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City of Memphis

Retiree Health and Life Insurance Benefits

Accounting Valuation under GASB No. 45 for the Plan Year Ending June 30, 2016

September 22, 2016

Mr. Brian Collins
Director, Division of Finance
City of Memphis
125 North Main Street
Memphis, Tennessee 38103

Dear Mr. Collins,

We are pleased to present this report containing the results of the July 1, 2016 actuarial valuation of Retiree Health and Life Insurance Benefits of the City of Memphis, pursuant to our engagement letter with the City of Memphis dated July 26, 2016.

The City of Memphis retained PricewaterhouseCoopers LLP to perform an actuarial valuation of Retiree Health and Life Insurance Benefits for the purpose of calculating the necessary information for accounting and reporting requirements in accordance with Government Accounting Standards Board Statement No. 45 (GASB 45) for the fiscal year ending June 30, 2016.

This report does not reflect any provisions of GASB 75, Accounting and Financial Reporting for Postemployment Benefits Other than Pensions that becomes effective for fiscal years beginning after June 15, 2017 or GASB 74, Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans that becomes effective for fiscal years beginning after June 15, 2016. It is our understanding that the City has not elected to early adopt either of these standards.

This valuation has been conducted in accordance with the required Actuarial Standards of Practice as issued by the American Academy of Actuaries.

Actuarial calculations under GASB 45 are for purposes of fulfilling the City's financial accounting requirements only and are not suitable for any other purpose. The calculations reported herein have been made on a basis consistent with our understanding of GASB 45.

In preparing the results presented in this report, we have relied upon information the City of Memphis provided to us regarding plan provisions, plan participants, claims and premium data, unaudited plan assets and benefit payments. Additionally, we relied upon the self-insured grandfathered plan premium equivalents determined by Mercer. The census data and plan asset information used in calculating the results herein were collected as of June 30, 2016. The 2016 fully insured Medigap/PDP premiums were the most recent non-grandfathered plan premiums available for the valuation. These amounts were trended forward to the measurement date. While the scope of our engagement did not call for us to perform an audit or independent verification of this information, we have reviewed this information for reasonableness. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information.

GASB 45 requires that each significant assumption reflect the best estimate of the Plan's future experience solely with respect to that assumption. The City of Memphis has determined and taken responsibility for the actuarial assumptions and the accounting policies and methods employed in the valuation of obligations and costs under GASB 45.

A range of results, different from those presented in this report could be considered reasonable. Future actuarial measurements may differ significantly from the current measurement presented in this report due to a number of factors including but not limited to: plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methods used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status), rounding conventions and changes in plan provisions or applicable law. Due to the limited scope of this report, an analysis of the potential range of such future measurements has not been performed.

This report was prepared for the internal use of the City of Memphis in connection with our actuarial valuation of the Plan for purposes of determining GASB 45 results only, and not for reliance by any other person. PwC disclaims any contractual or other responsibility or duty of care to others based upon the services or deliverables provided in connection with this report.

This report does not purport to comply with any other purposes not stated herein. Significantly different results from what is presented in this report may be needed for other purposes.

The content of this document is limited to the matters specifically addressed herein and does not address any other potential tax consequences, or the potential application of tax penalties, to any matter other than as set forth herein. Our conclusions are not binding upon any taxing authority or the courts and there is no assurance that any relevant taxing authority will not successfully assert a contrary position. In addition, no exceptions (including the reasonable cause exception) are available for any federal or state penalties imposed if any portion of a transaction is determined to lack economic substance or fails to satisfy any similar rule of law, and our advice will not protect you from any such penalties. This document supersedes all prior written or oral advice with respect to the issues addressed in this document and all such prior communications should not be relied upon by any person for any purpose.

Each of the undersigned actuaries is a member of the Society of Actuaries and the American Academy of Actuaries and meet the "Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States" relating to postretirement medical and life insurance plans. To the best of our knowledge, the individuals involved in this engagement have no relationship that may impair, or appear to impair, the objectivity of our work.

We appreciate this opportunity to be of service to the City of Memphis. We are available to answer any questions with respect to our report.

Respectfully submitted,

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HIGHLIGHTS OF THE ACTUARY'S REPORT

This report presents results of the July 1, 2016 actuarial valuation of the City of Memphis Retiree Health and Life Insurance Benefits and is intended to provide the City with certain accounting and disclosure information related to the Plan.

This report includes financial statement reporting information for the Fiscal Year ending June 30, 2016 in accordance with our understanding of Government Accounting Standards Board Statement No. 45. The valuation was performed using census data as of July 1, 2016, provided by the City and summarized in Section IV, assets as of July 1, 2016, assumptions and methods disclosed in Section V, and reflects the plan provisions effective July 1, 2016 as summarized in Section VI.

Summary of GASB 45 Results

Fiscal Year Ending	June 30, 2017	June 30, 2016
1. Actuarial Accrued Liability at beginning of fiscal year	$ 506,694,000	$ 703,010,000
2. Plan Fiduciary Net Position (Assets) at beginning of fiscal year	2,509,000	2,470,000
3. Unfunded Actuarial Accrued Liability/(Asset) (1) - (2)	504,185,000	700,540,000
4. Actuarial Accrued Liability Funded Ratio (2) ÷ (1)	0.5%	0.4%
5. Annual Required Contribution for fiscal year	$ 27,522,000	$ 36,554,000
6. Annual OPEB Cost for fiscal year	$ 29,892,000	$ 38,768,000

Actuarial Gains and Losses on OPEB Obligation

In the aggregate, the Plan experienced an actuarial gain of approximately $216.4M (or 29.9% of the obligation) at the valuation date of July 1, 2016. The major components of this gain are described below.

