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City of Memphis

City of Memphis Retirement System

Funding Valuation for Plan Year
Ending June 30, 2026





April 16, 2025

City of Memphis
125 North Main Street
Memphis, Tennessee 38103

Re: Funding Valuation Report for the Plan Year Ending June 30, 2026

We are pleased to present this report containing the funding results of the plan year ending June 30, 2026 for the City of Memphis Retirement System ("the Plan"), pursuant to our engagement letter with the City of Memphis ("the City") dated October 5, 2023.

The City of Memphis retained PwC to perform an actuarial valuation of the Retirement System for the purpose of calculating the Actuarially Determined Contribution ("ADC") as defined in The Public Employee Defined Benefit Financial Security Act of 2014 for the State of Tennessee (the "Financial Security Act of 2014") for the plan year ending June 30, 2026. These calculations are not suitable for any other purpose. Pursuant to the City's current funding policy that became effective for the fiscal year beginning July 1, 2015, the measurement date used to determine the ADC is twelve (12) months prior to the beginning of the plan year. Therefore, the funding requirement for the plan year ending June 30, 2026 is based on a valuation date of July 1, 2024. This report is not intended to satisfy any of the necessary information for accounting and reporting requirements, including those under Government Accounting Standards Board Statement No. 67 (GASB 67) or with Government Accounting Standards Board Statement No. 68 (GASB 68), as amended by Government Accounting Standards Board Statement No. 82.

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

In preparing the results presented in this report, we have relied upon information the City of Memphis provided to us, including but not limited to plan provisions, census information, unaudited plan assets, employee and employer contributions, and benefit payments. The census data and plan asset information used to calculate the actuarial results were collected as of July 1, 2024. The final July 1, 2024 plan asset information was provided by the City in December 2024. PwC did not receive an actual trust statement from the trustee; rather, PwC received an Excel spreadsheet directly from the City of Memphis that summarizes the year-end balance sheet and revenue/expense items during the measurement period. 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.

Plan provisions are based on Memphis, Tennessee Code of Ordinance Title 4 - Pension and Retirement System. Any interpretation of the plan provisions is provided by the City. The plan provisions reflect an amendment that allowed certain eligible commissioned Police and Fire in the 2016 Plan, including eligible Police & Fire new hires, a one-time irrevocable choice to transfer from the 2016 Plan to the 1978 Plan. In addition, the results include an amendment to allow vesting after five years of service for General employees in the 2016 Plan. No other changes to the plan provisions were recognized in the valuation, including the plan amendment that provided a one-time COLA pension bonus to eligible retirees that we understand was paid directly from plan assets in August 2024.



The City of Memphis has determined and taken responsibility for the selection of actuarial assumptions and methods employed in the valuation of obligations and costs for purposes of complying with the Financial Security Act of 2014.

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

This report was prepared for the internal use of the City of Memphis in connection with our actuarial valuation of the Plan for determining the ADC 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.

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

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

The undersigned actuaries are each 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,

A handwritten signature in black ink that reads "Cindy Fraterrigo".

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TABLE OF CONTENTS

I. EXECUTIVE SUMMARY	1
II. FUNDING	
A. Development of Funded Status	4
B. Reconciliation of Actuarial Accrued Liability	5
C. Development of Actuarially Determined Contribution	6
D. Development of Amortization of Tier for the Current Plan Year	7
E. Unfunded Accrued Liability Amortization Schedule	8
III. ASSETS	
A. Reconciliation of Market Value of Assets and Investment Return	9
B. Development of Actuarial Value of Assets for Funding Purposes	10
IV. CENSUS DATA	
A. Census Information	11
B. Distribution of Active Members by Age and Service for General Employees	12
C. Distribution of Active Members by Age and Service for Police & Fire Employees	13
D. Distribution of Terminated Vested Members by Age and Service	14
E. Distribution of Retired Members, Beneficiaries, and Disabled Members by Age and Number of Years Retired	15
F. Flow of Lives from June 30, 2023 to June 30, 2024	16
V. ACTUARIAL ASSUMPTIONS AND METHODS	
A. Actuarial Assumptions: General Employees	17
B. Actuarial Assumptions: Police and Fire Employees	24
C. Actuarial Assumptions Rationale	31
D. Actuarial Methods for Funding Purposes	33
E. Assessment of Risk Associated with Measurement of Pension Liability and Contributions	34
F. Low-Default-Risk Obligation Measure	37
VI. SUMMARY OF PLAN PROVISIONS	
A. Summary of Plan Provisions: General Employees	38
B. Summary of Plan Provisions: Police and Fire Employees	48
Appendix I - Summary of Funding Policy	57
Appendix II - Allocation of ADC by Service Center	58

