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City of Memphis

City of Memphis Retirement System

Accounting Results Based on the Actuarial Valuation of Obligations
under GASB No. 67 for the Plan Year Ending June 30, 2023

Accounting Results Based on the Actuarial Valuation of Obligations
under GASB No. 68 for the Fiscal Year Ending June 30, 2023





October 20, 2023

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

Re: June 30, 2023 Actuarial Valuations for GASB No. 67 and GASB No. 68

Dear Chief Ford,

We are pleased to present this report containing the results of the June 30, 2023 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 1, 2019. This report has been prepared pursuant to an engagement between PwC and its client and is intended solely for the use and benefit of such client and not for the reliance by any other person.

We were retained by the City of Memphis 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, 2023 and Governmental Accounting Standards Board Statement No. 68 (GASB 68) for the City's fiscal year ending June 30, 2023. 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. Plan asset information was provided by the City in October 2023. The census data and plan asset information used in calculating the results herein were collected as of June 30, 2022 and June 30, 2023, respectively. 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 assumptions and the accounting policies and methods employed in the valuation of obligations and costs. The assumption for the long-term expected rate of return on pension plan investments was selected by the City of Memphis with the assistance of their investment advisors. A detailed analysis of this assumption was outside of PwC's scope of services.

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

In preparing the results presented herein, we used and evaluated actuarial models in accordance with Actuarial Standards of Practice ("ASOP") No. 56. We use the ProVal valuation system developed by Winklevoss Technologies, LLC in performing actuarial valuations of pension and postretirement benefit plans. ProVal measures plan liabilities and costs based on participant data by projecting retirement benefits and applying plan specific assumptions, actuarial methods and plan provisions under applicable accounting and funding standards. We utilized the ProVal software to prepare the actuarial valuation results presented herein. We are not aware of any material limitations or known weaknesses in the ProVal software. 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.

This report has been prepared pursuant to an engagement with our client and is intended solely for the use and benefit of such client and not for reliance by any other person. 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 report 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,

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SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT

This report presents results of the June 30, 2023 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, 2023 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 June 30, 2023. The valuation was performed using assets as of June 30, 2023 and disclosed in Section III, census data as of June 30, 2022, provided by the City and summarized in Section IV, assumptions and methods disclosed in Section V, and reflects the plan provisions effective June 30, 2023 as summarized in Section VI.

A valuation date that is 12 months prior to the fiscal year end is used. The resulting valuation is then rolled forward to the measurement date using standard actuarial techniques with adjustments for service cost, interest, benefit payments, 401(a) transfers and significant changes subsequent to the valuation data and before the measurement date.

Summary of Net Pension Liability / (Asset)

	<u>June 30, 2021</u>	<u>June 30, 2022</u>	<u>June 30, 2023</u>
1. Total Pension Liability			
a. Active Participants	\$ 900,645,000	\$ 926,834,000	\$ 954,363,000
b. Terminated Vested Participants	8,642,000	8,782,000	11,673,000
c. Retiree/Beneficiary/Disabled/ DROP Participants	<u>1,896,472,000</u>	<u>2,017,038,000</u>	<u>2,052,344,000</u>
d. Total	\$ 2,805,759,000	\$ 2,952,654,000	\$ 3,018,380,000
2. Plan Fiduciary Net Position (Assets)	<u>\$ 2,807,681,000</u>	<u>\$ 2,406,676,000</u>	<u>\$ 2,449,530,000</u>
3. Net Pension Liability/(Asset) (1)(d) - (2)	\$ (1,922,000)	\$ 545,978,000	\$ 568,850,000
4. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (2) ÷ (1)(d)	100.1%	81.5%	81.2%
Valuation Date	June 30, 2020	June 30, 2021	June 30, 2022
Measurement Date	June 30, 2021	June 30, 2022	June 30, 2023
Valuation Interest Rate	7.50%	7.25%	7.25%

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT (CONTINUED)

Summary of Changes in the Net Pension Liability

	June 30, 2021	June 30, 2022	June 30, 2023
1. Expected Net Pension Liability			
a. Net Pension Liability	\$ 480,124,000	\$ (1,922,000)	\$ 545,978,000
b. Employer Service Cost	18,067,000	19,297,000	18,714,000
c. Interest to End of Year	35,057,000	(92,000)	39,598,000
d. Employer Contribution	(61,534,000)	(57,227,000)	(56,701,000)
e. Administrative Expenses	4,669,000	6,089,000	8,339,000
f. Change in Benefit Terms	9,610,000	20,163,000	-
g. Expected Net Pension Liability	<u>\$ 485,993,000</u>	<u>\$ (13,692,000)</u>	<u>\$ 555,928,000</u>
(a) + (b) + (c) + (d) + (e) + (f)			
2. Change in the Net Pension Liability (Decrease) / Increase			
a. Investment	\$ (480,270,000)	\$ 476,563,000	\$ (10,754,000) ¹
b. Experience	1,214,000	(1,912,000)	23,676,000
c. Change in Assumptions	(8,859,000)	85,019,000	-
d. Change in Net Pension Liability: (a) + (b) + (c)	<u>\$ (487,915,000)</u>	<u>\$ 559,670,000</u>	<u>\$ 12,922,000</u>
3. Net Pension Liability at Valuation Date: (1)(g) + (2)(d)	\$ (1,922,000)	\$ 545,978,000	\$ 568,850,000

¹ The net investment return for the year was an investment gain of \$181 million compared to the expected return on assets of \$170 million.

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT (CONTINUED)

GASB 68 Information:

Fiscal Year Ending	<u>June 30, 2021</u>	<u>June 30, 2022</u>	<u>June 30, 2023</u>
1. Net Pension Liability	\$ (1,922,000)	\$ 545,978,000	\$ 568,850,000
2. Deferred (Inflows) / Outflows of Resources, after Recognition in Pension Expense			
a. Deferred (Inflows) of Resources	\$ (467,219,000)	\$ (330,583,000)	\$ (218,462,000)
b. Deferred Outflows of Resources	129,913,000	520,237,000	372,682,000
c. Total	<u>\$ (337,306,000)</u>	<u>\$ 189,654,000</u>	<u>\$ 154,220,000</u>
3. Pension Expense			
a. Employer Service Cost (Including Administrative Expenses)	\$ 22,736,000	\$ 25,386,000	\$ 27,053,000
b. Interest Cost	201,121,000	205,824,000	209,393,000
c. Expected Return on Assets	(166,064,000)	(205,916,000)	(169,795,000)
d. Changes in Benefit Terms	9,610,000	20,163,000	-
e. Recognition of deferred (inflows)/outflows of resources	<u>(112,772,000)</u>	<u>32,710,000</u>	<u>48,356,000</u>
f. Total collective pension expense	<u>\$ (45,369,000)</u>	<u>\$ 78,167,000</u>	<u>\$ 115,007,000</u>

Changes in Assumptions and Methods from Prior Year

None

Details may be found in the Summary of Assumptions and Methods section of this report.

Fiscal Year 2023 Experience

Experience gains and losses included in the June 30, 2023 Net Pension Liability reflect the following:

- ~ Updated census information as of June 30, 2022
- ~ Actual 2023 interest crediting rate of 7.74%, calculated as the actual return on assets of 8.74% less 1.00% (impacts the 2016 Plan Only)
- ~ Actual salary increases as of June 30, 2023 for participants where this information was provided by the City

Changes in Benefit Terms

None

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT (CONTINUED)

Plan Experience

Below is a table summarizing the changes in the census information.

