GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

CITY OF KALAMAZOO EMPLOYEES RETIREMENT SYSTEM

GASB STATEMENT NOS. 67 AND 68 ACCOUNTING AND FINANCIAL REPORTING FOR PENSIONS

DECEMBER 31, 2016

GRS

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May 9, 2017

Mr. Thomas C. Skrobola, Director of Management Services/CFO
City of Kalamazoo Employees Retirement System
241 West South Street
Kalamazoo, Michigan 49007-4796

Dear Tom:

This report provides accounting and financial reporting information that is intended to comply with the Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68 for the City of Kalamazoo Employees Retirement System. These calculations have been made on a basis that is consistent with our understanding of these Statements and the classification of the Plan as a single employer with component units. These results are subject to review by the System's auditor and may be revised.

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. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement Nos. 67 and 68 may produce significantly different results. This report may be provided to parties other than the City of Kalamazoo Employees Retirement System only in its entirety and only with the permission of the System. GRS is not responsible for unauthorized use of this report.

This report is based upon information, furnished to us by the City, 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 provided to the City of Kalamazoo Employees Retirement System for funding purposes and should be considered in conjunction with that report. Please see the actuarial valuation report as of December 31, 2015 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

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

The signing actuaries are independent of the plan sponsor.

James D. Anderson and Rebecca L. Stouffer 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,

By James D. Anderson
James D. Anderson
FSA, EA, MAAA

By Rebecca L. Stouffer
Rebecca L. Stouffer
ASA, MAAA

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SECTION A

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY
AS OF DECEMBER 31, 2016

		2016
Actuarial Valuation Date		December 31, 2015
Measurement Date of the Net Pension Liability		December 31, 2016
Employer's Fiscal Year Ending Date (Reporting Date)		December 31, 2016
Membership^		
Number of		
- Retirees and Beneficiaries		957
- Inactive, Nonretired Members		48
- Active Members		628
- Total		1,633
Covered-employee Payroll #	$	37,291,474
Net Pension Liability		
Total Pension Liability	$	448,065,551
Plan Fiduciary Net Position		613,027,375
Net Pension Liability	$	(164,961,824)
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		136.82%
Net Pension Liability as a Percentage of Covered-employee Payroll #		(442.36)%
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*		3.78%
Last year ending December 31 in the 2017 to 2116 projection period for which projected benefit payments are fully funded		2115
Total Pension Expense	$	184,761

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	$	-	$	2,592,872
Changes in assumptions		5,810,149		-
Net difference between projected and actual earnings on pension plan investments		31,822,655		23,812,558
Total	$	37,632,804	$	26,405,430

 # Reflects payroll as of the actuarial valuation date that is one year prior to the measurement date. This payroll may differ from the GASB Statement No. 68 definition of covered-employee payroll.

** Source: "20-Bond GO Index" is the Bond Buyer Index, general obligation, 20 years to maturity, mixed quality. In describing this index, the Bond Buyer notes that bonds' average credit quality is roughly equivalent to Moody's Investors Service's Aa2 rating and Standard & Poor's Corp.'s AA. The rate shown is as of December 29, 2016, the most recent date available on or before the measurement date.*

^ Membership information is shown at the beginning of the measurement period, prior to the CCTA spin-off.

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 Plan subsequent to the measurement date of December 31, 2016.

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; and
- annual money-weighted rate of return.

Required Supplementary Information

GASB Statement No. 67 requires a 10-year fiscal history of:

- sources of changes in the net pension liability;
- information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll; and a
- comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

These tables may be built prospectively as the information becomes available.

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.50% on the actuarial value of assets), then the following outcomes are expected:

1. The employer normal cost as a percentage of pay is expected to remain level as a percentage of payroll.
2. The overfunding credit will be used up over a period of years.
3. The funded status of the plan is expected to decrease gradually towards a 100% funded ratio.

This funding policy results in an expected crossover date in 2115 and a GASB single discount rate of 7.50%. 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.

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 December 31, 2015 and a measurement date of December 31, 2016.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating (which is published by the Bond Buyer Index) 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 3.78% (based on the weekly rate closest to but not later than the measurement date of the "20-Bond GO Index" rate from the Bond Buyer Index); and the resulting Single Discount Rate is 7.50%.

Effective Date and Transition

GASB Statement Nos. 67 and 68 are effective for fiscal years beginning after June 15, 2013, and June 15, 2014 respectively.

SECTION B

FINANCIAL STATEMENTS

PENSION EXPENSE UNDER GASB STATEMENT NO. 68
FISCAL YEAR ENDED DECEMBER 31, 2016

A. Expense

1. Service Cost	$	5,683,351
2. Interest on the Total Pension Liability		33,892,669
3. Current-Period Benefit Changes		(23,809,450)
4. Employee Contributions (made negative for addition here)		(1,085,940)
5. Projected Earnings on Plan Investments (made negative for addition here)		(43,174,292)
6. Pension Plan Administrative Expense		153,024
7. Other Changes in Plan Fiduciary Net Position		21,875,722
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		1,995,265
9. Recognition of Outflow (Inflow) of Resources due to Assets		4,654,412
10. Total Pension Expense	**$**	**184,761**

Effective October 1, 2016, the City's existing transit operations spun off to become part of the Central County Transportation Authority (CCTA). The CCTA is a separate single-employer retirement system.

Item 3 above reflects the total pension liability related to the CCTA spin-off.

Item 7 above reflect a partial asset transfer in the amount of $21,700,000, occurring January 2017, related to the CCTA spin-off. The remainder of the asset transfer is scheduled for later during 2017.

STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM THE CURRENT REPORTING PERIOD

FISCAL YEAR ENDED DECEMBER 31, 2016

A. Outflows (Inflows) of Resources due to Liabilities		
1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	$	(2,513,167)
2. Assumption Changes (gains) or losses	$	-
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		3.8563
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	$	(651,704)
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	$	(651,704)
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	$	(1,861,463)
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	$	-
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	$	(1,861,463)
B. Outflows (Inflows) of Resources due to Assets		
1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	$	(29,765,698)
2. Recognition period for Assets {in years}		5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	$	(5,953,140)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	$	(23,812,558)

STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM THE CURRENT AND PRIOR REPORTING PERIODS
FISCAL YEAR ENDED DECEMBER 31

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	$ 3,028,170	$ 1,032,905	$ 1,995,265
2. Due to Assets	10,607,552	5,953,140	4,654,412
3. Total	$ 13,635,722	$ 6,986,045	$ 6,649,677

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	$ -	$ 1,032,905	$ (1,032,905)
2. Assumption Changes	3,028,170	-	3,028,170
3. Net Difference between projected and actual earnings on pension plan investments	10,607,552	5,953,140	4,654,412
4. Total	$ 13,635,722	$ 6,986,045	$ 6,649,677

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	$ -	$ 2,592,872	$ (2,592,872)
2. Assumption Changes	5,810,149	-	5,810,149
3. Net Difference between projected and actual earnings on pension plan investments	31,822,655	23,812,558	8,010,097
4. Total	$ 37,632,804	$ 26,405,430	$ 11,227,374

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

Year Ending December 31	Net Deferred Outflows of Resources
2017	$ 6,649,677
2018	6,434,479
2019	4,096,356
2020	(5,953,138)
2021	-
Thereafter	-
Total	$ 11,227,374

STATEMENT OF FIDUCIARY NET POSITION AS OF DECEMBER 31, 2016

		2016
Assets		
Cash and Deposits	$	236,095
Receivables		
Accounts Receivable - Sale of Investments	$	3,714,028
Accrued Interest and Other Dividends		1,212,348
Contributions		-
Accounts Receivable - Other		193,279
Total Receivables	$	5,119,655
Investments		
Fixed Income	$	169,476,885
Domestic Equities		311,646,928
International Equities		124,286,257
Real Estate		33,278,881
Other		-
Total Investments	$	638,688,951
Total Assets	$	644,044,701
Liabilities		
Payables		
Accounts Payable - Purchase of Investments	$	9,250,139
Accrued Expenses		67,187
Accounts Payable - Other*		21,700,000
Total Liabilities	$	31,017,326
Net Position Restricted for Pensions	$	613,027,375