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT

Actuarially Determined Contribution

The City's Actuarially Determined Contribution ("ADC") for purposes of complying with both The City's Funding Policy and The Public Employee Defined Benefit Financial Security Act of 2014 for the State of Tennessee (the "Financial Security Act of 2014") for the plan year ending June 30, 2026 is \$71,182,000. Pursuant to the City's funding policy effective July 1, 2015, the ADC is determined using a measurement date of July 1, 2024, which is twelve (12) months prior to the first day of the plan year to which the ADC relates. The ADC is comprised of the normal cost of \$19,806,000, and the current year amortization charge of \$46,564,000, with interest on both of these components equal to \$4,812,000. Details of this calculation can be found in Section II - Funding, Exhibit C of this report.

As described above, there are two main components that comprise the ADC. The first component is the normal cost, which is the cost of additional benefits accruing during the current year. The employer normal cost is based on the actuarial assumptions and methods and summary of plan provisions detailed in Section V and Section VI of this report, respectively.

The second component of the ADC is the current year amortization charge. The current year amortization charge is the sum of all amortization charges for both the current year and as established in prior plan years. An amortization charge for any given year is the funding shortfall base (or "tier") amortized over a closed 30-year period. The funding shortfall tier is calculated as the unfunded actuarial accrued liability, defined as the actuarial accrued liability less the actuarial value of assets, for the current plan year less the sum of all remaining shortfall tier balances established in prior plan years. For the first four years under the Financial Security Act of 2014, the City's funding policy was to phase-in the ADC based on pre-set percentages agreed upon with the State of Tennessee. To recognize the impact of contributing the phase-in percent only in these four years, the City elected to fund the non-phased in contribution amount over a tier of 29 years. This method is determined by the City of Memphis and is consistent with our understanding of the requirements described in The City's Funding Policy.

The unfunded actuarial accrued liability for the current plan year is \$542,841,000 and the sum of remaining balances for shortfall tiers, including the phase-in contribution tiers, established in prior plan years is \$458,573,000, resulting in a new shortfall tier of \$84,268,000. The total amortization charges for both the current plan year and all prior plan years is \$46,564,000.

As of July 1, 2024, the actuarial value of assets are \$2,614,537,000, which is more than the market value of assets of \$2,576,469,000 as a result of the deferral of net asset losses from the prior fiscal years within the smoothing period. The method for determining the actuarial value of assets used to determine the ADC is an actuarial value that smoothes fluctuations in the market value over a five (5) year period, but limiting the actuarial value to be within a 20% corridor of the market value of assets. This method for determining the actuarial value of assets is consistent with the City's funding policy and complies with the Financial Security Act of 2014. The development of the actuarial value of assets can be found in Section III - Assets, Exhibit B of this report.

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT

Actuarially Determined Contribution for Funding Purposes (continued)

The ADC for the current year is \$71,182,000 compared to \$66,506,000 in the prior valuation year. The increase in the ADC is primarily attributable to census experience and the change in form of payment assumption, which resulted in an actuarial loss in the actuarial accrued liability. Additionally, net asset losses were recognized in the actuarial value of assets from the prior fiscal years within the smoothing period. The impact of these items are amortized over thirty years and are included in the current year ADC.