1) A gain of approximately $30.0M (or 4.1%) due to updated census
2) A gain of approximately $45.6M (or 6.3%) due to an update in per capita claims costs and retiree contributions
3) A gain of approximately $7.3M (or 1.0%) due to an update in the mortality assumption
4) A gain of approximately $97.8M (or 13.5%) due to an update in the Medicare eligibility assumption for current Pre-65 retirees at age 65
5) A gain of approximately $35.9M (or 5.0%) due to an update in the covered spouse assumption for future retirees
6) A loss of approximately $192.6K (or 0.0%) due to an update in the retirement assumption for nongrandfathered participants in the pension plan.

A detailed reconciliation of the sources of gains and losses can be found in Section II - Valuation Results.

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT

Annual Required Contribution

The Annual Required Contribution (ARC) for fiscal 2017 is $27.5 million. The ARC is the employer's periodic required contribution to a defined benefit OPEB plan determined in accordance with the plan provisions, demographic participant data, actuarial assumptions, actuarial cost method, and other actuarial methods prescribed by GASB 45. While pre-funding is not required, the term ARC represents the employer's contribution needed each year to maintain the accrual on its Comprehensive Annual Financial Report (CAFR) at $0. The ARC will generally increase with benefit cost increases and participant growth; however, gains/losses resulting from demographic and/or assumption changes will also alter the ARC.

Net OPEB Obligation

The Net OPEB Obligation (NOO) is the accrual on the CAFR, which means that it is an accounting measure of the employer's liability (or asset) related to the benefit plan. If the obligation is fully funded each year (i.e., if the City contributes the ARC to a qualified trust established for this purpose) then the NOO would be $0. Given the City's NOO at the end of fiscal 2015 of $247.5 million, the fiscal 2016 annual OPEB cost of $38.8 million and the City's total fiscal 2016 contribution of $21.3 million (consisting of actual net benefit payments), the NOO as of June 30, 2016 is $264.9 million (the beginning of year balance of $247.5 million plus the annual OPEB cost of $38.8 million less $21.3 million in total contribution).

Valuation

Covered Group

The City of Memphis Retiree Health and Life Insurance Benefits Plan ("The Plan") provides OPEB to many of the City's retirees and their dependents. This valuation covers only City of Memphis employees and retirees who receive or will receive OPEB through the City's Plan.

Effective January 1, 2015 the City of Memphis amended the Plan to grandfather the following participants:

1) Post-65 Medicare A only eligible inactives
2) Post-65 Medicare B only eligible inactives
3) Post-65 Non-Medicare A and B eligible inactives
4) Pre-65 deceased line of duty beneficiaries inactives
5) Pre-65 disabled line of duty inactives

The grandfathered group receives Basic or Premier Plan coverage and pays 30% of the cost of coverage. The remaining participants are non-grandfathered and have Pre-65 coverage available on an access-only basis and coverage starting at age 65 through a Medigap and Part D Plan that the City of Memphis subsidizes 25%.

HIGHLIGHTS OF THE ACTUARY'S REPORT

Valuation (cont.)

Discount Rate

The City of Memphis has chosen a discount rate of 4.50%, which represents the expected return on the general assets of the City. The GASB 45 discount rate is the expected rate of return on the assets used to pay the benefits. If the retiree healthcare benefits are not pre-funded, GASB 45 specifies the use of a discount rate that reflects the expected return on the general assets of the plan sponsor. For fiscal 2016, the City of Memphis did not contribute in excess of the total annual benefit payments to a GASB qualified trust for the purpose of funding future OPEB benefits.

Changes in Assumptions and Methods

The last actuarial valuation of the City of Memphis Retiree Health and Life Insurance Benefits was performed as of July 1, 2015. Following is a summary of the changes that have occurred since the last valuation.

1) The per *capita claims costs* for the self-funded basic and premier plans were updated by Mercer, the client's healthcare pricing actuary.
2) The *per capita claims costs* for the Medigap Supplement Part D and Medicare Advantage plans were updated based on actual calendar year 2016 fully insured premiums projected to the measurement date.
3) Mortality rates were updated to reflect the most recent study of projection scales from the Society of Actuaries
4) The assumption for the percentage of current Pre-65 retirees that will be eligible for Medicare upon reaching age 65 was updated from 60% to 84% based on recent actual experience.
5) The assumption for the percentage of future retirees that will cover a spouse after retirement was updated from 68%/43%/68% to 49%/10%/46% for General Males, General Females, and Police and Fire, respectively, based on recent actual experience.

There were no other changes in assumptions or methods since the prior year.

Changes in Plan Provisions

There were no changes in the Plan Provisions since the prior year.

SECTION II - VALUATION RESULTS

VALUATION RESULTS

A. Determination of Annual Required Contribution ("ARC") and End of Year CAFR Accrual

			FYE June 30, 2017	FYE June 30, 2016
1.		Unfunded Actuarial Accrued Liability ("UAAL")		
	a.	Actuarial accrued liability at beginning of fiscal year:	$ 506,694,000	$ 703,010,000
	b.	Actuarial value of assets at beginning of fiscal year:	2,509,000	2,470,000
	c.	Unfunded actuarial liability at beginning of fiscal year: (1)(a) - (1)(b)	$ 504,185,000	$ 700,540,000
2.		Annual Required Contribution ("ARC")		
	a.	Normal cost at the beginning of the year:	$ 9,527,000	$ 11,587,000
	b.	Beginning of year amortization of the unfunded actuarial liability over 30 years using level percent of pay amortization:	$17,396,000	$24,171,000
	c.	Interest at 4.50% on (2)(a) and (2)(b) assuming mid-year contribution:	599,000	796,000
	d.	Annual Required Contribution: (2)(a) + (2)(b) + (2)(c)	$ 27,522,000	$ 36,554,000
3.		Annual OPEB Cost (Expense)		
	a.	ARC	$ 27,522,000	$ 36,554,000
	b.	Interest on beginning of year CAFR accrual:	11,922,000	11,138,000
	c.	Amortization of beginning of year CAFR accrual:	(9,141,000)	(8,540,000)
	d.	Interest on the amortization: (3)(c) * 0.045	(411,000)	(384,000)
	e.	Fiscal OPEB Cost: (3)(a) + (3)(b) + (3)(c) + (3)(d)	$ 29,892,000	$ 38,768,000
4.		End of Year CAFR Accrual (Net OPEB Obligation)		
	a.	Beginning of year CAFR accrual:	$ 264,932,000	$ 247,500,000
	b.	Annual OPEB cost: (3)(e)	29,892,000	38,768,000
	c.	Actual employer contribution (including benefit payments)[1]:	TBD	(21,336,000)
	d.	End of year CAFR accrual: (4)(a) + (4)(b) + (4)(c)	TBD	$ 264,932,000

