

www.pwc.com

City of Memphis

City of Memphis Retirement System

Accounting Valuation under GASB No. 67 for the Plan Year Ending June 30, 2018

Accounting Valuation under GASB No. 68 for the Fiscal Year Ending June 30, 2018





October 15, 2018

Ms. Shirley Ford
Chief Financial Officer
City of Memphis
125 North Main Street
Memphis, Tennessee 38103

Dear Ms. Ford,

We are pleased to present this report containing the results of the July 1, 2018 actuarial valuation of the City of Memphis Retirement System ("the Plan"), pursuant to our engagement letter with the City of Memphis ("the City") dated July 26, 2016.

The City of Memphis retained PricewaterhouseCoopers LLP ("PwC") to perform an actuarial valuation of the Retirement System for the purpose of calculating accounting results in accordance with Governmental Accounting Standards Board Statement No. 67 (GASB 67) for the Plan's fiscal year ending June 30, 2018 and Governmental Accounting Standards Board Statement No. 68 (GASB 68) for the City's fiscal year ending June 30, 2018. In addition, these results were prepared in accordance with Governmental Accounting Standards Board Statement No. 82 (GASB 82), which is an amendment of both GASB 67 and GASB 68. The amendments made by GASB 82 are included in any reference in GASB 67 and GASB 68 throughout this report. The City of Memphis also requested that we prepare the Memphis-Shelby County Airport Authority's ("Airport Authority") proportionate share of certain accounting and reporting requirements pursuant to GASB 68.

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 67 and GASB 68 are for purposes of fulfilling the Plan's and City's financial accounting requirements only and not suitable for any other purposes. The calculations reported herein have been made on a basis consistent with our understanding of GASB 67 and GASB 68, as amended by GASB 82.

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, unaudited plan assets, employee and employer contributions and benefit payments. The census data and plan asset information used in calculating the results herein were collected as of June 30, 2018. 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 67 and GASB 68 require 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.

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



This report was prepared for the internal use of the City of Memphis in connection with our actuarial valuation of the Plan for determining the GASB 67 and GASB 68 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 pension 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,

Cindy Fraterrigo
cindy.fraterrigo@pwc.com
(312) 298-4320
Member, American Academy of Actuaries
Fellow of the Society of Actuaries

Shepherd M. Price
shepherd.m.price@pwc.com
(312) 298-2457
Member, American Academy of Actuaries
Associate of the Society of Actuaries

Antonio J. DeSario
antonio.j.desario@pwc.com
(312) 298-5491
Member, American Academy of Actuaries
Fellow of the Society of Actuaries

TABLE OF CONTENTS

| | |
|--|-----------|
| I. EXECUTIVE SUMMARY | 1 |
| II. ACCOUNTING | |
| A. Selected Notes to the Financial Statements under GASB 67 and 68 | 5 |
| B. Schedule of Changes in the Net Pension Liability and Related Ratios under GASB 67 and 68 | 8 |
| C. Schedule of Contributions under GASB 67 and 68 | 11 |
| D. Net Pension Liability under GASB 68 for the Fiscal Year Ending June 30, 2018 | 12 |
| E. Pension Expense under GASB 68 for the Fiscal Year Ending June 30, 2018 | 13 |
| F. Schedule of Differences between Expected and Actual Experience under GASB 68 for the Fiscal Year Ending June 30, 2018 | 14 |
| G. Schedule of Changes in Assumptions under GASB 68 for the Fiscal Year Ending June 30, 2018 | 15 |
| H. Schedule of Differences between Projected and Actual Earnings on Investments under GASB 68 for the Fiscal Year Ending June 30, 2018 | 16 |
| I. Determination of Resources of Deferred Outflows and Resources of Deferred Inflows for the Fiscal Year Ending June 30, 2018 | 17 |
| J. Schedule of Deferred Outflows of Resources and Deferred Inflows of Resources to be Recognized in Future Pension Expense under GASB 68 | 18 |
| III ASSETS | |
| A. Market Value of Assets | 19 |
| B. Reconciliation of Market Value of Assets and Investment Return | 20 |
| IV. CENSUS DATA | |
| A. Census Information | 21 |
| B. Distribution of Active Members by Age and Service | 22 |
| C. Distribution of Terminated Vested Members by Age and Service | 23 |
| D. Distribution of Retired Members, Beneficiaries, and Disabled Members by Age and Number of Years Retired | 24 |
| E. Flow of Lives from June 30, 2017 to June 30, 2018 | 25 |
| V. SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS | 26 |
| VI. SUMMARY OF PLAN PROVISIONS | |
| A. Summary of Plan Provisions: General Employees | 34 |
| B. Summary of Plan Provisions: Police and Fire Employees | 44 |
| Appendix I - Memphis-Shelby County Airport Authority Proportionate Share of GASB 68 Accounting Information | 53 |

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT

This report presents results of the July 1, 2018 actuarial valuation of the City of Memphis Retirement System and is intended to provide the City with certain accounting and disclosure information related to the Plan. Accounting information for the Memphis-Shelby County Airport Authority's proportionate share of certain accounting and reporting requirements pursuant to GASB 68 may be found in Appendix I.

This report also includes financial statement reporting information for the City of Memphis for the fiscal year ending June 30, 2018 in accordance with our understanding of Government Accounting Standards Board Statement No. 68, as amended by Government Accounting Standards Board Statement No. 82. As permitted under paragraph 20 of GASB 68, the City of Memphis uses a measurement date of July 1, 2018. The valuation was performed using assets as of July 1, 2018 and disclosed in Section III, census data as of July 1, 2018, provided by the City and summarized in Section IV, assumptions and methods disclosed in Section V, and reflects the plan provisions effective July 1, 2018 as summarized in Section VI.

Summary of Net Pension Liability / (Asset)

| | <u>July 1, 2016</u> | <u>July 1, 2017</u> | <u>July 1, 2018</u> |
|---|-------------------------|-------------------------|-------------------------|
| 1. Total Pension Liability | | | |
| a. Active Participants | \$ 867,671,000 | \$ 950,322,000 | \$ 919,408,000 |
| b. Terminated Vested Participants | 8,573,000 | 7,251,000 | 8,185,000 |
| c. Retiree/Beneficiary/Disabled/ DROP Participants | <u>1,742,568,000</u> | <u>1,723,282,000</u> | <u>1,736,774,000</u> |
| d. Total | \$ 2,618,812,000 | \$ 2,680,855,000 | \$ 2,664,367,000 |
| 2. Plan Fiduciary Net Position (Assets) | <u>\$ 2,091,586,000</u> | <u>\$ 2,261,585,000</u> | <u>\$ 2,388,109,000</u> |
| 3. Net Pension Liability/(Asset) (1)(d) - (2) | \$ 527,226,000 | \$ 419,270,000 | \$ 276,258,000 |
| 4. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (2) ÷ (1)(d) | 79.9% | 84.4% | 89.6% |
| Valuation Interest Rate | 7.50% | 7.50% | 7.50% |
| Average Salary Scale | 4.25% | 4.25% | 4.25% |
| Cost-of-Living Assumption | N/A | N/A | N/A |

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT (CONTINUED)

Summary of Changes in the Net Pension Liability

| | <u>July 1, 2016</u> | <u>July 1, 2017</u> | <u>July 1, 2018</u> |
|--|-----------------------|-------------------------|-------------------------|
| 1. Expected Net Pension Liability | | | |
| a. Net Pension Liability | \$ 382,316,000 | \$ 527,226,000 | \$ 419,270,000 |
| b. Change in Benefit Terms | - | - | - |
| c. Employer Service Cost | 20,431,000 | 22,662,000 | 25,580,000 |
| d. Employer Contribution | (51,875,000) | (55,441,000) | (55,059,000) |
| e. Administrative Expenses | 2,228,000 | 3,119,000 | 3,700,000 |
| f. Interest to End of Year ¹ | 29,241,000 | 39,913,000 | 31,996,000 |
| g. Expected Net Pension Liability (a) + (b) + (c) + (d) + (e) + (f) | <u>\$ 382,341,000</u> | <u>\$ 537,479,000</u> | <u>\$ 425,487,000</u> |
| 2. Change in the Net Pension Liability (Decrease) / Increase | | | |
| a. Change due to Asset Experience ² | \$ 167,134,000 | \$ (120,775,000) | \$ (70,941,000) |
| b. Change in Assumptions ³ | (9,882,000) | (41,610,000) | (13,322,000) |
| c. Plan Experience - Difference due to Updated Census | 5,374,000 | (5,928,000) | (5,333,000) |
| d. Plan Experience - Difference in Actual and Expected Salary | (17,741,000) | 50,104,000 | (59,633,000) |
| e. Change in Net Pension Liability: (a) + (b) + (c) + (d) | <u>\$ 144,885,000</u> | <u>\$ (118,209,000)</u> | <u>\$ (149,229,000)</u> |
| 3. Net Pension Liability at Valuation Date: (1)(g) + (2)(e) | \$ 527,226,000 | \$ 419,270,000 | \$ 276,258,000 |

¹ Equals difference between interest cost on the Total Pension Liability and expected return in assets on the Plan Fiduciary Net Position.

² For the 2016 fiscal year, the net investment return for the year was \$7 million compared to the expected return on assets of \$174 million.
For the 2017 fiscal year, the net investment return for the year was \$273 million compared to the expected return on assets of \$153 million.
For the 2018 fiscal year, the net investment return for the year was \$236 million compared to the expected return on assets of \$165 million.

³ The mortality assumption was updated for the July 1, 2018 valuation. Details may be found in the Summary of Assumptions and Methods section.

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT (CONTINUED)

The pension expense under GASB 68 for the fiscal year ending June 30, 2018 is \$43,910,000.

GASB 68 Information:

| Fiscal Year Ending | <u>June 30, 2016</u> | <u>June 30, 2017</u> | <u>June 30, 2018</u> |
|---|-----------------------|----------------------|-------------------------|
| 1. Net Pension Liability | \$ 527,226,000 | \$ 419,270,000 | \$ 276,258,000 |
| 2. Deferred (Inflows) / Outflows of Resources, after Recognition in Pension Expense | | | |
| a. Deferred (Inflows) of Resources | \$ (53,570,000) | \$ (166,083,000) | \$ (234,380,000) |
| b. Deferred Outflows of Resources | 195,250,000 | 175,860,000 | 112,294,000 |
| c. Total | <u>\$ 141,680,000</u> | <u>\$ 9,777,000</u> | <u>\$ (122,086,000)</u> |
| 3. Pension Expense | | | |
| a. Employer Service Cost (Including Administrative Expenses) | \$ 22,659,000 | \$ 25,781,000 | \$ 29,280,000 |
| b. Interest Cost | 190,419,000 | 193,004,000 | 197,627,000 |
| c. Expected Return on Assets | (161,178,000) | (153,091,000) | (165,631,000) |
| d. Changes in Benefit Terms | - | - | - |
| e. Recognition of deferred (inflows)/outflows of resources | <u>37,290,000</u> | <u>13,694,000</u> | <u>(17,366,000)</u> |
| f. Total collective pension expense | <u>\$ 89,190,000</u> | <u>\$ 79,388,000</u> | <u>\$ 43,910,000</u> |

Changes in Assumptions and Methods from Prior Year

As requested by the City, the following assumption changes were made since the prior valuation:

The mortality assumptions were updated from use of the MP-2016 projection scale to the MP-2017 projection scale to reflect the most recent table available.

Changes in Benefit Terms

There were no changes in benefit terms adopted during the 2018 fiscal year.

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT (CONTINUED)

Plan Experience

Below is a table summarizing the changes in the census information over the prior fiscal year.

| | <u>June 30, 2016</u> | <u>June 30, 2017</u> | <u>June 30, 2018</u> |
|--|----------------------|----------------------|----------------------|
| Census Information | | | |
| 1. Active | | | |
| a. Number ¹ | 5,710 | 5,858 | 5,941 |
| b. Average Age | 44.2 | 44.0 | 43.9 |
| c. Average Years of Service | 12.0 | 11.8 | 11.7 |
| d. Anticipated Payroll ² | \$ 319,820,000 | \$ 353,410,000 | \$ 349,096,000 |
| e. Actual Covered Payroll ³ | \$ 300,123,000 | \$ 336,505,000 | \$ 333,171,000 |
| 2. Terminated Vested | | | |
| a. Number | 798 | 867 | 958 |
| b. Lump Sum - Refund of Contributions | \$ 8,573,000 | \$ 7,251,000 | \$ 8,185,000 |
| 3. Retiree/Beneficiary/Disabled /DROP | | | |
| a. Number | 5,059 | 5,109 | 5,186 |
| b. Annual Benefits Payable | \$ 169,585,000 | \$ 171,489,000 | \$ 174,803,000 |
| c. DROP Account Balance | \$ 18,479,000 | \$ 17,902,000 | \$ 16,782,000 |

¹ As of June 30, 2018, actives include 3,296 grandfathered participants (2,236 Police & Fire and 1,060 General employees).