** Reflects an initial asset transfer of $21,700,000, occurring January 2017, related to the CCTA spin-off.*

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION FOR YEAR ENDED DECEMBER 31, 2016

		2016
Additions		
Contributions		
Employer	$	-
Employee		1,085,940
Other		-
Total Contributions	$	1,085,940
Investment Income		
Net Appreciation in Fair Value of Investments	$	58,071,951
Interest and Dividends		16,891,539
Less Investment Expense		(2,023,500)
Net Investment Income	$	72,939,990
Other	$	-
Total Additions	$	74,025,930
Deductions		
Benefit payments, including refunds of employee contributions	$	28,496,870
Pension Plan Administrative Expense		153,024
Other*		21,875,722
Total Deductions	$	50,525,616
Net Increase in Net Position	$	23,500,314
Net Position Restricted for Pensions		
Beginning of Year	$	589,527,061
End of Year	$	613,027,375

** Reflects an initial asset transfer of $21,700,000, occurring January 2017, related to the CCTA spin-off.*

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS FISCAL YEAR ENDED DECEMBER 31, 2016

A. Total Pension Liability		
1. Service Cost*	$	5,683,351
2. Interest on the Total Pension Liability		33,892,669
3. Changes of benefit terms*		(23,809,450)
4. Difference between expected and actual experience of the Total Pension Liability		(2,513,167)
5. Changes of assumptions		-
6. Benefit payments, including refunds of employee contributions		(28,496,870)
7. Net change in Total Pension Liability	$	(15,243,467)
8. Total Pension Liability – Beginning		463,309,018
9. Total Pension Liability – Ending	**$**	**448,065,551**
B. Plan Fiduciary Net Position		
1. Contributions – Employer	$	-
2. Contributions – Employee		1,085,940
3. Net investment income		72,939,990
4. Benefit payments, including refunds of employee contributions		(28,496,870)
5. Pension Plan Administrative Expense		(153,024)
6. Other*		(21,875,722)
7. Net change in Plan Fiduciary Net Position	$	23,500,314
8. Plan Fiduciary Net Position – Beginning		589,527,061
9. Plan Fiduciary Net Position – Ending	**$**	**613,027,375**
C. Net Pension Liability	**$**	**(164,961,824)**
D. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability		**136.82%**
E. Covered-Employee Payroll #	**$**	**37,291,474**
F. Net Pension Liability as a Percentage of Covered-Employee Payroll #		**(442.36)%**

* *Effective October 1, 2016, the City's existing transit operations spun off to become part of the Central County Transportation Authority (CCTA). The CCTA is a separate single-employer retirement system. This schedule reflects the net City service cost, and transfer of liabilities and assets to CCTA.*

\# *Reflects payroll as of the actuarial valuation date that is one year prior to the measurement date. This payroll may differ from the GASB Statement No. 68 definition of covered-employee payroll.*

Schedules of Required Supplementary Information

Schedule of Changes in the Employers' Net Pension Liability and Related Ratios

Ultimately 10 Fiscal Years will be displayed

(which may be built prospectively starting from 2014)

Fiscal year ending December 31,	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Total Pension Liability										
Service Cost	$ 5,683,351	$ 6,187,334	$ 6,259,728							
Interest on the Total Pension Liability	33,892,669	32,334,356	31,603,299							
Benefit Changes	(23,809,450)	-	-							
Difference between expected and actual experience of the Total Pension Liability	(2,513,167)	(1,574,739)	-							
Assumption Changes	-	12,509,343	-							
Benefit Payments and Refunds	(28,496,870)	(28,356,700)	(27,802,129)							
Net Change in Total Pension Liability	(15,243,467)	21,099,594	10,060,898							
Total Pension Liability - Beginning	463,309,018	442,209,424	432,148,526							
Total Pension Liability - Ending (a)	$ 448,065,551	$ 463,309,018	$ 442,209,424							
Plan Fiduciary Net Position										
Employer Contributions	$ -	$ 1,602,053	$ 760,912							
Employee Contributions	1,085,940	1,084,798	1,067,029							
Pension Plan Net Investment Income	72,939,990	(9,974,517)	41,065,446							
Benefit Payments and Refunds	(28,496,870)	(28,356,700)	(27,802,129)							
Pension Plan Administrative Expense	(153,024)	(125,770)	(122,107)							
Other	(21,875,722)	(174,885)	(110,326)							
Net Change in Plan Fiduciary Net Position	23,500,314	(35,945,021)	14,858,825							
Plan Fiduciary Net Position - Beginning	589,527,061	625,472,082	610,613,257							
Plan Fiduciary Net Position - Ending (b)	$ 613,027,375	$ 589,527,061	$ 625,472,082							
Net Pension Liability - Ending (a) - (b)	(164,961,824)	(126,218,043)	(183,262,658)							
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	136.82 %	127.24 %	141.44 %							
Covered-Employee Payroll #	$ 37,291,474	$ 37,198,788	$ 36,331,892							
Net Pension Liability as a Percentage of Covered-Employee Payroll #	(442.36)%	(339.31)%	(504.41)%							

Notes to Schedule:

Effective October 1, 2016, the City's existing transit operations spun off to become part of the Central County Transportation Authority (CCTA). The CCTA is a separate single-employer retirement system.

 # Reflects payroll as of the actuarial valuation date that is one year prior to the measurement date. This payroll may differ from the GASB Statement No. 68 definition of covered-employee payroll.

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION
SCHEDULE OF THE EMPLOYERS' NET PENSION LIABILITY

Ultimately 10 Fiscal Years will be displayed
(which may be built prospectively starting from 2014)

FY Ending December 31,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered-Employee Payroll #	Net Pension Liability as a % of Covered Payroll
2007			-			
2008			-			
2009			-			
2010			-			
2011			-			
2012			-			
2013			-			
2014	$442,209,424	$625,472,082	$ (183,262,658)	141.44%	$36,331,892	(504.41)%
2015	463,309,018	589,527,061	(126,218,043)	127.24%	37,198,788	(339.31)%
2016	448,065,551	613,027,375	(164,961,824)	136.82%	37,291,474	(442.36)%

Reflects payroll as of the actuarial valuation date that is one year prior to the measurement date. This payroll may differ from the GASB Statement No. 68 definition of covered-employee payroll.

SCHEDULE OF CONTRIBUTIONS

Ultimately 10 Fiscal Years will be displayed
(which may be built prospectively starting from 2014)

FY Ending December 31,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered-Employee Payroll #	Actual Contribution as a % of Covered Payroll
2007					
2008					
2009					
2010					
2011					
2012					
2013					
2014	$ -	$ 760,912	$ (760,912)	$ 36,331,892	2.09%
2015	-	1,602,053	(1,602,053)	37,198,788	4.31%
2016	-	-	-	37,291,474	0.00%

 # Reflects payroll as of the actuarial valuation date that is one year prior to the measurement date. This payroll may differ from the GASB Statement No. 68 definition of covered-employee payroll.

NOTES TO SCHEDULE OF CONTRIBUTIONS

Valuation Date:	December 31, 2015
Notes	Actuarially determined contribution amounts are calculated as of December 31 each year, which is immediately 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 December 31, 2016:

Actuarial Cost Method	Entry-Age Normal
Amortization Method	Level Percent-of-Payroll, Open Period
Remaining Amortization Period	10 years
Asset Valuation Method	5-Year smoothed market
Inflation	3.5% (which includes price inflation of 2.75%)
Salary Increases	3.5% to 15.5%, including inflation
Investment Rate of Return	7.50%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2014 valuation pursuant to an experience study of the period 2009 - 2013.
Mortality	RP-2000 Mortality Combined Healthy Tables, projected 20 years with U.S. Projection Scale BB.