[1] Claims paid minus retiree contributions ($28,333,000-$6,997,000).

B. Required Supplementary Information - Schedule of Employer Contributions

(1) Year Ending June 30	(2) Annual Required Contribution (ARC)	(3) Actual Employer Contribution	(4) Percentage of ARC
			(3) ÷ (2)
2015	$ 35,750,000	$ 37,979,000 [1]	106.2%
2016	36,554,000	21,336,000 [2]	58.4%
2017	27,522,000	TBD	

C. Required Supplementary Information - Schedule of Funding Progress

(1) Year Ending June 30	(2) Actuarial Value of Assets	(3) Actuarial Accrued Liability (AAL)	(4) Unfunded Actuarial Accrued Liability (UAAL)	(5) AAL Funded Ratio	(6) Covered Payroll [3]	(7) UAAL as a % of Payroll
			(3) - (2)	(2) ÷ (3)		(4) ÷ (6)
2015	$ 17,733,000	$ 747,977,000	$ 730,244,000	2.4%	$ 296,494,000	246.3%
2016	2,470,000	703,010,000	700,540,000	0.4%	321,988,000	217.6%
2017	2,509,000	506,694,000	504,185,000	0.5%	332,547,000	151.6%

[1] Includes $0 contribution in excess of the net employer benefit payments.

[2] Includes $0 contribution in excess of the net employer benefit payments.

[3] This amount represents the total covered payroll for the prior calendar year, increased at salary scale. Where a salary amount was not provided, an average salary for that year was assumed. For calendar year 2016, the average salary was $52,196

D. Required Supplementary Information - 3 Year Schedule of Percentage of OPEB Cost Contributed

(1) Year Ending June 30	(2) Annual OPEB Cost	(3) Actual Employer Contribution	(4) Percentage of OPEB Cost Contributed (3) ÷ (2)	(5) Net OPEB Obligation
2015	$ 37,964,000	$ 37,979,000 [1]	100.0%	$ 247,500,000
2016	38,768,000	21,336,000 [2]	55.0%	264,932,000
2017	29,892,000	TBD		

Includes $0 contribution in excess of the net employer benefit payments.

Includes $0 contribution in excess of the net employer benefit payments.

E. Reconciliation of Sources of (Gain)/Loss - Fiscal Year Ending June 30, 2016

			Liability		Normal Cost
1.	Actual as of June 30, 2015:	$	703,010,000	$	11,587,000
2.	Expected at June 30, 2016:	$	723,057,000	$	12,109,000
3.	(Gain)/Loss Components				
	a. Census experience	$	(29,961,000)	$	409,000
	b. Per capita claims costs and contributions		(45,659,000)		(1,102,000)
	c. Mortality		(7,272,000)		(123,000)
	d. Medicare eligibility for Pre-65 retirees		(97,804,000)		-
	e. Spouse coverage for future retirees		(35,860,000)		(1,812,000)
	f. Retirement assumption		193,000		47,000
	g. Total change: sum of (a) through (e)	$	(216,363,000)	$	(2,581,000)
4.	Actual as of June 30, 2016: (2) + (3)(c)	$	506,694,000	$	9,528,000

F. Required Supplementary Information - Summary of Key Actuarial Methods and Assumptions

1. Valuation Year	July 1, 2016 - June 30, 2017
2. Actuarial Cost Method	Entry Age Normal - Level Percent of Pay
3. Amortization Method	Level Percent of Pay
4. Amortization Period	30 Years, Open amortization (a fresh-start each year for the cumulative unrecognized amount).
5. Asset Valuation Method	Fair Value of Assets
6. Actuarial Assumptions:	
a. Discount Rate	4.50%
b. Future Salary Increases	4.25%
c. Health care cost trend rate pre-Medicare	6.56% in fiscal 2016 decreasing to an ultimate rate of 4.50% in fiscal 2027 and after
d. Health care cost trend rate post-Medicare	6.53% in fiscal 2016 decreasing to an ultimate rate of 4.50% in fiscal 2027 and after
e. Inflation Rate	3.00%

CASHFLOW PROJECTION

A. Cashflow Projection

Based on benefit costs, retiree contributions, and the assumptions shown in Section V, the City's expected cash costs are projected below. The projected amounts are shown by year through 2045 and then every ten years after 2052. The cash costs include all benefits.