² The *anticipated payroll* is equal to actual payroll during the prior year for members who are still active on the valuation date, adjusted for one year of assumed salary increases. It does not include compensation for members who have reached the age at which retirement is assumed to occur immediately. Nor does it include compensation for employees currently participating in the DROP.

³ The *actual covered payroll* is defined under GASB 82 to be payroll on which contributions to a pension plan are based. As pensionable pay is used for determining contributions under the plan, pensionable pay is shown above.

SECTION II - ACCOUNTING

| | <u>Page</u> |
|--|-------------|
| A. Selected Notes to the Financial Statements under GASB 67 and 68 | 5 |
| B. Schedule of Changes in the Net Pension Liability and Related Ratios under GASB 67 and 68 | 8 |
| C. Schedule of Contributions under GASB 67 and 68 | 11 |
| D. Net Pension Liability under GASB 68 for the Fiscal Year Ending June 30, 2018 | 12 |
| E. Pension Expense under GASB 68 for the Fiscal Year Ending June 30, 2018 | 13 |
| F. Schedule of Differences between Expected and Actual Experience under GASB 68 for the Fiscal Year Ending June 30, 2018 | 14 |
| G. Schedule of Changes in Assumptions under GASB 68 for the Fiscal Year Ending June 30, 2018 | 15 |
| H. Schedule of Differences between Projected and Actual Earnings on Investments under GASB 68 for the Fiscal Year Ending June 30, 2018 | 16 |
| I. Determination of Resources of Deferred Outflows and Resources of Deferred Inflows for the Fiscal Year Ending June 30, 2018 | 17 |
| J. Schedule of Deferred Outflows of Resources and Deferred Inflows of Resources to be Recognized in Future Pension Expense under GASB 68 | 18 |

SECTION II - ACCOUNTING

NOTES TO THE FINANCIAL STATEMENTS UNDER GASB 67 AND 68

A. Selected Notes to the Financial Statements under GASB 67 and 68

1. The Plan is a single-employer plan for GASB accounting purposes.
2. Significant actuarial assumptions and other inputs used to measure the total pension liability:
 - a. Measurement Date July 1, 2018
 - b. Valuation Date July 1, 2018
 - c. Investment Yield 7.5%
 - d. Future Salary Increases Scale that varies by age and service with a weighted average of 4.25% per year
 - e. Cost-of-Living Increases None assumed
 - f. Mortality Assumption General: Fully Generational RP-2014 Total Dataset Mortality Table (with MP-2014 improvement removed) with MP-2017 projection scale from 2006 forward and adjusted by a 1 year set forward.

Police and Fire: Fully Generational RP-2014 Blue Collar Mortality Table (with MP-2014 improvement removed) with MP-2017 projection scale from 2006 forward and adjusted by a 1 year set forward.

Disabled: Fully Generational RP-2014 Disabled Mortality Table (with MP-2014 improvement removed) with MP-2017 projection scale from 2006 forward and adjusted by a 3 year set back.
 - g. Experience Study May 1, 2014 experience study based on 10 years of census data (between 2003-2012)

SECTION II - ACCOUNTING

NOTES TO THE FINANCIAL STATEMENTS UNDER GASB 67 AND 68

A. Selected Notes to the Financial Statements under GASB 67 and 68 (Continued)

3. Classes of plan members covered:

| | |
|--|---------------|
| a. Retired members, beneficiaries and disabled members receiving benefits ¹ | 5,186 |
| b. Terminated vested plan members entitled to but not yet receiving benefits | 958 |
| c. Active plan members | 5,941 |
| d. Total membership | <u>12,085</u> |

4. The components of the Net Pension Liability (000's) for the plan as of July 1, 2018 are as follows:

| | |
|---|-------------------|
| a. Total Pension Liability | \$ 2,664,367 |
| b. Plan Fiduciary Net Position | 2,388,109 |
| c. Net Pension Liability | <u>\$ 276,258</u> |
| d. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability | 89.6% |

¹ Includes 162 employees currently participating in the DROP and 97 employees who temporarily froze participation in the DROP Program effective November 1, 2015 or November 1, 2016.

SECTION II - ACCOUNTING

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB 67 AND 68

B. Schedule of Changes in the Net Pension Liability and Related Ratios under GASB 67 and 68 ¹

Total Pension Liability (ooo's)

| (1) Year Ending June 30 | (2) Beginning Total Pension Liability | (3) Total Service Cost ² | (4) Interest ³ | (5) Experience (Gains)/ Losses ⁴ | (6) Assumption Changes | (7) Changes of Benefit Terms | (8) Benefit Payments | (9) Ending Total Pension Liability |
|----------------------------------|---|--|------------------------------|--|------------------------------|---------------------------------------|----------------------------|--|
| 2014 | \$ 2,592,987 | \$ 55,409 | \$ 192,223 | \$ 58,245 | \$ (128,961) | \$ - | \$ (170,833) | \$ 2,599,070 |
| 2015 | \$ 2,599,070 | \$ 48,189 | \$ 190,459 | \$ (60,057) | \$ - | \$ (20,805) | \$ (173,991) | \$ 2,582,865 |
| 2016 | \$ 2,582,865 | \$ 44,343 | \$ 190,419 | \$ (12,367) | \$ (9,882) | \$ - | \$ (176,566) | \$ 2,618,812 |
| 2017 | \$ 2,618,812 | \$ 42,678 | \$ 193,004 | \$ 44,176 | \$ (41,610) | \$ - | \$ (176,205) | \$ 2,680,855 |
| 2018 | \$ 2,680,855 | \$ 44,158 | \$ 197,627 | \$ (64,966) | \$ (13,322) | \$ - | \$ (179,985) | \$ 2,664,367 |

¹ This schedule is prepared to satisfy the requirement to show information regarding the Net Pension Liability and Related Ratios for 10 years.

At the City's request, the information presented above is for those years for which it is available. It was prepared prospectively from the Plan's fiscal year ending June 30, 2014 for GASB 67 purposes and prospectively from fiscal year ending June 30, 2015 for GASB 68 purposes.

² The service cost includes the employee contributory portion of the benefit earned during the measurement period.

³ For the current fiscal year, includes interest at 7.5% on the beginning-of-year Total Pension Liability and service cost offset by a half year of interest on benefit payments.

⁴ Assumption changes for the most recent fiscal year reflect changes to the mortality assumption.

SECTION II - ACCOUNTING

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB 67 AND 68

B. Schedule of Changes in the Net Pension Liability and Related Ratios under GASB 67 and 68 (continued) ¹

Plan Fiduciary Net Position (ooo's)

| (1) Year Ending June 30 | (2) Beginning Fiduciary Net Position | (3) Employer Contribution | (4) Employee Contribution | (5) Investment Return | (6) Benefit Payments | (7) Administrative Expenses | (8) Investment Expenses | (9) Ending Fiduciary Net Position |
|----------------------------------|--|---------------------------------|---------------------------------|-----------------------------|----------------------------|-----------------------------------|-------------------------------|---|
| 2014 | \$ 2,040,069 | \$ 19,440 | \$ 24,173 | \$ 342,614 | \$ (170,833) | \$ (1,478) | \$ (8,827) | \$ 2,245,158 |
| 2015 | \$ 2,245,158 | \$ 46,215 | \$ 23,319 | \$ 70,687 | \$ (173,991) | \$ (1,975) | \$ (8,864) | \$ 2,200,549 |
| 2016 | \$ 2,200,549 | \$ 51,875 | \$ 23,912 | \$ 6,890 | \$ (176,566) | \$ (2,228) | \$ (12,846) | \$ 2,091,586 |
| 2017 | \$ 2,091,586 | \$ 55,441 | \$ 20,016 | \$ 286,536 | \$ (176,205) | \$ (3,119) | \$ (12,670) | \$ 2,261,585 |
| 2018 | \$ 2,261,585 | \$ 55,059 | \$ 18,578 | \$ 249,844 | \$ (179,985) | \$ (3,700) | \$ (13,272) | \$ 2,388,109 |

¹ This schedule is prepared to satisfy the requirement to show information regarding the Net Pension Liability and Related Ratios for 10 years. At the City's request, the information presented above is for those years for which it is available. It was prepared prospectively from the Plan's fiscal year ending June 30, 2014 for GASB 67 purposes and prospectively from fiscal year ending June 30, 2015 for GASB 68 purposes.

² Asset information, including all cash flows, is provided by the City of Memphis.

SECTION II - ACCOUNTING

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB 67 AND 68

B. Schedule of Changes in the Net Pension Liability and Related Ratios under GASB 67 and 68 (continued) ¹

Net Pension Liability (000's)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---------------------------|-------------------------------|------------------------------|-----------------------------|---|---|---|
| Year Ending June 30 | Total Pension Liability | Net Fiduciary Position | Net Pension Liability | Fiduciary Net Position as % of Total Pension Liability | Actual Covered Employee Payroll ² | Net Pension Liability as a Percentage of Covered Payroll |
| | | | (2) - (3) | (3) ÷ (2) | | (4) ÷ (6) |
| 2014 | \$ 2,599,070 | \$ 2,245,158 | \$ 353,912 | 86.4% | \$ 324,000 | 109.2% |
| 2015 | \$ 2,582,865 | \$ 2,200,549 | \$ 382,316 | 85.2% | \$ 327,627 | 116.7% |
| 2016 | \$ 2,618,812 | \$ 2,091,586 | \$ 527,226 | 79.9% | \$ 300,123 | 175.7% |
| 2017 | \$ 2,680,855 | \$ 2,261,585 | \$ 419,270 | 84.4% | \$ 336,505 | 124.6% |
| 2018 | \$ 2,664,367 | \$ 2,388,109 | \$ 276,258 | 89.6% | \$ 333,171 | 82.9% |

¹ This schedule is prepared to satisfy the requirement to show information regarding the Net Pension Liability and Related Ratios for 10 years. At the City's request, the information presented above is for those years for which it is available. It was prepared prospectively from the Plan's fiscal year ending June 30, 2014 for GASB 67 purposes and prospectively from fiscal year ending June 30, 2015 for GASB 68 purposes.

² The *actual covered employee payroll* is defined under GASB 82 to be payroll on which contributions to a pension plan are based. As pensionable pay is used for determining contributions under the plan, pensionable pay is shown above starting June 30, 2016. Prior to June 30, 2016 the gross payroll is shown, consistent with the requirements prior to the release of GASB 82. Note, actual covered employee payroll is for the year immediately preceding the valuation date.

SECTION II - ACCOUNTING

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB 67 AND 68

C. Schedule of Contributions under GASB 67 and 68 (000's) ¹

| (1) | (2) | (3) | (4) | (5) | (6) |
|---------------------------|--|-------------------------------------|--|---|---|
| Year Ending June 30 | Actuarially Determined Contribution ² | Actual Employer Contributions | Contribution Excess/(Deficiency) (3) - (2) | Actual Covered Employee Payroll ³ | Contributions as a Percentage of Covered Payroll (3) ÷ (5) |
| 2014 | \$ 96,024 | \$ 19,440 | \$ (76,584) | \$ 324,000 | 6.0% |
| 2015 | \$ 79,742 | \$ 46,215 | \$ (33,527) | \$ 327,627 | 14.1% |
| 2016 | \$ 73,913 | \$ 51,875 | \$ (22,038) | \$ 300,123 | 17.3% |
| 2017 | \$ 58,185 | \$ 55,441 | \$ (2,744) | \$ 336,505 | 16.5% |
| 2018 | \$ 62,433 | \$ 55,059 | \$ (7,374) | \$ 333,171 | 16.5% |

¹ At the City's request, the information presented above is for those years for which it is available. It was prepared prospectively from the Plan's fiscal year ending June 30, 2015 for GASB 67 purposes and prospectively from fiscal year ending June 30, 2016 for GASB 68 purposes.

² The actuarially determined contribution is for the fiscal year end and is based on a discount rate assumption of 7.5%. It is developed in a separate funding report for the corresponding fiscal year.

³ The *actual covered employee payroll* is defined under GASB 82 to be payroll on which contributions to a pension plan are based. As pensionable pay is used for determining contributions under the plan, pensionable pay is shown above starting June 30, 2016. Prior to June 30, 2016 the gross payroll is shown, consistent with the requirements prior to the release of GASB 82. Note, actual covered employee payroll is for the year immediately preceding the valuation date.