Other Information:

Notes	Effective October 1, 2016, the City's existing transit operations spun off to become part of the Central County Transportation Authority (CCTA). The CCTA is a separate single-employer retirement system.

SCHEDULE OF INVESTMENT RETURNS

Ultimately 10 Fiscal Years will be displayed

FY Ending December 31,	Annual Return[1]
2007	
2008	
2009	
2010	
2011	
2012	
2013	
2014	6.82 %
2015	(1.62)%
2016	12.64 %

[1] *Annual money-weighted rate of return, net of investment expenses.*

SECTION D

SCHEDULES BY EMPLOYER

SCHEDULE OF EMPLOYER ALLOCATIONS OF NET PENSION LIABILITY (INCLUDING SENSITIVITY ANALYSIS)

Employer	FY 2016 Employer Contributions [1]	PVFB [2]	Proportionate Share [3]	Net Pension Liability 1% Decrease 6.50%	Net Pension Liability Current Single Discount Rate 7.50%	Net Pension Liability 1% Increase 8.50%
Wastewater	$ -	$ 49,754,605	10.119%	$ (11,333,019)	$ (16,692,487)	$ (21,159,035)
Water	$ -	$ 38,945,431	7.920%	$ (8,870,196)	$ (13,064,976)	$ (16,560,881)
All Other Groups	$ -	$ 403,007,005	81.961%	$ (91,794,209)	$ (135,204,361)	$ (171,382,122)
Total [4]	$ -	$ 491,707,041	100.000%	$ (111,997,424)	$ (164,961,824)	$ (209,102,038)

(1) *Provided for use in preparing disclosures under GASB Statement No. 68 paragraph 81.*

(2) *As discussed with the City and the auditor, proportionate shares have been developed on the basis of Present Value Future Benefits (PVFB) for each employer. This basis reflects the long-term obligation of each employer to the Plan. The PVFB was adjusted from the actuarial valuation date to the measurement date using standard actuarial roll-forward techniques.*

(3) *The Plan has been identified as a single employer Plan. Given that the Plan has component units, GASB Statement 68 paragraph 18 requires that stand-alone financial statements for each government "…account for and report its participation in the single-employer or agent pension plan as if it was a cost-sharing employer and should apply the requirements of paragraphs 48−82."*

(4) *Employer level numbers may not add to collective-development numbers due to rounding.*

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

	Wastewater	Water	All Other Groups	Total [1]
Proportionate Share	10.119%	7.920%	81.961%	100.000%
Net Pension Liability	$ (16,692,487)	$ (13,064,976)	$ (135,204,361)	$ (164,961,824)
Deferred Outflows of Resources				
1. Differences Between Expected and Actual Experience	$ -	$ -	$ -	$ -
2. Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	810,542	634,400	6,565,157	8,010,099
3. Changes of Assumptions	587,929	460,164	4,762,055	5,810,148
4. Changes in Proportion and Differences Between Employer Contributions and Share of Contributions	49,101	256,026	-	305,127
5. Total Deferred Outflows of Resources	1,447,572	1,350,590	11,327,212	14,125,374
Deferred Inflows of Resources				
1. Differences Between Expected and Actual Experience	$ (262,373)	$ (205,356)	$ (2,125,146)	$ (2,592,875)
2. Net Difference Between Projected and Actual Investment Earnings on Pension Plan Investments	-	-	-	-
3. Changes of Assumptions	-	-	-	-
4. Changes in Proportion and Differences Between Employer Contributions and Share of Contributions	-	-	(305,127)	(305,127)
5. Total Deferred Inflows of Resources	(262,373)	(205,356)	(2,430,273)	(2,898,002)
Pension Expense				
1. Proportionate Share of Plan Pension Expense	$ 18,696	$ 14,633	$ 151,432	$ 184,761
2. Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	17,191	89,635	(106,826)	-
3. Total Employer Pension Expense	35,887	104,268	44,606	184,761

(1) *Employer-level numbers may not add to collective-development numbers due to rounding.*

Schedule of Deferred Resources by Employer by Year

	Schedule of Deferred (Inflows) and Outflows				
Employer	**2017**	**2018**	**2019**	**2020**	**2021**
CCTA	$ -	$ -	$ -	$ -	$ -
Wastewater	$ 690,072	$ 668,296	$ 429,229	$ (602,398)	$ -
Water	$ 616,289	$ 599,245	$ 401,188	$ (471,488)	$ -
All Other Groups	$ 5,343,316	$ 5,166,935	$ 3,265,941	$ (4,879,253)	$ -
Total (1)	**$ 6,649,677**	**$ 6,434,476**	**$ 4,096,358**	**$ (5,953,139)**	**$ -**

(1) *Employer-level numbers may not add to collective-development numbers due to rounding.*

SECTION E

NOTES TO FINANCIAL STATEMENTS

Long-Term Expected Return on Plan Assets

The assumed rate of investment return was adopted by the plan's trustees after considering input from the plan's investment consultant(s). Additional information about the assumed rate of investment return is included in our actuarial valuation report as of December 31, 2015. The assumed rate of investment return falls within a reasonable range of the long-term expected rate of return.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These real rates of return are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. For each major asset class that is included in the pension plan's target asset allocation as of December 31, 2016, these best estimates are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return *
U.S. Small Cap (Manager 1)	5.00%	4.60%
U.S. Small Cap (Manager 2)	10.00%	4.60%
International Developed Equity	10.00%	4.10%
U.S. Large Cap (Manager 1)	30.00%	4.10%
U.S. Large Cap (Manager 2)	5.00%	4.20%
Emerging Markets	10.00%	6.60%
Domestic Fixed Income	25.00%	1.00%
Real Estate (Manager 1)	2.50%	2.90%
Real Estate (Manager 2)	2.50%	2.90%
Total	100.00%	

** Real rate of return is based on investment manager inflation assumption of 2.00%.*

The figures in the above table were supplied by the City of Kalamazoo. Gabriel, Roeder, Smith & Company does not provide investment advice.

Single Discount Rate

A Single Discount Rate of 7.50% was used to measure the total pension liability. This Single Discount Rate was based on the expected rate of return on pension plan investments of 7.50%. The projection of cash flows used to determine this Single Discount Rate 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 Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 7.50%, 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 the 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	$ 501,029,951	$ 448,065,551	$ 403,925,336
Plan Fiduciary Net Position	613,027,375	613,027,375	613,027,375
Net Pension Liability/(Asset)	$ (111,997,424)	$ (164,961,824)	$ (209,102,039)

Summary of Population Statistics^

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	957
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	48
Active Plan Members	628
Total Plan Members	1,633

^ *Membership information is shown at the beginning of the measurement period, prior to the CCTA spin-off.*

SECTION F

SUMMARY OF BENEFITS

Effective October 1, 2016, the City's existing transit operations spun off to become part of the Central County Transportation Authority (CCTA). For information regarding the summary of benefits used for members who are now part of the CCTA, please see the December 31, 2016 CCTA GASB Statement Nos. 67 and 68 report.

