a percentage of the total 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;
- annual money-weighted rate of return; 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.

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, 2016 and a measurement date 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 7.50%; the municipal bond rate is 3.56% (based on the weekly 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 7.50%.

The System's funding policy results in the expectation that the plan's assets will be able to fully pay for promised benefits through at least 2117. The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

SECTION B

FINANCIAL STATEMENTS

Pension Expense Under GASB Statement No. 68
Fiscal Year Ended June 30, 2017

A. Expense

1. Service Cost	$	2,701,757
2. Interest on the Total Pension Liability		18,445,532
3. Current-Period Benefit Changes		-
4. Employee Contributions (negative for addition)		(457,293)
5. Projected Earnings on Plan Investments (negative for addition)		(13,691,703)
6. Pension Plan Administrative Expense		155,064
7. Other Changes in Plan Fiduciary Net Position		-
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		4,656,993
9. Recognition of Outflow (Inflow) of Resources due to Assets		3,675,466
10. Total Pension Expense	**$**	**15,485,816**

Statement of Outflows and Inflows Arising from Current Reporting Period Fiscal Year Ended June 30, 2017

A. Outflows (Inflows) of Resources due to Liabilities		
1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	$	1,787,826
2. Assumption Changes (gains) or losses	$	-
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		2.8733
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	$	622,220
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for assumption changes	$	-
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities (4. + 5.)	$	622,220
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 (1. - 4.)	$	1,165,606
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for assumption changes (2. - 5.)	$	-
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities (7. + 8.)	$	1,165,606
B. Outflows (Inflows) of Resources due to Assets		
1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	$	(6,474,965)
2. Recognition period for Assets {in years}		5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expenses due to Assets (1. ÷ 2.)	$	(1,294,993)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets (1. - 3.)	$	(5,179,972)

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

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	$ 4,656,993	$ -	$ 4,656,993
2. Due to Assets	4,970,459	1,294,993	3,675,466
3. Total	$ 9,627,452	$ 1,294,993	$ 8,332,459

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	$ 1,289,916	$ -	$ 1,289,916
2. Assumption Changes	3,367,077	-	3,367,077
3. Net Difference between projected and actual earnings on pension plan investments	4,970,459	1,294,993	3,675,466
4. Total	$ 9,627,452	$ 1,294,993	$ 8,332,459

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	$ 1,612,910	$ -	$ 1,612,910
2. Assumption Changes	3,096,700	-	3,096,700
3. Net Difference between projected and actual earnings on pension plan investments	12,459,732	5,179,972	7,279,760
4. Total	$ 17,169,342	$ 5,179,972	$ 11,989,370

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
2018	$ 7,841,690
2019	4,218,852
2020	1,223,821
2021	(1,294,993)
2022	-
Thereafter	-
Total	$ 11,989,370

Statement of Fiduciary Net Position
as of June 30, 2017

Assets		
Cash and Deposits	$	7,431,191
Receivables		
Accounts Receivable - Sale of Investments	$	-
Accounts Receivable - Other		-
Total Receivables	$	-
Investments		
Fixed Income	$	41,692,820
Domestic Equities		68,818,596
International Equities		33,759,727
Real Estate		22,723,472
Hedge Funds		23,064,793
Total Investments	$	190,059,408
Total Assets	$	197,490,599
Liabilities		
Payables		
Accounts Payable - Purchase of Investments	$	-
Accrued Expenses		-
Accounts Payable - Other (1)		252,882
Total Liabilities	$	252,882
Net Position Restricted for Pensions (2)	$	197,237,717

(1) Includes an adjustment of $75,934 to match the reported total market value of $197,237,717.

(2) The Plan Fiduciary Net Position includes the following balances as of June 30, 2017:

Active DROP Account Balances - $6,450,496

Reserve for Inflation Equity - $1,910,266

Retiree DROP and DC Account Balances to be Disbursed - $12,364,019

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

Additions		
Contributions		
Employer	$	6,241,527
Employee		457,293
Other		-
Total Contributions	$	6,698,820
Investment Income		
Net Appreciation in Fair Value of Investments	$	17,663,315
Interest and Dividends		3,540,926
Less Investment Expense		(1,037,573)
Net Investment Income	$	20,166,668
Other	$	-
Total Additions	$	26,865,488
Deductions		
Benefit Payments, including Refunds of Employee Contributions	$	17,513,738
Pension Plan Administrative Expense		155,064
Other		-
Total Deductions	$	17,668,802
Net Increase in Net Position	$	9,196,686
Net Position Restricted for Pensions		
Beginning of Year	$	188,041,031
End of Year (1)	$	197,237,717

(1) The Plan Fiduciary Net Position includes the following balances as of June 30, 2017:
Active DROP Account Balances - $6,450,496
Reserve for Inflation Equity - $1,910,266
Retiree DROP and DC Account Balances to be Disbursed - $12,364,019

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in Net Pension Liability and Related Ratios
Current Period
Fiscal Year Ended June 30, 2017

A. Total Pension Liability		
1. Service Cost	$	2,701,757
2. Interest on the Total Pension Liability		18,445,532
3. Changes of benefit terms		-
4. Difference between expected and actual experience of the Total Pension Liability		1,787,826
5. Changes of assumptions		-
6. Benefit payments, including refunds of employee contributions		(17,513,738)
7. Net change in Total Pension Liability	$	5,421,377
8. Total Pension Liability – Beginning		253,346,417
9. Total Pension Liability – Ending	**$**	**258,767,794**
B. Plan Fiduciary Net Position		
1. Contributions – Employer	$	6,241,527
2. Contributions – Employee		457,293
3. Net investment income		20,166,668
4. Benefit payments, including refunds of employee contributions		(17,513,738)
5. Pension Plan Administrative Expense		(155,064)
6. Other		-
7. Net change in Plan Fiduciary Net Position	$	9,196,686
8. Plan Fiduciary Net Position – Beginning		188,041,031
9. Plan Fiduciary Net Position – Ending	**$**	**197,237,717**
C. Net Pension Liability	**$**	**61,530,077**
D. Plan Fiduciary Net Position as a percentage of the Total Pension Liability		**76.22%**
E. Covered-Employee Payroll	**$**	**18,741,427**
F. Net Pension Liability as a percentage of Covered-Employee Payroll		**328.31%**

Schedules of Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios (Multiyear)

Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending June 30,	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Total Pension Liability										
Service Cost	$ 2,701,757	$ 2,804,586	$ 2,803,893	$ 2,967,577						
Interest on the Total Pension Liability	18,445,532	17,913,693	17,512,901	17,120,568						
Benefit Changes	-	-	-	-						
Difference between Expected and Actual Experience	1,787,826	1,243,252	781,324	-						
Assumption Changes	-	9,830,854	-	-						
Benefit Payments	(17,546,473)	(16,447,885)	(15,485,612)	(14,420,934)						
Refunds	32,735	71,673	7,936	10,705						
Net Change in Total Pension Liability	5,421,377	15,416,173	5,620,442	5,677,916						
Total Pension Liability - Beginning	253,346,417	237,930,244	232,309,802	226,631,886						
Total Pension Liability - Ending (a)	$258,767,794	$253,346,417	$237,930,244	$232,309,802						
Plan Fiduciary Net Position										
Employer Contributions	$ 6,241,527	$ 5,664,576	$ 5,933,162	$ 5,256,046						
Employee Contributions	457,293	444,861	466,794	475,435						
Pension Plan Net Investment Income	20,166,668	2,221,494	3,099,104	30,545,333						
Benefit Payments	(17,546,473)	(16,447,885)	(15,485,612)	(14,420,934)						
Refunds	32,735	71,673	7,936	10,705						
Pension Plan Administrative Expense	(155,064)	(431,274)	(403,477)	(342,022)						
Other	-	-	-	-						
Net Change in Plan Fiduciary Net Position	9,196,686	(8,476,555)	(6,382,093)	21,524,563						
Plan Fiduciary Net Position - Beginning	188,041,031	196,517,586	202,899,679	181,375,116						
Plan Fiduciary Net Position - Ending (b)	$197,237,717	$188,041,031	$196,517,586	$202,899,679						
Net Pension Liability - Ending (a) - (b)	61,530,077	65,305,386	41,412,658	29,410,123						
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	76.22 %	74.22 %	82.59 %	87.34 %						
Covered-Employee Payroll (1)	$ 18,741,427	$ 18,610,174	$ 18,452,501	$ 18,819,454						
Net Pension Liability as a Percentage of Covered-Employee Payroll	328.31 %	350.91 %	224.43 %	156.28 %						

Notes to Schedule:

The Plan Fiduciary Net Position includes balances for Active DROP Accounts, Reserve for Inflation Equity, and Retiree DROP and DC Account Balances to be disbursed.

(1) *The amount provided is equal to the sum of the annual pays for members active on the valuation date.*

Schedules of Required Supplementary Information
Schedule of the Net Pension Liability (Multiyear)

Last 10 Fiscal Years (which may be built prospectively)

FY Ending June 30,	Total Pension Liability	Plan Net Position [(2)]	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll [(1)]	Net Pension Liability as a % of Covered Payroll
2008						
2009						
2010						
2011						
2012						
2013						
2014	$232,309,802	$202,899,679	$ 29,410,123	87.34 %	$ 18,819,454	156.28 %
2015	237,930,244	196,517,586	41,412,658	82.59 %	18,452,501	224.43 %
2016	253,346,417	188,041,031	65,305,386	74.22 %	18,610,174	350.91 %
2017	258,767,794	197,237,717	61,530,077	76.22 %	18,741,427	328.31 %

(1) *The amount provided is equal to the sum of the annual pays for members active on the valuation date.*

(2) *The Plan Fiduciary Net Position includes balances for Active DROP Accounts, the Reserve for Inflation Equity, and Retiree DROP and DC Account Balances to be Disbursed.*

Schedule of Contributions (Multiyear)

Last 10 Fiscal Years

FY Ending June 30,	Actuarially Determined Contribution [2]	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll [1]	Actual Contribution as a % of Covered Payroll
2008					
2009					
2010					
2011					
2012					
2013					
2014	$ 5,256,046	$ 5,256,046	$ -	$ 18,819,454	27.93 %
2015	5,933,162	5,933,162	-	18,452,501	32.15 %
2016	5,664,576	5,664,576	-	18,610,174	30.44 %
2017	6,241,527	6,241,527	-	18,741,427	33.30 %

(1) *The amount provided is equal to the sum of the annual pays for members active on the valuation date.*

(2) *Since it was reported to the actuary that the City's practice is to contribute the percent-of-payroll employer contribution rate shown in the actuarial valuation report multiplied by the covered payroll (including DROP people), the actuarially determined contributions shown above are the actual contributions made by the City in the fiscal year.*

Notes to Schedule of Contributions

Valuation Date:	June 30, 2015
Notes	Actuarially determined contribution amounts are calculated as of June 30 each year, which is 12 months prior to the beginning of the fiscal year in which contributions are reported.

Methods and Assumptions Used to Determine Contribution Rates for the Fiscal Year Ending June 30, 2017:

Actuarial Cost Method	Entry-Age Normal
Amortization Method	Level Percent, Closed
Remaining Amortization Period	22 years for the June 30, 2015 valuation
Asset Valuation Method	5-Year smoothed market
Inflation	4.00% wage inflation; no explicit price inflation assumption is used in this valuation.
Salary Increases	4.00% to 9.00% including wage inflation
Investment Rate of Return	7.75% (net of investment expenses)
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	RP-2000 Mortality Combined Healthy Tables, projected to 2015.

Other Information:

Notes

The Plan Fiduciary Net Position includes the following balances as of June 30, 2017: DROP Account Balances - $6,450,496, Reserve for Inflation Equity - $1,910,266, and Retiree Account Balances to be Disbursed - $12,364,019.

SECTION D

NOTES TO FINANCIAL STATEMENTS

Auditor's Note – This information is intended to assist in preparation of the financial statements of the City of Southfield Fire and Police Retirement System. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Single Discount Rate

A Single Discount Rate (SDR) of 7.50% was used to measure the total pension liability. This SDR was based on the expected rate of return on pension plan investments of 7.50%. The projection of cash flows used to determine this SDR assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the SDR, the following presents the plan's net pension liability, calculated using a SDR of 7.50%, as well as what the plan's net pension liability would be if it were calculated using a SDR that is one percent lower or one percent higher:

Sensitivity of Net Pension Liability
to the Single Discount Rate Assumption

	1% Decrease 6.50%	Current Single Discount Rate Assumption 7.50%	1% Increase 8.50%
Total Pension Liability	$ 284,276,322	$ 258,767,794	$ 237,344,425
Plan Fiduciary Net Position	197,237,717	197,237,717	197,237,717
Net Pension Liability/(Asset)	$ 87,038,605	$ 61,530,077	$ 40,106,708

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	329
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	2
Active Plan Members	207
Total Plan Members	538

SECTION E

SUMMARY OF BENEFITS

Brief Summary of Act 345 Benefit Provisions (June 30, 2017)