SECTION II - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

D. Net Pension Liability under GASB 68 for the Fiscal Year Ending June 30, 2018 (000's)

| | | |
|---|----|------------------|
| 1. Total Pension Liability | | |
| a. Total Pension Liability - Beginning of year | \$ | 2,680,855 |
| b. Service Cost ¹ | | 44,158 |
| c. Interest Cost ² | | 197,627 |
| d. Experience (gains)/losses | | (64,966) |
| e. Assumption Changes | | (13,322) |
| f. Changes of Benefit Terms | | - |
| g. Benefit Payments | | (179,985) |
| h. Member Reassignments | | - |
| i. Total Pension Liability - End of year | \$ | <u>2,664,367</u> |
| 2. Plan Fiduciary Net Position | | |
| a. Plan Fiduciary Net Position - Beginning of year | \$ | 2,261,585 |
| b. Employer Contributions | | 55,059 |
| c. Employee Contributions | | 18,578 |
| d. Non-employer Contributing Entity Contributions | | - |
| e. Investment return | | |
| i. Expected Investment Return ³ | \$ | 165,631 |
| ii. Investment Gain/(Loss) | | <u>70,941</u> |
| iii. Net Investment Return | \$ | 236,572 |
| f. Benefit Payments | | (179,985) |
| g. Member Reassignments | | - |
| h. Administrative Expenses | | <u>(3,700)</u> |
| i. Plan Fiduciary Net Position - End of year | \$ | <u>2,388,109</u> |
| 3. Net Pension Liability | | |
| a. Net Pension Liability: (1)(i) - (2)(i) | \$ | 276,258 |
| b. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability : (2)(i) / (1)(i) | | 89.6% |

¹ Determined as of the beginning of the year.

² Includes interest of 7.50% on the beginning-of-year service cost.

³ Calculated assuming a 7.50% investment return, net of investment expenses, and assuming actual benefit payments and contributions occur at mid-year.

SECTION II - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

E. Pension Expense under GASB 68 for the Fiscal Year Ending June 30, 2018

Pension Expense (000's)

| | | |
|--|----|-----------------|
| 1. Service cost | | |
| a. Total Service Cost ¹ | \$ | 44,158 |
| b. Employee Contributions | | (18,578) |
| c. Administrative Expenses | | 3,700 |
| d. Net Employer Service Cost: (a) + (b) + (c) | \$ | <u>29,280</u> |
| 2. Interest Cost ² | \$ | 197,627 |
| 3. Expected Return on Assets ³ | \$ | (165,631) |
| 4. Changes of Benefit Terms | \$ | - |
| 5. Recognition of deferred (inflows) / outflows of resources related to: | | |
| a. Liability Experience (gains) / losses | \$ | (19,000) |
| b. Assumption Changes (gains) / losses | | (13,965) |
| c. Investment (gains) / losses | | 15,599 |
| d. Total: (a) + (b) + (c) | \$ | <u>(17,366)</u> |
| 6. Total Collective Pension Expense: (1)(d) + (2) + (3) + (4) + (5)(d) | \$ | 43,910 |

¹ Determined as of the beginning of the year.

² Includes interest of 7.50% on the beginning-of-year service cost less one-half year of interest on benefit payments.

³ Calculated assuming a 7.50% investment return, net of investment expenses, and assuming actual benefit payments and contributions occur at mid-year.

SECTION II - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

F. Schedule of Differences between Expected and Actual Experience under GASB 68 for the Fiscal Year Ending June 30, 2018

Experience Gains and Losses (000's)

| Fiscal Year Ending June 30, | Experience (Gain)/Loss | Original Recognition Period | Increase (Decrease) in Pension Expense Arising from Recognition of Experience Gains and Losses | | | | | | |
|---|---------------------------|-----------------------------------|--|-------------|-------------|-------------|------------|------|------------|
| | | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Thereafter |
| 2015 | \$ (60,057) | 4.97 | \$ (12,084) | \$ (11,721) | \$ - | \$ - | \$ - | \$ - | \$ - |
| 2016 | \$ (12,367) | 4.87 | \$ (2,539) | \$ (2,539) | \$ (2,211) | \$ - | \$ - | \$ - | \$ - |
| 2017 | \$ 44,176 | 4.59 | \$ 9,624 | \$ 9,624 | \$ 9,624 | \$ 5,680 | \$ - | \$ - | \$ - |
| 2018 | \$ (64,966) | 4.64 | \$ (14,001) | \$ (14,001) | \$ (14,001) | \$ (14,001) | \$ (8,962) | \$ - | \$ - |
| Net increase (decrease) in pension expense: | | | \$ (19,000) | \$ (18,637) | \$ (6,588) | \$ (8,321) | \$ (8,962) | \$ - | \$ - |

² Gains and losses in the liability attributable to plan experience is amortized over the expected remaining service lives of all employees provided with pension (both active and inactive employees) determined as of the beginning of the measurement period.

³ Deferred outflows are presented as positive amounts and deferred inflows are presented as negative amounts. Positive amounts increase pension expense and negative amounts decrease pension expense.

SECTION II - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

G. Schedule of Changes in Assumptions under GASB 68 for the Fiscal Year Ending June 30, 2018

Changes in Assumptions (000's)

| Fiscal Year Ending June 30, | (Gain)/Loss Due to Change in Assumption | Original Recognition Period | Increase (Decrease) in Pension Expense Arising from Recognition of Effects of Changes of Assumptions | | | | | | |
|---|---|-----------------------------------|--|-------------|-------------|------------|------------|------|------------|
| | | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Thereafter |
| 2016 | \$ (9,882) | 4.87 | \$ (2,029) | \$ (2,029) | \$ (1,766) | \$ - | \$ - | \$ - | \$ - |
| 2017 | \$ (41,610) | 4.59 | \$ (9,065) | \$ (9,065) | \$ (9,065) | \$ (5,350) | \$ - | \$ - | \$ - |
| 2018 | \$ (13,322) | 4.64 | \$ (2,871) | \$ (2,871) | \$ (2,871) | \$ (2,871) | \$ (1,838) | \$ - | \$ - |
| Net increase (decrease) in pension expense | | | \$ (13,965) | \$ (13,965) | \$ (13,702) | \$ (8,221) | \$ (1,838) | \$ - | \$ - |

¹ The City has determined that the effort and cost to re-create financial statement information for 10 years was not practical. Information presented above is only shown for those years for which it is available.

² Gains and losses in the liability attributable to assumption changes are amortized over the expected remaining service lives of all employees provided with pension (both active and inactive employees) determined as of the beginning of the measurement period.

³ Deferred outflows are presented as positive amounts and deferred inflows are presented as negative amounts. Positive amounts increase pension expense and negative amounts decrease pension expense.

SECTION II - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

H. Schedule of Differences between Projected and Actual Earnings on Investments under GASB 68 for the Fiscal Year Ending June 30, 2018

Investment Gains and Losses (000's)

| Fiscal Year Ending June 30, | Investment (Gain)/Loss | Original Recognition Period | Increase (Decrease) in Pension Expense Arising from Recognition of Investment Gains and Losses | | | | |
|---|---------------------------|-----------------------------------|--|-------------|-------------|-------------|-------------|
| | | | 2018 | 2019 | 2020 | 2021 | 2022 |
| 2015 | \$ 102,573 | 5.00 | \$ 20,515 | \$ 20,513 | \$ - | \$ - | \$ - |
| 2016 | \$ 167,134 | 5.00 | \$ 33,427 | \$ 33,427 | \$ 33,426 | \$ - | \$ - |
| 2017 | \$ (120,775) | 5.00 | \$ (24,155) | \$ (24,155) | \$ (24,155) | \$ (24,155) | \$ - |
| 2018 | \$ (70,941) | 5.00 | \$ (14,188) | \$ (14,188) | \$ (14,188) | \$ (14,188) | \$ (14,189) |
| Net increase (decrease) in pension expense | | | \$ 15,599 | \$ 15,597 | \$ (4,917) | \$ (38,343) | \$ (14,189) |

¹ The City has determined that the effort and cost to re-create financial statement information for 10 years was not practical. Information presented above is only shown for those years for which it is available.

² Gains and losses in the assets attributable to investment experience is amortized over a five-year period determined as of the beginning of the measurement period. For this purpose, the investment gain or loss is net of investment expenses.

³ Deferred outflows are presented as positive amounts and deferred inflows are presented as negative amounts. Positive amounts increase pension expense and negative amounts decrease pension expense.

SECTION II - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

I. Determination of Resources of Deferred Outflows and Resources of Deferred Inflows for the Fiscal Year Ending June 30, 2018

Deferred Outflows and Inflows (000's)

| | Established in Fiscal Year Ending June 30, | Original Loss | Original (Gain) | Cumulative Amounts Recognized in Expense through June 30, 2018 | Balances at June 30, 2018 | |
|--|---|------------------|--------------------|---|--------------------------------------|-------------------------------------|
| | | | | | Deferred Outflows of Resources | Deferred Inflows of Resources |
| | | (a) | (b) | (c) | (d) = (a) - (c) | (e) = (b) - (c) |
| a. <i>Experience (Gains) and Losses</i> | 2015 | | \$ (60,057) | \$ (48,336) | | \$ (11,721) |
| | 2016 | | \$ (12,367) | \$ (7,617) | | \$ (4,750) |
| | 2017 | \$ 44,176 | | \$ 19,248 | \$ 24,928 | |
| | 2018 | \$ (64,966) | | \$ (14,001) | | \$ (50,965) |
| | | | | | | \$ 24,928 |
| b. <i>Changes in Assumptions</i> | 2016 | | \$ (9,882) | \$ (6,087) | | \$ (3,795) |
| | 2017 | | \$ (41,610) | \$ (18,130) | | \$ (23,480) |
| | 2018 | | \$ (13,322) | \$ (2,871) | | \$ (10,451) |
| | | | | | \$ - | \$ (37,726) |
| c. <i>Investment (Gains) and Losses</i> | 2015 | \$ 102,573 | | \$ 82,060 | \$ 20,513 | |
| | 2016 | \$ 167,134 | | \$ 100,281 | \$ 66,853 | |
| | 2017 | | \$ (120,775) | \$ (48,310) | | \$ (72,465) |
| | 2018 | | \$ (70,941) | \$ (14,188) | | \$ (56,753) |
| | | | | | \$ 87,366 | \$ (129,218) |
| d. <i>Collective Deferred Outflows/(Inflows) of Resources: (a) + (b) + (c)</i> | | | | | \$ 112,294 | \$ (234,380) |

¹ Deferred outflows of resources are presented as positive amounts. Deferred inflows of resources are presented as negative amounts.

SECTION II - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

J. Schedule of Deferred Outflows of Resources and Deferred Inflows of Resources to be Recognized in Future Pension Expense under GASB 68

Future Amortization of Deferred Outflows and Inflows (000's)

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions recognized in pension expense as follows:

Year Ending June 30:

| | | |
|------------|----|----------|
| 2019 | \$ | (17,005) |
| 2020 | \$ | (25,207) |
| 2021 | \$ | (54,885) |
| 2022 | \$ | (24,989) |
| 2023 | \$ | - |
| Thereafter | \$ | - |

SECTION III - ASSETS

ASSETS

| | <u>Page</u> |
|---|-------------|
| A. Market Value of Assets | 19 |
| B. Reconciliation of Market Value of Assets and Investment Return | 20 |