BRIEF SUMMARY OF BENEFIT PROVISIONS*
DECEMBER 31, 2016

Eligibility	Amount
REGULAR RETIREMENT (no reduction factor for age)	
General: Age 57 with 25 years of service, or age 62 with 10 years of service. AFSCME members only may also retire at age 60 with 20 years of service.	Total service multiplied by: 2.1% of FAC – KMEA – effective 1/1/08 2.1% of FAC – AFSCME – effective 10/2/07 2.3% of FAC – Exempt members 2.1% of FAC – Other General members–CSO – effective 1/1/08 2.7% of FAC – Public Safety members FAC (final average compensation) – Highest 3 consecutive years out of the last 10.
Public Safety: 25 years of service or age 50 with 10 years of service.	Maximum benefit for Public Safety members is equal to 70.2% of FAC.
EARLY RETIREMENT (age reduction factor used)	
General: Age 55 with 15 years of service.	Computed as a regular retirement but reduced by 4/10 of 1% for each month and fraction of a month by which retirement precedes age 62 if less than 25 years of service or age 57 if 25 or more years of service.
Public Safety: 20 years of service.	2% of final average compensation multiplied by years of credited service.
DEFERRED RETIREMENT	
10 years of service for most members, 5 years for Exempt hired before 9/1/2010, 9 years for AFSCME and 8 years for KMEA hired before 1/1/2009. Benefit begins at age 62 for General employees, and at age 50 for Public Safety employees.	General: Computed as a regular or early retirement but based upon service and final average compensation at termination date. Public Safety: Computed as early retirement.
NON-DUTY DEATH-IN-SERVICE	
10 years of service for most members, 5 years for Exempt hired before 9/1/2010, 9 years for AFSCME and 8 years for KMEA hired before 1/1/2009.	General: Computed as a regular retirement but actuarially reduced in accordance with a 100% joint and survivor election. Public Safety: A benefit of 33-1/3% of final compensation is paid to the surviving spouse. Unmarried children under 18 years of age receive equal shares of 25% of final compensation.
DUTY DEATH-IN-SERVICE	
Payable to the survivors of a member who died in the line of duty.	A benefit of 33-1/3% of final compensation is paid to the surviving spouse. Unmarried children under 18 years of age receive equal shares of 25% of final compensation. Worker's compensation payments are offset.

** This represents a brief summary of Plan provisions. As always official Plan documents, including the Ordinance and any applicable Collective Bargaining Agreements, will ultimately govern the benefits payable from the Plan.*

BRIEF SUMMARY OF BENEFIT PROVISIONS*
DECEMBER 31, 2016 (CONTINUED)

Eligibility	Amount
NON-DUTY DISABILITY	
10 years of service for most members, 5 years for General Exempt hired before 9/1/2010, 9 years for AFSCME and 8 years for KMEA hired before 1/1/2009.	Computed as regular retirement. Reduced on a dollar-for-dollar basis by amount of worker's compensation, if any.
DUTY DISABILITY	
No age or service requirements.	General: Computed as regular retirement with additional service credit granted from day of actual retirement to date of voluntary retirement eligibility. Public Safety: Computed as regular retirement. During worker's compensation period benefit cannot exceed the difference between final compensation and worker's compensation.
DEATH AFTER RETIREMENT	
Spouse of Public Safety member retired on or after July 1, 1972.	50% of the regular retirement benefit the deceased retiree was receiving.
POST-RETIREMENT BENEFIT INCREASES (Eligibility for PRAs vary by retirement type)	
AFSCME members who retire on and after 10/25/1999.	1% increases compounded annually, beginning 1 year after retirement; 2% compounded annually beginning at age 75.
KMEA members.	1.5% increases compounded annually, beginning the latter of the Retirees 64th birthday and 1 year after retirement; 2% compounded annually beginning at age 75 (effective in 2002).
Public Safety members who retired on and after 1/1/95 with 25 or more years of service.	2% increases compounded annually.
Exempt members.	1.5% increases compounded annually one year after retirement for members who elected to contribute by May 2006.
13TH CHECKS	
Retired by 12/31/1999; retired at least 5 years; have attained age 70 prior to June 1 of the year preceding the periodic payment to be made; had at least 25 years of service with the City; ineligible for post-retirement benefit increases; pension less than $20,000. Continuation of this program is conditional as described in the ordinance.	The periodic payment described herein shall be made in June every third year, commencing 2001; however, no payment shall be made in any year in which the fund's actuary projects (based upon a valuation of the fund as of December 31 of the prior year) the need for City contributions to the fund (for one or more actuarial grouping) within 10 years of the projection nor if the actuary recommends a contribution by the City (for one or more actuarial grouping) for that year. In the event a periodic payment is not made in a year in which it would otherwise occur (because of the actuary's projection or recommendation), then the payment shall be made in the next year in which no such actuarial projection or recommendation is made. In the event that a periodic payment is so delayed, future periodic payments shall be made every third year thereafter (so long as not prohibited by an actuarial projection or recommendation).

***** *This represents a brief summary of Plan provisions. As always official Plan documents, including the Ordinance and any applicable Collective Bargaining Agreements, will ultimately govern the benefits payable from the Plan.*

BRIEF SUMMARY OF BENEFIT PROVISIONS*
DECEMBER 31, 2016 (CONCLUDED)

Eligibility	Amount
MEMBER CONTRIBUTIONS	
AFSCME members:	1% - effective 10/2/06. If funding % goes below 120% contribution rate reverts to 2%.
KMEA members:	1% of AC.
Exempt members:	1.5% of AC, 3% of AC for Exempt Members hired after 6/1/2006, 3.5% for Exempt Members who signed up for the PRA by May of 2006.
Non-Sworn Public Safety members:	1% of AC.
Sworn Public Safety members:	4.5% of AC. If funding % goes below 120% contribution rate reverts to 6.5%.
CITY CONTRIBUTIONS	
	Actuarially determined amounts, which, together with member contributions, are sufficient to cover both (i) normal costs of the plan, and (ii) financing of unfunded accrued benefit values over a selected period of future years.

***** *This represents a brief summary of Plan provisions. As always official Plan documents, including the Ordinance and any applicable Collective Bargaining Agreements, will ultimately govern the benefits payable from the Plan.*

SECTION G

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Effective October 1, 2016, the City's existing transit operations spun off to become part of the Central County Transportation Authority (CCTA). For information regarding the assumptions used for members who are now part of the CCTA, please see the December 31, 2016 CCTA GASB Statement Nos. 67 and 68 report.

VALUATION METHODS

The normal cost was computed as follows:

The series of contributions necessary to accumulate the present value at time of retirement of the portion of a member's pension attributable to service likely to be rendered after the valuation date was computed so that each contribution in the series was a constant percentage of the member's year-by-year projected covered compensation. This is the individual entry age normal actuarial cost method.

The accrued liability was computed and financed as follows:

Retirees and Beneficiaries: The discounted value of pensions likely to be paid retirees and beneficiaries was computed using the investment return and mortality assumptions. This amount was financed by applicable accrued assets.

Active and Inactive members: The discounted value of benefits likely to be paid active and inactive members on account of service rendered prior to the valuation date was computed using the assumptions outlined on the following pages. The computed amount was reduced by applicable valuation assets and the remainder (or overfunding) was financed as a level percent-of-payroll over a rolling period of 10 years.

Asset valuation method: The market value of assets was used for GASB Statements No. 67 and No. 68 reporting purposes and in the projection of Plan Fiduciary Net Position shown in Section H of this report. Year 1 includes an UAL contribution reflecting the anticipated "illustrative" remaining asset transfer as a result of the CCTA spin-off and the terms of the Comprehensive Transfer Agreement.

ACTUARIAL ASSUMPTIONS USED FOR THE VALUATION

The actuarial assumptions used for this report were based upon the results of an Experience Study for the City of Kalamazoo Employees Retirement System covering the period January 1, 2009 through December 31, 2013. A report dated February 19, 2015 presented the results of this experience study. The actuarial assumptions represent estimates of future experience. Unless otherwise noted, the assumptions were first used with the actuarial valuation date of December 31, 2014.

INVESTMENT RETURN. The rate of investment return is compounded annually net of investment expenses.

Investment Return	7.50%
Wage Inflation	3.50%
Price Inflation	2.75%
Spread Between Investment Return and Wage Inflation	4.00%
Spread Between Investment Return and Price Inflation	4.75%

These assumptions are used to equate the value of payments due at different points in time.

INVESTMENT EXPENSES. 0.50% of average valuation assets.

ADMINISTRATIVE EXPENSES. 0.65% of covered member payroll was added to the Normal Cost in anticipation of administrative expenses expected to be paid during the fiscal year.

