

**CITY OF AUSTIN EMPLOYEE RETIREMENT SYSTEM**  
**GASB STATEMENT NO. 67 PLAN REPORTING AND**  
**ACCOUNTING SCHEDULES**  
**DECEMBER 31, 2016**



May 12, 2017

Mr. Christopher Hanson  
Executive Director  
City of Austin Employee Retirement System  
418 E. Highland Mall Blvd

Dear Mr. Hanson:

This report provides information required by the Retirement System in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67, "Financial Reporting for Pension Plans."

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of satisfying the requirements of GASB No. 67. 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 also 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 No. 67 may produce significantly different results. This report may be provided to parties other than the City of Austin Employee Retirement System ("COAERS") only in its entirety and only with the permission of COAERS.

The total pension liability, net pension liability, and certain sensitivity information shown in this report are based on an actuarial valuation performed as of December 31, 2016. It is our opinion that the recommended assumptions are internally consistent, reasonable, and comply with the requirements under GASB No. 67.

This report compliments the December 31, 2016 actuarial valuation report that was previously provided to COAERS and should be considered together as a complete report for the plan year ending December 31, 2016. Please see the actuarial valuation report as December 31, 2016 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

This report is based upon information, furnished to us by COAERS, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. If your understanding of this information is different, please let us know. This information was checked for internal consistency, but it was not audited. GRS is not responsible for the accuracy or completeness of the information provided to us by COAERS.

To the best of our knowledge, the information contained within this report is accurate and fairly represents the actuarial position of the City of Austin Employee 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. Mr. Falls is a member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,



Lewis Ward  
Consultant



R. Ryan Falls, FSA, EA, MAAA  
Senior Consultant

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**SECTION A**  
EXECUTIVE SUMMARY

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**EXECUTIVE SUMMARY  
AS OF DECEMBER 31, 2016**

	<b>2016</b>
Actuarial Valuation Date	December 31, 2016
Pension Plan's Fiscal Year Ending Date (Measurement Date & Reporting Date)	December 31, 2016
 <b>Membership</b>	
Number of	
- Retirees and Beneficiaries	5,934
- Inactive, Nonretired Members	2,507
- Active Members	9,364
- Total	17,805
Covered Payroll*	\$ 579,293,294
 <b>Net Pension Liability</b>	
Total Pension Liability	\$ 3,591,376,306
Plan Fiduciary Net Position	2,299,688,386
Net Pension Liability	\$ 1,291,687,920
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	64.03%
Net Pension Liability as a Percentage of Covered Payroll*	222.98%
 <b>Development of the Single Discount Rate</b>	
Single Discount Rate	7.50%
Long-Term Expected Rate of Return	7.50%
Long-Term Municipal Bond Rate**	3.78%
Last year ending December 31 in the 2016 to 2115 projection period for which projected benefit payments are fully funded	2115

\*Imputed payroll based on employer contributions for calendar year 2016

\*\*Source: This is the rate for state and local general obligation bonds with 20 years to maturity and mixed credit quality as reported in the Bond Buyer Index's "20-Bond GO Index." In describing this index, the Bond Buyer notes that the bonds' average credit quality is roughly equivalent to Moody's Investors Service's Aa2 rating and Standard & Poor's Corp.'s AA. The rate noted is for the Thursday closest to, or including, the last day of the month, but not after the last day of the month.

## DISCUSSION

### Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67, “Financial Reporting for Pension Plans,” establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability of employers and non-employer contributing entities for benefits provided through the pension plan.

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

### Financial Statements

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

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

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

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

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

COAERS provided this information to GRS in conjunction with the preparation of the actuarial valuation. Therefore, the information is **not included in this report**.

## Notes to Financial Statements

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

- a description of the types of benefits provided by the plan, as well as automatic or ad hoc COLAs **(not included in this report)**;
- the number and classes of employees covered by the benefit terms **(not included in this report)**;
- the composition of the pension plan's Board and the authority under which benefit terms may be amended **(not included in this report)**;
- a description of the plan's funding policy, which includes member and employer contribution requirements **(not included in this report)**;
- the pension plan's investment policies **(not included in this report)**;
- a description of how fair value is determined **(not included in this report)**;
- concentrations of investments greater than or equal to 5% **(not included in this report)**;
- annual money-weighted rate of return on pension plan investments **(not included in this report)**;
- the portion of the present value of benefits to be provided through the pension plan to current active and inactive plan members **(not included in this report)**;
- the pension plan's fiduciary net position **(not included in this report)**;
- the net pension liability **(included in Section B of this report)**;
- the pension plan's fiduciary net position as a percentage of the total pension liability **(included in Section B of this report)**;
- significant assumptions and methods used to calculate the total pension liability **(included in Section B of this report)**;
- inputs to the discount rates **(included in Executive Summary of this report)**; and
- certain information about mortality assumptions and the dates of experience studies **(included in Section B of this report)**.
- 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 **(not included in this report)**. Because COAERS's DROP is a "Back-DROP", no member is ever actually in DROP nor does a DROP account balance ever exist on the valuation date. Therefore, we believe this disclosure item is not necessary. However, we suggest that you confirm this with your external auditor.