Fiscal Year	Cash Flow Cost (without new hire)
2017	$ 16,659,807
2018	17,515,847
2019	18,601,768
2020	19,671,706
2021	20,863,312
2022	22,107,360
2023	23,235,239
2024	24,304,151
2025	25,359,492
2026	26,378,009
2027	27,320,019
2028	28,173,000
2029	29,013,031
2030	29,894,496
2031	30,655,763
2032	31,269,761
2033	31,967,810
2034	32,581,257
2035	33,101,129
2036	33,585,972
2037	34,133,511
2038	34,602,147
2039	35,005,008
2040	35,238,239
2041	35,364,918
2042	35,484,088
2043	35,625,025
2044	35,846,551
2045	36,001,576
2052	36,881,051
2062	32,308,819
2072	21,380,601
2082	10,007,323
2092	2,647,877
2102	385,741
2112	75,802

SECTION IV - CENSUS DATA

CENSUS DATA

SECTION IV - CENSUS DATA

A. Distribution of Active Members by Age and Service

The City of Memphis provided the census data as of July 1, 2016. The census data provided contained only those City of Memphis employees and retirees who participate in the City's health benefits plan.

Attained Age	Distribution of Active Members by Age and Service as of June 30, 2016 [1]										
	Under 1 year	1 to 4 years years	5 to 9 years years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	30 to 34 years	35 to 39 years	Over 40 years	Total
<25	40	21	1								62
25-29	89	183	92	7							371
30-34	61	135	377	66	2						641
35-39	32	111	312	225	80	2					762
40-44	22	71	190	245	287	82					897
45-49	19	76	139	221	390	328	72				1,245
50-54	14	43	95	134	212	217	215	47			977
55-59	10	38	71	84	133	146	135	97	5	2	721
60-64	5	27	48	61	82	55	67	40	12	41	438
65-69		7	23	27	27	22	17	9	4	17	153
70&Up			5	3	9	7	6	3	2	9	44
Total	292	712	1,353	1,073	1,222	859	512	196	23	69	6,311

	Males	Females	Total
Count:	4,803	1,508	6,311
Average Age:	45.32	47.12	45.75
Average Service:	14.7	13.43	14.4

[1] Includes 774 actives who elected to decline medical coverage. These individuals are assumed to elect post-65 non-grandfathered coverage when eligible.

B. Distribution of Total Inactive Plan Members by Age

Attained Age	Total Inactive Plan Members: Retirees, Dependent Spouses, Disabled [2]			
	Males	Females	Dependent Spouses	Total
<40	16	11	8	35
40-44	17	7	15	39
45-49	51	27	23	101
50-54	144	70	25	239
55-59	215	91	18	324
60-64	336	171	25	532
65-69	385	132	181	698
70-74	454	155	296	905
75-79	276	168	197	641
80-84	181	138	104	423
85-89	96	113	57	266
90-94	24	47	5	76
95+	6	12	1	19
Total	2,201	1,142	955	4,298

[2] Includes 722 pre-65 inactives who elected to decline medical coverage. These individuals are assumed to elect post-65 non-grandfathered coverage when eligible.

C. Distribution of Grandfathered Inactive Plan Members by Age

Attained Age	Total Grandfathered Inactive Plan Members: Retirees, Dependent Spouses, Disabled			
	Males	Females	Dependent Spouses	Total
<40	7	4	8	19
40-44	12	3	15	30
45-49	20	8	23	51
50-54	21	14	25	60
55-59	25	18	18	61
60-64	36	25	25	86
65-69	197	77	121	395
70-74	285	100	192	577
75-79	123	98	81	302
80-84	57	82	34	173
85-89	26	68	18	112
90-94	10	25	1	36
95+	1	9		10
Total	820	531	561	1,912

ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

The assumptions used in the valuation were selected and approved by the City of Memphis. The actuary and other economic and investment professionals provide advice for selecting the economic and demographic assumptions. In our opinion, the assumptions are reasonable for purposes of this valuation.

Valuation Year	July 1, 2016 - June 30, 2017
Date of Census Data	July 1, 2016
Actuarial Cost Method	Entry Age Normal, level percentage of pay
Amortization Method	30 years, level percent of pay open amortization which means a fresh-start each year for the cumulative unrecognized amount.
Asset Valuation Method	Fair Value of Assets
Mortality	General Employees: Fully Generational RP-2014 Mortality Table for males and females with MP-2015 projection scale and adjusted by a 1-year set forward Police and Fire Employees: Fully Generational RP-2014 Mortality Table with Blue Collar adjustment for males and females with MP-2015 projection scale and adjusted by a 1 year set forward Disabled Employees: Fully Generational RP-2014 Disabled Mortality Table with MP-2015 projection scale and adjusted by a 3-year set back
Disability	1968 Social Security Experience Table. Sample rates are shown below:

Age	Male	Female
20	0.10%	0.10%
25	0.10%	0.10%
30	0.10%	0.10%
35	0.10%	0.10%
40	0.17%	0.17%
45	0.28%	0.28%
50	0.63%	0.63%
55+	1.33%	1.33%

A. Actuarial Assumptions (continued)

Termination

Select and Ultimate rates. Sample rates are shown below:

Police & Fire: Males

	Years of Service					
Age	0	1	2	3	4	5+
20	13.0%	5.0%	5.0%	5.0%	5.0%	5.0%
25	15.0%	5.0%	5.0%	5.0%	5.0%	4.0%
30	17.0%	5.0%	4.0%	4.0%	3.0%	3.0%
35	15.0%	5.0%	5.0%	5.0%	4.0%	3.0%
40	18.0%	4.0%	4.0%	4.0%	2.0%	2.0%
45	17.0%	20.0%	5.0%	5.0%	2.0%	2.0%
50	15.0%	20.0%	5.0%	5.0%	2.0%	2.0%
55	15.0%	20.0%	5.0%	5.0%	2.0%	2.0%

General: Males

	Years of Service					
Age	0	1	2	3	4	5+
20	55.0%	52.0%	47.0%	45.0%	40.0%	40.0%
25	63.0%	57.0%	31.0%	17.0%	7.0%	9.5%
30	46.0%	46.0%	18.0%	14.0%	14.0%	8.0%
35	22.0%	22.0%	17.0%	7.0%	7.0%	6.0%
40	26.0%	4.0%	11.0%	11.0%	10.0%	5.0%
45	5.0%	5.0%	5.0%	5.0%	5.0%	4.0%
50	5.0%	5.0%	5.0%	5.0%	3.0%	4.0%
55	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%

A. Actuarial Assumptions (continued)

Termination (cont.)