	<u>June 30, 2020</u>	<u>June 30, 2021</u>	<u>June 30, 2022</u>
Census Information			
1. Active			
a. Number	6,122	5,985	5,880
b. Average Age	43.5	43.7	43.9
c. Average Years of Service	11.4	11.4	11.5
d. Anticipated Payroll ¹	\$ 376,847,000	\$ 402,813,000	\$ 371,676,000
2. Terminated Vested			
a. Number	1,126	1,245	1,447
b. Lump Sum - Refund of Contributions	\$ 8,496,000	\$ 8,646,000	\$ 11,501,000
3. Retiree/Beneficiary/Disabled /DROP			
a. Number	5,414	5,508	5,586
b. Annual Benefits Payable	\$ 184,711,000	\$ 191,219,000	\$ 197,028,000
c. DROP Account Balance	\$ 16,054,000	\$ 16,305,000	\$ 15,286,000

¹ 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.

SECTION II - ACCOUNTING

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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 assumptions and other inputs used to measure the total pension liability:
 - a. Measurement Date June 30, 2023
 - b. Valuation Date June 30, 2022
 - c. Investment Yield 7.25%
 - d. Future Salary Increases Merit and promotion scale that varies by age and service, plus inflation (reflecting known payroll increase effective on July 1, 2023)
 - e. Cost-of-Living Increases None assumed
 - f. Mortality Assumption Healthy General: Fully Generational PubG-2010 Public Sector Mortality table for general employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Healthy Police and Fire: Fully Generational PubS-2010 Public Sector Mortality table for safety employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Disabled General: Fully Generational PubNS-2010 Public Sector Disabled Mortality table for non-safety employees adjusted by a three year set back with MP-2021 projection scale from 2010.

Disabled Police and Fire: Fully Generational PubS-2010 Public Sector Disabled Mortality table for safety employees adjusted by a three year set back with MP-2021 projection scale from 2010.

Survivors General: Fully Generational PubG-2010 Public Sector Contingent Survivor table for general employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Survivors Police and Fire: Fully Generational PubS-2010 Public Sector Contingent Survivor table for safety employees adjusted by a one year set forward with MP-2021 projection scale from 2010.
 - g. Experience Study Experience study based on 5 years of experience (2016-2020)

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)

2. Significant 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 7.25% as of June 30, 2023, and is equal to the long-term expected return on plan investments as determined by the City. The projection of cash flows used to determine the discount rate assumed that the 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 phased 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 (6.25%)</u>	<u>Current Rate (7.25%)</u>	<u>1% Increase (8.25%)</u>
Net Pension Liability (000's)	\$ 893,130	\$ 568,850	\$ 295,376

j. DROP Program The total DROP balance as of the valuation date of June 30, 2022 is \$15,286,000. This amount is included in the roll-forward of the actuarial accrued liability from the June 30, 2022 actuarial valuation date to the June 30, 2023 measurement date.

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 ¹ :		
	a.	Retired members, beneficiaries and disabled members receiving benefits	5,586
	b.	Terminated vested plan members entitled to but not yet receiving benefits	1,447
	c.	Active plan members	5,880
	d.	Total membership	<u>12,913</u>
4.	The components of the Net Pension Liability (000's) for the plan as of June 30, 2023 are as follows:		
	a.	Total Pension Liability	\$ 3,018,380
	b.	Plan Fiduciary Net Position	<u>2,449,530</u>
	c.	Net Pension Liability	\$ 568,850
	d.	Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	81.2%

¹ Census headcount is as of June 30, 2022 (valuation date).

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	(6) Assumption Changes	(7) Changes of Benefit Terms	(8) Benefit Payments	(9) Transfer In/(Out)	(10) 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
2019	\$ 2,664,367	\$ 41,840	\$ 196,197	\$ (20,127)	\$ 71,345	\$ -	\$ (180,484)	\$ -	\$ 2,773,138
2020	\$ 2,773,138	\$ 41,858	\$ 203,958	\$ 6,622	\$ (91,982)	\$ -	\$ (191,109)	\$ -	\$ 2,742,485
2021	\$ 2,742,485	\$ 35,847	\$ 201,121	\$ 1,214	\$ (8,859)	\$ 9,610	\$ (193,431)	\$ 17,772	\$ 2,805,759
2022	\$ 2,805,759	\$ 39,311	\$ 205,824	\$ (1,912)	\$ 85,019	\$ 20,163	\$ (201,510)	\$ -	\$ 2,952,654
2023	\$ 2,952,654	\$ 38,430	\$ 209,393	\$ 23,676	\$ -	\$ -	\$ (205,799)	\$ 26	\$ 3,018,380

Note: The Transfer In for 2021 reflects the transfer of the 401(a) account balances from the 401(a) Plan to the defined benefit Plan's trust for participants who elected to restore benefits from the 2016 Plan to the 1978 Plan.
The Transfer In for 2023 reflects the transfer from 401(a) accounts for participants retiring from the 2016 Plan. It is an estimate of the increase in the accrued liability when the 401(a) accounts are transferred to the pension trust and converted to an annuity payable under the defined benefit plan.

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 and excludes expenses.

³ For the current fiscal year, includes interest at 7.25% on the prior year ending Total Pension Liability and current year beginning service cost offset by a half year of interest on benefit payments.

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) Transfer In/(Out)	(10) 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	\$ 205,516	\$ (179,985)	\$ (3,700)	\$ (13,272)	\$ -	\$ 2,343,781
2019	\$ 2,343,781	\$ 58,896	\$ 18,027	\$ 115,989	\$ (180,484)	\$ (5,282)	\$ (13,528)	\$ -	\$ 2,337,399
2020	\$ 2,337,399	\$ 54,194	\$ 17,884	\$ 64,036	\$ (191,109)	\$ (6,060)	\$ (13,983)	\$ -	\$ 2,262,361
2021	\$ 2,262,361	\$ 61,534	\$ 17,780	\$ 663,368	\$ (193,431)	\$ (4,669)	\$ (17,034)	\$ 17,772	\$ 2,807,681
2022	\$ 2,807,681	\$ 54,458	\$ 20,014	\$ (251,646)	\$ (201,510)	\$ (6,089)	\$ (19,001)	\$ 2,769	\$ 2,406,676
2023	\$ 2,406,676	\$ 54,855	\$ 19,716	\$ 196,207	\$ (205,799)	\$ (8,339)	\$ (15,658)	\$ 1,872	\$ 2,449,530

Note: The Transfer In for 2021 reflects the transfer monies from 401(a) accounts for participants who elected to restore benefits from the 2016 Plan to the 1978 Plan.
The Transfer In for 2022 reflects the transfer monies from the Sales Tax Referendum Revenue Fund.
The Transfer In for 2023 reflects the transfer monies from the Sales Tax Referendum Revenue Fund of \$1,846,000 and the transfer of the 401(a) account balances of \$26,000 for participants who retired from the 2016 Plan.

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

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 (ooo'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	\$ 2,343,781	\$ 320,586	88.0%	\$ 333,171	96.2%
2019	\$ 2,773,138	\$ 2,337,399	\$ 435,739	84.3%	\$ 338,373	128.8%
2020	\$ 2,742,485	\$ 2,262,361	\$ 480,124	82.5%	\$ 372,817	128.8%
2021	\$ 2,805,759	\$ 2,807,681	\$ (1,922)	100.1%	\$ 379,346	-0.5%
2022	\$ 2,952,654	\$ 2,406,676	\$ 545,978	81.5%	\$ 402,813	135.5%
2023	\$ 3,018,380	\$ 2,449,530	\$ 568,850	81.2%	\$ 371,676	153.0%

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

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.