Eligibility	Amount
SERVICE RETIREMENT	
20 or more years of service regardless of age.	
Police Command hired before March 1, 2014, Police Patrol Officers hired before February 22, 2013, and Firefighters hired before September 12, 2011.	Straight life pension equals 2.8% of highest 3-year in last 10 years times years of service up to 25 years.
Police Command hired on or after March 1, 2014. Police Patrol Officers hired on or after February 22, 2013. Firefighters hired on or after September 12, 2011.	Straight life pension equals 2.5% of highest consecutive 5-year AFC in last 10 years times years of service up to 25 years.
DEFERRED RETIREMENT	
10 or more years of service.	Computed as service retirement but based upon service, AFC and plan provisions in effect at termination. Benefit begins at date retirement would have occurred had member remained in employment.
DEFERRED RETIREMENT OPTION PLAN (DROP)	
20 or more years of service regardless of age. (Closed to Police Command hired after March 1, 2014 and Police Patrol hired after June 16, 2014. See page 20 for additional information.)	Computed as a service retirement but based on service, AFC and plan provisions at the time of DROP election. Monthly pension benefits and annuity withdrawal account value at DROP date accumulate in hypothetical accounts and accrue interest at a rate of 4% (2% for eligible Police Patrol and Command who DROP on or after June 16, 2014) from date of DROP election to date of retirement. At retirement the hypothetical accounts may be paid out by any distribution alternatives available under the Premium Member Annuity Withdrawal Plan and the monthly benefit (previously computed) is paid to the member in the form of a straight life pension (with survivor benefit option, if applicable).
DEATH AFTER RETIREMENT SURVIVOR'S PENSION	
Payable to surviving spouse, if any, upon the death of a retired member who was receiving a straight life pension which was effective July 1, 1975 or later. Includes members who DROP effective July 1, 1999.	Spouse's pension equals 60% of the straight life pension the deceased retiree was receiving. Must be married to spouse at time of retirement for spouse to be eligible for survivor benefits.

Brief Summary of Act 345 Benefit Provisions (Continued) (June 30, 2017)

Eligibility	Amount
Non-Duty Death-in-Service Survivor's Pension	
Payable to a surviving spouse, if any, upon the death of a member with 10 or more years of service.	Accrued straight life pension actuarially reduced in accordance with an Option I election.
Duty Death-in-Service Survivor's Pension	
Payable to a surviving spouse and eligible children of a member who died in the line of duty.	Straight life pension, calculated with a minimum of 25 years of service, actuarially reduced in accordance with Option 1 election. Workers' Compensation offset.
Non-Duty Disability	
Payable upon the total and permanent disability of a member with 5 or more years of service.	To age 55: 1.5% of AFC times years of service. At age 55: 2.0% of AFC times years of service.
Duty Disability	
Payable upon the total and permanent disability of a member in the line of duty…	
Police: …who is unable to perform any occupation	To age 55: 100% of base salary at time of retirement, minimum 85% of active base. At age 55: Frozen at age 55 rate.
…who is unable to perform own occupation	To age 55: 60% of base salary at time of retirement, minimum 51% of active base. At age 55: Frozen at age 55 rate.
Fire:	To age 55: Either 1) 80% of base salary for the first 5 years, then 60% of base salary, or, 2) 60% of base salary with 51% minimum. At age 55: Frozen at age 55 rate.

Post-Retirement Increases

An ad-hoc increase was granted during the year ended June 30, 2000.

Brief Summary of Act 345 Benefit Provisions (Concluded)
(June 30, 2017)

Eligibility	Amount
MEMBER CONTRIBUTIONS	
Fire Chief	3.00% of pay, non-refundable.
Police Chief	5.00% of pay, non-refundable.
Fire hired before September 12, 2011. Police Patrol Officers hired before February 22, 2013. Police Command and Deputy Chiefs hired before March 1, 2014.	3.00% of pay, non-refundable.
Fire hired on or after September 12, 2011, Police Patrol Officers hired after February 22, 2013. Police Command and Deputy Chiefs hired on or after March 1, 2014.	5.00% of pay, non-refundable.
	All members are eligible for annuity withdrawal with no reduction upon retirement for refundable contributions. Non-refundable contributions remain in the Retirement System. All members in the DROP no longer contribute.
INTEREST ON MEMBER ACCOUNTS	
Active or Former members who have not DROPped.	Interest at the rate of 2% per annum is paid on member contributions from date of hire to the earlier of DROP date or retirement date.
DROPped members.	Interest at the rate of 4% (2% for eligible Police Patrol and Command hired as Police Patrol prior to June 16, 2014, that DROP on or after June 16, 2014) per annum is paid on DROP account and annuity withdrawal account from DROP date to retirement date.
ITEMS INCLUDED IN AFC	
All members.	Overtime, longevity, pay in lieu of holiday time, education pay, and FLSA.
Police and Police Command.	75% of annual excess (over 1,200 hrs.) sick leave, paid compensatory time, and early report time.
Deputy Chiefs.	Up to 900 hours of unused sick/vacation/comp. leave.

Summary of DROP Provisions

Effective Date

July 1, 1999.

Eligibility

A member of the Southfield Fire and Police Retirement System who has satisfied the minimum requirements for a normal service retirement under the FPRS. This eligibility is currently 20 years of service. The DROP is closed to Police Command hired or promoted after March 1, 2014. However, if a promoted Command member was a Patrol member hired prior to June 16, 2014, they retain the ability to DROP. In addition, if a Patrol member is promoted while in the DROP, the member may remain in the DROP.

Election of DROP

A member satisfying DROP eligibility conditions would be permitted to either:

1) Retire; or

2) Continue working and retire at a future date with a pension based on credited service and average final compensation (AFC) at date of termination of employment; or

3) Irrevocably elect to participate in the DROP and retire at a date no more than 5 years in the future with a pension based on AFC and service at date of election to participate in the DROP.

DROP Credits

The account of a participating member is credited with:

- The pension payments the member would have been paid if the member had retired on the date of DROP election; and

- Interest credits at the rate of 4% (2% for Police Patrol and Command (who were Police patrol prior to June 16, 2014) who DROP on or after June 16, 2014) per annum.

Retirement from DROP

Upon termination of employment the frozen monthly pension begins and the member can elect any of the distribution alternatives available under the Premium Member Annuity Withdrawal Plan for the DROP account.

Summary of DROP Provisions
(Concluded)

Disability or Death during DROP Participation

Benefits payable to a member (or surviving spouse) if death or disability occurs during the DROP participation period will be computed in the same manner as if the member had retired from the DROP plan the day prior to the death or disability.

Covered Payroll

The payroll of DROP participants will be included in the covered compensation upon which regular City contributions are based. However, member contributions will cease upon election of DROP.

Revocation of DROP Election

Under certain, limited circumstances, members who become disabled in the line of duty, or who die in the line of duty, may revoke the DROP election and be treated as if they never participated in the DROP plan.

Summary of Reserve for Inflation Equity (RIE) Provisions

Effective Date

October 25, 1999 for Fire and July 1, 2000 for Police Command.

Coverage of Program

All members retiring after July 1, 1999 for Fire and July 1, 2000 for Police Command.