## Required Supplementary Information

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

- sources of changes in the net pension liability **(included in Section B of this report)**;
- 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 **(included in Section B of this report)**;



- comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy (**included in Section B of this report**); and
- the annual money-weighted rate of return on pension plan investments for each year (**not included in this report**). Note that this calculation is to be determined on at least a monthly basis.

While GASB No. 67 requests a 10-year schedule of these items they allow for the tables to be built prospectively. Therefore, for these three items we are providing the tables on a prospective basis.

### **Measurement of the Net Pension Liability**

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

### **Timing of the Valuation**

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

The total pension liability shown in this report is based on an actuarial valuation performed as of December 31, 2016 and a measurement date of December 31, 2016.

### **General Implications of Current Contribution Policy on Future Expected Plan Contributions and Funded Status**

Given the current contribution policy, if all actuarial assumptions are met (including the assumption of the plan earning 7.50% on the actuarial value of assets), it is expected that:

- 1) The employer normal cost as a percentage of payroll will decrease over time until the vast majority of active members are eligible for Group B benefits. At that time, the employer normal cost as a percentage of pay will remain level as a percentage of payroll going forward.
- 2) The unfunded liability will increase in dollar amount for a number of years. However, the most recent actuarial valuation for funding purposes indicates that this unfunded liability is expected to be eliminated in 31 years.
- 3) The funded status of the plan will increase gradually towards a 100% funded ratio over time.

This current contribution policy does not result in a crossover date for GASB purposes. The projections in this report are strictly for the purposes of determining the GASB discount rate and are different from a funding projection for the ongoing plan.

**Single Discount Rate**

Projected benefit payments are discounted to develop 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 Bond Buyer Index, general obligation, 20 years to maturity, mixed quality); and the resulting Single Discount Rate is 7.50%.

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**SECTION B**

REQUIRED SUPPLEMENTARY INFORMATION

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**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)**

Year ending December 31,	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
<b>Total Pension Liability</b>										
Service Cost	\$ 107,111,330	\$ 93,506,590	\$ 89,235,267							
Interest on the Total Pension Liability	251,684,051	236,843,912	222,709,911							
Benefit Changes	0	0	0							
Difference between Expected and Actual Experience	19,913,690	13,413,789	33,911,010							
Assumption Changes	0	123,493,165	0							
Benefit Payments	(175,218,095)	(165,464,616)	(157,563,807)							
Refunds	(3,910,786)	(4,052,436)	(4,154,419)							
<b>Net Change in Total Pension Liability</b>	199,580,190	297,740,404	184,137,962							
<b>Total Pension Liability - Beginning</b>	3,391,796,116	3,094,055,712	2,909,917,750							
<b>Total Pension Liability - Ending (a)</b>	\$ 3,591,376,306	\$ 3,391,796,116	\$ 3,094,055,712							
<b>Plan Fiduciary Net Position</b>										
Employer Contributions	\$ 104,272,793	\$ 100,484,694	\$ 93,331,482							
Employee Contributions	60,801,253	54,065,793	50,489,091							
Pension Plan Net Investment Income	171,640,016	(47,607,661)	99,704,100							
Benefit Payments	(175,218,095)	(165,464,616)	(157,563,807)							
Refunds	(3,910,786)	(4,052,436)	(4,154,419)							
Pension Plan Administrative Expense	(2,700,917)	(2,421,331)	(2,631,218)							
Other	0	0	0							
<b>Net Change in Plan Fiduciary Net Position</b>	154,884,264	(64,995,557)	79,175,229							
<b>Plan Fiduciary Net Position - Beginning</b>	2,144,804,122	2,209,799,679	2,130,624,450							
<b>Plan Fiduciary Net Position - Ending (b)</b>	\$ 2,299,688,386	\$ 2,144,804,122	\$ 2,209,799,679							
<b>Net Pension Liability - Ending (a) - (b)</b>	1,291,687,920	1,246,991,994	884,256,033							
<b>Plan Fiduciary Net Position as a Percentage of Total Pension Liability</b>	64.03 %	63.24 %	71.42 %							
<b>Covered Employee Payroll</b>	\$ 579,293,294	\$ 558,248,300	\$ 518,508,233							
<b>Net Pension Liability as a Percentage of Covered Employee Payroll</b>	222.98 %	223.38 %	170.54 %							

**Notes to Schedule:**

Covered payroll is imputed from the actual employer contributions during the calendar year.

**SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF THE NET PENSION LIABILITY MULTIYEAR**  
**Last 10 Fiscal Years (which may be built prospectively)**

<b>Year Ending December 31,</b>	<b>Total Pension Liability</b>	<b>Plan Net Position</b>	<b>Net Pension Liability</b>	<b>Plan Net Position as a % of Total Pension Liability</b>	<b>Covered Payroll</b>	<b>Net Pension Liability as a % of Covered Payroll</b>
2014	\$ 3,094,055,712	\$ 2,209,799,679	\$ 884,256,033	71.42%	\$ 518,508,233	170.54%
2015	3,391,796,116	2,144,804,122	1,246,991,994	63.24%	558,248,300	223.38%
2016	3,591,376,306	2,299,688,386	1,291,687,920	64.03%	579,293,294	222.98%

**SCHEDULE OF CONTRIBUTIONS MULTIYEAR  
LAST 10 FISCAL YEARS**

<b>FY Ending December 31,</b>	<b>Actuarially Determined Contribution</b>	<b>Actual Contribution</b>	<b>Contribution Deficiency (Excess)</b>	<b>Covered Payroll</b>	<b>Actual Contribution as a % of Covered Payroll</b>
2014	\$ 94,627,753	\$ 93,331,482	\$ 1,296,271	\$ 518,508,233	18.00%
2015	98,419,175	100,484,694	(2,065,519)	558,248,300	18.00%
2016	114,931,790	104,272,793	10,658,997	579,293,294	18.00%

## NOTES TO SCHEDULE OF CONTRIBUTIONS

**Valuation Date:** December 31, 2016  
**Notes** Members and employers contribute based on statutorily fixed or negotiated rates. A funding period is solved for through open group projections.

**Methods and Assumptions Used to Determine Contribution Rates:**

Actuarial Cost Method	Entry Age Normal
Amortization Method	N/A
Remaining Amortization Period	25 years for ADEC based on Board's Funding Policy.
Asset Valuation Method	Expected actuarial value plus 20% recognition of prior years' differences between expected and actual investment income
Inflation	2.75%
Salary Increases	4.00% to 6.25%
Investment Rate of Return	7.50%
Retirement Age	Experience-based table of rates that are gender specific. Last updated for December 31, 2015 valuation pursuant to an experience study of the 5-year period ending December 31, 2015.
Mortality	RP-2014 Mortality Table with Blue Collar adjustment. Generational mortality improvements in accordance with Scale BB are projected from the year 2014.

**Other Information:**

**Notes** There were no benefit changes during the year.

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**SECTION C**

NOTES TO FINANCIAL STATEMENTS

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### 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 in accordance with the Supplemental Funding Plan. 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 NET PENSION LIABILITY TO THE SINGLE DISCOUNT RATE ASSUMPTION

1% Decrease 6.50%	Current Single Discount Rate Assumption 7.50%	1% Increase 8.50%
\$1,731,803,028	\$1,291,687,920	\$924,511,814

**SUMMARY OF POPULATION STATISTICS**

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	5,934
Inactive Plan Members Entitled to But Not Yet Receiving Benefits*	2,507
Active Plan Members	<u>9,364</u>
Total Plan Members	17,805

Note: The Inactive Plan Members Entitled to But Not Yet Receiving Benefits includes 1,526 non-vested terminated members entitled to a refund of their member contributions.

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## **SECTION D**

### CALCULATION OF THE SINGLE DISCOUNT RATE

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## 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 “risk-free” 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) 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 Single Discount Rate is 7.50%.

The tables in this section provide background for the development of the Single Discount Rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities) as instructed by GASB. The Total Employee Payroll is expected to increase at 3.75% per year which is the average rate of payroll increase over the funding period as determined by the open group projection developed for funding purposes.