SECTION III - ASSETS

A. Market Value of Assets

| | Market Value June 30, 2017 | Market Value June 30, 2018 |
|--------------------------------------|---------------------------------------|---------------------------------------|
| 1607 Capital Partners | \$ 138,934,816 | \$ 139,804,941 |
| Acadian EM Equity II | 112,216,904 | 106,212,677 |
| Aetos | 43,888,737 | 45,678,330 |
| Barrow, Hanley, et al | 67,411,366 | 141,094,919 |
| Bernzott | 11,270,111 | 11,879,406 |
| BlackRock Granite Property Fund | 45,013,716 | 49,076,850 |
| Brandywine | 213,776,446 | 226,557,035 |
| City Managed (In-House) | 17,332,938 | 45,060,922 |
| Cornerstone VIII | 1,447,624 | 37,852 |
| Cornerstone X | 6,792,142 | 7,972,444 |
| Fidelity Real Estate Growth III Fund | 763,528 | - |
| Gerding Edlen | 12,906,768 | 17,537,916 |
| Grosvenor | 43,721,344 | 46,888,695 |
| Herndon Capital | 67,423,740 | 21,295,902 |
| JP Morgan | 99,812,383 | 111,958,436 |
| Long Wharf Fund IV | 15,722,240 | 11,450,571 |
| Long Wharf Fund V | 6,093,549 | 15,782,143 |
| Mackay Shields | 158,263,208 | 154,969,776 |
| Marathon Asset Management | 133,136,168 | 130,038,995 |
| Matarin Capital Management | 11,122,892 | 11,959,330 |
| Navellier & Associates | 61,746,785 | - |
| Mesirow Financial | - | 4,852,347 |
| NB Crossroads Fund XXI | 14,654,653 | 27,229,223 |
| Nicholas Investment Partners | 41,448,272 | 41,663,803 |
| Northern Trust | 62,704,369 | 61,378,408 |
| Pantheon Fund V | 18,467,491 | 32,659,365 |
| Paradigm Small Cap | 35,796,268 | - |
| PIMCO | 111,181,690 | 99,660,296 |
| Principal Global Investors | 92,257,094 | 90,039,701 |
| Profit Investment Management | 11,782,416 | 12,912,986 |
| Prudential Core Conserv Bond | 108,062,120 | 97,712,971 |
| Rhumblin S&P 500 | 188,689,166 | 185,195,808 |
| Rhumblin 1000 | - | 69,625,091 |
| Rhumblin 2000 | - | 42,969,641 |
| RREEF America REIT II | 15,190,000 | 15,852,429 |
| Smith Graham & Co | 109,164,672 | 98,534,048 |
| Southern Sun | 32,217,748 | 28,682,094 |
| SSM Partners | 3,145,938 | 5,153,852 |
| Strategic Global Advisors | 35,923,031 | 53,643,946 |
| Summit Creek Advisors | 6,293,694 | 8,309,200 |
| T.A. Realty | 7,965,629 | 20,570,239 |
| Vanguard REIT | 23,611,142 | 19,134,109 |
| Winslow Capital Management | 74,232,091 | 77,072,699 |
| Total | \$ 2,261,584,889 | \$ 2,388,109,396 |

SECTION III - ASSETS

B. Reconciliation of Market Value of Assets and Investment Return

| | |
|---|----------------------|
| 1. Market Value of Assets at July 1, 2017 | \$ 2,261,585,000 |
| 2. Contributions | |
| a. Employer Contributions | \$ 55,059,000 |
| b. Employee Contributions | <u>18,578,000</u> |
| c. Total | \$ 73,637,000 |
| 3. Benefit Payments in 2017 - 2018 | \$ 179,985,000 |
| 4. Expenses | |
| a. Investment Fees | \$ 13,272,000 |
| b. Administrative Fees | <u>3,700,000</u> |
| c. Total | \$ 16,972,000 |
| 5. Interest and Dividend Income | \$ 49,499,000 |
| 6. Unrealized Gain/(Loss) | \$ 94,849,000 |
| 7. Net Realized Gain/(Loss) | \$ 53,298,000 |
| 8. Other Revenue ¹ | <u>\$ 52,198,000</u> |
| 9. Total Income: (5) + (6) + (7) + (8) | \$ 249,844,000 |
| 10. Market Value of Assets at July 1, 2018: (1) + (2) - (3) - (4) + (9) | \$ 2,388,109,000 |
| 11. Investment Return: $[2 \times (9)] \div [(1) + (10) - (9)]$ | 11.36% |

¹ Provided by the City.

SECTION IV - CENSUS DATA

CENSUS DATA

| | <u>Page</u> |
|--|-------------|
| A. Census Information | 21 |
| B. Distribution of Active Members by Age and Service | 22 |
| C. Distribution of Terminated Vested Members by Age and Service | 23 |
| D. Distribution of Retired Members, Beneficiaries, and Disabled Members by Age and Number of Years Retired | 24 |
| E. Flow of Lives from June 30, 2017 to June 30, 2018 | 25 |

SECTION IV - CENSUS DATA

A. Census Information

| | <u>June 30, 2016</u> | <u>June 30, 2017</u> | <u>June 30, 2018</u> |
|---|----------------------|----------------------|----------------------|
| 1. Active | | | |
| a. Number ¹ | 5,710 | 5,858 | 5,941 |
| b. Average Age | 44.2 | 44.0 | 43.9 |
| c. Average Years of Service | 12.0 | 11.8 | 11.7 |
| d. Anticipated Payroll | \$ 319,820,000 | \$ 353,410,000 | \$ 349,096,000 |
| e. Actual Covered Payroll | \$ 300,123,000 | \$ 336,505,000 | \$ 333,171,000 |
| 2. Terminated - Vested and Nonvested | | | |
| a. Number | 798 | 867 | 958 |
| b. Lump Sum- Refund of Contribution | \$ 8,573,000 | \$ 7,251,000 | \$ 8,185,000 |
| 3. Retiree, Beneficiary, and DROP Enrollees | | | |
| a. Number ² | 4,427 | 4,445 | 4,502 |
| b. Annual Benefits Payable | \$ 152,660,000 | \$ 153,472,785 | \$ 155,937,813 |
| c. DROP Account Balance | \$ 18,479,000 | \$ 17,902,000 | \$ 16,782,000 |
| 4. Disabled | | | |
| a. Number | 632 | 664 | 684 |
| b. Annual Benefits Payable | \$ 16,925,000 | \$ 18,015,822 | \$ 18,865,088 |

¹ As of June 30, 2018, actives include 3,296 grandfathered participants (2,236 Police & Fire and 1,060 General employees).

² Includes deferred retirees.

SECTION IV - CENSUS DATA

B. Distribution of Active Members by Age and Service

| Attained Age | Distribution of Active Members by Age and Service as of June 30, 2018 | | | | | | | | | | |
|--------------|---|--------------------|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|-------|
| | 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 | 110 | 103 | 1 | | | | | | | | 214 |
| 25-29 | 155 | 355 | 55 | 5 | | | | | | | 570 |
| 30-34 | 87 | 267 | 233 | 92 | 6 | | | | | | 685 |
| 35-39 | 58 | 168 | 223 | 218 | 73 | 3 | | | | | 743 |
| 40-44 | 23 | 106 | 135 | 223 | 228 | 73 | 1 | | | | 789 |
| 45-49 | 36 | 87 | 109 | 176 | 290 | 378 | 40 | | | | 1,116 |
| 50-54 | 24 | 94 | 63 | 106 | 178 | 247 | 98 | 19 | | | 829 |
| 55-59 | 21 | 60 | 64 | 61 | 121 | 124 | 60 | 40 | 11 | | 562 |
| 60-64 | 11 | 37 | 40 | 49 | 73 | 59 | 14 | 17 | 6 | 3 | 309 |
| 65-69 | 1 | 10 | 21 | 13 | 25 | 15 | 2 | 2 | | 1 | 90 |
| 70&Up | | 4 | 5 | 7 | 6 | 8 | 3 | | 1 | | 34 |
| Total | 526 | 1,291 | 949 | 950 | 1,000 | 907 | 218 | 78 | 18 | 4 | 5,941 |

SECTION IV - CENSUS DATA

C. Distribution of Terminated Members by Age and Service

| Attained Age | Distribution of Terminated Vested Members by Age and Service as of June 30, 2018 | | | | | | | Total |
|--------------|--|--------------|----------------|----------------|----------------|----------------|---------------|-------|
| | Under 5 years | 5 to 9 years | 10 to 14 years | 15 to 19 years | 20 to 24 years | 25 to 29 years | Over 30 years | |
| <25 | 32 | | | | | | | 32 |
| 25-29 | 96 | 3 | | | | | | 99 |
| 30-34 | 211 | 10 | 2 | | | | | 223 |
| 35-39 | 164 | 21 | 2 | 1 | | | | 188 |
| 40-44 | 114 | 16 | 10 | 3 | | | | 143 |
| 45-49 | 83 | 9 | 8 | 6 | 2 | | | 108 |
| 50-54 | 50 | 13 | 5 | 5 | 3 | | | 76 |
| 55-59 | 29 | 7 | 2 | 3 | | | | 41 |
| 60-64 | 21 | 2 | 1 | | | | | 24 |
| 65-69 | 14 | 2 | | | | | | 16 |
| 70&Up | 7 | | 1 | | | | | 8 |
| Total | 821 | 83 | 31 | 18 | 5 | | | 958 |

SECTION IV - CENSUS DATA

D. Distribution of Retired, Beneficiaries, Disabled, and DROP Members by Age and Number of Years Retired ¹

| Attained Age | Distribution of Retired Members, Beneficiaries, and Disabled Members by Age and Number of Years Retired as of June 30, 2018 | | | | | | | |
|--------------|--|-----------------------|-------------------|-------------------|-------------------|-------------------|------------------|-------|
| | Under 5 years | 5 to 9 years years | 10 to 14 years | 15 to 19 years | 20 to 24 years | 25 to 29 years | Over 30 years | Total |
| <40 | 29 | 8 | 7 | 1 | 2 | 1 | 1 | 49 |
| 40-44 | 34 | 8 | 5 | 3 | 1 | | | 51 |
| 45-49 | 74 | 23 | 13 | 28 | 6 | | | 144 |
| 50-54 | 165 | 97 | 20 | 82 | 15 | 3 | | 382 |
| 55-59 | 151 | 187 | 66 | 115 | 22 | 6 | 6 | 553 |
| 60-64 | 96 | 215 | 179 | 156 | 36 | 16 | 11 | 709 |
| 65-69 | 82 | 204 | 196 | 232 | 114 | 35 | 27 | 890 |
| 70-74 | 29 | 83 | 135 | 260 | 257 | 92 | 65 | 921 |
| 75-79 | 3 | 21 | 47 | 113 | 197 | 133 | 143 | 657 |
| 80-84 | | 3 | 17 | 45 | 92 | 109 | 187 | 453 |
| 85-89 | | 1 | 5 | 15 | 31 | 58 | 153 | 263 |
| 90&Up | | | | 2 | 5 | 13 | 94 | 114 |
| Total | 663 | 850 | 690 | 1,052 | 778 | 466 | 687 | 5,186 |

¹ Includes 162 employees currently participating in the DROP and 97 employees who temporarily froze participation in the DROP Program effective November 1, 2015 or November 1, 2016.

² For the above exhibit, the average of 17 years of retirement was used for 262 retirees who did not have a date of retirement in the data. This does not impact the plan's liability.

SECTION IV - CENSUS DATA

E. Flow of Lives from June 30, 2017 to June 30, 2018

| | <u>Actives</u> | <u>Terminated ¹</u> | <u>Disabled</u> | <u>Retired ²</u> | <u>Beneficiary</u> | <u>DROP ³</u> | <u>Total</u> |
|----------------------|----------------|--------------------------------|-----------------|-----------------------------|--------------------|--------------------------|--------------|
| June 30, 2017 | 5,858 | 867 | 664 | 3,196 | 984 | 265 | 11,834 |
| New Entrants: | 552 | - | - | - | - | - | 552 |
| Rehires: | 13 | (13) | - | - | - | - | - |
| DROP: | (76) | - | - | - | - | 76 | - |
| Vested Terminations: | (130) | 131 | - | (1) | - | - | - |
| Retirements: | (63) | (5) | - | 146 | - | (78) | - |
| Disabilities: | (41) | - | 41 | - | - | - | - |
| Beneficiary | (15) | (1) | (6) | (38) | 60 | - | - |
| Death | (8) | - | (13) | (45) | (51) | (1) | (118) |
| Refunded | (98) | (8) | - | (1) | - | - | (107) |
| Data Adjustments: | (51) | (13) | (2) | (19) | 12 | (3) | (76) |
| June 30, 2018 | 5,941 | 958 | 684 | 3,238 | 1,005 | 259 | 12,085 |

¹ Includes nonvested terminated participants scheduled to receive a refund of their employee contributions.

² As of June 30, 2017, this included 14 participants who are retirement eligible, but have not commenced benefit payments. As of June 30, 2018, this includes 19 participants who are retirement eligible, but have not commenced benefit payments.

³ Includes 97 participants who elected to temporarily suspend (or freeze) in the DROP participation effective November 1, 2015 or November 1, 2016.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

ACTUARIAL ASSUMPTIONS AND METHODS

| | <u>Page</u> |
|---|-------------|
| A. Actuarial Assumptions | 26 |
| B. Actuarial Assumptions Rationale | 32 |
| B. Actuarial Methods for GASB 67 and GASB 68 Purposes | 33 |

SECTION V - 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. The assumptions are considered reasonable for purposes of this valuation.