SECTION II - ACCOUNTING

REQUIRED SUPPLEMENTARY INFORMATION UNDER GASB 67 AND 68

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

(1)	(2)	(3)	(4)	(5)	(6)
Year Ending June 30	Actuarially Determined Contribution ¹	Actual Employer Contributions	Contribution Excess/(Deficiency) (3) - (2)	Actual Covered Employee Payroll ²	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%
2019	\$ 62,499	\$ 58,896	\$ (3,603)	\$ 338,373	17.4%
2020	\$ 53,719	\$ 54,194	\$ 475	\$ 372,817	14.5%
2021	\$ 61,532	\$ 61,534	\$ 2	\$ 379,346	16.2%
2022	\$ 52,201	\$ 57,227	\$ 5,026	\$ 402,813	14.2%
2023	\$ 52,765	\$ 56,701	\$ 3,936	\$ 371,676	15.3%

Note: Beginning in 2022 the employer contribution includes monies transferred from the Sales Tax Referendum Revenue Fund.

¹ The actuarially determined contribution is for the fiscal year end and is developed in a separate funding report for the corresponding fiscal year.

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.

SECTION II - ACCOUNTING

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

D. Net Pension Liability under GASB 68 for the Fiscal Year Ending June 30, 2023 (000's)

1. Total Pension Liability		
a. Total Pension Liability - Beginning of year		\$ 2,952,654
b. Service Cost ¹		38,430
c. Interest Cost ²		209,393
d. Experience (gains)/losses		23,676
e. Assumption Changes		-
f. Changes of Benefit Terms		-
g. Benefit Payments		(205,799)
h. Transfer In / (Out)		26
i. Total Pension Liability - End of year		<u>\$ 3,018,380</u>
2. Plan Fiduciary Net Position		
a. Plan Fiduciary Net Position - Beginning of year		\$ 2,406,676
b. Employer Contributions		54,855
c. Employee Contributions		19,716
d. Non-employer Contributing Entity Contributions		-
e. Investment return		
i. Expected Investment Return ³	\$ 169,795	
ii. Investment Gain/(Loss)	<u>10,754</u>	
iii. Net Investment Return		\$ 180,549
f. Benefit Payments		(205,799)
g. Transfer In / (Out)		1,872
h. Administrative Expenses		<u>(8,339)</u>
i. Plan Fiduciary Net Position - End of year		\$ 2,449,530
3. Net Pension Liability		
a. Net Pension Liability: (1)(i) - (2)(i)		\$ 568,850
b. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability : (2)(i) / (1)(i)		81.2%

¹ Determined as of the beginning of the year.

² Interest at 7.25% on the prior year ending Total Pension Liability and current year beginning service cost offset by a half year of interest on benefit payments.

³ Calculated assuming a 7.25% investment return, net of investment expenses, and assuming actual benefit payments, transfer in/out, 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, 2023

Pension Expense (000's)

1. Service cost		
a. Total Service Cost ¹	\$	38,430
b. Employee Contributions		(19,716)
c. Administrative Expenses		8,339
d. Net Employer Service Cost: (a) + (b) + (c)	\$	<u>27,053</u>
2. Interest Cost ²	\$	209,393
3. Expected Return on Assets ³	\$	(169,795)
4. Changes of Benefit Terms	\$	-
5. Recognition of deferred (inflows) / outflows of resources related to:		
a. Liability Experience (gains) / losses	\$	4,567
b. Assumption Changes (gains) / losses		8,636
c. Investment (gains) / losses		35,153
d. Total: (a) + (b) + (c)	\$	<u>48,356</u>
6. Total Collective Pension Expense: (1)(d) + (2) + (3) + (4) + (5)(d)	\$	115,007

¹ Determined as of the beginning of the year.

² Interest at 7.25% on the prior year ending Total Pension Liability and current year beginning service cost offset by a half year of interest on benefit payments.

³ Calculated assuming a 7.25% investment return, net of investment expenses, and assuming actual benefit payments, transfer in/out, 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, 2023

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							
			2023	2024	2025	2026	2027	2028	Thereafter	
2019	\$ (20,127)	4.61	\$ (2,663)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2020	\$ 6,622	4.73	\$ 1,400	\$ 1,022		\$ -	\$ -	\$ -	\$ -	\$ -
2021	\$ 1,214	4.23	\$ 287	\$ 287	\$ 66	\$ -	\$ -	\$ -	\$ -	\$ -
2022	\$ (1,912)	4.10	\$ (466)	\$ (466)	\$ (466)	\$ (48)	\$ -	\$ -	\$ -	\$ -
2023	\$ 23,676	3.94	\$ 6,009	\$ 6,009	\$ 6,009	\$ 5,649	\$ -	\$ -	\$ -	\$ -
Net increase (decrease) in pension expense:			\$ 4,567	\$ 6,852	\$ 5,609	\$ 5,601	\$ -	\$ -	\$ -	\$ -

¹ Gains and losses in the liability attributable to plan experience 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.

² 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, 2023

Changes in Assumptions (000's) ³

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						
			2023	2024	2025	2026	2027	2028	Thereafter
2019	\$ 71,345	4.61	\$ 9,441	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2020	\$ (91,982)	4.73	\$ (19,447)	\$ (14,194)	\$ -	\$ -	\$ -	\$ -	\$ -
2021	\$ (8,859)	4.23	\$ (2,094)	\$ (2,094)	\$ (483)	\$ -	\$ -	\$ -	\$ -
2022	\$ 85,019	4.10	\$ 20,736	\$ 20,736	\$ 20,736	\$ 2,075	\$ -	\$ -	\$ -
Net increase (decrease) in pension expense			\$ 8,636	\$ 4,448	\$ 20,253	\$ 2,075	\$ -	\$ -	\$ -

¹ 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.

² 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.

³ No assumption changes were made during fiscal year 2023.

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, 2023

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				
			2023	2024	2025	2026	2027
2019	\$ 69,439	5.00	\$ 13,887	\$ -	\$ -	\$ -	\$ -
2020	\$ 120,788	5.00	\$ 24,158	\$ 24,156	\$ -	\$ -	\$ -
2021	\$ (480,270)	5.00	\$ (96,054)	\$ (96,054)	\$ (96,054)	\$ -	\$ -
2022	\$ 476,563	5.00	\$ 95,313	\$ 95,313	\$ 95,313	\$ 95,311	\$ -
2023	\$ (10,754)	5.00	\$ (2,151)	\$ (2,151)	\$ (2,151)	\$ (2,151)	\$ (2,150)
Net increase (decrease) in pension expense			\$ 35,153	\$ 21,264	\$ (2,892)	\$ 93,160	\$ (2,150)

¹ 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.

² 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, 2023

Deferred Outflows and Inflows (000's)

	Established in Fiscal Year Ending June 30,	Original Loss (a)	Original (Gain) (b)	Cumulative Amounts Recognized in Expense through June 30, 2023 (c)	Balances at June 30, 2023	
					Deferred Outflows of Resources (d) = (a) - (c)	Deferred Inflows of Resources (e) = (b) - (c)
a. Experience (Gains) and Losses	2019		\$ (20,127)	\$ (20,127)		\$ -
	2020	\$ 6,622		\$ 5,600	\$ 1,022	
	2021	\$ 1,214		\$ 861	\$ 353	
	2022		\$ (1,912)	\$ (932)		\$ (980)
	2023	\$ 23,676		\$ 6,009	\$ 17,667	
					\$ 19,042	\$ (980)
b. Changes in Assumptions ²	2019	\$ 71,345		\$ 71,345	\$ -	
	2020		\$ (91,982)	\$ (77,788)		\$ (14,194)
	2021		\$ (8,859)	\$ (6,282)		\$ (2,577)
	2022	\$ 85,019		\$ 41,472	\$ 43,547	
					\$ 43,547	\$ (16,771)
c. Investment (Gains) and Losses	2019	\$ 69,439		\$ 69,439	\$ -	
	2020	\$ 120,788		\$ 96,632	\$ 24,156	
	2021		\$ (480,270)	\$ (288,162)		\$ (192,108)
	2022	\$ 476,563		\$ 190,626	\$ 285,937	
	2023		\$ (10,754)	\$ (2,151)		\$ (8,603)
					\$ 310,093	\$ (200,711)
d. Collective Deferred Outflows/(Inflows) of Resources: (a) + (b) + (c)					\$ 372,682	\$ (218,462)

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

² No assumption changes were made during fiscal year 2023.