ACTUARIAL ASSUMPTIONS USED FOR THE VALUATION (CONTINUED)

PAY PROJECTIONS. These assumptions are used to project current pays to those upon which benefits will be based.

The annual rate of pay increases consists of two parts:

(i) a long-term rate of pay inflation equal to 3.5%.

(ii) merit and longevity increases which vary according to age or length of service. These rates are illustrated below.

Years of Service	KMEA	AFSCME	Exempt	Non-Sworn Public Safety	Public Safety
1	6.0%	8.0%	6.0%	8.0%	12.0%
2	5.0	3.0	6.0	7.0	12.0
3	4.0	3.0	0.5	6.0	5.5
4	2.0	2.0	0.5	4.0	4.5
5	1.0	2.0	0.5	3.0	4.5
6	1.0	1.0	0.3	1.5	4.0
7	1.0	0.0	0.3	1.5	4.0
8	1.0	0.0	0.3	1.5	4.0
9	0.0	0.0	0.3	1.5	1.5
10	0.0	0.0	0.3	1.5	1.3
11	0.0	0.0	0.3	0.5	1.0
12	0.0	0.0	0.3	0.3	1.0
13	0.0	0.0	0.3	0.3	0.5
14	0.0	0.0	0.3	0.3	0.5
thereafter	0.0	0.0	0.3	0.3	0.5

If the number of active members remains constant and the group demographics do not change, the City payroll is expected to increase 3.50% annually, the base portion of the individual pay increase assumptions. This increasing payroll was recognized in amortizing unfunded actuarial accrued liabilities.

ACTUARIAL ASSUMPTIONS USED FOR THE VALUATION (CONTINUED)

The mortality table used was the RP-2000 Mortality Combined Healthy Tables, projected 20 years with U.S. Projection Scale BB.

	Value at Retirement of $1 Monthly for Life*		Future Life Expectancy (years)	
Ages	**Men**	**Women**	**Men**	**Women**
50	$144.67	$147.85	32.99	35.59
55	137.49	141.58	28.37	30.90
60	128.51	133.44	23.94	26.34
65	117.58	123.33	19.74	21.98
70	104.59	111.45	15.83	17.93
75	89.73	97.95	12.26	14.25
80	73.73	83.02	9.13	10.95

* *Values are before post-retirement increases are reflected.*

This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each benefit payment being made after retirement. Rates for disabled members were set forward 7 years.

ACTUARIAL ASSUMPTIONS USED FOR THE VALUATION (CONTINUED)

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

Retirement Ages	KMEA	AFSCME	Exempt	Non-Sworn Public Safety
55	2%	6%	10%	10%
56	2	7	10	10
57	5	10	25	25
58	5	7	25	25
59	7	6	20	20
60	15	30	25	25
61	15	20	30	30
62	50	60	30	30
63	15	25	15	15
64	10	25	15	15
65	100	100	100	100

Years of Service	Public Safety
20	2%
21	4
22	4
23	2
24	2
25	70
26	30
27	45
28	25
29	25
30	100

Retirement probabilities were applied for General members after both attaining age 55 and completing 15 years of service, or age 62 with 10 years of service (5 years for Exempt hired before 9/1/2010, 9 years for AFSCME and 8 years for KMEA hired before 1/1/2009). AFSCME members are also considered eligible for retirement at age 60 with 20 or more years of service. Retirement probabilities were applied for Public Safety members upon completion of 20 years of service with 100% retirement probability assumed at age 60 with 10 years of service. The assumptions above were first used for the December 31, 2009 valuation.

ACTUARIAL ASSUMPTIONS USED FOR THE VALUATION (CONCLUDED)

Rates of disability were as follows:

Sample Ages	% of Active Members Becoming Disabled Within Next Year: Public Safety AFSCME	% of Active Members Becoming Disabled Within Next Year: KMEA Exempt CSO
20	0.23%	0.04%
25	0.27	0.04
30	0.32	0.04
35	0.40	0.04
40	0.55	0.10
45	0.76	0.13
50	1.45	0.25
55	2.84	0.45
60	0.00	0.71

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.

		% of Active Members Separating within Next Year				
Sample Ages	Years of Service	KMEA	AFSCME	Exempt	Non-Sworn Public Safety	Public Safety
	0	15.0%	15.0%	15.0%	15.0%	6.0%
	1	14.0	14.0	14.0	14.0	4.0
	2	9.0	9.0	9.0	9.0	3.0
	3	8.0	8.0	8.0	8.0	2.5
	4	7.0	7.0	7.0	7.0	2.5
25	5 or Over	7.4	7.4	7.4	7.4	2.2
30		5.8	5.8	5.8	5.8	2.0
35		5.0	5.0	5.0	5.0	1.4
40		4.0	4.0	4.0	4.0	1.1
45		3.3	3.3	3.3	3.3	0.8
50		2.5	2.5	2.5	2.5	0.6
55		2.0	2.0	2.0	2.0	0.4
60		2.0	2.0	2.0	2.0	0.4

The assumptions above were first used for the December 31, 2009 valuation.

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Active Member Group Size	The number of active members was assumed to remain constant.
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.
Pay Increase Timing	Was assumed to occur in the middle of the year. This means that the pays reported for the valuation are assumed to be rates of pay on the valuation date.
Decrement Timing	Decrements are assumed to occur at the middle of the fiscal 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.
Benefit Service	Exact fractional service is used to determine the amount of benefit payable.
Decrement Relativity	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation	Death-in-service decrement does not operate until member becomes vested. Withdrawal does not operate during retirement eligibility.
Normal Form of Benefit	The assumed normal form of benefit is straight life form. For public safety members, the assumed normal form of benefit is an automatic 50% Joint and Survivor form. 90% of public safety members were assumed to be married for the purposes of this benefit.
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 payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.
Post-Retirement Adjustment Timing	Post-Retirement Adjustments (PRAs) were assumed to be paid on January 1 of each year for Public Safety and Exempt retirees (beginning the year immediately following retirement for Public Safety retirees and the second year following retirement for Exempt retirees). PRAs were assumed to be paid on the first of the month immediately following the retiree's birthday for all other groups.

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS (CONCLUDED)

Active Member Pay Adjustments

New hire pays were annualized. Pays were adjusted for members on Worker's Compensation or Leave of Absence for part of the valuation year.

SECTION H

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 (which is published by the Bond Buyer Index) 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 3.78%; and the resulting SDR is 7.50%.

The tables in this section provide background for the development of the SDR.

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, Year 1 includes an UAL contribution reflecting the anticipated “illustrative” remaining asset transfer (out of the Plan) as a result of the CCTA spin-off and the terms of the Comprehensive Transfer Agreement.