Interest Rate / Investment Return 7.5% per year for GASB 67 and GASB 68 purposes

Interest Crediting Rate

 Cash Balance Account 6.5% (valuation interest rate less 1.0%)

 IRC 401(a) Account 5.5%

Future Salary Increases The salary scale was based on an experience study performed in 2014. Rates vary by age and service with a weighted average of 4.25%.

| Age | <u>Years of Service</u> | | | |
|--------|-------------------------|--------|-------|-------|
| | 1 | 2 | 3 | 4+ |
| < 25 | 7.25% | 10.75% | 8.75% | 6.50% |
| 26-30 | 8.25% | 10.25% | 8.00% | 5.75% |
| 31-35 | 7.75% | 9.25% | 7.00% | 5.00% |
| 36-40 | 6.75% | 8.00% | 6.00% | 4.50% |
| 41-45 | 5.50% | 6.75% | 5.50% | 4.44% |
| 46- 50 | 5.50% | 6.75% | 5.50% | 4.38% |
| 51- 55 | 5.50% | 6.75% | 5.50% | 4.31% |
| 56 | 5.50% | 6.75% | 5.50% | 4.23% |
| 57 | 5.50% | 6.75% | 5.50% | 4.20% |
| 58 | 5.50% | 6.75% | 5.50% | 4.18% |
| 59 | 5.50% | 6.75% | 5.50% | 4.15% |
| 60 | 5.50% | 6.75% | 5.50% | 4.13% |
| 61 | 5.50% | 6.75% | 5.50% | 4.11% |
| 62 | 5.50% | 6.75% | 5.50% | 4.10% |
| 63 | 5.50% | 6.75% | 5.50% | 4.09% |
| 64 | 5.50% | 6.75% | 5.50% | 4.08% |
| >=65 | 5.50% | 6.75% | 5.50% | 4.06% |

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (continued)

Cost of Living Increases None assumed

Mortality

Service Cost

General: Fully Generational RP-2014 Total Dataset Mortality Table (with MP-2014 improvement removed) with MP-2016 projection scale from 2006 forward and adjusted by a 1 year set forward.

Police and Fire: Fully Generational RP-2014 Blue Collar Mortality Table (with MP-2014 improvement removed) with MP-2016 projection scale from 2006 forward and adjusted by a 1 year set forward.

Disabled: Fully Generational RP-2014 Disabled Mortality Table (with MP-2014 improvement removed) with MP-2016 projection scale from 2006 forward and adjusted by a 3 year set back.

Net Pension Liability

General: Fully Generational RP-2014 Total Dataset Mortality Table (with MP-2014 improvement removed) with MP-2017 projection scale from 2006 forward and adjusted by a 1 year set forward.

Police and Fire: Fully Generational RP-2014 Blue Collar Mortality Table (with MP-2014 improvement removed) with MP-2017 projection scale from 2006 forward and adjusted by a 1 year set forward.

Disabled: Fully Generational RP-2014 Disabled Mortality Table (with MP-2014 improvement removed) with MP-2017 projection scale from 2006 forward and adjusted by a 3 year set back.

Account Balance
Conversion

Account balances under the 2016 Plan (effective July 1, 2016) are converted at 5.0% interest (required under the plan) and the applicable mortality table under IRC 417(e) in effect on the current valuation date.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (continued)

Termination Select and Ultimate rates. Sample rates are shown below:

Police & Fire: Males

| Age | Years of Service | | | | | |
|-----|------------------|-------|------|------|------|------|
| | 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

| Age | Years of Service | | | | | |
|-----|------------------|-------|-------|-------|-------|-------|
| | 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% |
| 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% | 4.0% | 4.0% |
| 55 | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% |

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (continued)

Termination (continued)

General, Police & Fire:

Females

| Age | Years of Service | | | | | |
|-----|------------------|-------|-------|-------|-------|------|
| | 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% |

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (continued)

Retirement Rates

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

Grandfathered

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

Nongrandfathered

| General - Males & Females | | Police & Fire - Males and Females | |
|---------------------------|------|-----------------------------------|------|
| Age | Rate | Age | Rate |
| 62 | 20% | 52 | 20% |
| 63 | 20% | 53 | 20% |
| 64 | 20% | 54 | 20% |
| 65 | 100% | 55 | 20% |
| | | 56 | 20% |
| | | 57 | 20% |
| | | 58 | 20% |
| | | 59 | 20% |
| | | 60 | 100% |

Disability

1968 Social Security Experience Table. Sample rates are shown below:

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

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions (continued)

| | |
|------------------------|--|
| Marriage | 80% of male General Employees, 50% of female General Employees, and 80% of Police and Fire Employees are assumed to be married. Wives are assumed to be three years younger than their husbands. |
| Death/Disability | Deaths and disabilities for active General Employees are assumed to be not line-of-duty. Deaths and disabilities for active Police and Fire Employees are assumed to be line-of-duty. |
| Form of Payment | It has been assumed that benefits will be paid in the normal annuity form applicable to the particular benefit. All grandfathered General Employees (1948 Plan or 1978 Plan only) who terminate prior to retirement age are assumed to elect to receive their employee contributions times the applicable return multiple. All nongrandfathered General Employees who terminate prior to ten years of service will elect to receive a refund of their employee contributions under the 1978 Plan times the applicable return multiple, plus the employee account balance under the 2016 Plan. Those who withdraw after ten years of service will elect to receive their entire accrued benefit as a lifetime annuity and commencing at age 60. All Police and Fire Employees who terminate prior to ten years of service will receive a refund of their employee contributions under the 1978 Plan times the applicable return multiple, plus the employee account balance under the 2016 Plan. Those who withdraw after ten years of service will receive their entire accrued benefit as a lifetime annuity and commencing at age 60. |
| Expense Load | None. |
| Data Assumptions | Actives and terminated vested participants that were included in the prior years valuation census data, but not in the 2018 valuation census data were assumed to be either a terminated non-vested or received a refund of their employee contributions. 2018 earnings that significantly changed from the prior year (greater than +/- 10%) were assumed to be accurate. Cash balance accounts as of June 30, 2018 are estimated based on the June 30, 2017 actual cash balance account plus estimated service credits and interest credits using FY18 pensionable earnings and the return on assets |
| Changes in Assumptions | The mortality assumptions were updated from use of the MP-2016 projection scale to the MP-2017 projection scale. |

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Assumptions Rationale

| | |
|--------------------------------------|--|
| Interest Rate / Investment Return | Equal to the single rate of return as the City's funding policy requires fully funding the actuarially determined contribution by the 2020 fiscal year. It is developed pursuant to paragraphs 40 - 45 of GASB 67 and paragraphs 26 - 31 of GASB 68. |
| Future Salary Increases ¹ | This assumption is set considering underlying inflation and historical salary increases coupled with management's best estimate of future expectations. |
| Cost of Living Increases | This assumption is set considering underlying inflation and historical cost of living increases coupled with management's best estimate of future expectations. |
| 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 assumed. |
| Disability ¹ | Disability rates are set based on the plan's historical experience observed in the 2014 experience study 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 observed in the 2014 experience study and future expectations with periodic monitoring of observed gains and losses caused by termination patterns different than assumed. |
| Retirement ¹ | Retirement rates are set based on the plan's historical experience observed in the 2014 experience study and future expectations with periodic monitoring of observed gains and losses caused by retirement patterns different than assumed. |
| Marriage 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. |
| Form of Payment | This assumption is based on historical experience and management's best expectations given the current plan provisions. |

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

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

C. Actuarial Methods for GASB 67 and GASB 68 Purposes

1. 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.

The actuarial accrued liability is the present value of future benefits, for both active and inactive participants, less the present value of future normal costs.

2. Asset Valuation Method

Fair value of assets.

3. Changes in Actuarial Methods

No changes from the prior year.

SECTION VI - SUMMARY OF PLAN PROVISIONS

SUMMARY OF PLAN PROVISIONS

| | <u>Page</u> |
|--|-------------|
| A. Summary of Plan Provisions: General Employees | 34 |
| B. Summary of Plan Provisions: Police and Fire Employees | 44 |

SECTION VI - SUMMARY OF PLAN PROVISIONS

A. Summary of Plan Provisions: General Employees

Below is a summary of the plan provisions that are pertinent to the valuation herein and may exclude certain provisions that are not deemed relevant to our calculations. This summary is based on our understanding of the plan provisions set forth in the applicable statutes of the City of Memphis. If there is a discrepancy between the summary below and the applicable statutes, the applicable statutes shall govern.

| | |
|-------------------------------------|---|
| Effective Date | Originally effective October 1, 1948. Revised July 1, 1978, January 1, 1990, December 1, 2000, July 1, 2012 and July 1, 2016. |
| Participation | |
| <i>1948 Plan</i> | All regular salaried employees on their date of hire and hired before July 1, 1978. |
| <i>1978 Plan</i> | All regular salaried employees on their date of hire and hired on or after July 1, 1978 but prior to July 1, 2016. |
| <i>2016 Plan</i> | All regular salaried employees on their date of hire and hired on or after July 1, 2016. In addition, any nongrandfathered employee in the 1978 Plan will participate in the 2016 Plan as of July 1, 2016. For this purpose, a nongrandfathered employee is any employee with less than 7½ Years of Service as of July 1, 2016. |
| Compensation | Basic salary, excluding overtime, but including shift premium, hazardous pay, longevity pay and incentive pay. |
| Average Monthly Compensation | For 1948 Plan employees and 1978 Plan employees hired before July 1, 2012, the highest average monthly Compensation received for any five consecutive years of service, or the most recent year's earnings, if greater. For 1978 Plan employees hired after June 30, 2012, highest average monthly Compensation received for any three consecutive years of service. |
| Year of Service | One year of service is earned for each 12-month period beginning at date of employment. Fractional periods (months and days) are also credited. |

SECTION VI - SUMMARY OF PLAN PROVISIONS

A. Summary of Plan Provisions: General Employees (continued)

Accrued Benefit

1948 Plan

An employee in the 1948 Plan may choose between (1) and (2):

(1) The sum of (a) and (b):

(a) $2\frac{1}{4}\%$ of Average Monthly Compensation times Years of Service before 1/1/90, plus $2\frac{1}{2}\%$ of Average Monthly Compensation times Years of Service after 1/1/90.

Total Years of Service in part (a) must not exceed 25 years.

(b) 1% of Average Monthly Compensation times Years of Service in excess of 25

The maximum total retirement benefit is $72\frac{1}{2}\%$ of the Average Monthly Compensation.

(2) Return of Employee Contributions in accordance with the following schedule:

| <u>Years of Service</u> | <u>Return Multiple</u> |
|-------------------------|------------------------|
| less than 5 | 1.0 |
| 5 to 14 | 1.5 - 2.9 |
| 15 or more | 3.0 |

SECTION VI - SUMMARY OF PLAN PROVISIONS

A. Summary of Plan Provisions: General Employees (continued)

Accrued Benefit (continued)

1978 Plan

A grandfathered employee is any employee hired before July 1, 2016 and who has 7½ or more Years of Service as of July 1, 2016. All other employees are nongrandfathered.

The Accrued Benefit for nongrandfathered employees will be based on Average Monthly Compensation and Years of Service as of June 30, 2016 after which future benefits will be earned under the 2016 Plan.

An employee in the 1978 Plan may choose between (1) and (2):

(1) The sum of (a) and (b):

(a) For employees hired before July 1, 2012: 2¼% of Average Monthly Compensation times Years of Service before 1/1/90, plus 2½% of Average Monthly Compensation times Years of Service after 1/1/90.

For employees hired after June 30, 2012: 2¼% of Average Monthly Compensation times Years of Service

Total Years of Service in part (a) must not exceed 25 years.

(b) 1% of Average Monthly Compensation times Years of Service in excess of 25, up to a maximum total retirement benefit of 72½ %.

(2) Return of Employee Contributions in accordance with the following schedule:

| <u>Years of Service</u> | <u>Return Multiple</u> |
|-------------------------|------------------------|
| less than 5 | 1.0 |
| 5 to 14 | 1.5 - 2.9 |
| 15 or more | 3.0 |

SECTION VI - SUMMARY OF PLAN PROVISIONS

A. Summary of Plan Provisions: General Employees (continued)

Accrued Benefit (continued)

2016 Plan

An employee in the 2016 Plan will be required to receive the Normal Form of Annuity derived by both a market-rate cash balance account and a defined contribution account.

Market-rate Cash Balance Account

Annual allocations to the cash balance account are equal to a percentage of Compensation that varies by Years of Service pursuant to the following allocation schedule:

| <u>Years of Service</u> | <u>Allocation %</u> |
|-------------------------|---------------------|
| 0.00 - 4.99 | 5% |
| 5.00 - 9.99 | 7% |
| 10.00 - 14.99 | 9% |
| 15.00 - 19.99 | 12% |
| 20.00 + | 15% |

Interest Credits applied to the cash balance account are based on an interest crediting rate equal to the investment return on plan assets *less* one percent (1.0%).