General, Police & Fire: Females

	Years of Service					
Age	0	1	2	3	4	5+
20	25.0%	22.0%	20.0%	20.0%	20.0%	5.0%
25	24.0%	16.0%	14.0%	10.0%	12.0%	6.0%
30	26.0%	17.0%	12.0%	13.0%	13.0%	6.0%
35	14.0%	11.0%	15.0%	11.0%	11.0%	4.0%
40	18.0%	14.0%	8.0%	8.0%	7.0%	4.0%
45	18.0%	14.0%	8.0%	8.0%	5.0%	4.0%
50	6.0%	6.0%	7.0%	7.0%	5.0%	4.0%
55	6.0%	6.0%	7.0%	7.0%	5.0%	4.0%

Retirement Rates

For both General employees and Police and Fire employees, the rates vary by age, gender, and pension plan grandfather status:

Grandfathered

Age	Police and Fire Males & Females	General Males	General Females
45 - 49	25%	20%	15%
50 - 54	25%	25%	20%
55 - 59	25%	25%	30%
60 - 64	40%	25%	20%
65 - 69	100%	100%	100%
70	100%	100%	100%

Nongrandfathered

Police & Fire - Males and Females	
Age	Rate
52	20%
53	20%
54	20%
55	20%
56	20%
57	20%
58	20%
59	20%
60	100%

General - Males & Females	
Age	Rate
62	20%
63	20%
64	20%
65	100%

A. Actuarial Assumptions (continued)

Participation Rates	100% of active employees are assumed to be eligible for Medicare Part A&B upon retirement and receive the Non-grandfathered benefit. 49% of future participating male General Employee retirees, 10% of future participating female General Employee retirees, and 46% of Police and Fire Employee retirees are assumed to have spouses that elect to be covered; these percentages are based on current experience.
Discount Rate	4.50% per annum
Future Salary Increases	4.25%
Per Capita Costs	The per capita claims costs for the self-funded basic and premier plans were developed by Mercer. Mercer established the Fiscal Year 2017 premium equivalents by trending FY 2016 rates forward at 10%. The per capita costs for the fully insured Medicare plans were based on calendar year 2016 premiums and 2017 projections for these plans provided by Mercer, weighted by enrollments as of July 1, 2016. Sample annual per capita costs are provided below for the fiscal year beginning July 1, 2016.

Age	Non-Medicare Grandfathered	Medicare Grandfathered	Medicare Non-Grandfathered [1]
45	$4,916	N/A	N/A
50	$6,006	N/A	N/A
65	N/A	$9,654	$4,448
70	N/A	$11,069	$4,448

[1] Non-Grandfathered Non-Medicare Retirees are access only with no implicit subsidy

A. Actuarial Assumptions (continued)

Grandfathered Premiums [1]	2017 Calendar Year Monthly Retiree Premiums:		
		Basic Plan	Premier Plan
	Single	$225.80	$250.86
	Family	474.66	497.51
Non-Grandfathered Premiums [2]	Pre-65:	pay access only rates	
	Post-65:	$ 278.01	
Tobacco Surcharge	$120 per month per family; based on current inactive experience 10% of future inactive participants are assumed to pay the tobacco surcharge.		
Life Insurance Per Capita Costs	Face amounts are $5,000		
Administrative Expenses	Included in per capita costs		

1 Grandfathered premiums are set to be approximately equal to 30% of cost. Premiums are assumed to increase at the health inflation rate.

2 Non-grandfathered premiums are equal to 75% of the total fully insured premiums. Premiums are assumed to increase at the health inflation rate.

A. Actuarial Assumptions (continued)

Annual Health Care Trend Rate

Fiscal Year Ending	Pre-Medicare	Post-Medicare
2017	6.56%	6.53%
2018	6.35%	6.33%
2019	6.15%	6.12%
2020	5.94%	5.92%
2021	5.73%	5.72%
2022	5.53%	5.51%
2023	5.32%	5.31%
2024	5.11%	5.10%
2025	4.91%	4.90%
2026	4.70%	4.70%
2027+	4.50%	4.50%

Medicare Eligibility: 100% of future retirees are eligible for Medicare at age 65.
84% of current pre-65 retirees are assumed to be Medicare eligible at age 65 based on recent experience.

Persistence Assumption: All inactive participants are assumed to continue to receive retiree medical coverage for their lifetime.

Spouse Age Difference: Husbands are assumed to be three years older than wives for future retirees who are married.

1 Non-grandfathered premiums are equal to 75% of the total fully insured premiums. Premiums are assumed to increase at the health inflation rate.