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF CONTRIBUTIONS

Year	Payroll for Current Employees	Contributions from Current Employees	Normal Cost and Expense Contributions	UAL Contributions	Total Contributions
1	$ 31,185,899	$ 962,985	$ 4,679,294	$ (11,881,000)	$ (6,238,720)
2	30,102,940	936,319	4,533,395	(4,533,395)	936,319
3	29,263,882	918,332	4,427,398	(4,427,398)	918,332
4	28,416,206	896,162	4,309,947	(4,309,947)	896,162
5	27,275,002	864,171	4,143,371	(4,143,371)	864,171
6	25,980,124	829,794	3,957,827	(3,957,827)	829,794
7	24,369,124	780,309	3,708,102	(3,708,102)	780,309
8	22,712,690	724,621	3,437,253	(3,437,253)	724,621
9	21,484,795	685,945	3,248,284	(3,248,284)	685,945
10	20,481,144	656,495	3,100,954	(3,100,954)	656,495
11	19,561,449	631,345	2,971,745	(2,971,745)	631,345
12	18,646,381	606,430	2,842,533	(2,842,533)	606,430
13	17,479,970	570,094	2,663,107	(2,663,107)	570,094
14	16,144,205	528,011	2,457,566	(2,457,566)	528,011
15	14,602,192	475,570	2,207,599	(2,207,599)	475,570
16	12,802,133	410,846	1,901,712	(1,901,712)	410,846
17	11,447,284	365,755	1,682,910	(1,682,910)	365,755
18	10,382,386	332,814	1,523,575	(1,523,575)	332,814
19	9,188,992	294,704	1,346,674	(1,346,674)	294,704
20	8,057,694	256,420	1,172,614	(1,172,614)	256,420
21	6,412,926	193,078	886,027	(886,027)	193,078
22	4,849,749	134,358	619,008	(619,008)	134,358
23	3,917,524	102,263	473,206	(473,206)	102,263
24	3,063,742	72,393	339,704	(339,704)	72,393
25	2,409,009	50,605	242,496	(242,496)	50,605
26	1,928,858	36,115	177,718	(177,718)	36,115
27	1,521,402	25,078	127,488	(127,488)	25,078
28	1,248,073	19,403	100,411	(100,411)	19,403
29	1,000,041	14,429	76,055	(76,055)	14,429
30	797,551	10,739	57,387	(57,387)	10,739
31	647,098	8,497	45,858	(45,858)	8,497
32	503,466	6,355	34,861	(34,861)	6,355
33	370,643	4,519	25,044	(25,044)	4,519
34	270,672	3,228	18,062	(18,062)	3,228
35	201,326	2,338	13,245	(13,245)	2,338
36	127,320	1,453	8,202	(8,202)	1,453
37	75,484	865	4,787	(4,787)	865
38	47,360	526	3,045	(3,045)	526
39	18,565	186	1,237	(1,237)	186
40	8,045	80	531	(531)	80
41	3,710	37	248	(248)	37
42	-	-	-	-	-
43	-	-	-	-	-
44	-	-	-	-	-
45	-	-	-	-	-
46	-	-	-	-	-
47	-	-	-	-	-
48	-	-	-	-	-
49	-	-	-	-	-
50	-	-	-	-	-

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF PLAN FIDUCIARY NET POSITION

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
1	$ 613,027,375	$ (6,238,720)	$ 28,415,379	$ 202,708	$ 44,693,553	$ 622,864,121
2	622,864,121	936,319	29,451,390	195,669	45,657,620	639,811,001
3	639,811,001	918,332	30,301,034	190,215	46,896,889	657,134,973
4	657,134,973	896,162	31,204,141	184,705	48,162,319	674,804,608
5	674,804,608	864,171	32,242,400	177,288	49,448,406	692,697,498
6	692,697,498	829,794	33,310,447	168,871	50,750,089	710,798,064
7	710,798,064	780,309	34,576,514	158,399	52,059,576	728,903,036
8	728,903,036	724,621	35,879,633	147,632	53,367,811	746,968,203
9	746,968,203	685,945	36,882,939	139,651	54,684,625	765,316,184
10	765,316,184	656,495	37,725,833	133,127	56,028,842	784,142,561
11	784,142,561	631,345	38,513,755	127,149	57,411,102	803,544,104
12	803,544,104	606,430	39,228,836	121,201	58,839,188	823,639,684
13	823,639,684	570,094	40,049,408	113,620	60,315,083	844,361,833
14	844,361,833	528,011	40,919,816	104,937	61,835,964	865,701,055
15	865,701,055	475,570	41,856,601	94,914	63,400,349	887,625,460
16	887,625,460	410,846	42,962,646	83,214	65,002,000	909,992,446
17	909,992,446	365,755	43,701,810	74,407	66,650,970	933,232,955
18	933,232,955	332,814	44,176,153	67,486	68,375,584	957,697,714
19	957,697,714	294,704	44,665,386	59,728	70,191,309	983,458,613
20	983,458,613	256,420	45,042,597	52,375	72,108,348	1,010,728,409
21	1,010,728,409	193,078	45,644,898	41,684	74,129,466	1,039,364,370
22	1,039,364,370	134,358	46,111,291	31,523	76,258,201	1,069,614,115
23	1,069,614,115	102,263	46,105,784	25,464	78,526,176	1,102,111,307
24	1,102,111,307	72,393	45,988,758	19,914	80,966,879	1,137,141,907
25	1,137,141,907	50,605	45,658,241	15,659	83,605,699	1,175,124,312
26	1,175,124,312	36,115	45,136,390	12,538	86,473,176	1,216,484,675
27	1,216,484,675	25,078	44,493,529	9,889	89,598,566	1,261,604,901
28	1,261,604,901	19,403	43,705,086	8,112	93,011,472	1,310,922,577
29	1,310,922,577	14,429	42,870,997	6,500	96,740,886	1,364,800,396
30	1,364,800,396	10,739	41,962,573	5,184	100,815,085	1,423,658,462
31	1,423,658,462	8,497	40,969,785	4,206	105,265,951	1,487,958,919
32	1,487,958,919	6,355	39,927,982	3,273	110,126,802	1,558,160,821
33	1,558,160,821	4,519	38,856,596	2,409	115,431,359	1,634,737,694
34	1,634,737,694	3,228	37,738,110	1,759	121,215,786	1,718,216,838
35	1,718,216,838	2,338	36,577,811	1,309	127,519,430	1,809,159,486
36	1,809,159,486	1,453	35,413,460	828	134,382,988	1,908,129,638
37	1,908,129,638	865	34,208,074	491	141,850,125	2,015,772,062
38	2,015,772,062	526	32,976,552	308	149,968,648	2,132,764,377
39	2,132,764,377	186	31,740,061	121	158,788,596	2,259,812,977
40	2,259,812,977	80	30,477,927	52	168,363,714	2,397,698,793
41	2,397,698,793	37	29,206,373	24	178,751,971	2,547,244,403
42	2,547,244,403	-	27,930,461	-	190,014,873	2,709,328,815
43	2,709,328,815	-	26,649,573	-	202,218,369	2,884,897,611
44	2,884,897,611	-	25,368,586	-	215,433,197	3,074,962,222
45	3,074,962,222	-	24,090,055	-	229,735,121	3,280,607,288
46	3,280,607,288	-	22,817,567	-	245,205,357	3,502,995,078
47	3,502,995,078	-	21,554,482	-	261,930,950	3,743,371,546
48	3,743,371,546	-	20,304,875	-	280,005,198	4,003,071,869
49	4,003,071,869	-	19,073,384	-	299,528,069	4,283,526,553
50	4,283,526,553	-	17,864,056	-	320,606,700	4,586,269,198

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF PLAN FIDUCIARY NET POSITION (CONCLUDED)