The Normal Form of Annuity is determined based on Actuarial Equivalence of five percent (5.0%) per annum and the applicable mortality table pursuant to IRC Section 417(e)(3) for the Plan Year.

Defined Contribution Account Balance

Annual allocations to the defined contribution account are equal to seven and one-half percent (7.5%) of Compensation which consists of a six percent (6.0%) of Compensation as an employee contribution and one and one half percent (1.5%) of Compensation as an employer contribution. Assets are participant directed and the investment earnings are included in the defined contribution account balance.

The Normal Form of Annuity is determined based on Actuarial Equivalence of five percent (5.0%) per annum and the applicable mortality table pursuant to IRC Section 417(e)(3) for the Plan Year.

SECTION VI - SUMMARY OF PLAN PROVISIONS

A. Summary of Plan Provisions: General Employees (continued)

Minimum Accrued Benefit

| <i>1948 Plan and 1978 Plan</i> | <u>Years of Service</u> | <u>At Age</u> | <u>Monthly Minimum Accrued Benefit</u> |
|--------------------------------|--|----------------|--|
| | 25 or more | No Restriction | \$525 plus \$21 times the lesser of 10 or Years of Service in excess of 25 |
| | 15 or more | 65 or after | \$500 plus \$1 times the lesser of 25 or Years of Service |
| | less than 25 | Before 65 | The greater of \$262.50 or \$21 times Years of Service |
| <i>2016 Plan</i> | There is no minimum accrued benefit other than that provided for death and disability. | | |

Normal Form of Annuity

If single, an annuity for the life of the participant. A married participant will receive this annuity during his lifetime with a 75% continuation to his spouse upon his death. For 1948 Plan participants, 100% of the annuity is payable to the spouse upon the death of the participant.

Normal Retirement

Elected & Appointed

For elected and appointed participants hired before November 1, 2004, first day of month coincident with or next following completion of 12 Years of Service. Otherwise, normal retirement eligibility follows their respective plan.

Benefit Amount: Accrued Benefit

SECTION VI - SUMMARY OF PLAN PROVISIONS

A. Summary of Plan Provisions: General Employees (continued)

Normal Retirement (continued)

1948 Plan

For 1948 Plan employees, first day of the month coincident with or next following the earlier of the following dates:

- (a) Age 60 and completion of 10 Years of Service; or
- (b) Completion of 25 Years of Service.

Benefit Amount: Accrued Benefit

1978 Plan

For 1978 Plan employees hired before July 1, 2012, first day of the month coincident with or next following the earliest of the following dates:

- (a) Age 60 and completion of 10 Years of Service;
- (b) Age 65 and completion of 5 Years of Service; or
- (c) Completion of 25 Years of Service.

Benefit Amount: Accrued Benefit

For 1978 Plan employees hired on or after June 30, 2012, first day of the month coincident with or next following the earliest of the following dates:

- (a) Age 65 and the completion of 5 Years of Service; or
- (b) Completion of 25 Years of Service

Benefit Amount: A reduction of five percent (5%) per year for each year that the commencement date precedes the date the participant will attain age 62 applied to the Accrued Benefit.

SECTION VI - SUMMARY OF PLAN PROVISIONS

A. Summary of Plan Provisions: General Employees (continued)

Normal Retirement (continued)

2016 Plan For 2016 Plan employees, first day of the month coincident with or next following the earlier of the following dates:

- (a) Age 65 and the completion of 5 Years of Service; or
- (b) Completion of 25 Years of Service

Benefit Amount: Accrued Benefit

Disability

Eligibility: No service requirement for line-of-duty; five years of service for non line-of-duty.

Line-of-Duty: A participant who becomes disabled while performing City duties is entitled to receive the greater of:

- (1) 60% of Average Monthly Compensation as of date of disability; or
- (2) Accrued Benefit as of date of disability.

Non Line-of-Duty Benefit: For 1948 Plan participants, disabled employees while actively employed for reasons other than line-of-duty is entitled to receive the greater of:

- (1) 25% of Average Monthly Compensation as of date of disability; or
- (2) Accrued Benefit as of date of disability.

For 1978 Plan participants, an employee who becomes disabled while actively employed for reasons other than line-of-duty is entitled to receive the Accrued Benefit as of date of disability.

For 2016 Plan participants, an employee who becomes disabled while actively employed for reasons other than line-of-duty is entitled to receive the Accrued Benefit as of date of disability.

SECTION VI - SUMMARY OF PLAN PROVISIONS

A. Summary of Plan Provisions: General Employees (continued)

Vested Termination

Eligibility: Termination of employment after completion of 10 Years of Service.

Benefit Amount:

1948 Plan Accrued Benefit determined as of termination date becomes payable at age 65 for 1948 Plan employees.

1978 Plan Accrued Benefit determined as of termination date becomes payable at age 60 if hired before July 1, 2012 and becomes payable at age 62 if hired on or after July 1, 2012.

2016 Plan Accrued Benefit determined as of termination date becomes payable at age 60.

Nonvested Termination

Eligibility: Termination of employment before completion of 10 Years of Service.

Benefit Amount:

1948 Plan Return of Employee Contributions times the appropriate return multiple.

1978 Plan Return of Employee Contributions times the appropriate return multiple. For a nongrandfathered employee, only Employee Contributions through July , 2016 are refunded.

2016 Plan The portion of the cash balance account funded by employee contributions plus applicable interest credits.

SECTION VI - SUMMARY OF PLAN PROVISIONS

A. Summary of Plan Provisions: General Employees (continued)

Involuntary Retirement

Eligibility:

1948 Plan Completion of 15 years of service

1978 Plan Completion of 12 years of service

Note: This pension does not apply to any employee hired after November 1, 2004

Benefit Amount: Accrued Benefit determined as of involuntary retirement date becomes payable on date of retirement.

Pre-Retirement Death Benefit

Eligibility: No service requirement for Line-of-Duty; 5 years of service for non line-of-duty.

Line-of-Duty Benefit: The surviving spouse (or children) of a participant who dies while performing City duties is entitled to receive the greater of:

- (1) 60% of Average Monthly Compensation as of date of death; or
- (2) Accrued Benefit as of date of death.

Non Line-of-Duty Benefit: For the 1948 Plan, the surviving spouse (or children) of a participant who dies while actively employed will receive 100% of the participant's Accrued Benefit as of date of the participant's death.

For the 1978 Plan, the surviving spouse (or children) of a participant who dies while actively employed will receive 75% of the participant's Accrued Benefit as of date of the participant's death.

For the 2016 Plan, the surviving spouse (or children) of a participant who dies while actively employed will receive 75% of the Normal Form of Annuity as of the date of the participant's death.

SECTION VI - SUMMARY OF PLAN PROVISIONS

A. Summary of Plan Provisions: General Employees (continued)

Employee Contributions

1948 Plan

Employees in the 1948 Plan must contribute five percent (5%) of Compensation.

1978 Plan

Employees in the 1978 Plan must contribute eight percent (8%) of Compensation.

2016 Plan

Employees in the 2016 Plan must contribute two percent (2%) of Compensation to the cash balance account and six percent (6%) of Compensation to the IRC section 401(a) defined contribution account.

**Changes From Prior
Valuation**

None.

SECTION VI - SUMMARY OF PLAN PROVISIONS

B. Summary of Plan Provisions: Police and Fire Employees

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.

Effective Date Originally effective October 1, 1948. Revised July 1, 1978, January 1, 1990, December 1, 2000, July 1, 2012 and July 1, 2016.

Participation

1948 Plan All regular salaried employees on their date of hire and hired before July 1, 1978.

1978 Plan All regular salaried employees on their date of hire and hired on or after July 1, 1978 but prior to July 1, 2016.

2016 Plan All regular salaried employees on their date of hire and hired on or after July 1, 2016. In addition, any nongrandfathered employee in the 1978 Plan will participate in the 2016 Plan as of July 1, 2016.

For this purpose, a nongrandfathered employee is any employee with less than 7½ Years of Service as of July 1, 2016.

Compensation Basic salary, excluding overtime and double time compensation for holiday pay, but including shift premium, hazardous pay, longevity pay and incentive pay.

Average Monthly Compensation For 1948 Plan participants, the highest average monthly Compensation received for any five consecutive years of service, or the most recent year's earnings, if greater.

For 1978 Plan employee and 2012 Plan employees, the highest average monthly Compensation received for any three consecutive years of service preceding the participant's date of termination. Police officers hired prior to January 31, 1979 who retire with thirty years of service have their accrued benefit determined based on Captain's compensation if greater than their actual compensation, regardless of their rank.

Year of Service One year of service is earned for each 12-month period beginning at date of employment. Fractional periods (months and days) are also credited.

SECTION VI - SUMMARY OF PLAN PROVISIONS

B. Summary of Plan Provisions: Police and Fire Employees (continued)

Accrued Benefit

1948 Plan

The sum of (1) and (2):

- (1) 2¼% of Average Monthly Compensation times Years of Service before 1/1/90, plus 2½% of Average Monthly Compensation times Years of Service after 1/1/90.

Total Years of Service in part (a) must not exceed 25 years.

- (2) 1% of Average Monthly Compensation times Years of Service in excess of 25, up to a maximum total retirement benefit of 72½ %.

1978 Plan

A grandfathered employee is any employee hired before July 1, 2016 and who has 7½ or more Years of Service as of July 1, 2016. All other employees are nongrandfathered.

The Accrued Benefit for nongrandfathered employees will be based on Average Monthly Compensation and Years of Service as of June 30, 2016 after which future benefits will be earned under the 2016 Plan.

The sum of (1) and (2):

- (1) For employees hired before July 1, 2012: 2¼% of Average Monthly Compensation times Years of Service before 1/1/90, plus 2½% of Average Monthly Compensation times Years of Service after 1/1/90.

For employees hired after June 30, 2012: 2¼% of Average Monthly Compensation times Years of Service

Total Years of Service in part (a) must not exceed 25 years.

- (2) 1% of Average Monthly Compensation times Years of Service in excess of 25, up to a maximum total retirement benefit of 72½ %.

SECTION VI - SUMMARY OF PLAN PROVISIONS

B. Summary of Plan Provisions: Police and Fire Employees (continued)

Accrued Benefit

2016 Plan

An employee in the 2016 Plan will be required to receive the Normal Form of Annuity derived by both a market-rate cash balance account and a defined contribution account.

Market-rate Cash Balance Account

Annual allocations to the cash balance account are equal to a percentage of Compensation that varies by Years of Service pursuant to the following allocation schedule:

| <u>Years of Service</u> | <u>Allocation %</u> |
|-------------------------|---------------------|
| 0.00 - 4.99 | 8% |
| 5.00 - 9.99 | 10% |
| 10.00 - 14.99 | 12% |
| 15.00 - 19.99 | 15% |
| 20.00 + | 18% |

Interest Credits applied to the cash balance account are based on an interest crediting rate equal to the investment return on plan assets *less* one percent (1.0%).

The Normal Form of Annuity is determined based on Actuarial Equivalence of five percent (5.0%) per annum and the applicable mortality table pursuant to IRC Section 417(e)(3) for the Plan Year.

Defined Contribution Account Balance

Annual allocations to the defined contribution account are equal to seven and one-half percent (7.5%) of Compensation which consists of a six percent (6.0%) of Compensation as an employee contribution and one and one half percent (1.5%) of Compensation as an employer contribution. Assets are participant directed and the investment earnings are included in the defined contribution account balance.

The Normal Form of Annuity is determined based on Actuarial Equivalence of five percent (5.0%) per annum and the applicable mortality table pursuant to IRC Section 417(e)(3) for the Plan Year.

SECTION VI - SUMMARY OF PLAN PROVISIONS

B. Summary of Plan Provisions: Police and Fire Employees (continued)

Minimum Accrued Benefit

| | <u>Years of Service</u> | <u>At Age</u> | <u>Monthly Minimum Accrued Benefit</u> |
|--------------------------------|-------------------------|----------------|--|
| <i>1948 Plan and 1978 Plan</i> | 25 or more | No Restriction | \$525 plus \$21 times the lesser of 10 or Years of Service in excess of 25 |
| | 15 or more | 65 or after | \$500 plus \$1 times the lesser of 25 or Years of Service |
| | less than 25 | Before 65 | The greater of \$262.50 or \$21 times Years of Service |

2016 Plan

There is no minimum accrued benefit other than that provided for death and disability.