B. Actuarial Assumptions Rationale

Mortality [1]	Mortality rates are set based on the SOA's recent study of US mortality trends for pensions and adjusted based on future expectations with periodic monitoring of observed gains and losses caused by mortality patterns different than
Disability [1]	Disability rates are set based on the plan's historical experience and future expectations with periodic monitoring of observed gains and losses caused by disability patterns different than assumed.
Termination [1]	Termination rates are set based on the plan's historical experience and future expectations with periodic monitoring of observed gains and losses caused by termination patterns different than assumed.
Retirement Rates [1]	Retirement rates are set based on the plan's historical experience and future expectations with periodic monitoring of observed gains and losses caused by retirement patterns different than assumed.
Participation Rates	Participation rates are set based on the plan's historical experience and future expectations with periodic monitoring of observed gains and losses caused by participation patterns different than assumed.
Discount Rate	The discount rate represents the expected return on the general assets of the City.
Future Salary Increases [1]	This assumption is set considering underlying inflation and historical salary increases coupled with management's best estimate of future expectations.
Per Capita Costs	The per capita claims costs for the self-funded basic and premier plans were developed by Mercer. Mercer established the Fiscal Year 2017 premium equivalents by trending FY 2016 rates forward at 10%. The per capita costs for the fully insured Medicare plans were based on calendar year 2016 premiums and 2017 projections for these plans provided by Mercer, weighted by enrollments as of July 1, 2016.
Tobacco Surcharge	Tobacco surcharge rates are set based on the plan's historical experience and future expectations with periodic monitoring of observed gains and losses caused by tobacco usage patterns different than assumed.
Annual Health Care Trend Rate	Annual health care trend are set based on the plan's historical experience and future industry expectations with periodic monitoring of observed gains and losses caused by trend patterns different than assumed.

[1] Note, assumptions were reviewed and/or updated based on an experience study performed on May 1, 2014 based on 10 years of census data (between 2003-2012).

B. Actuarial Assumptions Rationale (continued)

Medicare Eligibility	Medicare eligibility assumptions are set based on the plan's historical experience and future expectations with periodic monitoring of observed gains and losses caused by Medicare eligibility patterns different than assumed.
Persistence Assumption	Persistence rates are set based on the plan's historical experience and future expectations with periodic monitoring of observed gains and losses caused by persistence patterns different than assumed.
Spouse Age Difference [1]	Marital rates are set based on the plan's historical experience and future expectations with periodic monitoring of observed gains and losses caused by marital patterns different than assumed.

[1] Note, assumptions were reviewed and/or updated based on an experience study performed on May 1, 2014 based on 10 years of census data (between 2003-2012).

C. Actuarial Methods

Actuarial Cost Method	The actuarial cost method is the Entry Age Normal Actuarial Cost Method. This method determines a normal cost rate as a fixed percentage of compensation for each active participant. The current year's normal cost is the participant's compensation multiplied by the normal cost rate. Annual contributions in this amount, from the date the participant entered the plan (or would have entered, if the plan had always been in effect and the participant had entered at the earliest possible date) until retirement, would be sufficient to provide for the actuarial present value of the participant's plan benefits. The total normal cost is the sum of the normal costs for all active participants.
Asset Valuation Method	Fair value of assets.
Changes in Actuarial Methods	No changes from the prior year.

SUMMARY OF PLAN PROVISIONS

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SECTION VI - SUMMARY OF PLAN PROVISIONS

A. Summary of Plan Provisions

The following is a summary of the plan provisions. Please refer to the plan document for a full explanation of the plan and plan provisions.

Plan Year

All benefit plans have plan year January 1 - December 31

Employee Eligibility Provisions

Eligibility for OPEB benefits are based on two pension options: normal retirement or disability retirement. The applicable pension plans are:

	Normal	Disability
General Employees 1948 Plan Participants	Age 60 & 10 years of service, or 25 years of service	
General Employees 1978 Plan Participants	Age 60 & 10 years of service, or Age 65 & 5 years of service, or 25 years of service	Non-Line of Duty: 5 years of service
General Employees 2012 and 2016 Plan Participants	Age 65 & 5 years of service, or 25 years of service	
Police & Fire 1948 Plan Participants	Age 55 & 10 years of service, or 25 years of service	Line-of-Duty: No service requirement
Police & Fire 1978, 2012 and 2016 Plan Participants	Age 55 & 10 years of service 25 years of service	

Spouse Eligibility for Benefits

Spouses of eligible retirees may receive postretirement medical benefits. Surviving widowed spouses are eligible if receiving a pension payment from the City of Memphis and coverage was in force prior to the retiree's death. Working spouses with available coverage elsewhere do not receive postretirement medical benefits.

A. Summary of Plan Provisions (continued)

Plan Benefits Available to Retirees

Medical Benefits:

Grandfathered Participants

Postretirement medical coverage through either a Preferred Provider Organization (PPO/Basic) or a Point of Service Plan (POS/Premier). The City pays for costs in excess of required retiree premiums.

Nongrandfathered Participants

Pre-65 coverage is Access Only for the PPO/Basic or POS/Premier Plan. Post-65 coverage is through a variety of Medicare plans including Medicare Supplemental plan, PDPs, and Medicare Advantage plans for Medicare-eligible retirees. For post-65 coverage, the City pays for costs in excess of the required retiree premiums.

Life Benefits:

The City provides a life insurance benefit of $5,000 to all participants.

The payment of the $5,000 by the City depends on if the participant had supplemental insurance as an active participant prior to retirement. If the participant elected supplemental life insurance as an active employee, the supplemental insurance drops to $3,000, and is fully insured by the City. In addition, the City pays an additional $2,000, which is self- insured. If the participant did not elect supplemental life insurance as an active employee, the City pays $5,000 upon death, which is self-insured.

An additional $3,500 life insurance benefit is provided to a small group of police and fire employees, which is offered at the discretion of the City and is self-insured.

APPENDICES

Appendix I: City of Memphis' Reporting Requirements

The City of Memphis was required to implement GASB 45 for fiscal years beginning July 1, 2008 and thereafter. The reporting requirements are found in paragraphs 24 through 26 of GASB 45 and include: funding policy, annual OPEB cost, funded status and funding progress, and actuarial methods and assumptions.

The paragraphs below are intended to provide the City with information for fiscal 2016 reporting and 2017 expense. The City's auditors should be consulted for preferred descriptions and documentation. The actual disclosure as of June 30, 2016 should be based on plan provisions and plan operation as of that date. Below are the applicable paragraphs taken directly from GASB 45.