Accumulation Formula

Each year, beginning July 1, 1999 for Fire and July 1, 2000 for Police Command, funds will be credited to the RIE fund in accordance with the following formula: 55% of the 5-year average of the funding value rate of return over a threshold of 8.0% as of June 30th, not to exceed 3.0%, multiplied by the System assets of retired member and members who have elected to participate in the Deferred Retirement Option Plan (DROP), who will be eligible to receive distributions from the RIE program either now or in the future. (This Accumulation Formula can be found on page B-15 of the valuation report.) The RIE receives 7.50% interest each year.

Point Accumulation

Each covered member shall accumulate points in accordance with the following formula:

a) One point for each full year of service, not to exceed 25; plus
b) Two points for each full year since retirement.

Eligibility for Distribution

A covered member will be eligible for an immediate distribution on the later of (a), (b), or (c) below:

a) The first July 1st, which is at least five years after the member's retirement, defined as the later of the date that a member either separated from service or began to receive a pension.
b) The year after the member's pension has lost 15% of its original purchasing power, defined as a 15% increase in the Consumer Price Index for All Urban Consumers (CPI-U), U. S. City average, all items 1982-1984 = 100.
c) The member's accumulation of 35 points.

Summary of Reserve for Inflation Equity (RIE) Provisions (Concluded)

Distributable Reserve

No more than 35% of the funds in the RIE fund shall be distributed in any given year.

Individual Distributions

Each benefit recipient's share will be computed by dividing the benefit recipient's total points by the total points of all eligible benefit recipients and multiplying the result by the Distribution Reserve. The maximum amount payable to any benefit recipient is the amount which would restore 85% of the member's original purchasing power. A surviving spouse of a member will receive 60% of the amount which would have been payable to the member had the member survived.

Distribution Date

Distributions of RIE Program benefit checks shall be determined by the City of Southfield Fire and Police Retirement Board for years in which sufficient funds are available for distribution.

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Actuarial Cost Methods

Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using an individual entry-age actuarial cost method having the following characteristics:

- The annual normal cost for each individual active member, payable from the date of employment to the date of retirement are sufficient to accumulate the value of the member's benefit at the time of retirement; and

- each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Financing of Unfunded Actuarial Accrued Liabilities. Unfunded actuarial accrued liabilities (the portion of total liabilities not covered by present assets or expected future normal cost contributions) were amortized by level percent-of-payroll contributions over a period of 29 years in the June 30, 2017 valuation. This UAAL payment reflects payments expected to be made between the valuation date and the date contributions determined by this report are scheduled to begin.

The value of the assets for GASB Statement Nos. 67 and 68 reporting purposes was the fair market value of assets.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2016, rolled-forward to the measurement date of June 30, 2017. The roll-forward procedure increases the June 30, 2016 actuarial accrued liability with normal cost and interest and decreases it with actual benefit payments.

Actuarial Assumptions Used for the GASB Statement Nos. 67 and 68

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

The principal areas of financial risk which require assumptions about future experiences are:

- long-term rates of investment return to be generated by the assets of the System
- patterns of pay increases to members
- rates of mortality among members, retirees and beneficiaries
- rates of withdrawal of active members (without entitlement to a retirement benefit)
- rates of disability among members
- the age patterns of actual retirement
- rate of increase in the cost of retiree health insurance

In making a valuation, the actuary calculates the monetary effect of each assumption for as long as a present covered person survives - - - a period of time which can be as long as a century.

Actual experience of the System will not coincide exactly with assumed experience, regardless of the accuracy of the assumptions, or the skill of the actuary and the precision of the many calculations made. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time-to-time it becomes appropriate to modify one or more of the assumptions, to reflect experience trends (but not random year-to-year fluctuations). The assumptions are established by the Board after consulting with the actuary. New assumptions were adopted for the June 30, 2016 valuation pursuant to the Experience Study dated April 8, 2016, which contains the rationale for these assumptions. All assumptions are based on future expectations, not market measures.

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

	Salary Increase Assumptions for Individual Members		
Years of Service	**Merit & Seniority**	**Base (Economic)**	**Increase Next Year**
1 to 3	5.00%	3.25%	8.25%
4	2.50%	3.25%	5.75%
5	1.50%	3.25%	4.75%
6	0.50%	3.25%	3.75%
7	0.30%	3.25%	3.55%
8	0.20%	3.25%	3.45%
9 & Up	0.00%	3.25%	3.25%

If the number of active members remains constant, then the total active member payroll will increase 3.25% annually, the base portion of the individual salary increase assumptions. This increasing payroll was recognized in amortizing Unfunded Actuarial accrued Liabilities.

The assumed nominal rate of investment return was 7.50% a year compounded annually net of investment expenses. This assumption is used to make money payable at one point in time equal in value to a different amount of money payable at another point in time. ***The assumed real return*** for funding purposes is the rate of return in excess of wage inflation: 3.25%.

The mortality table for healthy retirees was the RP-2014 Blue Collar Healthy Annuitant mortality tables with fully-generational projected mortality improvement based on the MP-2015 2-dimensional improvement scale released by the Society of Actuaries.

	Post-Retirement Healthy Life expectancy determined by age in given future year					
	Year 2017		Year 2027		Year 2037	
Age	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
50	34.02	37.04	35.06	38.01	36.07	38.96
55	29.20	32.11	30.19	33.04	31.16	33.97
60	24.63	27.36	25.55	28.25	26.47	29.13
65	20.29	22.78	21.14	23.62	21.99	24.45
70	16.23	18.43	17.01	19.21	17.78	19.98
75	12.54	14.42	13.24	15.13	13.93	15.83
80	9.34	10.88	9.94	11.49	10.53	12.10

For mortality of disabled retirees the RP-2014 Disabled Annuitant mortality tables with fully-generational projected mortality improvement based on the MP-2015 2-dimensional improvement scale was used.

For pre-retirement mortality the RP-2014 Blue Collar Employees mortality tables with fully-generational projected mortality improvement based on the MP-2015 2-dimensional improvement scale was used. 50% of the pre-retirement deaths are assumed to be duty related and 50% are assumed to non-duty related.

The MP-2015 projection scale was applied to the aforementioned RP-2014 tables adjusted to the base year of 2006 as recommended by the Society of Actuaries.

Additional margin for future mortality improvements are included in the projection scale.

The rates of retirement used to measure the probability of eligible members retiring during the next year were as follows:

Years of Service	% Retiring During the Next Year
20	10.0 %
21	5.0
22	5.0
23	5.0
24	15.0
25	20.0
26	10.0
27	10.0
28	25.0
29	50.0
30	50.0
31	50.0
32	50.0
33	50.0
34	50.0
35 & Up	100.0

A member is eligible for retirement after completing 20 or more years of service.

Active members in the DROP are assumed to follow the retirement rates above. However, they are assumed to retire at a rate of 100% in the fifth year following DROP.