Valuation Date Applicable Fiscal Year Beginning	July 1, 2023 July 1, 2024	July 1, 2024 July 1, 2025	<u>Difference</u>
Unfunded Actuarial Accrued Liability			
1. Actuarial Accrued Liability	\$ 3,035,846,000	\$ 3,157,378,000	\$ 121,532,000
2. Actuarial Value of Assets	<u>2,568,201,000</u>	<u>2,614,537,000</u>	<u>46,336,000</u>
3. Unfunded Actuarial Accrued Liability (1) - (2)	\$ 467,645,000	\$ 542,841,000	\$ 75,196,000
Actuarially Determined Contribution (ADC):			
1. Employer Normal Cost as of the Beginning of the Period	\$ 21,938,000	\$ 19,806,000	\$ (2,132,000)
2. Total Amortization Charge	40,072,000	46,564,000	6,492,000
3. Interest: [(1) + (2)] × [Interest Rate] ¹	<u>4,496,000</u>	<u>4,812,000</u>	<u>316,000</u>
4. Actuarially Determined Contribution: (1) + (2) + (3)	\$ 66,506,000	\$ 71,182,000	\$ 4,676,000
Interest Rate	7.25%	7.25%	

¹ Interest to the end of the fiscal year.

SECTION I - EXECUTIVE SUMMARY

HIGHLIGHTS OF THE ACTUARY'S REPORT

Assumptions and Methods

The following assumption changes were made since the prior valuation:

- ~ For the 2016 Plan, the account balance conversion mortality table used to convert account balances to annuities was updated to the 2024 applicable mortality table for 2024 and 2025 applicable mortality table for years thereafter under IRC section 417(e).
- ~ For current retirees, disabled and DROP participants, the payment form determination was updated to be based on if a spouse date of birth was provided instead of marital status per the City of Memphis.

Details may be found in Section V of this report.

Plan Provisions

During the 2024 fiscal year, the Plan was amended for the following:

- ~ The City amended the 1978/2016 Plan to allow specified eligible public safety employees and non-commissioned dispatchers and paramedics currently participating in the 2016 Plan to make a one-time irrevocable election to return to the legacy 1978 Plan. Accordingly, benefits for all years of service were restored as if the participant always participated in the 1978 Plan. For those that elected to return to the 1978 Plan, their 401(a) balance was transferred to the pension plan trust. In addition, the amendment provided choice of plan formulas to eligible new hires.
- ~ The City amended the 2016 Plan to reduce the vesting period for General participants who terminate prior to attaining normal retirement age from a 10-year vesting cliff to a 5-year vesting cliff.

Details may be found in Section VI of this report.

Plan Year 2024 Experience

Experience gains and losses included in the June 30, 2024 Net Pension Liability reflect the following:

- ~ Updated census information as of June 30, 2024
- ~ Actual 2024 interest crediting rate of 8.56%, calculated as the actual return on assets of 9.56% less 1.00% (impacts the 2016 Plan only) compared to the 7.25% assumption.

SECTION II - FUNDING

FUNDING

	<u>Page</u>
A. Development of Funded Status	4
B. Reconciliation of Actuarial Accrued Liability	5
C. Development of Actuarially Determined Contribution	6
D. Development of Amortization of Tier for the Current Plan Year	7
E. Unfunded Accrued Liability Amortization Schedule	8

SECTION II - FUNDING

A. Development of Funded Status as of July 1, 2024

	<u>General Employees</u>	<u>Police and Fire</u>	<u>Total</u>
1. Actuarial Accrued Liability			
a. Active Participants	\$ 248,561,000	\$ 771,101,000	\$ 1,019,662,000
b. Terminated Vested Participants	10,829,000	5,293,000	16,122,000
c. Retiree/Beneficiary/Disabled /DROP Participants	<u>579,054,000</u>	<u>1,542,540,000</u>	<u>2,121,594,000</u>
d. Total: (1)(a) + (1)(b) + (1)(c)	\$ 838,444,000	\$ 2,318,934,000	\$ 3,157,378,000
2. Actuarial Value of Assets ¹	\$ 694,292,000	\$ 1,920,245,000	\$ 2,614,537,000
3. Unfunded Actuarial Accrued Liability: (1)(d) - (2)	\$ 144,152,000	\$ 398,689,000	\$ 542,841,000
4. Funded Percentage: (2) ÷ (1)(d)	82.8%	82.8%	82.8%

¹ At the City's direction, the actuarial value of assets is allocated in proportion to the actuarial accrued liability of General employees and Police and Fire employees. This allocation is for illustration purposes only as the plan assets are not legally separate. The determination for General Employee versus Police and Fire based on the census data code "Pension Plan" provided in the census data as of June 30, 2024.