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 Single Discount Rate (SDR). It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

**SINGLE DISCOUNT RATE DEVELOPMENT PROJECTION  
OF CONTRIBUTIONS ENDING DECEMBER 31 FOR 2016 TO 2065**

Year	Projected Payroll for Current Employees	Payroll for Future Employees	Total Employee Payroll	Projected Contributions from Current Employees	Employer Contributions for Current Employees	Contributions Related to Payroll of Future Employees	Projected Total Contributions
1	\$ 588,674,088	\$ 10,900,846	\$ 599,574,934	\$ 47,093,927	\$ 105,961,336	\$ 1,351,705	\$ 154,406,968
2	567,949,763	54,109,231	622,058,994	45,435,981	102,230,957	6,709,545	154,376,483
3	550,737,586	94,648,620	645,386,206	44,059,007	99,132,765	11,736,429	154,928,201
4	535,112,524	134,475,665	669,588,189	42,809,002	96,320,254	16,674,982	155,804,238
5	518,733,726	175,964,020	694,697,746	41,498,698	93,372,071	21,819,538	156,690,307
6	500,711,169	220,037,742	720,748,911	40,056,894	90,128,010	27,262,676	157,447,580
7	481,261,896	266,515,099	747,776,995	38,500,952	86,627,141	33,047,872	158,175,965
8	460,445,110	315,373,522	775,818,632	36,835,609	82,880,120	39,106,317	158,822,046
9	438,425,447	366,486,384	804,911,831	35,074,036	78,916,580	45,480,960	159,471,576
10	415,857,389	419,238,636	835,096,025	33,268,591	74,854,330	52,069,439	160,192,360
11	392,961,796	473,450,330	866,412,126	31,436,944	70,733,123	58,849,876	161,019,943
12	369,229,627	529,672,954	898,902,581	29,538,370	66,461,333	65,944,283	161,943,986
13	344,286,909	588,324,519	932,611,428	27,542,953	61,971,644	73,364,068	162,878,665
14	318,395,833	649,188,524	967,584,357	25,471,667	57,311,250	81,083,647	163,866,564
15	292,305,858	711,562,912	1,003,868,770	23,384,469	52,615,054	89,087,677	165,087,200
16	267,316,865	774,196,984	1,041,513,849	21,385,349	48,117,036	97,084,302	166,586,687
17	243,885,686	836,684,932	1,080,570,618	19,510,855	43,899,423	105,171,296	168,581,574
18	221,533,028	899,558,988	1,121,092,016	17,722,642	39,875,945	113,254,477	170,853,064
19	201,332,677	961,800,290	1,163,132,967	16,106,614	36,239,882	121,379,197	173,725,693
20	183,998,252	1,022,752,201	1,206,750,453	14,719,860	33,119,685	129,378,153	177,217,698
21	168,950,887	1,083,052,708	1,252,003,595	13,516,071	30,411,160	137,331,083	181,258,314
22	155,803,015	1,143,150,715	1,298,953,730	12,464,241	28,044,543	145,294,456	185,803,240
23	144,701,742	1,202,962,753	1,347,664,495	11,576,139	26,046,314	153,257,455	190,879,908
24	134,864,434	1,263,337,480	1,398,201,914	10,789,155	24,275,598	161,328,196	196,392,949
25	125,772,968	1,324,861,518	1,450,634,486	10,061,837	22,639,134	169,582,274	202,283,245
26	116,860,292	1,388,172,987	1,505,033,279	9,348,823	21,034,853	178,102,594	208,486,270
27	107,451,710	1,454,020,317	1,561,472,027	8,596,137	19,341,308	186,841,611	214,779,056
28	97,218,520	1,522,808,708	1,620,027,228	7,777,482	17,499,334	196,137,762	221,414,578
29	86,602,894	1,594,175,355	1,680,778,249	6,928,232	15,588,521	205,808,038	228,324,791
30	75,970,013	1,667,837,420	1,743,807,433	6,077,601	13,674,602	215,651,378	235,403,581
31	65,753,647	1,743,446,565	1,809,200,212	5,260,292	11,835,656	225,776,330	242,872,278
32	57,023,366	1,820,021,854	1,877,045,220	4,561,869	10,264,206	236,056,834	250,882,909
33	48,840,407	1,898,594,009	1,947,434,416	3,907,233	8,791,273	246,437,502	259,136,008
34	41,212,655	1,979,250,552	2,020,463,207	3,297,012	7,418,278	257,302,572	268,017,862
35	34,503,101	2,061,727,476	2,096,230,577	2,760,248	6,210,558	268,230,745	277,201,551
36	28,260,799	2,146,578,425	2,174,839,224	2,260,864	5,086,944	279,484,511	286,832,319
37	22,509,507	2,233,886,188	2,256,395,695	1,800,761	4,051,711	290,851,982	296,704,454
38	17,564,446	2,323,446,088	2,341,010,534	1,405,156	3,105,156	302,307,416	306,776,728
39	13,581,284	2,415,217,145	2,428,798,429	1,086,503	2,221,503	313,762,850	316,849,062
40	10,407,693	2,509,470,677	2,519,878,370	832,615	1,598,865	325,218,284	326,921,357
41	7,887,801	2,606,486,008	2,614,373,809	631,024	1,165,304	336,673,718	337,003,652
42	5,962,373	2,706,450,454	2,712,412,827	476,990	831,304	348,129,152	347,085,947
43	4,391,568	2,809,736,740	2,814,128,308	351,325	591,325	359,584,586	357,168,242
44	3,208,433	2,916,449,687	2,919,658,120	256,675	421,325	371,039,020	367,250,537
45	2,334,706	3,026,810,594	3,029,145,300	186,776	301,325	382,493,454	377,332,832
46	1,658,292	3,141,079,957	3,142,738,249	132,663	211,325	393,947,888	387,415,127
47	1,158,506	3,259,432,427	3,260,590,933	92,681	151,325	405,402,322	397,497,422
48	771,177	3,382,091,916	3,382,863,093	61,694	101,325	416,856,756	407,579,617
49	481,463	3,509,238,996	3,509,720,459	38,517	71,325	428,311,190	417,661,812
50	285,080	3,641,049,896	3,641,334,976	22,806	41,325	439,765,624	427,744,007