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:

2024	\$	32,564
2025	\$	22,970
2026	\$	100,836
2027	\$	(2,150)
2028	\$	-
Thereafter	\$	-

SECTION III - ASSETS

ASSETS

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SECTION III - ASSETS

A. Reconciliation of Market Value of Assets and Investment Return

1. Market Value of Assets at June 30, 2022	\$ 2,406,676,000
2. Contributions	
a. Employer Contributions	\$ 54,855,000
b. Employee Contributions	19,716,000
c. Total	<u>\$ 74,571,000</u>
3. Benefit Payments in 2022 - 2023	\$ 205,799,000
4. Expenses	
a. Investment Fees	\$ 15,658,000
b. Administrative Fees	8,339,000
c. Total	<u>\$ 23,997,000</u>
5. Transfers In / (Out)	
a. 2019 Sales Tax Referendum	\$ 1,846,000
b. 401(a) Transfers	26,000
c. Total	<u>\$ 1,872,000</u>
6. Interest and Dividend Income	\$ 51,819,000
7. Unrealized Gain/(Loss)	\$ 157,673,000
8. Net Realized Gain/(Loss)	\$ (32,659,000)
9. Other Revenue	<u>\$ 19,374,000</u>
10. Total Income: (6) + (7) + (8) + (9)	\$ 196,207,000
11. Market Value of Assets at June 30, 2023: (1) + (2)(c) - (3) - (4)(c) + (5)(c) + (10)	\$ 2,449,530,000
12. Investment Return: $[2 \times (10)] \div [(1) + (11) - (10)]$ ¹	8.42%

¹The investment return calculated above is an approximation assuming all cash flows occur at mid-year.

SECTION IV - CENSUS DATA

CENSUS DATA

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SECTION IV - CENSUS DATA

A. Census Information

	<u>June 30, 2020</u>	<u>June 30, 2021</u>	<u>June 30, 2022</u>
1. Active			
a. Number ¹	6,122	5,985	5,880
b. Average Age	43.5	43.7	43.9
c. Average Years of Service	11.4	11.4	11.5
d. Anticipated Payroll	\$ 376,847,000	\$ 402,813,000	\$ 371,676,000
2. Terminated - Vested and Nonvested			
a. Number ²	1,126	1,245	1,447
b. Lump Sum- Refund of Contribution	\$ 8,496,000	\$ 8,646,000	\$ 11,501,000
3. Retiree, Beneficiary, and DROP Enrollees			
a. Number ³	4,696	4,800	4,828
b. Annual Benefits Payable	\$ 164,358,000	\$ 170,884,000	\$ 174,598,000
c. DROP Account Balance	\$ 16,054,000	\$ 16,305,000	\$ 15,286,000
4. Disabled			
a. Number	718	708	758
b. Annual Benefits Payable	\$ 20,353,000	\$ 20,335,000	\$ 22,430,000

¹ As of June 30, 2022, active count includes 2,914 2016 Plan Participants of which 1,793 are in the General Plan and 1,121 in the Police and Fire Plan.

² As of June 30, 2022, terminated vested count includes 707 2016 Plan participants of which 470 are in the General Plan and 237 in the Police and Fire Plan.

³ Includes deferred retirees.

SECTION IV - CENSUS DATA

B. Distribution of Active Members by Age and Service for General Employees

Attained Age	Distribution of Police & Fire Active Members by Age and Service as of June 30, 2022										
	Under 1 year	1 to 4 years	5 to 9 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	75	37									112
25-29	75	108	18								201
30-34	70	119	65	5	1						260
35-39	40	94	86	20	10						250
40-44	28	68	82	55	38	19					290
45-49	30	64	63	50	37	40	5				289
50-54	20	80	77	56	35	67	20	1			356
55-59	28	68	75	48	45	58	20	10	3		355
60-64	8	52	57	45	26	54	25	7	4	2	280
65-69	5	14	23	23	17	24	5	1	1	2	115
70&Up	1	5	8	5	7	7	2	3			38
Total	380	709	554	307	216	269	77	22	8	4	2,546

SECTION IV - CENSUS DATA

C. Distribution of Active Members by Age and Service for Police & Fire Employees

Attained Age	Distribution of Police & Fire Active Members by Age and Service as of June 30, 2022										
	Under 1 year	1 to 4 years	5 to 9 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	69	75	7								151
25-29	74	266	65								405
30-34	30	205	186	48							469
35-39	14	93	136	224	34	2					503
40-44	7	44	52	164	112	49	4				432
45-49	2	10	18	87	156	180	27				480
50-54	1	8	7	36	122	235	120	22			551
55-59	3	3	5	10	36	82	50	47	6		242
60-64		2	1	6	9	21	8	15	17	3	82
65-69				2		6	4	3	3	1	19
70&Up											
Total	200	706	477	577	469	575	213	87	26	4	3,334

SECTION IV - CENSUS DATA

D. Distribution of Terminated Members by Age and Service

Attained Age	Distribution of Terminated Vested Members by Age and Service as of June 30, 2022							Total
	Under 5 years ¹	5 to 9 years ¹	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	Over 30 years	
<25	76							76
25-29	174	4						178
30-34	237	16	2					255
35-39	245	19	8	1				273
40-44	175	19	14	4				212
45-49	116	13	8	6	1			144
50-54	104	14	8	7	2			135
55-59	63	15	5	4	4	1		92
60-64	30	5	1	1				37
65-69	22	1	1	1				25
70&Up	17	2	1					20
Total	1,259	108	48	24	7	1		1,447

¹ Participants are vested in the employee contributory portion of their benefit and entitled to a refund of employee contributions.

SECTION IV - CENSUS DATA

E. Distribution of Retired, Beneficiaries, Disabled, and DROP Members by Age and Number of Years Retired ^{1, 2}

Attained Age	Distribution of Retired Members, Beneficiaries, and Disabled Members by Age and Number of Years Retired as of June 30, 2022							
	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	Total
<40	25	13	3	15		1		57
40-44	33	14	4	13			2	66
45-49	70	23	6	30		1		130
50-54	205	89	21	75	7	5		402
55-59	208	222	81	85	11	18	4	629
60-64	175	224	167	137	20	23	11	757
65-69	119	137	227	204	102	39	31	859
70-74	44	95	174	229	228	99	72	941
75-79	13	28	56	132	243	216	121	809
80-84	3	6	15	47	87	147	198	503
85-89	1		2	24	33	44	185	289
90&Up			1	4	9	17	113	144
Total	896	851	757	995	740	610	737	5,586

¹ For the above exhibit, the average of 17 years of retirement was used for 345 retirees who did not have a date of retirement in the data. This does not impact the plan's liability.

² Includes 220 employees currently participating in the DROP and 3 employees who temporarily froze participation in the DROP Program effective November 1, 2015 or November 1, 2016. These members are reflected in the "under 5 years" of retirement column.