SECTION II - FUNDING

B. Reconciliation of Actuarial Accrued Liability

1. July 1, 2023 Actuarial Accrued Liability for Funding Purposes	\$ 3,035,846,000	
2. Employer Normal Cost	21,938,000	
3. Estimated Employee Contributions in Normal Cost	20,349,000	
4. Actual Benefit Payments	213,594,000	
5. Interest of 7.25% on (1) + (2) + (3) - (4) ÷ 2	215,422,000	
6. Expected July 1, 2024 Actuarial Accrued Liability: (1) + (2) + (3) - (4) + (5)	\$ 3,079,961,000	
	<u>\$ Change in Liability</u>	<u>% Change in Liability</u>
7. (Gain)/Loss Components		
a. Assumption Change - Payment Form Determination ¹	\$ 13,029,000	0.42%
b. Plan Amendment - Benefit Restoration ²	17,323,000	0.56%
c. Plan Amendment - Change in 2016 Plan Vesting Provisions ²	727,000	0.02%
d. Experience - Difference in Actual vs. Expected ICR ³	263,000	0.01%
e. Assumption Change - Account Balance Conversion Mortality Table	570,000	0.02%
f. Experience - New Census Data	45,505,000	1.48%
g. Total: (a) + (b) + (c) + (d) + (e) + (f)	\$ 77,417,000	2.51%
8. July 1, 2024 Actuarial Accrued Liability: (6) + (7)(g)	\$ 3,157,378,000	

¹ For current retirees, disabled and DROP participants, the payment form determination was updated to be based on if a spouse date of birth was provided instead of marital status per the City of Memphis.

² During the 2024 fiscal year, the Plan was amended to provide the following:

- a. The City amended the 1978/2016 Plan to allow specified eligible public safety employees and non-commissioned dispatchers and paramedics currently participating in the 2016 Plan to make a one-time irrevocable election to return to the legacy 1978 Plan. The plan amendment also extended the choice of Plans to certain eligible new hires on a go-forward basis. The increase in the liability is offset by corresponding employee contributions transferred from the 401(a) component of the 2016 Plan into the pension assets.
- b. The City amended the 2016 Plan to reduce the vesting period for General participants who terminate prior to attaining normal retirement age from a 10-year vesting cliff to a 5-year vesting cliff.

³ The City provided that the actual return on plan assets from July 1, 2023 to June 30, 2024 was +9.56%. Therefore, based on the plan provisions, the interest crediting rate ("ICR") applied to cash balance accounts during the period was +8.56% (=9.56% - 1.00%), as compared to the expected interest credit rate of 6.25% (=7.25% - 1.00%).

SECTION II - FUNDING

C. Development of Actuarially Determined Contribution ¹

Development of actuarially determined contribution for the plan year ending June 30, 2026.

	<u>General Employees</u>	<u>Police and Fire</u>	<u>Total</u>
1. Annual Anticipated Payroll ²			
a. Annual Anticipated Payroll - 1948/1978 Plan	\$ 49,612,000	\$ 238,821,000	\$ 288,433,000
b. Annual Anticipated Payroll - 2016 Plan	\$ 119,502,000	\$ 39,531,000	\$ 159,033,000
c. Annual Anticipated Payroll - Total	\$ 169,114,000	\$ 278,352,000	\$ 447,466,000
2. Development of Employer Normal Cost			
a. Total Normal Cost as of July 1, 2024	\$ 11,509,000	\$ 33,583,000	\$ 45,092,000
b. Estimated Employee Contributions - 1948/1978 Plan ³	3,969,000	18,137,000	22,106,000
c. Estimated Employee Contributions - 2016 Plan ³	2,389,000	791,000	3,180,000
d. Employer Normal Cost as of July 1, 2024 (a) - (b) - (c)	\$ 5,151,000	\$ 14,655,000	\$ 19,806,000
3. Development of Actuarially Determined Contribution ⁴			
a. Employer Normal Cost as of the Beginning of the Period			\$ 19,806,000
b. Total Amortization Charge			46,564,000
c. Interest: [(a) + (b)] × 7.25%			4,812,000
d. Actuarially Determined Contribution: (a) + (b) + (c)			\$ 71,182,000
4. Percent of Annual Covered Payroll: (3)(d) ÷ (1)(c)			15.91%