**SINGLE DISCOUNT RATE DEVELOPMENT PROJECTION  
OF PLAN FIDUCIARY NET POSITION ENDING DECEMBER 31 FOR 2016 TO 2065**

Year	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)
1	\$ 2,299,688,386	\$ 154,406,968	\$ 199,909,710	\$ 3,002,238	\$ 170,690,575	\$ 2,421,873,982
2	2,421,873,982	154,376,483	204,611,662	2,896,544	179,684,129	2,548,426,387
3	2,548,426,387	154,928,201	218,083,251	2,808,762	188,703,055	2,671,165,630
4	2,671,165,630	155,804,238	231,868,227	2,729,074	197,436,099	2,789,808,666
5	2,789,808,666	156,690,307	246,177,903	2,645,542	205,843,117	2,903,518,646
6	2,903,518,646	157,447,580	261,314,306	2,553,627	213,845,281	3,010,943,574
7	3,010,943,574	158,175,965	276,912,287	2,454,436	221,358,274	3,111,111,089
8	3,111,111,089	158,822,046	292,900,280	2,348,270	228,309,826	3,202,994,410
9	3,202,994,410	159,471,576	309,208,416	2,235,970	234,628,628	3,285,650,228
10	3,285,650,228	160,192,360	325,189,797	2,120,873	240,270,125	3,358,802,044
11	3,358,802,044	161,019,943	341,157,692	2,004,105	245,203,314	3,421,863,503
12	3,421,863,503	161,943,986	357,125,779	1,883,071	249,383,427	3,474,182,066
13	3,474,182,066	162,878,665	373,402,475	1,755,863	252,747,078	3,514,649,471
14	3,514,649,471	163,866,564	389,860,757	1,623,819	255,217,344	3,542,248,803
15	3,542,248,803	165,087,200	406,009,833	1,490,760	256,742,498	3,556,577,908
16	3,556,577,908	166,586,687	420,951,513	1,363,316	257,326,904	3,558,176,670
17	3,558,176,670	168,581,574	434,223,607	1,243,817	257,035,961	3,548,326,782
18	3,548,326,782	170,853,064	446,033,281	1,129,818	255,950,202	3,527,966,949
19	3,527,966,949	173,725,693	455,525,568	1,026,797	254,183,258	3,499,323,535
20	3,499,323,535	177,217,698	462,383,697	938,391	251,914,310	3,465,133,455
21	3,465,133,455	181,258,314	467,066,305	861,650	249,329,240	3,427,793,054
22	3,427,793,054	185,803,240	469,742,137	794,595	246,600,003	3,389,659,565
23	3,389,659,565	190,879,908	470,418,685	737,979	243,904,098	3,353,286,907
24	3,353,286,907	196,392,949	469,559,957	687,809	241,412,617	3,320,844,707
25	3,320,844,707	202,283,245	467,470,371	641,442	239,274,996	3,294,291,135
26	3,294,291,135	208,486,270	464,573,675	595,987	237,620,222	3,275,227,966
27	3,275,227,966	214,779,056	461,613,905	548,004	236,532,949	3,264,378,062
28	3,264,378,062	221,414,578	458,874,429	495,814	236,066,335	3,262,488,731
29	3,262,488,731	228,324,791	456,010,901	441,675	236,286,518	3,270,647,463
30	3,270,647,463	235,403,581	452,642,450	387,447	237,285,109	3,290,306,256
31	3,290,306,256	242,872,278	448,544,698	335,344	239,187,337	3,323,485,829
32	3,323,485,829	250,882,909	442,619,196	290,819	242,190,602	3,373,649,325
33	3,373,649,325	259,136,008	435,886,618	249,086	246,506,205	3,443,155,833
34	3,443,155,833	268,017,862	428,223,851	210,185	252,329,832	3,535,069,493
35	3,535,069,493	277,201,551	419,570,293	175,966	259,881,421	3,652,406,206
36	3,652,406,206	286,832,319	410,126,939	144,130	269,385,195	3,798,352,652
37	3,798,352,652	296,704,454	400,104,185	114,798	281,064,830	3,975,902,952
38	3,975,902,952	73,210,728	388,960,734	89,579	286,562,855	3,946,626,221
39	3,946,626,221	75,354,085	376,720,687	69,265	284,897,475	3,930,087,829
40	3,930,087,829	77,702,192	363,519,574	53,079	284,230,246	3,928,447,614
41	3,928,447,614	80,238,574	349,542,978	40,228	284,715,745	3,943,818,727
42	3,943,818,727	82,959,429	335,017,981	30,408	286,503,968	3,978,233,735
43	3,978,233,735	85,837,673	320,152,567	22,397	289,738,747	4,033,635,190
44	4,033,635,190	88,881,776	305,005,878	16,363	294,563,900	4,112,058,626
45	4,112,058,626	92,085,913	289,740,922	11,907	301,125,892	4,215,517,602
46	4,215,517,602	95,440,049	274,436,712	8,457	309,572,482	4,346,084,965
47	4,346,084,965	98,620,220	259,233,857	5,908	320,042,029	4,505,507,448
48	4,505,507,448	102,262,564	244,211,060	3,933	332,686,077	4,696,241,096
49	4,696,241,096	106,056,052	229,357,944	2,455	347,677,761	4,920,614,511
50	4,920,614,511	110,005,319	214,741,772	1,454	365,189,422	5,181,066,027