Rates of separation from active membership were as shown below (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

Sample Ages	Years of Service	% of Active Members Separating Within the Next Year
ALL	0	8.00%
	1	5.00%
	2	3.00%
	3	2.00%
	4	2.00%
20	5 & Over	1.00%
25		1.00%
30		0.90%
35		0.65%
40		0.50%
45		0.35%
50		0.25%
55		0.20%
60		0.20%
65		0.20%
70		0.20%

Rates of disability were as follows:

Sample	% of Active Members Becoming Disabled Within the Next Year	
Ages	Men	Women
20	0.11%	0.05%
25	0.14%	0.08%
30	0.15%	0.11%
35	0.22%	0.20%
40	0.32%	0.29%
45	0.49%	0.43%
50	0.79%	0.68%
55	1.38%	1.15%
60	2.30%	1.66%

In addition, 25% of the disabilities are assumed to be non-duty related and 75% are assumed to be duty related; of the 75% assumed to be duty disability, half were assumed to be covered under their own occupation provisions.

Expense Load. Normal cost for pensions was loaded by 2.0% of active payroll to cover administrative expenses.

Miscellaneous and Technical Assumptions
June 30, 2017

Marriage Assumption:	100% are assumed to be married for purposes of death-in-service benefits and 84% are assumed to be married for deaths after retirement. Male spouses are assumed to be three years older than female spouses.
Pay Increase Timing:	Beginning of the valuation year.
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 service nearest whole year on the date the decrement is assumed to occur.
Decrement Relativity:	Decrement rates are used directly from experience, without adjustment for multiple decrement table effects.
Decrement Operation:	Only withdrawal operates the first 5 years of service. Only mortality operates during retirement eligibility.
Service Credit Accruals:	It is assumed that members accrue one year of service credit per year.
Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year based upon the computed percent-of-payroll shown in this report, and the actual payroll (including DROP payroll) payable at the time contributions are made.
Normal Form of Benefit:	A 60% automatic joint and survivor payment is the assumed normal form of benefit for married people.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.

SECTION G

CALCULATION OF THE SINGLE DISCOUNT RATE

Calculation of the Single Discount Rate

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

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects: (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating 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 7.50%; the municipal bond rate is 3.56%; and the resulting SDR is 7.50%.

The tables in this section provide background for the development of the SDR. Note that these projections are specifically used to determine the GASB SDR and should not be interpreted as a funding projection or recommendation.

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

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

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

For purposes of calculating the single discount rate, we assumed the balance of the Reserve for Inflation Equity ($1.9 million) and the reserve for retiree account balances yet to be disbursed ($12.4 million) as of June 30, 2017 were paid out as a disbursement in year 1 of the projection.

There may be cases where schedules do not add or where they do not exactly balance to other related schedules due to rounding.

Calculation of the Single Discount Rate
(Concluded)

Please note the following regarding the projections used for purposes of determining the SDR.

- "Total Contributions" were projected based on the actuarial assumptions and methods used in the most recent actuarial valuation (for funding purposes) as of June 30, 2017. These assumptions and methods may or may not be consistent with assumptions and methods required by GASB Statement No. 67 for purposes of determining such items as Total Pension Liability, Net Pension Liability, etc.

- Projected "Service Cost" results are based on the entry age actuarial cost method as defined in GASB Statement No. 67. This may or may not be consistent with the actuarial cost method used to determine projected "Total Contributions".

- If there is a difference in actuarial cost methods between the method used to determine "Total Contributions" and the method used to determine "Service Cost", the impact of this difference is included in the projected "UAL Contributions" results.

Single Discount Rate Development Projection of Contributions ending June 30 for 2018 to 2067

Fiscal Year Ending 6/30	Projected Payroll for Current Employees	Projected Contributions from Current Employees	Projected Service Cost and Expense Contributions	Projected UAL Contributions	Projected Total Contributions
2018	$ 17,564,458	$ 343,680	$ 2,650,618	$ 3,042,015	$ 6,036,313
2019	16,275,615	361,107	2,536,979	3,475,437	6,373,523
2020	15,176,879	367,377	2,399,436	3,614,518	6,381,331
2021	13,996,374	363,893	2,212,692	4,008,444	6,585,029
2022	12,948,229	359,715	2,048,692	4,252,323	6,660,730
2023	12,426,362	348,351	1,942,071	4,287,302	6,577,723
2024	11,987,717	329,121	1,829,874	4,426,639	6,585,634
2025	11,285,822	307,692	1,698,721	4,570,505	6,576,918
2026	10,475,510	288,220	1,572,966	4,719,046	6,580,233
2027	9,783,253	266,769	1,442,161	4,872,415	6,581,345
2028	9,158,753	247,225	1,322,787	5,030,769	6,600,780
2029	8,424,051	223,683	1,181,548	5,194,269	6,599,500
2030	7,573,252	191,373	997,525	5,363,083	6,551,981
2031	6,821,812	156,577	810,176	5,537,383	6,504,136
2032	6,187,984	128,953	665,837	5,717,348	6,512,137
2033	5,552,850	109,878	561,969	5,903,161	6,575,008
2034	4,813,752	94,804	469,756	6,095,014	6,659,574
2035	4,017,653	80,308	378,714	6,293,102	6,752,124
2036	3,344,243	69,269	308,904	6,497,628	6,875,801
2037	2,814,649	63,233	265,032	6,708,801	7,037,066
2038	2,339,276	56,497	222,336	6,926,837	7,205,670
2039	1,898,482	47,495	175,130	7,151,959	7,374,584
2040	1,540,716	38,935	136,014	7,384,398	7,559,347
2041	1,247,361	30,191	103,051	7,624,391	7,757,633
2042	997,451	19,071	68,098	7,872,183	7,959,353
2043	780,960	8,482	36,763	8,128,029	8,173,274
2044	562,790	2,994	18,674	8,392,190	8,413,859
2045	335,664	1,119	9,467	8,664,937	8,675,523
2046	170,921	297	4,144	8,946,547	8,950,988
2047	87,665	49	1,872	9,237,310	9,239,231
2048	43,878	11	905	-	916
2049	20,980	3	429	-	432
2050	9,506	1	191	-	192
2051	2,681	-	54	-	54
2052	-	-	-	-	-
2053	-	-	-	-	-
2054	-	-	-	-	-
2055	-	-	-	-	-
2056	-	-	-	-	-
2057	-	-	-	-	-
2058	-	-	-	-	-
2059	-	-	-	-	-
2060	-	-	-	-	-
2061	-	-	-	-	-
2062	-	-	-	-	-
2063	-	-	-	-	-
2064	-	-	-	-	-
2065	-	-	-	-	-
2066	-	-	-	-	-
2067	-	-	-	-	-

Single Discount Rate Development Projection of Plan Fiduciary Net Position ending June 30 for 2018 to 2067