SECTION IV - CENSUS DATA

F. Flow of Lives from June 30, 2021 to June 30, 2022

	<u>Actives</u>	<u>Terminated</u>	<u>Disabled</u>	<u>Retired</u>	<u>Beneficiary</u>	<u>DROP</u>	<u>Total</u>
June 30, 2021	5,985	1,245	708	3,513	1,020	267	12,738
New Entrants:	677	-	-	-	-	-	677
Rehires:	14	(13)	-	(1)	-	-	-
DROP:	(65)	-	-	-	-	65	-
Vested Terminations:	(315)	315	-	-	-	-	-
Retirements:	(84)	-	-	193	-	(109)	-
Disablements:	(36)	-	56	(20)	-	-	-
Beneficiary	(9)	-	-	(39)	48	-	-
Death	(9)	-	(37)	(92)	(67)	(1)	(206)
Refunded	(315)	(106)	-	-	-	-	(421)
Data Adjustments:	<u>37</u>	<u>6</u>	<u>31</u>	<u>22</u>	<u>28</u>	<u>1</u>	<u>125</u>
June 30, 2022	5,880	1,447	758	3,576	1,029	223	12,913

SECTION V - ASSUMPTIONS AND METHODS

ASSUMPTIONS AND METHODS

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SECTION V - ASSUMPTIONS AND METHODS

A. Assumptions: General Employees

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 7.25% per year for GASB 67 and GASB 68 purposes

Interest Crediting Rate

Cash Balance Account	July 1, 2022 - June 30, 2023	7.74%	(actual return on assets during FY23 less 1.0%)
	July 1, 2023 and thereafter	6.25%	(valuation interest rate less 1.0%)

IRC 401(a) Account 5.25%

Inflation Assumption 2.25%

Future Salary Increases The salary scale is based on an experience study performed in 2020. The rates below reflect merit and promotional increases, net of inflation. For valuation purposes, future salary increases are expected to increase by the rates below plus the inflation assumption.

	Years of Service	
Age	< 4	>= 4
< 25	7.25%	4.25%
26-30	6.00%	3.00%
31-35	5.00%	2.00%
36-40	5.00%	2.00%
41-45	3.00%	2.00%
46- 50	2.50%	1.50%
51- 55	2.25%	1.25%
56+	2.00%	1.00%

Note: For certain participants specified by the City, the assumed salary increase effective July 1, 2023 is based on actual/known salary increases (ranging from 2% to 14%) and the table above is assumed thereafter.

Note: The actual return on assets for the year ending June 30, 2023 was provided by the City of Memphis.

SECTION V - ASSUMPTIONS AND METHODS

A. Assumptions: General Employees (continued)

Cost of Living Increases None assumed as COLA increases are *ad hoc* in nature and are not substantively automatic.

Mortality

Service Cost Healthy General: Fully Generational PubG-2010 Public Sector Mortality table for general employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Disabled General: Fully Generational PubNS-2010 Public Sector Disabled Mortality table for non-safety employees adjusted by a three year set back with MP-2021 projection scale from 2010.

Survivors General: Fully Generational PubG-2010 Public Sector Contingent Survivor table for general employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Net Pension Liability Healthy General: Fully Generational PubG-2010 Public Sector Mortality table for general employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Disabled General: Fully Generational PubNS-2010 Public Sector Disabled Mortality table for non-safety employees adjusted by a three year set back with MP-2021 projection scale from 2010.

Survivors General: Fully Generational PubG-2010 Public Sector Contingent Survivor table for general employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Account Balance Conversion Account balances under the 2016 Plan (effective July 1, 2016), including participant balances in the 401(a) Plan that are expected to be transferred into the Plan at retirement, are converted to an annuity based on a 5.0% interest rate (required under the Plan) and the 2023 applicable mortality table under IRC section 417(e). The Accrued Liability and Assets in the valuation do not include the current 401(a) balances or any 457 Plan balances that may be transferred to the Plan at retirement. However, the arbitrage on the interest rate and mortality table used in the conversion rates for the participant balances in the 401(a) Plan is reflected in the Normal Cost and Accrued Liability. The Assets and Accrued Liability will reflect the assets transferred into the Plan once a participant elects retirement and converts the 401(a) and any 457 Plan assets to a pension plan under the Plan.

SECTION V - ASSUMPTIONS AND METHODS

A. Assumptions: General Employees (continued)

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

1978 Plan

Males

Age	Years of Service					
	0	1	2	3	4	5+
20-24	55.0%	52.0%	47.0%	45.0%	40.0%	25.0%
25-29	63.0%	57.0%	31.0%	17.0%	7.0%	15.0%
30-34	46.0%	46.0%	18.0%	14.0%	14.0%	15.0%
35-39	22.0%	22.0%	17.0%	7.0%	7.0%	8.0%
40-44	26.0%	4.0%	11.0%	11.0%	10.0%	6.0%
45-49	5.0%	5.0%	5.0%	5.0%	5.0%	6.0%
50-54	5.0%	5.0%	5.0%	5.0%	4.0%	5.0%
55+	3.0%	3.0%	3.0%	3.0%	3.0%	5.0%

Females

Age	Years of Service					
	0	1	2	3	4	5+
20-24	25.0%	22.0%	20.0%	20.0%	20.0%	15.0%
25-29	24.0%	16.0%	14.0%	10.0%	12.0%	10.0%
30-34	26.0%	17.0%	12.0%	13.0%	13.0%	8.0%
35-39	14.0%	11.0%	15.0%	11.0%	11.0%	7.0%
40-44	18.0%	14.0%	8.0%	8.0%	7.0%	7.0%
45-49	18.0%	14.0%	8.0%	8.0%	5.0%	7.0%
50-54	6.0%	6.0%	7.0%	7.0%	5.0%	7.0%
55+	6.0%	6.0%	7.0%	7.0%	5.0%	5.0%

SECTION V - ASSUMPTIONS AND METHODS

A. Assumptions: General Employees (continued)

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

2016 Plan

Males

	Years of Service			
Age	0	1	2	3+
20-24	40.0%	40.0%	40.0%	25.0%
25-29	40.0%	40.0%	40.0%	15.0%
30-34	35.0%	35.0%	35.0%	15.0%
35-39	25.0%	25.0%	25.0%	8.0%
40-44	15.0%	15.0%	15.0%	6.0%
45-49	6.0%	6.0%	6.0%	6.0%
50-54	6.0%	6.0%	6.0%	5.0%
55+	6.0%	6.0%	6.0%	5.0%

Females

	Years of Service			
Age	0	1	2	3+
20-24	25.0%	25.0%	25.0%	15.0%
25-29	20.0%	20.0%	20.0%	10.0%
30-34	17.5%	17.5%	17.5%	8.0%
35-39	15.0%	15.0%	15.0%	7.0%
40-44	15.0%	15.0%	15.0%	7.0%
45-49	15.0%	15.0%	15.0%	7.0%
50-54	10.0%	10.0%	10.0%	7.0%
55+	10.0%	10.0%	10.0%	5.0%

SECTION V - ASSUMPTIONS AND METHODS

A. Assumptions: General Employees (continued)

Retirement Rates

Retirement rates vary by age and plan:

1978 Plan

Age	Rate
< 45	15%
45-49	15%
50-54	15%
55-59	15%
60-64	15%
65-69	25%
70+	100%

2016 Plan

Age	Rate
62	20%
63	20%
64	20%
65	100%

Disability

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

Age	Combined Male / Female
20-24	0.10%
25-29	0.10%
30-34	0.10%
35-39	0.10%
40-44	0.17%
45-49	0.28%
50-54	0.63%
55+	1.33%

¹ For the 2016 Plan participants, there is minimal retirement experience to date. Therefore, this assumption was not based on the most recent experience study and will continue to be monitored as additional experience becomes available.