Excerpts from GASB 45

24. Employers should include the following information in the notes to their financial statements for each defined benefit OPEB plan in which they participate, regardless of the type of plan (except as indicated). Disclosures for more than one plan should be combined in a manner that avoids unnecessary duplication.

    a. Plan description.

        (1) Name of the plan, identification of the public employee retirement system (PERS) or other entity that administers the plan, and identification of the plan as a single-employer, agent multiple-employer, or cost-sharing multiple-employer defined benefit OPEB plan.

        (2) Brief description of the types of benefits and the authority under which benefit provisions are established or may be amended.

        (3) Whether the OPEB plan issues a stand-alone financial report or is included in the report of a PERS or another entity, and, if so, how to obtain the report.

    b. Funding policy.

        (1) Authority under which the obligations of the plan members, employer(s), and other contributing entities (for example, state contributions to local government plans) to contribute to the plan are established or may be amended.

        (2) Required contribution rate(s) of plan members. The required contribution rate(s) could be expressed as a rate (amount) per member or as a percentage of covered payroll.

        (3) Required contribution rate(s) of the employer in accordance with the funding policy, in dollars or as a percentage of current-year covered payroll, and, if applicable, legal or contractual maximum contribution rates. If the plan is a single-employer or agent plan and the rate differs significantly from the ARC, disclose how the rate is determined (for example, by statute or by contract) or that the plan is financed on a pay-as-you-go basis. If the plan is a cost-sharing plan, disclose the required contributions in dollars and the percentage of that amount contributed for the current year and each of the two preceding years, and how the required contribution rate is determined (for example, by statute or by contract, or on an actuarially determined basis) or that the plan is financed on a pay-as-you-go basis.

Appendix I: City of Memphis' Reporting Requirements (continued)

25. Sole and agent employers should disclose the following information for each plan, in addition to the information required by paragraph 24:

a. For the current year, annual OPEB cost and the dollar amount of contributions made. If the employer has a net OPEB obligation, also disclose the components of annual OPEB cost (ARC, interest on the net OPEB obligation, and adjustment to the ARC), the increase or decrease in the net OPEB obligation, and the net OPEB obligation at the end of the year.

b. For the current year and each of the two preceding years, annual OPEB cost, percentage of annual OPEB cost contributed that year, and net OPEB obligation at the end of the year. (For the first two years, the required information should be presented for the transition year, and for the current and transition years, respectively.)

c. Information about the funded status of the plan as of the most recent valuation date, including the actuarial valuation date, the actuarial value of assets, the actuarial liability, the total unfunded actuarial liability (or funding excess), the actuarial value of assets as a percentage of the actuarial liability (funded ratio), the annual covered payroll, and the ratio of the unfunded actuarial liability (or funding excess) to annual covered payroll.. The information should be calculated in accordance with the parameters. However, employers that meet the criteria in paragraph 11 may elect to use the alternative measurement method discussed in paragraphs 33 through 35. Employers that use the aggregate actuarial cost method should prepare this information using the entry age actuarial cost method for that purpose only.

d. Disclosure of information about actuarial methods and assumptions used in valuations on which reported information about the ARC, annual OPEB cost, and the funded status and funding progress of OPEB plans is based, including the following:

(1) Disclosure that actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future, and that actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future.

(2) Disclosure that the required schedule of funding progress immediately following the notes to the financial statements presents multiyear trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial liability for benefits.

(3) Disclosure that calculations are based on the types of benefits provided under the terms of the substantive plan at the time of each valuation and on the pattern of sharing of costs between the employer and plan members to that point. In addition, if applicable, the employer should disclose that the projection of benefits for financial reporting purposes *does not* explicitly incorporate the potential effects of legal or contractual funding limitations (as discussed in the disclosure of funding policy in paragraph 24b(3)) on the pattern of cost sharing between the employer and plan members in the future.

(4) Disclosure that actuarial calculations reflect a long-term perspective. In addition, if applicable, disclosure that, consistent with that perspective, actuarial methods and assumptions used include techniques that are designed to reduce short-term volatility in actuarial liabilities and the actuarial value of assets.

Appendix I: City of Memphis' Reporting Requirements (continued)

(5) Identification of the actuarial methods and significant assumptions used to determine the ARC for the current year and the information required by paragraph 25c. The disclosures should include:

(a) The actuarial cost method.

(b) The assumptions with respect to the inflation rate, investment return (including the method used to determine a blended rate for a partially funded plan, if applicable), postretirement benefit increases if applicable, projected salary increases if relevant to determination of the level of benefits, and, for postemployment healthcare plans, the healthcare cost trend rate. If the economic assumptions contemplate different rates for successive years (year-based or select and ultimate rates), the rates that should be disclosed are the initial and ultimate rates.

(c) The amortization method (level dollar or level percentage of projected payroll) and the amortization period (equivalent single amortization period, for plans that use multiple periods) for the most recent actuarial valuation and whether the period is closed or open. Employers that use the aggregate actuarial cost method should disclose that because the method does not identify or separately amortize unfunded actuarial liabilities, information about funded status and funding progress has been prepared using the entry age actuarial cost method for that purpose, and that the information presented is intended to approximate the funding progress of the plan.

Required Supplementary Information (RSI)

26. Sole and agent employers should present the following information for the most recent actuarial valuation and the two preceding valuations:

a. Information about the funding progress of the plan, including, for each valuation, each of the elements of information listed in paragraph 25c.

b. Factors that significantly affect the identification of trends in the amounts reported, including, for example, changes in benefit provisions, the size or composition of the population covered by the plan, or the actuarial methods and assumptions used. (The amounts reported for prior years should not be restated.)