Fiscal Year Ending 6/30	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.500%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2018	$ 197,237,717	$ 6,036,313	$ 34,776,169	$ 351,289	$ 13,721,633	$ 181,868,204
2019	181,868,204	6,373,523	19,748,209	325,512	13,135,646	181,303,652
2020	181,303,652	6,381,331	19,363,658	303,538	13,108,561	181,126,347
2021	181,126,347	6,585,029	21,182,091	279,927	13,036,675	179,286,034
2022	179,286,034	6,660,730	19,432,369	258,965	12,966,639	179,222,069
2023	179,222,069	6,577,723	18,504,084	248,527	12,993,351	180,040,532
2024	180,040,532	6,585,634	19,171,236	239,754	13,030,784	180,245,960
2025	180,245,960	6,576,918	20,162,693	225,716	13,009,879	179,444,348
2026	179,444,348	6,580,233	20,467,458	209,510	12,939,255	178,286,867
2027	178,286,867	6,581,345	20,275,141	195,665	12,860,076	177,257,483
2028	177,257,483	6,600,780	20,574,563	183,175	12,773,023	175,873,549
2029	175,873,549	6,599,500	21,142,338	168,481	12,648,815	173,811,044
2030	173,811,044	6,551,981	21,226,226	151,465	12,489,915	171,475,250
2031	171,475,250	6,504,136	21,081,106	136,436	12,318,866	169,080,710
2032	169,080,710	6,512,137	20,966,551	123,760	12,144,255	166,646,791
2033	166,646,791	6,575,008	21,288,228	111,057	11,952,649	163,775,163
2034	163,775,163	6,659,574	21,974,266	96,275	11,715,674	160,079,869
2035	160,079,869	6,752,124	22,001,578	80,353	11,441,515	156,191,577
2036	156,191,577	6,875,801	21,634,828	66,885	11,168,447	152,534,112
2037	152,534,112	7,037,066	21,152,989	56,293	10,918,208	149,280,104
2038	149,280,104	7,205,670	20,981,128	46,786	10,687,044	146,144,903
2039	146,144,903	7,374,584	20,626,427	37,970	10,471,509	143,326,599
2040	143,326,599	7,559,347	20,044,430	30,814	10,288,634	141,099,336
2041	141,099,336	7,757,633	19,616,436	24,947	10,144,866	139,360,451
2042	139,360,451	7,959,353	19,275,715	19,949	10,034,607	138,058,747
2043	138,058,747	8,173,274	18,819,291	15,619	9,961,823	137,358,933
2044	137,358,933	8,413,859	18,474,569	11,256	9,931,049	137,218,017
2045	137,218,017	8,675,523	18,082,281	6,713	9,944,728	137,749,274
2046	137,749,274	8,950,988	17,512,109	3,418	10,015,831	139,200,566
2047	139,200,566	9,239,231	16,952,258	1,753	10,155,968	141,641,754
2048	141,641,754	916	16,418,614	878	10,018,566	135,241,744
2049	135,241,744	432	15,873,152	420	9,558,649	128,927,253
2050	128,927,253	192	15,340,309	190	9,104,682	122,691,628
2051	122,691,628	54	14,806,550	54	8,656,664	116,541,742
2052	116,541,742	-	14,259,093	-	8,215,581	110,498,231
2053	110,498,231	-	13,722,291	-	7,782,084	104,558,024
2054	104,558,024	-	13,182,715	-	7,356,437	98,731,746
2055	98,731,746	-	12,641,111	-	6,939,409	93,030,044
2056	93,030,044	-	12,098,468	-	6,531,763	87,463,338
2057	87,463,338	-	11,556,002	-	6,134,234	82,041,571
2058	82,041,571	-	11,014,932	-	5,747,525	76,774,164
2059	76,774,164	-	10,476,541	-	5,372,294	71,669,917
2060	71,669,917	-	9,942,199	-	5,009,151	66,736,870
2061	66,736,870	-	9,413,333	-	4,658,647	61,982,183
2062	61,982,183	-	8,891,490	-	4,321,261	57,411,954
2063	57,411,954	-	8,378,148	-	3,997,396	53,031,202
2064	53,031,202	-	7,874,672	-	3,687,378	48,843,909
2065	48,843,909	-	7,382,305	-	3,391,461	44,853,065
2066	44,853,065	-	6,902,236	-	3,109,825	41,060,654
2067	41,060,654	-	6,435,579	-	2,842,578	37,467,653

Single Discount Rate Development Projection of Plan Fiduciary Net Position ending June 30 for 2068 to 2117 (Concluded)