**SINGLE DISCOUNT RATE DEVELOPMENT PRESENT VALUES  
OF PROJECTED BENEFITS ENDING DECEMBER 31 FOR 2016 TO 2065**

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 <sup>^(a)-5</sup>	(g)=(e)*vf <sup>^(a)-5</sup>	(h)=((c)/(1+SDR)) <sup>^(a)-5</sup>
1	\$ 2,299,688,386	\$ 199,909,710	\$ 199,909,710	\$ -	\$ 192,810,045	\$ -	\$ 192,810,045
2	2,421,873,982	204,611,662	204,611,662	-	183,576,754	-	183,576,754
3	2,548,426,387	218,083,251	218,083,251	-	182,012,474	-	182,012,474
4	2,671,165,630	231,868,227	231,868,227	-	180,016,211	-	180,016,211
5	2,789,808,666	246,177,903	246,177,903	-	177,791,493	-	177,791,493
6	2,903,518,646	261,314,306	261,314,306	-	175,556,386	-	175,556,386
7	3,010,943,574	276,912,287	276,912,287	-	173,056,218	-	173,056,218
8	3,111,111,089	292,900,280	292,900,280	-	170,277,124	-	170,277,124
9	3,202,994,410	309,208,416	309,208,416	-	167,216,589	-	167,216,589
10	3,285,650,228	325,189,797	325,189,797	-	163,589,905	-	163,589,905
11	3,358,802,044	341,157,692	341,157,692	-	159,649,033	-	159,649,033
12	3,421,863,503	357,125,779	357,125,779	-	155,461,861	-	155,461,861
13	3,474,182,066	373,402,475	373,402,475	-	151,206,823	-	151,206,823
14	3,514,649,471	389,860,757	389,860,757	-	146,857,204	-	146,857,204
15	3,542,248,803	406,009,833	406,009,833	-	142,270,160	-	142,270,160
16	3,556,577,908	420,951,513	420,951,513	-	137,214,775	-	137,214,775
17	3,558,176,670	434,223,607	434,223,607	-	131,666,039	-	131,666,039
18	3,548,326,782	446,033,281	446,033,281	-	125,811,153	-	125,811,153
19	3,527,966,949	455,525,568	455,525,568	-	119,524,289	-	119,524,289
20	3,499,323,535	462,383,697	462,383,697	-	112,859,328	-	112,859,328
21	3,465,133,455	467,066,305	467,066,305	-	106,048,620	-	106,048,620
22	3,427,793,054	469,742,137	469,742,137	-	99,215,046	-	99,215,046
23	3,389,659,565	470,418,685	470,418,685	-	92,425,992	-	92,425,992
24	3,353,286,907	469,559,957	469,559,957	-	85,820,718	-	85,820,718
25	3,320,844,707	467,470,371	467,470,371	-	79,477,961	-	79,477,961
26	3,294,291,135	464,573,675	464,573,675	-	73,474,858	-	73,474,858
27	3,275,227,966	461,613,905	461,613,905	-	67,913,260	-	67,913,260
28	3,264,378,062	458,874,429	458,874,429	-	62,800,209	-	62,800,209
29	3,262,488,731	456,010,901	456,010,901	-	58,054,247	-	58,054,247
30	3,270,647,463	452,642,450	452,642,450	-	53,605,035	-	53,605,035
31	3,290,306,256	448,544,698	448,544,698	-	49,413,722	-	49,413,722
32	3,323,485,829	442,619,196	442,619,196	-	45,359,016	-	45,359,016
33	3,373,649,325	435,886,618	435,886,618	-	41,552,623	-	41,552,623
34	3,443,155,833	428,223,851	428,223,851	-	37,974,083	-	37,974,083
35	3,535,069,493	419,570,293	419,570,293	-	34,610,886	-	34,610,886
36	3,652,406,206	410,126,939	410,126,939	-	31,471,527	-	31,471,527
37	3,798,352,652	400,104,185	400,104,185	-	28,560,391	-	28,560,391
38	3,975,902,952	388,960,734	388,960,734	-	25,827,856	-	25,827,856
39	3,946,626,221	376,720,687	376,720,687	-	23,269,851	-	23,269,851
40	3,930,087,829	363,519,574	363,519,574	-	20,887,837	-	20,887,837
41	3,928,447,614	349,542,978	349,542,978	-	18,683,480	-	18,683,480
42	3,943,818,727	335,017,981	335,017,981	-	16,657,770	-	16,657,770
43	3,978,233,735	320,152,567	320,152,567	-	14,808,029	-	14,808,029
44	4,033,635,190	305,005,878	305,005,878	-	13,123,208	-	13,123,208
45	4,112,058,626	289,740,922	289,740,922	-	11,596,667	-	11,596,667
46	4,215,517,602	274,436,712	274,436,712	-	10,217,793	-	10,217,793
47	4,346,084,965	259,233,857	259,233,857	-	8,978,383	-	8,978,383
48	4,505,507,448	244,211,060	244,211,060	-	7,867,981	-	7,867,981
49	4,696,241,096	229,357,944	229,357,944	-	6,873,901	-	6,873,901
50	4,920,614,511	214,741,772	214,741,772	-	5,986,839	-	5,986,839