Normal Form of Annuity

If single, an annuity for the life of the participant. A married participant will receive this annuity during his lifetime with a 75% continuation to his spouse upon his death. For 1948 plan participants, 100% of the annuity is payable to the spouse upon the death of the participant.

Normal Retirement

Elected & Appointed

For elected and appointed participants hired before November 1, 2004, first day of month coincident with or next following completion of 12 Years of Service. Otherwise, normal retirement eligibility follows their respective plan.

Benefit Amount: Accrued Benefit

1948 Plan

For 1948 Plan employees, first day of the month coincident with or next following the earlier of the following dates:

- (a) Age 55 and completion of 10 Years of Service; or
- (b) Completion of 25 Years of Service.

Benefit Amount: Accrued Benefit

SECTION VI - SUMMARY OF PLAN PROVISIONS

B. Summary of Plan Provisions: Police and Fire Employees (continued)

Normal Retirement (continued)

1978 Plan

For 1978 Plan employees hired before July 1, 2012, first day of the month coincident with or next following the earliest of the following dates:

- (a) Age 55 and completion of 10 Years of Service;
- (b) Completion of 25 Years of Service.

Benefit Amount: Accrued Benefit

For 1978 Plan employees hired on or after June 30, 2012, first day of the month coincident with or next following the earliest of the following dates:

- (a) Age 55 and completion of 10 Years of Service;
- (b) Completion of 25 Years of Service.

Benefit Amount: A reduction of five percent (5%) per year for each year that the commencement date precedes the date the participant will attain age 52 applied to the Accrued Benefit.

2016 Plan

For 2016 Plan employees, first day of the month coincident with or next following the earlier of the following dates:

- (a) Age 55 and completion of 10 Years of Service;
- (b) Completion of 25 Years of Service.

Benefit Amount: Accrued Benefit

SECTION VI - SUMMARY OF PLAN PROVISIONS

B. Summary of Plan Provisions: Police and Fire Employees (continued)

Disability

Eligibility: No service requirement for line-of-duty; five years of service for non line-of-duty.

Line-of-Duty: A participant who becomes disabled while performing City duties is entitled to receive the greater of:

- (1) 60% of Average Monthly Compensation as of date of disability; or
- (2) Accrued Benefit as of date of disability.

Non Line-of-Duty: For 1948 Plan participants, an employee who becomes disabled while actively employed for reasons other than line-of-duty is entitled to receive the greater of:

- (1) 25% of Average Monthly Compensation as of date of disability; or
- (2) Accrued Benefit as of date of disability.

For 1978 Plan participants, an employee who becomes disabled while actively employed for reasons other than line-of-duty is entitled to receive the Accrued Benefit as of date of disability.

For 2016 Plan participants, an employee who becomes disabled while actively employed for reasons other than line-of-duty is entitled to receive the Accrued Benefit as of date of disability.

SECTION VI - SUMMARY OF PLAN PROVISIONS

B. Summary of Plan Provisions: Police and Fire Employees (continued)

Vested Termination

Eligibility: Termination of employment after completion of 10 Years of Service.

Benefit Amount:

1948 Plan Accrued Benefit determined as of termination date becomes payable at age 65 for 1948 Plan employees.

1978 Plan Accrued Benefit determined as of termination date becomes payable at age 60 if hired before July 1, 2012 and becomes payable at age 62 if hired on or after July 1, 2012.

2016 Plan Accrued Benefit determined as of termination date becomes payable at age 60.

Nonvested Termination

Eligibility: Termination of employment before completion of 10 Years of Service.

Benefit Amount:

1948 Plan Return of Employee Contributions.

1978 Plan Return of Employee Contributions. For a nongrandfathered employee, only Employee Contributions through July 1, 2016 are refunded.

2016 Plan The portion of the cash balance account funded by employee contributions plus applicable interest credits.

SECTION VI - SUMMARY OF PLAN PROVISIONS

B. Summary of Plan Provisions: Police and Fire Employees (continued)

Pre-Retirement Death Benefit

| | |
|---------------------------|--|
| Eligibility: | No service requirement for line-of-duty; 5 years of service for non line-of-duty. |
| Line-of-Duty Benefit: | The surviving spouse (or children) of a participant who dies while performing City duties is entitled to receive the greater of: (1) 60% of Average Monthly Compensation as of date of death; or (2) Accrued Benefit as of date of death. |
| Non Line-of-Duty Benefit: | For the 1948 Plan, the surviving spouse (or children) of a participant who dies while actively employed will receive 100% of the participant's Accrued Benefit as of date of the participant's death. For the 1978 Plan, the surviving spouse (or children) of a participant who dies while actively employed will receive 75% of the participant's Accrued Benefit as of date of the participant's death. For the 2016 Plan, the surviving spouse (or children) of a participant who dies while actively employed will receive 75% of the Normal Form of Annuity as of the date of the participant's death. |

SECTION VI - SUMMARY OF PLAN PROVISIONS

B. Summary of Plan Provisions: Police and Fire Employees (continued)

Employee Contributions

Employees are required to contribute a percentage of Compensation in accordance with the following schedule:

| | | | | | | | | | |
|--------------------------------------|---|--------------------------------------|-------------------|----------------|-------|---------------|-------|------------------|-------|
| <i>1948 Plan</i> | <table border="0"> <tr> <td style="text-align: center;"><u>Years of Service</u> at 1/1/90</td> <td style="text-align: center;"><u>Percentage</u></td> </tr> <tr> <td style="text-align: center;">up to 15 years</td> <td style="text-align: center;">5.50%</td> </tr> <tr> <td style="text-align: center;">15-19 years</td> <td style="text-align: center;">5.25%</td> </tr> <tr> <td style="text-align: center;">20 years or more</td> <td style="text-align: center;">5.00%</td> </tr> </table> | <u>Years of Service</u> at 1/1/90 | <u>Percentage</u> | up to 15 years | 5.50% | 15-19 years | 5.25% | 20 years or more | 5.00% |
| <u>Years of Service</u> at 1/1/90 | <u>Percentage</u> | | | | | | | | |
| up to 15 years | 5.50% | | | | | | | | |
| 15-19 years | 5.25% | | | | | | | | |
| 20 years or more | 5.00% | | | | | | | | |
| <i>1978 Plan</i> | <table border="0"> <tr> <td style="text-align: center;"><u>Date of Hire</u></td> <td style="text-align: center;"><u>Percentage</u></td> </tr> <tr> <td style="text-align: center;">After 6/30/12</td> <td style="text-align: center;">8.00%</td> </tr> <tr> <td style="text-align: center;">After 6/30/83</td> <td style="text-align: center;">6.50%</td> </tr> <tr> <td style="text-align: center;">Before 7/1/83</td> <td style="text-align: center;">6.25%</td> </tr> </table> | <u>Date of Hire</u> | <u>Percentage</u> | After 6/30/12 | 8.00% | After 6/30/83 | 6.50% | Before 7/1/83 | 6.25% |
| <u>Date of Hire</u> | <u>Percentage</u> | | | | | | | | |
| After 6/30/12 | 8.00% | | | | | | | | |
| After 6/30/83 | 6.50% | | | | | | | | |
| Before 7/1/83 | 6.25% | | | | | | | | |

The contribution rate for current non-vested employees as of July 1, 2012 will increase annually in 0.5% increments beginning July 1, 2012 until the contribution rate reaches 8.0%.

| | | | | | |
|------------------------------|---|----------------------|-------|------------------------------|-------|
| <i>2016 Plan</i> | <table border="0"> <tr> <td style="text-align: center;">Cash Balance Account</td> <td style="text-align: center;">2.00%</td> </tr> <tr> <td style="text-align: center;">Defined Contribution Account</td> <td style="text-align: center;">6.00%</td> </tr> </table> | Cash Balance Account | 2.00% | Defined Contribution Account | 6.00% |
| Cash Balance Account | 2.00% | | | | |
| Defined Contribution Account | 6.00% | | | | |

Changes From Prior Valuation

None.

APPENDIX I

Page

Memphis-Shelby County Airport Authority

| | | |
|----|--|----|
| A. | Historical Contributions to City of Memphis Retirement System | 53 |
| B. | Development of Allocation Factor to Determine Airport Authority's Proportionate Share | 53 |
| C. | Selected Notes to the Financial Statements under GASB 68 for the Airport Authority | 54 |
| D. | Schedule of Proportionate Share of the Net Pension Liability and Related Ratios under GASB 68 | 57 |
| E. | Schedule of Employer Contributions under GASB 68 | 57 |
| F. | Pension Expense under GASB 68 for the Fiscal Year Ending June 30, 2018 | 58 |
| G. | Resources of Deferred Outflows and Resources of Deferred Inflows for the Fiscal Year Ending June 30, 2018 | 59 |
| H. | Schedule of Deferred Outflows of Resources and Deferred Inflows of Resources to be Recognized in Future Pension Expense under GASB 68 | 60 |
| I. | Schedule of Change in Airport Authority's Proportionate Share of Net Pension Liability and Deferred (Inflows) / Outflows under GASB 68 for the Fiscal Year Ending June 30, 2018 | 61 |
| J. | Schedule of Difference between the Airport Authority's Actual Contribution and their Proportionate Share of Total Contributions under GASB 68 for the Fiscal Year Ending June 30, 2018 | 62 |

APPENDIX I

DEVELOPMENT OF ACCOUNTING INFORMATION FOR COST-SHARING EMPLOYERS - AIRPORT AUTHORITY

A. Historical Contributions to City of Memphis Retirement System

Per the direction of the City of Memphis and the Airport Authority, the allocation method for determining the Airport Authority's proportionate share of accounting information under GASB 68 is to use a historical approach equal to the ratio of the sum of Airport Authority employer contributions for the preceding five (5) fiscal years over the sum of the total employer contributions for the preceding five (5) fiscal years.

| (1) Year Ending June 30 | (2) Airport Authority | (3) City of Memphis | (4) Total |
|----------------------------------|-----------------------------|---------------------------|---------------|
| 2013 | \$ 1,014,000 | \$ 17,954,000 | \$ 18,968,000 |
| 2014 | \$ 1,001,000 | \$ 18,439,000 | \$ 19,440,000 |
| 2015 | \$ 996,000 | \$ 45,219,000 | \$ 46,215,000 |
| 2016 | \$ 1,067,000 | \$ 50,808,000 | \$ 51,875,000 |
| 2017 | \$ 2,271,000 | \$ 53,170,000 | \$ 55,441,000 |
| 2018 | \$ 2,717,000 | \$ 52,342,000 | \$ 55,059,000 |

B. Development of Allocation Factor to Determine Airport Authority's Proportionate Share

| | |
|--|----------------|
| a. Development of allocation percentage as of the <i>beginning</i> of the reporting period | |
| i. Airport Authority contributions for 2013 - 2017 fiscal years | \$ 6,349,000 |
| ii. Total contributions for 2013 - 2017 fiscal years | \$ 191,939,000 |
| iii. Allocation percentage as of the beginning of the reporting period (i) ÷ (ii) | 3.31% |
| b. Development of allocation percentage as of the <i>ending</i> of the reporting period | |
| i. Airport Authority contributions for 2014 - 2018 fiscal years | \$ 8,052,000 |
| ii. Total contributions for 2014 - 2018 fiscal years | \$ 228,030,000 |
| iii. Allocation percentage as of the ending of the reporting period (i) ÷ (ii) | 3.53% |

APPENDIX I

NOTES TO THE FINANCIAL STATEMENTS UNDER GASB 67 AND 68

C. Selected Notes to the Financial Statements under GASB 68 for the Airport Authority

1. Significant actuarial assumptions and other inputs used to measure the total pension liability:

- | | |
|-----------------------------|---|
| a. Measurement Date | July 1, 2018 |
| b. Valuation Date | July 1, 2018 |
| c. Investment Yield | 7.5% |
| d. Future Salary Increases | Scale that varies by age and service with a weighted average of 4.25% per year |
| e. Cost-of-Living Increases | None assumed. |
| f. Mortality Assumption | General: Fully Generational RP-2014 Total Dataset Mortality Table (with MP-2014 improvement removed) with MP-2017 projection scale from 2006 forward and adjusted by a 1 year set forward. Police and Fire: Fully Generational RP-2014 Blue Collar Mortality Table (with MP-2014 improvement removed) with MP-2017 projection scale from 2006 forward and adjusted by a 1 year set forward. Disabled: Fully Generational RP-2014 Disabled Mortality Table (with MP-2014 improvement removed) with MP-2017 projection scale from 2006 forward and adjusted by a 3 year set back. |
| g. Experience Study | May 1, 2014 experience study based on 10 years of census data (between 2003-2012) |