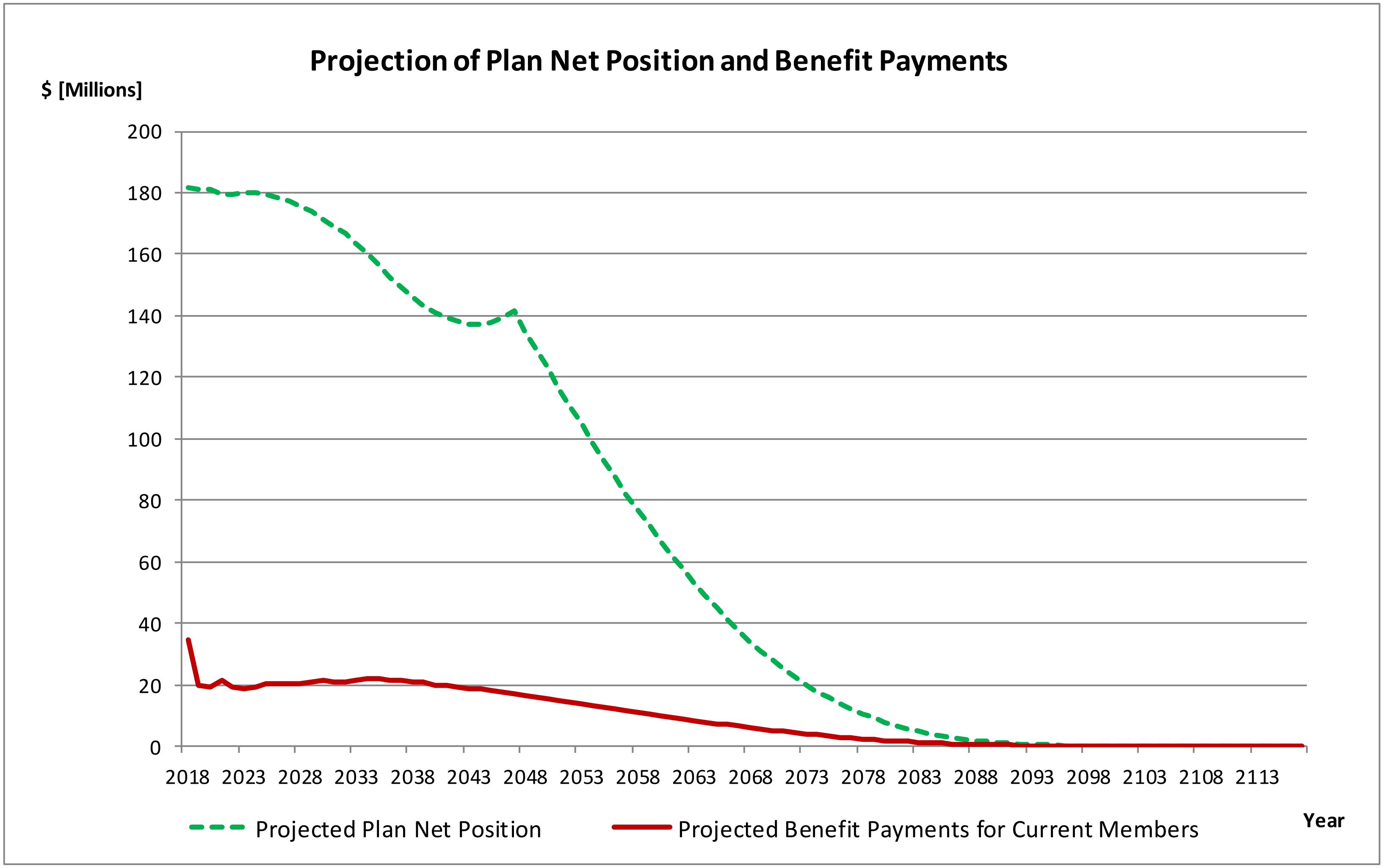
Fiscal Year Ending 6/30	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.500%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2068	$ 37,467,653	$ -	$ 5,983,328	$ -	$ 2,589,755	$ 34,074,081
2069	34,074,081	-	5,546,319	-	2,351,329	30,879,090
2070	30,879,090	-	5,125,250	-	2,127,209	27,881,049
2071	27,881,049	-	4,720,812	-	1,917,249	25,077,486
2072	25,077,486	-	4,333,629	-	1,721,238	22,465,095
2073	22,465,095	-	3,964,095	-	1,538,916	20,039,916
2074	20,039,916	-	3,612,415	-	1,369,977	17,797,478
2075	17,797,478	-	3,278,815	-	1,214,078	15,732,741
2076	15,732,741	-	2,963,504	-	1,070,833	13,840,071
2077	13,840,071	-	2,666,533	-	939,818	12,113,356
2078	12,113,356	-	2,387,946	-	820,573	10,545,983
2079	10,545,983	-	2,127,750	-	712,601	9,130,834
2080	9,130,834	-	1,885,808	-	615,373	7,860,398
2081	7,860,398	-	1,662,006	-	528,331	6,726,724
2082	6,726,724	-	1,456,201	-	450,884	5,721,407
2083	5,721,407	-	1,268,127	-	382,410	4,835,691
2084	4,835,691	-	1,097,468	-	322,266	4,060,488
2085	4,060,488	-	943,778	-	269,785	3,386,495
2086	3,386,495	-	806,375	-	224,295	2,804,415
2087	2,804,415	-	684,442	-	185,129	2,305,102
2088	2,305,102	-	577,086	-	151,633	1,879,649
2089	1,879,649	-	483,225	-	123,180	1,519,604
2090	1,519,604	-	401,667	-	99,180	1,217,116
2091	1,217,116	-	331,273	-	79,086	964,929
2092	964,929	-	270,893	-	62,395	756,431
2093	756,431	-	219,403	-	48,653	585,682
2094	585,682	-	175,800	-	37,453	447,334
2095	447,334	-	139,164	-	28,426	336,596
2096	336,596	-	108,664	-	21,243	249,176
2097	249,176	-	83,570	-	15,611	181,217
2098	181,217	-	63,205	-	11,264	129,276
2099	129,276	-	46,925	-	7,968	90,319
2100	90,319	-	34,134	-	5,517	61,702
2101	61,702	-	24,290	-	3,733	41,145
2102	41,145	-	16,880	-	2,464	26,729
2103	26,729	-	11,427	-	1,584	16,886
2104	16,886	-	7,519	-	990	10,357
2105	10,357	-	4,803	-	600	6,153
2106	6,153	-	2,972	-	352	3,534
2107	3,534	-	1,774	-	200	1,959
2108	1,959	-	1,020	-	109	1,048
2109	1,048	-	565	-	58	541
2110	541	-	301	-	30	270
2111	270	-	155	-	15	130
2112	130	-	78	-	7	60
2113	60	-	37	-	3	25
2114	25	-	17	-	1	10
2115	10	-	8	-	0	2
2116	2	-	2	-	0	-
2117	-	-	-	-	-	-

Single Discount Rate Development Present Values of Projected Benefits ending June 30 for 2018 to 2067