**SINGLE DISCOUNT RATE DEVELOPMENT PRESENT VALUES  
OF PROJECTED BENEFITS ENDING DECEMBER 31 FOR 2066 TO 2115 (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 <sup>^(a)-5</sup>	(g)=(e)*vf <sup>^(a)-5</sup>	(h)=(c)/(1+SDR) <sup>^(a)-5</sup>
51	\$ 5,181,066,027	\$ 200,388,366	\$ 200,388,366	\$ -	\$ 5,196,908	\$ -	\$ 5,196,908
52	5,480,193,462	186,394,805	186,394,805	-	4,496,741	-	4,496,741
53	5,820,690,907	172,749,823	172,749,823	-	3,876,799	-	3,876,799
54	6,205,047,842	159,511,749	159,511,749	-	3,329,966	-	3,329,966
55	6,636,713,077	146,701,445	146,701,445	-	2,848,873	-	2,848,873
56	7,118,970,757	134,328,427	134,328,427	-	2,426,600	-	2,426,600
57	7,655,348,301	122,434,812	122,434,812	-	2,057,438	-	2,057,438
58	8,249,600,576	111,039,975	111,039,975	-	1,735,772	-	1,735,772
59	8,906,257,189	100,166,180	100,166,180	-	1,456,552	-	1,456,552
60	9,629,177,187	89,834,922	89,834,922	-	1,215,183	-	1,215,183
61	10,422,983,055	80,065,624	80,065,624	-	1,007,474	-	1,007,474
62	11,292,631,903	70,876,721	70,876,721	-	829,627	-	829,627
63	12,243,441,882	62,285,309	62,285,309	-	678,198	-	678,198
64	13,281,120,967	54,307,354	54,307,354	-	550,074	-	550,074
65	14,411,797,693	46,951,707	46,951,707	-	442,390	-	442,390
66	15,642,060,410	40,223,609	40,223,609	-	352,555	-	352,555
67	16,978,995,864	34,123,668	34,123,668	-	278,223	-	278,223
68	18,430,231,741	28,646,918	28,646,918	-	217,273	-	217,273
69	20,003,983,401	23,781,145	23,781,145	-	167,785	-	167,785
70	21,709,105,852	19,507,648	19,507,648	-	128,031	-	128,031
71	23,555,148,861	15,799,043	15,799,043	-	96,457	-	96,457
72	25,552,418,487	12,623,281	12,623,281	-	71,691	-	71,691
73	27,712,039,069	9,943,155	9,943,155	-	52,530	-	52,530
74	30,046,020,406	7,715,830	7,715,830	-	37,919	-	37,919
75	32,567,330,474	5,893,828	5,893,828	-	26,944	-	26,944
76	35,289,972,581	4,428,468	4,428,468	-	18,833	-	18,833
77	38,229,064,782	3,271,054	3,271,054	-	12,940	-	12,940
78	41,400,924,023	2,374,055	2,374,055	-	8,736	-	8,736
79	44,823,155,393	1,692,840	1,692,840	-	5,795	-	5,795
80	48,514,746,298	1,186,156	1,186,156	-	3,777	-	3,777
81	52,496,167,215	817,200	817,200	-	2,421	-	2,421
82	56,789,478,922	554,394	554,394	-	1,528	-	1,528
83	61,418,446,982	371,088	371,088	-	951	-	951
84	66,408,665,149	245,777	245,777	-	586	-	586
85	71,787,687,833	161,741	161,741	-	359	-	359
86	77,585,172,884	106,396	106,396	-	220	-	220
87	83,833,035,802	70,387	70,387	-	135	-	135
88	90,565,616,472	47,095	47,095	-	84	-	84
89	97,819,858,940	31,968	31,968	-	53	-	53
90	105,635,505,404	22,030	22,030	-	34	-	34
91	114,055,305,290	15,377	15,377	-	22	-	22
92	123,125,240,558	10,809	10,809	-	14	-	14
93	132,894,768,332	7,596	7,596	-	9	-	9
94	143,417,081,992	5,297	5,297	-	6	-	6
95	154,749,392,083	3,636	3,636	-	4	-	4
96	166,953,228,444	2,433	2,433	-	2	-	2
97	180,094,765,119	1,575	1,575	-	1	-	1
98	194,245,169,699	976	976	-	1	-	1
99	209,480,978,949	583	583	-	0	-	0
100	225,884,502,646	340	340	-	0	-	0
<b>Totals</b>	\$		\$		\$ 4,414,616,170	\$ -	\$ 4,414,616,170