APPENDIX I

NOTES TO THE FINANCIAL STATEMENTS UNDER GASB 67 AND 68

C. Selected Notes to the Financial Statements under GASB 68 for the Airport Authority (continued)

2. Significant actuarial assumptions and other inputs used to measure the total pension liability (continued):

h. Discount Rate The discount rate used to measure the total pension liability was 7.5% as of July 1, 2018, and is equal to the long-term expected return on plan investments. The projection of cash flows used to determine the discount rate assumed that City contributions would be made at the actuarially calculated amount computed in accordance with the current funding policy adopted by the City, which requires payment of the normal cost and amortization of the unfunded actuarially accrued liability in level dollar installments over 30 years utilizing a closed period approach. Pursuant to The Public Employee Defined Benefit Financial Security Act of 2014, the City will phase into funding 100% of the actuarially calculated amount over a 5 year period that began with the fiscal year beginning July 1, 2015. Based on this assumption, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members.

| i. Discount Rate Sensitivity | <u>1% Decrease (6.5%)</u> | <u>Current Rate (7.5%)</u> | <u>1% Increase (8.5%)</u> |
|-------------------------------|---------------------------|----------------------------|---------------------------|
| Net Pension Liability (000's) | \$ 19,828 | \$ 9,752 | \$ 1,251 |

3. The Airport Authority's proportionate share of the Net Pension Liability (000's) as of July 1, 2018 are as follows:

| | |
|--|---------------|
| i. Total Pension Liability | \$ 94,052 |
| ii. Plan Fiduciary Net Position | <u>84,300</u> |
| iii. Net Pension Liability | \$ 9,752 |
| iv. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability | 89.6% |

APPENDIX I

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB 67 AND 68

D. Schedule of Proportionate Share of the Net Pension Liability and Related Ratios under GASB 68 ¹

Net Pension Liability (000's)

| (1) | (2) | (3) | (4) | (5) | (6) |
|------------------------|---|--|--|--|--|
| Year Ending June 30 | Proportion of of the Net Liability (Asset) ² | Proportionate Share of Net Pension Liability | Actual Covered Employee Payroll ³ | Net Pension Liability as a Percentage of Covered Payroll (3) ÷ (4) | Fiduciary Net Position as Percentage of Total Pension Liability |
| 2015 | 3.85% | \$ 14,719 | \$ 19,297 | 76.3% | 85.2% |
| 2016 | 3.22% | \$ 16,977 | \$ 18,420 | 92.2% | 79.9% |
| 2017 | 3.31% | \$ 13,878 | \$ 18,709 | 74.2% | 84.4% |
| 2018 | 3.53% | \$ 9,752 | \$ 19,439 | 50.2% | 89.6% |

¹ At the City's request, the information presented above is for those years for which it is available. It was prepared prospectively from the Plan's fiscal year ending June 30, 2015 for GASB 67 purposes and prospectively from fiscal year ending June 30, 2016 for GASB 68 purposes.

² Based on the cost sharing allocation percentage as of the measurement date.

³ The *actual covered employee payroll* is defined under GASB 82 to be payroll on which contributions to a pension plan are based. As pensionable pay is used for determining contributions under the plan, pensionable pay is shown above starting June 30, 2016. Prior to June 30, 2016 the gross payroll is shown, consistent with the requirements prior to the release of GASB 82. Note, actual covered employee payroll is for the year immediately preceding the valuation date.

APPENDIX I

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB 67 AND 68

E. Schedule of Employer Contributions under GASB 68 (000's) ¹

| (1) | (2) | (3) | (4) | (5) | (6) |
|---------------------------|--|-------------------------------------|--|---|---|
| Year Ending June 30 | Actuarially Determined Contribution ² | Actual Employer Contributions | Contribution Excess/(Deficiency) (3) - (2) | Actual Covered Employee Payroll ³ | Contributions as a Percentage of Covered Payroll (3) ÷ (5) |
| 2015 | \$ 996 | \$ 996 | \$ - | \$ 19,297 | 5.2% |
| 2016 | \$ 2,848 | \$ 1,067 | \$ (1,781) | \$ 18,420 | 5.8% |
| 2017 | \$ 2,271 | \$ 2,271 | \$ - | \$ 18,709 | 12.1% |
| 2018 | \$ 2,717 | \$ 2,717 | \$ - | \$ 19,439 | 14.0% |

¹ This schedule is prepared to satisfy the requirement to show information regarding the Net Pension Liability and Related Ratios for 10 years. At the City's request, the information presented above is for those years for which it is available. It was prepared prospectively from the Plan's fiscal year ending June 30, 2015 for GASB 67 purposes and prospectively from fiscal year ending June 30, 2016 for GASB 68 purposes.

² Refer to the City of Memphis funding valuation report for the corresponding fiscal year. The Airport Authority's share is proportionate based on share of actuarially accrued liability. Note: For 2017 the ADC was updated from the 2017 accounting report to be \$2,271. This change is a disclosure item only and does not impact other areas of the financial statements.

³ The *actual covered employee payroll* is defined under GASB 82 to be payroll on which contributions to a pension plan are based. As pensionable pay is used for determining contributions under the plan, pensionable pay is shown above starting June 30, 2016. Prior to June 30, 2016 the gross payroll is shown, consistent with the requirements prior to the release of GASB 82. Note, actual covered employee payroll is for the year immediately preceding the valuation date.

APPENDIX I

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

F. Pension Expense under GASB 68 for the Fiscal Year Ending June 30, 2018

| Pension Expense (000's) | <u>FY18</u> |
|---|--------------------|
| Airport Authority Proportionate Share | 3.53% |
| 1. Service cost | \$ 1,034 |
| 2. Interest Cost | \$ 6,976 |
| 3. Expected Return on Assets | \$ (5,847) |
| 4. Changes in Benefit Terms | \$ - |
| 5. Recognition of deferred (inflows) / outflows of resources related to: | |
| a. Liability Experience (gains) / losses | \$ (671) |
| b. Assumption Changes (gains) / losses | (493) |
| c. Investment (gains) / losses | 550 |
| d. Changes in proportion of net pension liability and deferred (inflows) / outflows | (872) |
| e. Changes in actual contributions and proportionate share of contributions | <u>(20)</u> |
| f. Total: (a) + (b) + (c) + (d) + (e) | \$ (1,506) |
| 6. Total Pension Expense: (1) + (2) + (3) +(4) + (5)(f) | \$ 657 |

¹ Components of the collective pension expense may be found in Section II of this report.

² The components of pension expense for items 1 - 5(c) above are determined based on the proportionate share of the collective pension expense as of the end of the reporting period.

APPENDIX I

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

G. Resources of Deferred Outflows and Resources of Deferred Inflows for the Fiscal Year Ending June 30, 2018

Deferred Outflows and Inflows (000's)

| | <u>Deferred Outflows of Resources</u> | <u>Deferred Inflows of Resources</u> |
|---|---|--|
| <i>a. Experience (Gains) and Losses</i> | \$ 880 | \$ (2,380) |
| <i>b. Changes in Assumptions</i> | \$ - | \$ (1,332) |
| <i>c. Investment (Gains) and Losses</i> | \$ 3,084 | \$ (4,561) |
| <i>d. Changes in Proportionate Share of Net Pension Liability and Deferred Outflows and Inflows</i> | \$ 902 | \$ (1,510) |
| <i>e. Difference Between Airport Authority Contribution and Proportionate Share of Contribution</i> | \$ 852 | \$ (382) |
| <i>f. Deferred Outflows/(Inflows) of Resources (a) + (b) + (c) + (d) + (e)</i> | <u>\$ 5,718</u> | <u>\$ (10,165)</u> |

¹ Deferred outflows of resources are presented as positive amounts. Deferred inflows of resources are presented as negative amounts.

APPENDIX I

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

H. Schedule of Deferred Outflows of Resources and Deferred Inflows of Resources to be Recognized in Future Pension Expense under GASB 68

Future Amortization of Deferred Outflows and Inflows (000's)

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions recognized in pension expense as follows:

Year Ending June 30:

| | | |
|------------|----|---------|
| 2019 | \$ | (1,463) |
| 2020 | \$ | (855) |
| 2021 | \$ | (1,477) |
| 2022 | \$ | (652) |
| 2023 | \$ | - |
| Thereafter | \$ | - |

APPENDIX I

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

I. Schedule of Change in Airport Authority's Proportionate Share of Net Pension Liability and Deferred (Inflows) / Outflows under GASB 68 for the Fiscal Year Ending June 30, 2018

Change in Proportionate Share (000's)

| Fiscal Year Ending June 30, | Original (Inflow) or Outflow | Original Recognition Period | Increase (Decrease) in Pension Expense Arising from Change in Proportion of Net Pension Liability and Deferred (Inflows) / Outflows | | | | | | |
|--|------------------------------|-----------------------------|---|----------|----------|--------|--------|------|------------|
| | | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Thereafter |
| 2015 | \$ (3,433) | 4.97 | \$ (691) | \$ (669) | \$ - | \$ - | \$ - | \$ - | \$ - |
| 2016 | \$ (2,194) | 4.87 | \$ (451) | \$ (451) | \$ (390) | \$ - | \$ - | \$ - | \$ - |
| 2017 | \$ 347 | 4.59 | \$ 76 | \$ 76 | \$ 76 | \$ 43 | \$ - | \$ - | \$ - |
| 2018 | \$ 901 | 4.64 | \$ 194 | \$ 194 | \$ 194 | \$ 194 | \$ 125 | \$ - | \$ - |
| Net increase (decrease) in pension expense | | | \$ (872) | \$ (850) | \$ (120) | \$ 237 | \$ 125 | \$ - | \$ - |

¹ The City has determined that the effort and cost to re-create financial statement information for 10 years was not practical. Information presented above is only shown for those years for which it is available.

² Pursuant to paragraph 54 under GASB 68, gains and losses resulting from the net effect of the change in the Airport Authority's proportion of collective net pension liability and collective deferred inflows and outflows as of the beginning of the measurement period are amortized over the expected remaining service lives of all employees provided with pension (both active and inactive employees) determined as of the beginning of the measurement period.

³ If there is a beginning collective net pension liability, an increase in proportion results in an increase in pension expense and a deferred outflow of resources. Conversely, a decrease in proportion results in a decrease in expense and a deferred inflow of resources.

APPENDIX I

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

J. Schedule of Difference between the Airport Authority's Actual Contribution and their Proportionate Share of Total Contributions under GASB 68 for the Fiscal Year Ending June 30, 2018

Difference in Actual and Proportionate Share of Contributions (000's)

| Fiscal Year Ending June 30, | Original (Inflow) or Outflow | Original Recognition Period | Increase (Decrease) in Pension Expense Arising from Differences in Employer Actual Contribution and their Proportionate Share of the Total Contribution | | | | | | |
|--|------------------------------|-----------------------------|---|----------|----------|--------|--------|------|------------|
| | | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | Thereafter |
| 2015 | \$ (783) | 4.97 | \$ (158) | \$ (151) | \$ - | \$ - | \$ - | \$ - | \$ - |
| 2016 | \$ (603) | 4.87 | \$ (124) | \$ (124) | \$ (107) | \$ - | \$ - | \$ - | \$ - |
| 2017 | \$ 436 | 4.59 | \$ 95 | \$ 95 | \$ 95 | \$ 56 | \$ - | \$ - | \$ - |
| 2018 | \$ 773 | 4.64 | \$ 167 | \$ 167 | \$ 167 | \$ 167 | \$ 105 | \$ - | \$ - |
| Net increase (decrease) in pension expense | | | \$ (20) | \$ (13) | \$ 155 | \$ 223 | \$ 105 | \$ - | \$ - |

¹ The City has determined that the effort and cost to re-create financial statement information for 10 years was not practical. Information presented above is only shown for those years for which it is available.

² Pursuant to paragraph 55 under GASB 68, difference between the Airport Authority's actual contributions and the Airport Authority's proportionate share of total contributions for the current reporting period are amortized over the expected remaining service lives of all employees provided with pension (both active and inactive employees) determined as of the beginning of the measurement period.

³ Deferred outflows are presented as positive amounts and deferred inflows are presented as negative amounts. Positive amounts increase pension expense and negative amounts decrease pension expense.

⁴ Per Illustration 3b in GASB 68, if the employer's actual contributions exceed its proportionate share of total contributions, the difference increases pension expense and results in a deferred outflow of resources. If the employer's actual contributions is less than its proportionate share of total contributions, the difference decreases pension expense and results in a deferred inflow of resources.