SECTION V - ASSUMPTIONS AND METHODS

A. Assumptions: General Employees (continued)

Marriage	80% of male General Employees and 50% of female General 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.
Form of Payment	<p>It has been assumed that benefits will be paid in the normal annuity form applicable to the particular benefit.</p> <p>1948 Plan or 1978 Plan: General Employees who terminate prior to retirement age are assumed to elect to receive their employee contributions times the applicable return multiple.</p> <p>2016 Plan: General Employees who terminate prior to ten years of service will elect to receive a refund of their employee contributions under the 1978 Plan (if any) 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.</p> <p>Current terminated employees are assumed to elect to receive their employee contributions times the applicable return multiple under the 1978 plan (if any), plus the employee account balance under the 2016 Plan and the City account balance under the 2016 Plan (for those who withdraw after ten years of service).</p> <p><i>2016 Plan Partial Lump Sum Feature:</i></p> <p>Up to 25% of the cash balance and 401(a) balance can be taken as a lump sum, with the remaining amount annuitized. Given this feature is relatively new and the fact there has been very few known partial lump sums to-date, we will continue assuming the full balances are annuitized and continue to monitor this assumption going forward.</p>
Expense Load	None.
Data Assumptions	<p>Cash balance accounts for the period from July 1, 2022 to June 30, 2023 are projected based on estimated service credits and actual interest credits using 7.74% (the actual FY22 return on assets of 8.74% less 1.00%).</p> <p>If the FY22 pensionable earnings is missing for actives and terminated vested members, their earnings is assumed to equal \$67,600.</p> <p>If an active member is listed as a 2016 plan member and the listed employee contribution earned under the legacy plan (i.e., employee contributions contributed when in the 1978/2012 plan) is greater than \$0, then the liability would incorporate the frozen legacy benefit. If the active member is listed as a 2016 plan member and the listed employee contributions earned under the legacy plan is \$0, then the liability would not incorporate the frozen legacy benefit (as PwC understands that the member received a refund of their legacy contributions in lieu of receiving an annuity of their legacy benefit).</p>

SECTION V - ASSUMPTIONS AND METHODS

A. Assumptions: General Employees (continued)

Changes in Assumptions

None

SECTION V - ASSUMPTIONS AND METHODS

B. Assumptions: Police and Fire Employees

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 7.25% per year for GASB 67 and GASB 68 purposes

Interest Crediting Rate

Cash Balance Account	July 1, 2022 - June 30, 2023	7.74%	(actual return on assets during FY22 less 1.0%)
	July 1, 2023 -	6.25%	(valuation interest rate less 1.0%)

IRC 401(a) Account 5.25%

Inflation Assumption 2.25%

Future Salary Increases The salary scale is based on an experience study performed in 2020. The rates below reflect merit and promotional increases, net of inflation. For valuation purposes, future salary increases are expected to increase by the rates below plus the inflation assumption.

Age	Years of Service	
	< 4	>= 4
< 25	7.25%	4.25%
26-30	6.00%	3.00%
31-35	5.00%	2.00%
36-40	5.00%	2.00%
41-45	3.00%	2.00%
46- 50	2.50%	1.50%
51- 55	2.25%	1.25%
56+	2.00%	1.00%

Note: For certain participants specified by the City, the assumed salary increase effective July 1, 2023 is based on actual/known salary increases (ranging from 2% to 14%) and the table above is assumed thereafter.

Note: The actual return on assets for the year ending June 30, 2023 was provided by the City of Memphis.

SECTION V - ASSUMPTIONS AND METHODS

B. Assumptions: Police and Fire Employees (continued)

Cost of Living Increases None assumed as COLA increases are *ad hoc* in nature and are not substantively automatic.

Mortality

Service Cost Healthy Police and Fire: Fully Generational PubS-2010 Public Sector Mortality table for safety employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Disabled Police and Fire: Fully Generational PubS-2010 Public Sector Disabled Mortality table for safety employees adjusted by a three year set back with MP-2021 projection scale from 2010.

Survivors Police and Fire: Fully Generational PubS-2010 Public Sector Contingent Survivor table for safety employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Net Pension Liability Healthy Police and Fire: Fully Generational PubS-2010 Public Sector Mortality table for safety employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Disabled Police and Fire: Fully Generational PubS-2010 Public Sector Disabled Mortality table for safety employees adjusted by a three year set back with MP-2021 projection scale from 2010.

Survivors Police and Fire: Fully Generational PubS-2010 Public Sector Contingent Survivor table for safety employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Account Balance Conversion Account balances under the 2016 Plan (effective July 1, 2016), including participant balances in the 401(a) Plan that are expected to be transferred into the Plan at retirement, are converted to an annuity based on a 5.0% interest rate (required under the Plan) and the 2023 applicable mortality table under IRC section 417(e). The Accrued Liability and Assets in the valuation do not include the current 401(a) balances or any 457 Plan balances that may be transferred to the Plan at retirement. However, the arbitrage on the interest rate and mortality table used in the conversion rates for the participant balances in the 401(a) Plan is reflected in the Normal Cost and Accrued Liability. The Assets and Accrued Liability will reflect the assets transferred into the Plan once a participant elects retirement and converts the 401(a) and any 457 Plan assets to a pension plan under the Plan.

SECTION V - ASSUMPTIONS AND METHODS

B. Assumptions: Police and Fire Employees (continued)

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

1978 Plan

Males

Age	Years of Service					
	0	1	2	3	4	5+
20-24	13.0%	5.0%	5.0%	5.0%	5.0%	7.0%
25-29	15.0%	5.0%	5.0%	5.0%	5.0%	7.0%
30-34	17.0%	5.0%	4.0%	4.0%	3.0%	5.0%
35-39	15.0%	5.0%	5.0%	5.0%	4.0%	5.0%
40-44	18.0%	4.0%	4.0%	4.0%	2.0%	3.0%
45-49	17.0%	20.0%	5.0%	5.0%	2.0%	3.0%
50-54	15.0%	20.0%	5.0%	5.0%	2.0%	3.0%
55+	15.0%	20.0%	5.0%	5.0%	2.0%	3.0%

Females

Age	Years of Service					
	0	1	2	3	4	5+
20-24	25.0%	22.0%	20.0%	20.0%	20.0%	15.0%
25-29	24.0%	16.0%	14.0%	10.0%	12.0%	15.0%
30-34	26.0%	17.0%	12.0%	13.0%	13.0%	15.0%
35-39	14.0%	11.0%	15.0%	11.0%	11.0%	15.0%
40-44	18.0%	14.0%	8.0%	8.0%	7.0%	15.0%
45-49	18.0%	14.0%	8.0%	8.0%	5.0%	15.0%
50-54	6.0%	6.0%	7.0%	7.0%	5.0%	15.0%
55+	6.0%	6.0%	7.0%	7.0%	5.0%	15.0%

SECTION V - ASSUMPTIONS AND METHODS

B. Assumptions: Police and Fire Employees (continued)

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

2016 Plan

Males

	Years of Service	
Age	0	1+
20-24	25.0%	7.0%
25-29	25.0%	7.0%
30-34	25.0%	5.0%
35-39	25.0%	5.0%
40-44	15.0%	3.0%
45-49	15.0%	3.0%
50-54	15.0%	3.0%
55+	15.0%	3.0%

Females

	Years of Service	
Age	0	1+
20-24	15.0%	15.0%
25-29	15.0%	15.0%
30-34	15.0%	15.0%
35-39	15.0%	15.0%
40-44	15.0%	15.0%
45-49	15.0%	15.0%
50-54	15.0%	15.0%
55+	15.0%	15.0%

SECTION V - ASSUMPTIONS AND METHODS

B. Assumptions: Police and Fire Employees (continued)

Retirement Rates

The retirement rates vary by age and plan:

1978 Plan

<u>Age</u>	<u>Rate</u>
<45	50%
45-49	30%
50-54	20%
55-59	20%
60-64	20%
65-69	50%
70+	100%

2016 Plan

<u>Age</u>	<u>Rate</u>
52	20%
53	20%
54	20%
55	20%
56	20%
57	20%
58	20%
59	20%
60	100%

Disability

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

<u>Age</u>	<u>Combined Male / Female</u>
20-24	0.10%
25-29	0.10%
30-34	0.10%
35-39	0.10%
40-44	0.17%
45-49	0.28%
50-54	0.63%
55+	1.33%

¹ For the 2016 Plan participants, there is minimal retirement experience to date. Therefore, this assumption was not based on the most recent experience study and will continue to be monitored as additional experience becomes available.