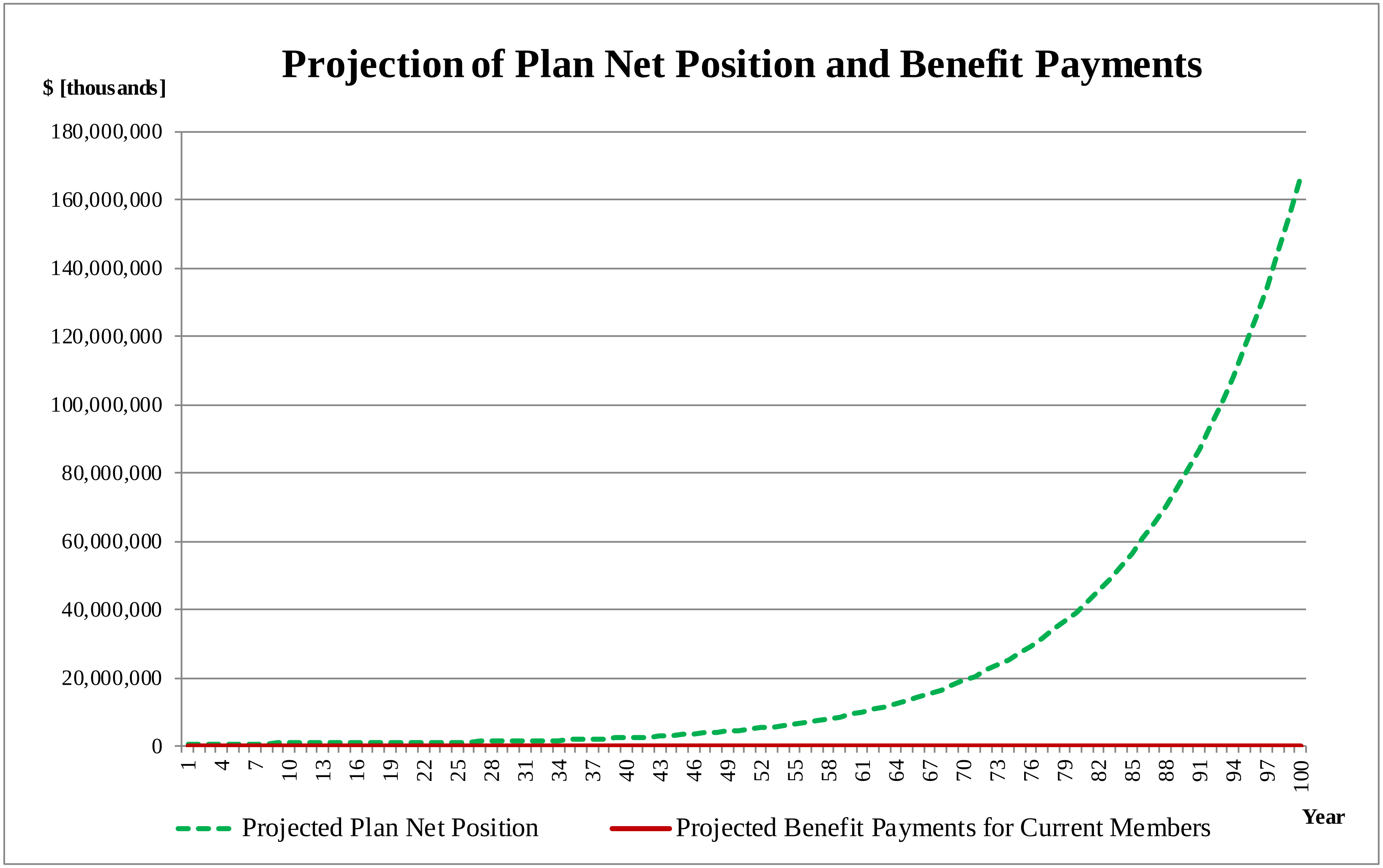
Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
51	$ 4,586,269,198	$ -	$ 16,679,924	$ -	$ 343,356,001	$ 4,912,945,274
52	4,912,945,274	-	15,523,013	-	367,899,306	5,265,321,567
53	5,265,321,567	-	14,394,324	-	394,369,089	5,645,296,332
54	5,645,296,332	-	13,294,367	-	422,907,699	6,054,909,664
55	6,054,909,664	-	12,223,837	-	453,668,118	6,496,353,944
56	6,496,353,944	-	11,183,232	-	486,814,756	6,971,985,468
57	6,971,985,468	-	10,173,359	-	522,524,306	7,484,336,415
58	7,484,336,415	-	9,195,702	-	560,986,626	8,036,127,340
59	8,036,127,340	-	8,252,600	-	602,405,673	8,630,280,413
60	8,630,280,413	-	7,347,571	-	647,000,478	9,269,933,319
61	9,269,933,319	-	6,485,212	-	695,006,200	9,958,454,308
62	9,958,454,308	-	5,670,611	-	746,675,269	10,699,458,966
63	10,699,458,966	-	4,908,887	-	802,278,667	11,496,828,747
64	11,496,828,747	-	4,204,688	-	862,107,331	12,354,731,389
65	12,354,731,389	-	3,561,835	-	926,473,700	13,277,643,255
66	13,277,643,255	-	2,982,995	-	995,713,404	14,270,373,664
67	14,270,373,664	-	2,469,490	-	1,070,187,093	15,338,091,267
68	15,338,091,267	-	2,020,901	-	1,150,282,431	16,486,352,797
69	16,486,352,797	-	1,634,990	-	1,236,416,256	17,721,134,063
70	17,721,134,063	-	1,307,986	-	1,329,036,892	19,048,862,969
71	19,048,862,969	-	1,034,953	-	1,428,626,614	20,476,454,629
72	20,476,454,629	-	810,140	-	1,535,704,266	22,011,348,755
73	22,011,348,755	-	627,545	-	1,650,828,049	23,661,549,260
74	23,661,549,260	-	481,092	-	1,774,598,480	25,435,666,647
75	25,435,666,647	-	364,977	-	1,907,661,559	27,342,963,230
76	27,342,963,230	-	273,876	-	2,050,712,158	29,393,401,511
77	29,393,401,511	-	203,135	-	2,204,497,633	31,597,696,010
78	31,597,696,010	-	148,813	-	2,369,821,721	33,967,368,918
79	33,967,368,918	-	107,585	-	2,547,548,707	36,514,810,040
80	36,514,810,040	-	76,714	-	2,738,607,928	39,253,341,254
81	39,253,341,254	-	53,927	-	2,943,998,608	42,197,285,936
82	42,197,285,936	-	37,356	-	3,164,795,070	45,362,043,650
83	45,362,043,650	-	25,501	-	3,402,152,335	48,764,170,483
84	48,764,170,483	-	17,154	-	3,657,312,155	52,421,465,483
85	52,421,465,483	-	11,370	-	3,931,609,493	56,353,063,606
86	56,353,063,606	-	7,423	-	4,226,479,497	60,579,535,680
87	60,579,535,680	-	4,772	-	4,543,465,000	65,122,995,909
88	65,122,995,909	-	3,019	-	4,884,224,582	70,007,217,472
89	70,007,217,472	-	1,883	-	5,250,541,241	75,257,756,831
90	75,257,756,831	-	1,155	-	5,644,331,720	80,902,087,395
91	80,902,087,395	-	695	-	6,067,656,529	86,969,743,230
92	86,969,743,230	-	406	-	6,522,730,727	93,492,473,551
93	93,492,473,551	-	229	-	7,011,935,508	100,504,408,830
94	100,504,408,830	-	124	-	7,537,830,658	108,042,239,364
95	108,042,239,364	-	60	-	8,103,167,950	116,145,407,254
96	116,145,407,254	-	29	-	8,710,905,543	124,856,312,768
97	124,856,312,768	-	16	-	9,364,223,457	134,220,536,210
98	134,220,536,210	-	8	-	10,066,540,215	144,287,076,417
99	144,287,076,417	-	3	-	10,821,530,731	155,108,607,145
100	155,108,607,145	-	-	-	11,633,145,536	166,741,752,681