Appendix II: Glossary of Terms

Actuarial Liability (AL)	That portion, as determined by a particular Actuarial Cost Method, of the Present Value of Future Benefits (PVFB) and expenses which is not provided for by future Normal Costs. Generally this means the portion of the PVFB attributable to past service.
Actuarial Assumptions	Assumptions as to the occurrence of future events affecting OPEB costs, such as: mortality, withdrawal, disablement and retirement; changes in compensation and Government provided pension benefits; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; characteristics of future entrants for Open Group Actuarial Cost Methods; and other relevant items.
Actuarial Cost Method	A procedure for determining an actuarially equivalent allocation of the Present Value of Future Benefits to time periods, usually in the form of a Normal Cost and an Actuarial Liability.
Actuarial Valuation	The determination, as of a valuation date, of the Normal Cost, Actuarial Liability, Actuarial Value of Assets, and related Actuarial Present Values for an OPEB plan.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.
Actuarial Value of Assets	The value of cash, investments and other property belonging to an OPEB plan, as used by the actuary for the purpose of an Actuarial Valuation.
Annual OPEB Cost (or Expense)	An accrual-basis measure of the periodic cost of an employer's participation in a defined benefit OPEB plan.
Annual Required Contributions of the Employer ("ARC")	The employer's periodic required contributions to a defined benefit OPEB plan, calculated in accordance with the plan provisions, actuarial assumptions, actuarial cost method and other actuarial method prescribed by GASB 45.
Discount Rate	The rate used to adjust a series of future payments to reflect the time value of money. The GASB specifies that this rate should equal the expected return on invested assets relative to the assets that will be used to pay for the benefits specified by the OPEB plan.

Appendix II: Glossary of Terms (continued)

Funding Policy	The program for the amounts and timing of contributions to be made by plan members, employer, and other contributing entities (for example, state government contributions to a local government plan) to provide the benefits specified by an OPEB plan.
Healthcare Cost Trend	The rate of change in per capita health claims costs over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.
Level Dollar Amortization Method	The amount to be amortized is divided into equal dollar amounts to be paid over a given number of years; part of each payment is interest and part is principal (similar to a mortgage payment on a building). Because payroll can be expected to increase as a result of inflation, level dollar payments generally represent a decreasing percentage of payroll; in dollars adjusted for inflation, the payments can be expected to decrease over time.
Level Percentage of Projected Payroll Amortization Method	Amortization payments are calculated so that they are a constant percentage of the projected payroll of active plan members over a given number of years. The dollar amount of the payments generally will increase over time as payroll increases due to inflation; in dollars adjusted for inflation, the payments can be expected to remain level.
Normal Cost (NC)	That portion of the present value of future benefits which is allocated to a valuation year by the Actuarial Cost Method. The normal cost is specific to the cost method used.
OPEB Assets	The amount recognized by an employer for contributions to an OPEB plan greater than OPEB expense.
OPEB Expense	The amount recognized by an employer in each accounting period for contributions to an OPEB plan on the accrual basis of accounting.
Other Postemployment Benefits ("OPEB")	Postemployment benefits other than pension benefits. Other postemployment benefits (OPEB) include postemployment healthcare benefits, regardless of the type of plan that provides them, and all postemployment benefits provided separately from a pension plan, excluding benefits defined as termination offers and benefits. Other types of OPEB benefits include postemployment life insurance, educational benefits, dues, discounts, and any other postemployment non-pension benefit.

Appendix II: Glossary of Terms (continued)

Net OPEB Obligation	The cumulative difference since the effective date of the statement between the annual OPEB cost and the employer's contributions to the plan. This equals the liability amount recognized on the financial statement.
Parameters	The set of requirements for calculating actuarially determined OPEB information included in financial reports.
Pay-As-You-Go	A method of financing an OPEB plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.
Payroll Growth Rate	An actuarial assumption with respect to future increases in total covered payroll attributable to inflation; used in applying the level percentage of projected payroll amortization method.
Per Capita Costs	Expected benefit cost for the valuation year on a per individual plan participant basis. The GASB requires that per capita costs should represent the expected benefit payments specific to the characteristics of the plan participants; subsidies to or from another employee benefit group are not permitted. The per capita costs form the basis from which the present value of future benefits is developed.
Plan Assets	Resources, usually in the form of stocks, bonds, and other classes of investments, that have been segregated and restricted in a trust, or equivalent arrangement, in which (a) employer contributions to the plan are irrevocable, (b) assets are dedicated to providing benefits to retirees and their beneficiaries, and (c) assets are legally protected from creditors of the employer(s) or plan administrator, for the payment of benefits in accordance with the terms of the plan.
Plan Members	The individuals covered by the terms of an OPEB plan. The plan membership generally includes employees in active service, terminated employees who have accumulated benefits but are not yet receiving them, and retired employees and beneficiaries currently receiving benefits.
Postemployment	The period between termination of employment and retirement as well as the period after retirement.
Postemployment Healthcare Benefits	Medical, dental, vision, and other health-related benefits provided to terminated or retired employees and their dependents and beneficiaries.

Appendix II: Glossary of Terms (continued)

Present Value of Future Benefits ("PVFB")

Projected benefits estimated to be payable to plan members (retirees and beneficiaries, terminated employees entitled to benefits but not yet receiving them, and current active members upon retirement) as a result of their service through the valuation date and their expected future service. The actuarial present value of projected future benefits as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment (taking into account mortality, turnover, probability of participating in plan retirement, etc.). Alternatively, it is the amount that would have to be invested on the valuation date so that the amount invested plus investment earnings will provide sufficient assets to pay the projected benefits when due. Generally the PVFB includes expenses associated with the plan (claims adjudication, investment, etc.).

Substantive Plan

The terms of an OPEB plan as understood by the employer(s) and plan members. If administrative practices are different from the written plan benefits and are expected to continue, then the substantive plan is based on such administrative practices.