SECTION V - ASSUMPTIONS AND METHODS

B. Assumptions: Police and Fire Employees (continued)

Marriage	80% of male Police and Fire are assumed to be married and 40% of female Police and Fire are assumed to be married. Wives are assumed to be three years younger than their husbands.
Death/Disability	Deaths and disabilities for active Police and Fire Employees are assumed to be line-of-duty.
Form of Payment	<p>It has been assumed that benefits will be paid in the normal annuity form applicable to the particular benefit.</p> <p>1948 Plan and 1978 Plan: 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</p> <p>2016 Plan: Police and Fire Employees who terminate prior to ten years of service will receive a refund of their employee contributions under the 1978 Plan (if any) 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.</p> <p>Current terminated employees are assumed to elect to receive their employee contributions times the applicable return multiple under the 1978 plan (if any), plus the employee account balance under the 2016 Plan and the City account balance under the 2016 Plan (for those who withdraw after ten years of service).</p> <p><i>2016 Plan Partial Lump Sum Feature:</i></p> <p>Up to 25% of the cash balance and 401(a) balance can be taken as a lump sum, with the remaining amount annuitized. Given this feature is relatively new and the fact there has been very few known partial lump sums to-date, we will continue assuming the full balances are annuitized and continue to monitor this assumption going forward.</p>
Expense Load	None.
Data Assumptions	<p>Cash balance accounts for the period from July 1, 2022 to June 30, 2023 are projected based on estimated service credits and actual interest credits using 7.74% (the actual FY22 return on assets of 8.74% less 1.00%).</p> <p>If the FY22 pensionable earnings is missing for actives and terminated vested members, their earnings are assumed to equal \$67,600.</p> <p>If an active member is listed as a 2016 plan member and the listed employee contribution earned under the legacy plan (i.e., employee contributions contributed when in the 1978/2012 plan) is greater than \$0, then the liability would incorporate the frozen legacy benefit. If the active member is listed as a 2016 plan member and the listed employee contributions earned under the legacy plan is \$0, then the liability would not incorporate the frozen legacy benefit (as PwC understands that the member received a refund of their legacy contributions in lieu of receiving an annuity of their legacy benefit).</p>

SECTION V - ASSUMPTIONS AND METHODS

B. Assumptions: Police and Fire Employees (continued)

Changes in Assumptions

None

SECTION V - ASSUMPTIONS AND METHODS

C. 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 2023 fiscal year. It is developed pursuant to paragraphs 40 - 45 of GASB 67 and paragraphs 26 - 31 of GASB 68. The City selected the assumption based on their best estimate of future returns considering the asset mix of the plan, and historical returns and forward looking capital market returns.
Future Salary Increases	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 historical cost of living increases coupled with management's best estimate of future expectations. COLA increases are ad hoc in nature and are not substantively automatic.
Mortality	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.
Termination ¹	Termination rates are set based on the plan's historical experience observed in the 2020 experience study and future expectations with periodic monitoring of observed gains and losses caused by termination patterns different than assumed.
Retirement ²	Retirement rates are set based on the plan's historical experience observed in the 2020 experience study and future expectations with periodic monitoring of observed gains and losses caused by retirement patterns different than assumed.

¹ For the 1978/2012 plan participants, the select period is based on the prior experience study performed in 2014 as these individuals had no select period experience during the most recent experience study performed in 2020.

² For the 1978/2012 Plan participants, retirement rates were updated based on observations in the 2020 experience study. For the 2016 Plan participants, very limited exposures exist. Therefore, the retirement rates were selected by the City based on their best estimate of anticipated future experience at the time of the plan change in 2016. The City will continue to monitor as actual experience becomes available.

SECTION V - ASSUMPTIONS AND METHODS

C. Assumptions Rationale (continued)

Disability	Disability rates are set based on the plan's historical experience observed in the 2020 experience study and future expectations with periodic monitoring of observed gains and losses caused by disability patterns different than assumed.
Marriage	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.

SECTION V - ASSUMPTIONS AND METHODS

D. 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. Measurement of Benefit Obligations and Balance Sheet Adjustments

Valuation Date	July 1, 2022
Measurement Date	June 30, 2023
Fiscal Year End Reporting Date	June 30, 2023

Benefit obligations were determined using a July 1, 2022 valuation date and based on census data as of that date. The resulting valuation was then rolled forward to the June 30, 2023 measurement date using standard actuarial techniques with adjustments for service cost, interest, actual benefit payments, 401(a) transfers and significant changes subsequent to the valuation data and before the measurement date.

Significant changes in the valuation include adjustments for the actual interest crediting rate of 7.74% (8.74% actual return on assets less 1.00%) for the period from July 1, 2022 to June 30, 2023 and reflecting known payroll increases effective July 1, 2023.

4. Changes in Actuarial Methods

There were no changes from the prior year.

SECTION VI - SUMMARY OF PLAN PROVISIONS

SUMMARY OF PLAN PROVISIONS

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B. Summary of Plan Provisions: Police and Fire Employees	53

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. [Certain eligible participants elected to be transferred from the 2016 Plan to the 1978 Plan in 2021.]
	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 participants and 1978 Plan participants 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 participants 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

A participant 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.

A participant 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

A participants 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. At retirement, the defined contribution account balance is converted to a lifetime annuity.

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.

2016 Plan Lump Sum Feature

Up to 25% (in increments of 5%) of the cash balance account and defined contribution account balance can be taken as a lump sum, with the remaining amount annuitized.

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 participants, 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 participants 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 (hired before July 1, 2012): Accrued Benefit with no reduction for early retirement.

For 1978 Plan participants 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 (hired after July 1, 2012): 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 participants, 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 participants.

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

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

1978 Plan

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

2016 Plan

Participants 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**

There were no changes to the plan provisions that effected the measurement of the benefit obligation.

SECTION VI - SUMMARY OF PLAN PROVISIONS

B. Summary of Plan Provisions: Police and Fire 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. [Certain eligible participants were transferred from the 2016 Plan to the 1978 Plan in 2021.]
	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 participants and 2012 Plan participants, 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 participant 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 participants 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

The Accrued Benefit for participants in the 2016 Plan is based on the sum of their Market-rate Cash Balance Account and their Defined Contribution Account Balance, converted to an actuarial equivalent annuity.

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.

2016 Plan Lump Sum Feature Up to 25% (in increments of 5%) of the cash balance account and defined contribution account balance can be taken as a lump sum, with the remaining amount annuitized.

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 participants, 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 participants 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 (hired before July 1, 2012): Accrued Benefit with no reduction for early retirement.

For 1978 Plan participants 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 (hired after July 1, 2012): 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 participants, 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 participants.

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.

2016 Plan The portion of the cash balance account funded by employee contributions plus applicable interest credits. For participants with a 1978 Plan frozen benefit, participant will also receive any Employee Contributions made under the 1978 Plan, prior to the transition to the 2016 Plan.

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

The contribution rate for employees who were non-vested as of July 1, 2012 is 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

There were no changes to the plan provisions that effected the measurement of the benefit obligation.

APPENDIX I

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Memphis-Shelby County Airport Authority

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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. The contributions for the Airport Authority are provided directly from the Airport Authority.