¹ The ADC is determined pursuant to the City's funding policy and complies with our understanding of the provisions of the Financial Security Act of 2014.

² The annual anticipated payroll is for the period from July 1, 2024 through June 30, 2025.

³ Employee contributions are equal to a fixed percentage of compensation. 2016 Plan participants contribute 2.0% of pay under the cash balance formula and 6.0% of pay under the IRC section 401(a) plan. 1948/1978 Plan participants generally contribute 8.0% of pay under the legacy plan formula. Other details regarding the employee contributory rate may be found in Section VI.

⁴ The assets related to the 401(a) Plan are not included in the Plan Assets nor the accrued benefits until the participant elects benefit commencement and transfers their 401(a) balance and any 457 plan balance into the Pension Plan.

SECTION II - FUNDING

D. Development of Amortization of Tier for the Current Plan Year

Development of Amortization of Tier for the Current Plan Year

1. Unfunded Actuarial Accrued Liability	\$ 542,841,000
2. Present Value of Annual Installments from Prior Fiscal Years	<u>458,573,000</u>
3. Current Year Tier: (1) - (2)	\$ 84,268,000
4. Amortization Factor	
a. Interest Rate	7.25%
b. Amortization Period	30
c. Amortization Factor for Current Year Tier (BOY)	12.9812
5. Amortization of Tier for Current Plan Year: (3) ÷ (4)(c)	\$ 6,492,000

¹ The ADC is determined pursuant to the City's funding policy and complies with our understanding of the provisions of the Financial Security Act of 2014.

² The 30-year amortization period for gains/(losses) complies with our understanding of the provisions of the Financial Security Act of 2014.

SECTION II - FUNDING

E. Unfunded Accrued Liability Amortization Schedule

Date Tier Established	Reason	Original Shortfall Tier	Original Amortization Period	Remaining Shortfall Tier	Remaining Amortization Period	Current Amortization Charge
7/1/2024	2026 Budget Year - New Funding Tier	\$ 84,268,000	30	\$ 84,268,000	30	\$ 6,492,000
7/1/2023	2025 Budget Year - New Funding Tier	\$ 111,949,000	30	\$ 110,816,000	29	\$ 8,624,000
7/1/2022	2024 Budget Year - New Funding Tier	\$ 31,937,000	30	\$ 31,268,000	28	\$ 2,460,000
7/1/2021	2023 Budget Year - New Funding Tier	\$ (11,831,000)	30	\$ (11,445,000)	27	\$ (911,000)
7/1/2020	2022 Budget Year - New Funding Tier	\$ (29,806,000)	30	\$ (28,475,000)	26	\$ (2,297,000)
7/1/2019	2021 Budget Year - New Funding Tier	\$ 84,149,000	30	\$ 79,301,000	25	\$ 6,488,000
7/1/2018	2020 Budget Year - New Funding Tier	\$ (94,801,000)	30	\$ (88,019,000)	24	\$ (7,313,000)
7/1/2018	2020 Budget Year - Non-phased in 2019 ADC	\$ 5,255,000	29	\$ 4,848,000	23	\$ 410,000
7/1/2017	2019 Budget Year - New Funding Tier	\$ (15,265,000)	30	\$ (13,945,000)	23	\$ (1,178,000)
7/1/2017	2019 Budget Year - Non-phased in 2018 ADC	\$ 10,500,000	29	\$ 9,515,000	22	\$ 819,000
7/1/2016	2018 Budget Year - New Funding Tier	\$ (11,694,000)	30	\$ (10,494,000)	22	\$ (903,000)
7/1/2016	2018 Budget Year - Non-phased in 2017 ADC	\$ 14,678,000	29	\$ 13,045,000	21	\$ 1,145,000
7/1/2015	2017 Budget Year - New Funding Tier	\$ (135,214,000)	30	\$ (119,010,000)	21	\$ (10,447,000)
7/1/2015	2017 Budget Year - Non-phased in 2016 ADC	\$ 24,861,000	29	\$ 21,629,000	20	\$ 1,941,000
7/1/2014	2016 Budget Year - Fresh Start	\$ 533,360,000	30	<u>\$ 459,539,000</u>	20	<u>\$ 41,234,000</u>
Total				\$ 542,841,000		\$ 46,564,000