SINGLE DISCOUNT RATE DEVELOPMENT
PRESENT VALUES OF PROJECTED BENEFIT PAYMENTS

Year	Projected Beginning Plan Net Position*	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=((c)/(1+sdr)^(a-.5)
1	$ 613,027,375	$ 28,415,379	$ 28,415,379	$ -	$ 27,406,225	$ -	$ 27,406,225
2	622,864,121	29,451,390	29,451,390	-	26,423,668	-	26,423,668
3	639,811,001	30,301,034	30,301,034	-	25,289,270	-	25,289,270
4	657,134,973	31,204,141	31,204,141	-	24,226,050	-	24,226,050
5	674,804,608	32,242,400	32,242,400	-	23,285,698	-	23,285,698
6	692,697,498	33,310,447	33,310,447	-	22,378,651	-	22,378,651
7	710,798,064	34,576,514	34,576,514	-	21,608,578	-	21,608,578
8	728,903,036	35,879,633	35,879,633	-	20,858,569	-	20,858,569
9	746,968,203	36,882,939	36,882,939	-	19,945,897	-	19,945,897
10	765,316,184	37,725,833	37,725,833	-	18,978,349	-	18,978,349
11	784,142,561	38,513,755	38,513,755	-	18,022,996	-	18,022,996
12	803,544,104	39,228,836	39,228,836	-	17,076,863	-	17,076,863
13	823,639,684	40,049,408	40,049,408	-	16,217,739	-	16,217,739
14	844,361,833	40,919,816	40,919,816	-	15,414,144	-	15,414,144
15	865,701,055	41,856,601	41,856,601	-	14,666,998	-	14,666,998
16	887,625,460	42,962,646	42,962,646	-	14,004,249	-	14,004,249
17	909,992,446	43,701,810	43,701,810	-	13,251,339	-	13,251,339
18	933,232,955	44,176,153	44,176,153	-	12,460,623	-	12,460,623
19	957,697,714	44,665,386	44,665,386	-	11,719,646	-	11,719,646
20	983,458,613	45,042,597	45,042,597	-	10,994,067	-	10,994,067
21	1,010,728,409	45,644,898	45,644,898	-	10,363,793	-	10,363,793
22	1,039,364,370	46,111,291	46,111,291	-	9,739,245	-	9,739,245
23	1,069,614,115	46,105,784	46,105,784	-	9,058,681	-	9,058,681
24	1,102,111,307	45,988,758	45,988,758	-	8,405,291	-	8,405,291
25	1,137,141,907	45,658,241	45,658,241	-	7,762,682	-	7,762,682
26	1,175,124,312	45,136,390	45,136,390	-	7,138,566	-	7,138,566
27	1,216,484,675	44,493,529	44,493,529	-	6,545,948	-	6,545,948
28	1,261,604,901	43,705,086	43,705,086	-	5,981,350	-	5,981,350
29	1,310,922,577	42,870,997	42,870,997	-	5,457,860	-	5,457,860
30	1,364,800,396	41,962,573	41,962,573	-	4,969,497	-	4,969,497
31	1,423,658,462	40,969,785	40,969,785	-	4,513,418	-	4,513,418
32	1,487,958,919	39,927,982	39,927,982	-	4,091,765	-	4,091,765
33	1,558,160,821	38,856,596	38,856,596	-	3,704,159	-	3,704,159
34	1,634,737,694	37,738,110	37,738,110	-	3,346,544	-	3,346,544
35	1,718,216,838	36,577,811	36,577,811	-	3,017,350	-	3,017,350
36	1,809,159,486	35,413,460	35,413,460	-	2,717,490	-	2,717,490
37	1,908,129,638	34,208,074	34,208,074	-	2,441,854	-	2,441,854
38	2,015,772,062	32,976,552	32,976,552	-	2,189,716	-	2,189,716
39	2,132,764,377	31,740,061	31,740,061	-	1,960,568	-	1,960,568
40	2,259,812,977	30,477,927	30,477,927	-	1,751,262	-	1,751,262
41	2,397,698,793	29,206,373	29,206,373	-	1,561,115	-	1,561,115
42	2,547,244,403	27,930,461	27,930,461	-	1,388,759	-	1,388,759
43	2,709,328,815	26,649,573	26,649,573	-	1,232,624	-	1,232,624
44	2,884,897,611	25,368,586	25,368,586	-	1,091,511	-	1,091,511
45	3,074,962,222	24,090,055	24,090,055	-	964,187	-	964,187
46	3,280,607,288	22,817,567	22,817,567	-	849,541	-	849,541
47	3,502,995,078	21,554,482	21,554,482	-	746,524	-	746,524
48	3,743,371,546	20,304,875	20,304,875	-	654,182	-	654,182
49	4,003,071,869	19,073,384	19,073,384	-	571,633	-	571,633
50	4,283,526,553	17,864,056	17,864,056	-	498,036	-	498,036

SINGLE DISCOUNT RATE DEVELOPMENT
PRESENT VALUES OF PROJECTED BENEFIT PAYMENTS (CONCLUDED)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=((c)/(1+sdr)^(a-.5)
51	$ 4,586,269,198	$ 16,679,924	$ 16,679,924	$ -	$ 432,580	$ -	$ 432,580
52	4,912,945,274	15,523,013	15,523,013	-	374,490	-	374,490
53	5,265,321,567	14,394,324	14,394,324	-	323,033	-	323,033
54	5,645,296,332	13,294,367	13,294,367	-	277,533	-	277,533
55	6,054,909,664	12,223,837	12,223,837	-	237,381	-	237,381
56	6,496,353,944	11,183,232	11,183,232	-	202,021	-	202,021
57	6,971,985,468	10,173,359	10,173,359	-	170,957	-	170,957
58	7,484,336,415	9,195,702	9,195,702	-	143,747	-	143,747
59	8,036,127,340	8,252,600	8,252,600	-	120,004	-	120,004
60	8,630,280,413	7,347,571	7,347,571	-	99,389	-	99,389
61	9,269,933,319	6,485,212	6,485,212	-	81,604	-	81,604
62	9,958,454,308	5,670,611	5,670,611	-	66,376	-	66,376
63	10,699,458,966	4,908,887	4,908,887	-	53,451	-	53,451
64	11,496,828,747	4,204,688	4,204,688	-	42,589	-	42,589
65	12,354,731,389	3,561,835	3,561,835	-	33,560	-	33,560
66	13,277,643,255	2,982,995	2,982,995	-	26,146	-	26,146
67	14,270,373,664	2,469,490	2,469,490	-	20,135	-	20,135
68	15,338,091,267	2,020,901	2,020,901	-	15,328	-	15,328
69	16,486,352,797	1,634,990	1,634,990	-	11,535	-	11,535
70	17,721,134,063	1,307,986	1,307,986	-	8,584	-	8,584
71	19,048,862,969	1,034,953	1,034,953	-	6,319	-	6,319
72	20,476,454,629	810,140	810,140	-	4,601	-	4,601
73	22,011,348,755	627,545	627,545	-	3,315	-	3,315
74	23,661,549,260	481,092	481,092	-	2,364	-	2,364
75	25,435,666,647	364,977	364,977	-	1,669	-	1,669
76	27,342,963,230	273,876	273,876	-	1,165	-	1,165
77	29,393,401,511	203,135	203,135	-	804	-	804
78	31,597,696,010	148,813	148,813	-	548	-	548
79	33,967,368,918	107,585	107,585	-	368	-	368
80	36,514,810,040	76,714	76,714	-	244	-	244
81	39,253,341,254	53,927	53,927	-	160	-	160
82	42,197,285,936	37,356	37,356	-	103	-	103
83	45,362,043,650	25,501	25,501	-	65	-	65
84	48,764,170,483	17,154	17,154	-	41	-	41
85	52,421,465,483	11,370	11,370	-	25	-	25
86	56,353,063,606	7,423	7,423	-	15	-	15
87	60,579,535,680	4,772	4,772	-	9	-	9
88	65,122,995,909	3,019	3,019	-	5	-	5
89	70,007,217,472	1,883	1,883	-	3	-	3
90	75,257,756,831	1,155	1,155	-	2	-	2
91	80,902,087,395	695	695	-	1	-	1
92	86,969,743,230	406	406	-	1	-	1
93	93,492,473,551	229	229	-	0	-	0
94	100,504,408,830	124	124	-	0	-	0
95	108,042,239,364	60	60	-	0	-	0
96	116,145,407,254	29	29	-	0	-	0
97	124,856,312,768	16	16	-	0	-	0
98	134,220,536,210	8	8	-	0	-	0
99	144,287,076,417	3	3	-	0	-	0
100	155,108,607,145	-	-	-	-	-	-
				Totals	$ 491,707,040	$ -	$ 491,707,040


Projection of Plan Net Position and Benefit Payments
$ [thousands]
180,000,000
160,000,000
140,000,000
120,000,000
100,000,000
80,000,000
60,000,000
40,000,000
20,000,000
0
Year
Projected Plan Net Position
Projected Benefit Payments for Current Members

SECTION I

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: 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 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.