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## **SECTION E**

### **GLOSSARY OF TERMS**

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## GLOSSARY OF TERMS

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

## GLOSSARY OF TERMS

<b><i>Cost-of-Living Adjustments</i></b>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<b><i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i></b>	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
<b><i>Covered-Employee Payroll</i></b>	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
<b><i>Deferred Inflows and Outflows</i></b>	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
<b><i>Discount Rate</i></b>	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: <ol style="list-style-type: none"><li>1. The benefit payments to be made while the pension plans' fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and</li><li>2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.</li></ol>
<b><i>Entry Age Actuarial Cost Method (EAN)</i></b>	The EAN is a funding method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.
<b><i>Fiduciary Net Position</i></b>	The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.
<b><i>GASB</i></b>	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
<b><i>Long-Term Expected Rate of Return</i></b>	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.

## GLOSSARY OF TERMS

<b><i>Money-Weighted Rate of Return</i></b>	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
<b><i>Multiple-Employer Defined Benefit Pension Plan</i></b>	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
<b><i>Municipal Bond Rate</i></b>	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
<b><i>Net Pension Liability (NPL)</i></b>	The NPL is the liability of employers and non-employer contribution entities to plan members for benefits provided through a defined benefit pension plan.
<b><i>Non-Employer Contribution Entities</i></b>	Non-employer contribution entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contribution entities.
<b><i>Normal Cost</i></b>	The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method.
<b><i>Real Rate of Return</i></b>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<b><i>Service Cost</i></b>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
<b><i>Total Pension Expense</i></b>	The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year: <ol style="list-style-type: none"><li>1. Service Cost</li><li>2. Interest on the Total Pension Liability</li><li>3. Current-Period Benefit Changes</li><li>4. Employee Contributions (made negative for addition here)</li><li>5. Projected Earnings on Plan Investments (made negative for addition here)</li><li>6. Pension Plan Administrative Expense</li><li>7. Other Changes in Plan Fiduciary Net Position</li><li>8. Recognition of Outflow (Inflow) of Resources due to Liabilities</li><li>9. Recognition of Outflow (Inflow) of Resources due to Assets</li></ol>
<b><i>Total Pension Liability (TPL)</i></b>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<b><i>Valuation Assets</i></b>	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.