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected 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 All 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	$ 197,237,717	$ 34,776,169	$ 34,776,169	$ -	$ 33,541,116	$ -	$ 33,541,116
2019	181,868,204	19,748,209	19,748,209	-	17,718,013	-	17,718,013
2020	181,303,652	19,363,658	19,363,658	-	16,160,926	-	16,160,926
2021	181,126,347	21,182,091	21,182,091	-	16,445,201	-	16,445,201
2022	179,286,034	19,432,369	19,432,369	-	14,034,200	-	14,034,200
2023	179,222,069	18,504,084	18,504,084	-	12,431,428	-	12,431,428
2024	180,040,532	19,171,236	19,171,236	-	11,981,056	-	11,981,056
2025	180,245,960	20,162,693	20,162,693	-	11,721,550	-	11,721,550
2026	179,444,348	20,467,458	20,467,458	-	11,068,582	-	11,068,582
2027	178,286,867	20,275,141	20,275,141	-	10,199,608	-	10,199,608
2028	177,257,483	20,574,563	20,574,563	-	9,628,125	-	9,628,125
2029	175,873,549	21,142,338	21,142,338	-	9,203,556	-	9,203,556
2030	173,811,044	21,226,226	21,226,226	-	8,595,417	-	8,595,417
2031	171,475,250	21,081,106	21,081,106	-	7,941,072	-	7,941,072
2032	169,080,710	20,966,551	20,966,551	-	7,346,902	-	7,346,902
2033	166,646,791	21,288,228	21,288,228	-	6,939,183	-	6,939,183
2034	163,775,163	21,974,266	21,974,266	-	6,663,075	-	6,663,075
2035	160,079,869	22,001,578	22,001,578	-	6,205,913	-	6,205,913
2036	156,191,577	21,634,828	21,634,828	-	5,676,712	-	5,676,712
2037	152,534,112	21,152,989	21,152,989	-	5,163,054	-	5,163,054
2038	149,280,104	20,981,128	20,981,128	-	4,763,820	-	4,763,820
2039	146,144,903	20,626,427	20,626,427	-	4,356,543	-	4,356,543
2040	143,326,599	20,044,430	20,044,430	-	3,938,250	-	3,938,250
2041	141,099,336	19,616,436	19,616,436	-	3,585,264	-	3,585,264
2042	139,360,451	19,275,715	19,275,715	-	3,277,201	-	3,277,201
2043	138,058,747	18,819,291	18,819,291	-	2,976,373	-	2,976,373
2044	137,358,933	18,474,569	18,474,569	-	2,718,003	-	2,718,003
2045	137,218,017	18,082,281	18,082,281	-	2,474,688	-	2,474,688
2046	137,749,274	17,512,109	17,512,109	-	2,229,447	-	2,229,447
2047	139,200,566	16,952,258	16,952,258	-	2,007,603	-	2,007,603
2048	141,641,754	16,418,614	16,418,614	-	1,808,749	-	1,808,749
2049	135,241,744	15,873,152	15,873,152	-	1,626,659	-	1,626,659
2050	128,927,253	15,340,309	15,340,309	-	1,462,376	-	1,462,376
2051	122,691,628	14,806,550	14,806,550	-	1,313,017	-	1,313,017
2052	116,541,742	14,259,093	14,259,093	-	1,176,251	-	1,176,251
2053	110,498,231	13,722,291	13,722,291	-	1,052,995	-	1,052,995
2054	104,558,024	13,182,715	13,182,715	-	941,014	-	941,014
2055	98,731,746	12,641,111	12,641,111	-	839,398	-	839,398
2056	93,030,044	12,098,468	12,098,468	-	747,316	-	747,316
2057	87,463,338	11,556,002	11,556,002	-	664,008	-	664,008
2058	82,041,571	11,014,932	11,014,932	-	588,761	-	588,761
2059	76,774,164	10,476,541	10,476,541	-	520,915	-	520,915
2060	71,669,917	9,942,199	9,942,199	-	459,857	-	459,857
2061	66,736,870	9,413,333	9,413,333	-	405,019	-	405,019
2062	61,982,183	8,891,490	8,891,490	-	355,875	-	355,875
2063	57,411,954	8,378,148	8,378,148	-	311,934	-	311,934
2064	53,031,202	7,874,672	7,874,672	-	272,734	-	272,734
2065	48,843,909	7,382,305	7,382,305	-	237,843	-	237,843
2066	44,853,065	6,902,236	6,902,236	-	206,861	-	206,861
2067	41,060,654	6,435,579	6,435,579	-	179,419	-	179,419

Single Discount Rate Development Present Values of Projected Benefits ending June 30 for 2068 to 2117 (Concluded)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected 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 All 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	$ 37,467,653	$ 5,983,328	$ 5,983,328	$ -	$ 155,173	$ -	$ 155,173
2069	34,074,081	5,546,319	5,546,319	-	133,804	-	133,804
2070	30,879,090	5,125,250	5,125,250	-	115,019	-	115,019
2071	27,881,049	4,720,812	4,720,812	-	98,552	-	98,552
2072	25,077,486	4,333,629	4,333,629	-	84,157	-	84,157
2073	22,465,095	3,964,095	3,964,095	-	71,610	-	71,610
2074	20,039,916	3,612,415	3,612,415	-	60,704	-	60,704
2075	17,797,478	3,278,815	3,278,815	-	51,254	-	51,254
2076	15,732,741	2,963,504	2,963,504	-	43,093	-	43,093
2077	13,840,071	2,666,533	2,666,533	-	36,070	-	36,070
2078	12,113,356	2,387,946	2,387,946	-	30,048	-	30,048
2079	10,545,983	2,127,750	2,127,750	-	24,906	-	24,906
2080	9,130,834	1,885,808	1,885,808	-	20,534	-	20,534
2081	7,860,398	1,662,006	1,662,006	-	16,834	-	16,834
2082	6,726,724	1,456,201	1,456,201	-	13,721	-	13,721
2083	5,721,407	1,268,127	1,268,127	-	11,115	-	11,115
2084	4,835,691	1,097,468	1,097,468	-	8,948	-	8,948
2085	4,060,488	943,778	943,778	-	7,158	-	7,158
2086	3,386,495	806,375	806,375	-	5,689	-	5,689
2087	2,804,415	684,442	684,442	-	4,492	-	4,492
2088	2,305,102	577,086	577,086	-	3,523	-	3,523
2089	1,879,649	483,225	483,225	-	2,744	-	2,744
2090	1,519,604	401,667	401,667	-	2,122	-	2,122
2091	1,217,116	331,273	331,273	-	1,628	-	1,628
2092	964,929	270,893	270,893	-	1,238	-	1,238
2093	756,431	219,403	219,403	-	933	-	933
2094	585,682	175,800	175,800	-	695	-	695
2095	447,334	139,164	139,164	-	512	-	512
2096	336,596	108,664	108,664	-	372	-	372
2097	249,176	83,570	83,570	-	266	-	266
2098	181,217	63,205	63,205	-	187	-	187
2099	129,276	46,925	46,925	-	129	-	129
2100	90,319	34,134	34,134	-	87	-	87
2101	61,702	24,290	24,290	-	58	-	58
2102	41,145	16,880	16,880	-	37	-	37
2103	26,729	11,427	11,427	-	24	-	24
2104	16,886	7,519	7,519	-	14	-	14
2105	10,357	4,803	4,803	-	9	-	9
2106	6,153	2,972	2,972	-	5	-	5
2107	3,534	1,774	1,774	-	3	-	3
2108	1,959	1,020	1,020	-	1	-	1
2109	1,048	565	565	-	1	-	1
2110	541	301	301	-	0	-	0
2111	270	155	155	-	0	-	0
2112	130	78	78	-	0	-	0
2113	60	37	37	-	0	-	0
2114	25	17	17	-	0	-	0
2115	10	8	8	-	0	-	0
2116	2	2	2	-	0	-	0
2117	-	-	-	-	-	-	-
				Totals	$ 277,170,358	$ -	$ 277,170,358



Projection of Plan Net Position and Benefit Payments
$ [Millions]
200
180
160
140
120
100
80
60
40
20
0
2018 2023 2028 2033 2038 2043 2048 2053 2058 2063 2068 2073 2078 2083 2088 2093 2098 2103 2108 2113
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) or Annual Required Contribution (ARC)	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 employees that are provided with pensions through the pension plan.
Deferred Retirement Option Program (DROP)	A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report.
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: 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 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 cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.
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 market value of the assets of the trust dedicated to the defined benefit provisions.
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 contributing entities to plan members for benefits provided through a defined benefit pension plan.
Non-Employer Contributing Entities	Non-employer contributing entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.
Normal Cost	The portion of the actuarial present value allocated to a valuation year is called the normal cost. For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.

Glossary of Terms

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.
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 GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.