(1) Year Ending June 30	(2) Airport Authority	(3) City of Memphis *	(4) Total *
2018	\$ 2,717,000	\$ 52,342,000	\$ 55,059,000
2019	\$ 2,669,000	\$ 56,227,000	\$ 58,896,000
2020	\$ 2,362,000	\$ 51,832,000	\$ 54,194,000
2021	\$ 2,602,000	\$ 58,932,000	\$ 61,534,000
2022	\$ 2,209,000	\$ 55,018,000	\$ 57,227,000
2023	\$ 2,249,000	\$ 54,452,000	\$ 56,701,000

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 2018 - 2022 fiscal years		\$ 12,559,000
ii. Total contributions for 2018 - 2022 fiscal years		\$ 286,910,000
iii. Allocation percentage as of the beginning of the reporting period (i) ÷ (ii)		4.38%
b. Development of allocation percentage as of the <i>ending</i> of the reporting period		
i. Airport Authority contributions for 2019 - 2023 fiscal years		\$ 12,091,000
ii. Total contributions for 2019 - 2023 fiscal years		\$ 288,552,000
iii. Allocation percentage as of the ending of the reporting period (i) ÷ (ii)		4.19%

* Starting in 2022, the City of Memphis contribution includes monies transferred from the Sales Tax Referendum Revenue Fund.

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 assumptions and other inputs used to measure the total pension liability:

- a. Measurement Date June 30, 2023
- b. Valuation Date June 30, 2022
- c. Investment Yield 7.25%
- d. Future Salary Increases Merit and promotion scale that varies by age and service, plus inflation (reflecting known payroll increase effective on July 1, 2023)
- e. Cost-of-Living Increases None assumed
- f. Mortality Assumption Healthy General: Fully Generational PubG-2010 Public Sector Mortality table for general employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Healthy Police and Fire: Fully Generational PubS-2010 Public Sector Mortality table for safety employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Disabled General: Fully Generational PubNS-2010 Public Sector Disabled Mortality table for non-safety employees adjusted by a three year set back with MP-2021 projection scale from 2010.

Disabled Police and Fire: Fully Generational PubS-2010 Public Sector Disabled Mortality table for safety employees adjusted by a three year set back with MP-2021 projection scale from 2010.

Survivors General: Fully Generational PubG-2010 Public Sector Contingent Survivor table for general employees adjusted by a one year set forward with MP-2021 projection scale from 2010.

Survivors Police and Fire: Fully Generational PubS-2010 Public Sector Contingent Survivor table for safety employees adjusted by a one year set forward with MP-2021 projection scale from 2010.
- g. Experience Study Experience study based on 5 years of experience (2016-2020)

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 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 7.25% as of June 30, 2023, 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 (6.25%)</u>	<u>Current Rate (7.25%)</u>	<u>1% Increase (8.25%)</u>
Net Pension Liability (000's)	\$ 37,422	\$ 23,835	\$ 12,376

3. The Airport Authority's proportionate share of the Net Pension Liability (000's) as of June 30, 2023 are as follows:

i. Total Pension Liability	\$ 126,470
ii. Plan Fiduciary Net Position	<u>102,635</u>
iii. Net Pension Liability	\$ 23,835
iv. Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	81.2%

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

Net Pension Liability (000's)

(1)	(2)	(3)	(4)	(5)	(6)
Year Ending June 30	Proportion of of the Net Liability (Asset) ¹	Proportionate Share of Net Pension Liability	Actual Covered Employee Payroll ²	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%	\$ 11,317	\$ 19,439	58.2%	88.0%
2019	3.63%	\$ 15,817	\$ 18,698	84.6%	84.3%
2020	4.02%	\$ 19,301	\$ 20,223	95.4%	82.5%
2021	4.43%	\$ (85)	\$ 20,175	-0.4%	100.1%
2022	4.38%	\$ 23,914	\$ 20,486	116.7%	81.5%
2023	4.19%	\$ 23,835	\$ 20,846	114.3%	81.2%

¹ Based on the cost sharing allocation percentage as of the measurement date.

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.

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 ¹	Actual Employer Contributions	Contribution Excess/(Deficiency) (3) - (2)	Actual Covered Employee Payroll ²	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%
2019	\$ 2,669	\$ 2,669	\$ -	\$ 18,698	14.3%
2020	\$ 2,362	\$ 2,362	\$ -	\$ 20,223	11.7%
2021	\$ 2,602	\$ 2,602	\$ -	\$ 20,175	12.9%
2022	\$ 2,209	\$ 2,209	\$ -	\$ 20,486	10.8%
2023	\$ 2,249	\$ 2,249	\$ -	\$ 20,846	10.8%

¹ 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.

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.

APPENDIX I

EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

F. Pension Expense under GASB 68 for the Fiscal Year Ending June 30, 2023

Pension Expense (000's)	<u>FY23</u>
Airport Authority Proportionate Share	4.19%
1. Service cost	\$ 1,133
2. Interest Cost	\$ 8,774
3. Expected Return on Assets	\$ (7,114)
4. Changes in Benefit Terms	\$ -
5. Recognition of deferred (inflows) / outflows of resources related to:	
a. Liability Experience (gains) / losses	\$ 191
b. Assumption Changes (gains) / losses	362
c. Investment (gains) / losses	1,473
d. Changes in proportion of net pension liability and deferred (inflows) / outflows	616
e. Changes in actual contributions and proportionate share of contributions	<u>(24)</u>
f. Total: (a) + (b) + (c) + (d) + (e)	\$ 2,618
6. Total Pension Expense: (1) + (2) + (3) + (4) + (5)(f)	\$ 5,411

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.

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EMPLOYER FINANCIAL STATEMENTS UNDER GASB 68

G. Resources of Deferred Outflows and Resources of Deferred Inflows for the Fiscal Year Ending June 30, 2023

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>	\$ 798	\$ (41)
<i>b. Changes in Assumptions</i>	\$ 1,825	\$ (703)
<i>c. Investment (Gains) and Losses</i>	\$ 12,993	\$ (8,410)
<i>d. Changes in Proportionate Share of Net Pension Liability and Deferred Outflows and Inflows</i>	\$ 778	\$ (591)
<i>e. Difference Between Airport Authority Contribution and Proportionate Share of Contribution</i>	\$ 27	\$ (284)
<i>f. Deferred Outflows/(Inflows) of Resources (a) + (b) + (c) + (d) + (e)</i>	<u>\$ 16,421</u>	<u>\$ (10,029)</u>

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

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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:

2024	\$	1,725
2025	\$	733
2026	\$	4,023
2027	\$	(89)
2028	\$	-
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, 2023

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						
			2023	2024	2025	2026	2027	2028	Thereafter
2019	\$ 407	4.61	\$ 55	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2020	\$ 1,632	4.73	\$ 345	\$ 252	\$ -	\$ -	\$ -	\$ -	\$ -
2021	\$ 1,813	4.23	\$ 429	\$ 429	\$ 97	\$ -	\$ -	\$ -	\$ -
2022	\$ (168)	4.10	\$ (41)	\$ (41)	\$ (41)	\$ (4)	\$ -	\$ -	\$ -
2023	\$ (677)	3.94	\$ (172)	\$ (172)	\$ (172)	\$ (161)	\$ -	\$ -	\$ -
Net increase (decrease) in pension expense			\$ 616	\$ 468	\$ (116)	\$ (165)	\$ -	\$ -	\$ -

¹ 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.

² 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, 2023

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						
			2023	2024	2025	2026	2027	2028	Thereafter
2019	\$ 531	4.61	\$ 71	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2020	\$ 183	4.73	\$ 39	\$ 27	\$ -	\$ -	\$ -	\$ -	\$ -
2021	\$ (124)	4.23	\$ (29)	\$ (29)	\$ (8)	\$ -	\$ -	\$ -	\$ -
2022	\$ (298)	4.10	\$ (73)	\$ (73)	\$ (73)	\$ (6)	\$ -	\$ -	\$ -
2023	\$ (127)	3.94	\$ (32)	\$ (32)	\$ (32)	\$ (31)	\$ -	\$ -	\$ -
Net increase (decrease) in pension expense			\$ (24)	\$ (107)	\$ (113)	\$ (37)	\$ -	\$ -	\$ -

¹ 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.

² 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.

³ 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.