¹ The amortization of the shortfall tier for the current year is calculated using the valuation interest rate of 7.25%.

² The ADC shortfall is equal to the full ADC in the prior year less the portion required to be funded per the phase-in requirements of the Financial Security Act of 2014. The City of Memphis must contribute 100% of the ADC for budget years beginning July 1, 2020.

SECTION III - ASSETS

ASSETS

	<u>Page</u>
A. Reconciliation of Market Value of Assets and Investment Return	9
B. Development of Actuarial Value of Assets for Funding Purposes	10

SECTION III - ASSETS

A. Reconciliation of Market Value of Assets and Investment Return

1.	Market Value of Assets at July 1, 2023	\$	2,449,530,000
2.	Contributions		
	a. Employer Contributions ¹	\$	59,410,000
	b. Employee Contributions ²		19,677,000
	c. Total	\$	79,087,000
3.	Benefit Payments in 2023 - 2024	\$	213,594,000
4.	Expenses		
	a. Investment Fees	\$	21,944,000
	b. Administrative Fees		8,026,000
	c. Total	\$	29,970,000
5.	Transfers In / (Out)		
	a. 401(a) Transfers ^{2,3}	\$	18,465,000
	b. Total	\$	18,465,000
6.	Interest and Dividend Income	\$	67,187,000
7.	Unrealized Gain/(Loss)	\$	169,638,000
8.	Net Realized Gain/(Loss)	\$	20,757,000
9.	Other Revenue	\$	15,369,000
10.	Total Income: (6) + (7) + (8) + (9)	\$	272,951,000
11.	Market Value of Assets at June 30, 2024: (1) + (2)(c) - (3) - (4)(c) + (5)(c) + (10)	\$	2,576,469,000
12.	Investment Return: $[2 \times (10)] \div [(1) + (11) - (10)]$ ⁴		11.49%

¹ The Employer Contributions for 2024 reflect the transfer monies from the Sales Referendum Revenue Fund of \$3,696,000 to cover the original present value of future benefits (PVFB) of transferred benefits.

² For participants who elected to transfer from the 2016 Plan to the 1978 Plan during the plan year ending June 30, 2024, employee contributions from July 1, 2023 to date of the transfer are included in the 401(a) Transfers amount rather than the employee contributions amount. In addition, employee contributions include related contributions for any eligible new hire who elected to transfer from the 2016 Plan to the 1978 Plan after their probationary period ended.

³ The 401(a) Transfers include the transfer of the \$18.4M of 401(a) balances for participants who elected to transfer from the 2016 Plan to the 1978 Plan plus \$47,000 for participants who retired and elected benefits during the year.

⁴ The investment return calculated above is a time-weighted approximation assuming all cash flows occur at mid-year. This is for disclosure purposes only and is not otherwise intended to represent the net investment return used to credit interest to the cash balance component of the 2016 Plan.

SECTION III - ASSETS

B. Development of Actuarial Value of Assets for Funding Purposes

1.	Market Value of Assets (MVA) at July 1, 2024		\$ 2,576,469,000
2.	Development of Expected Market Value of Assets at July 1, 2024:		
a.	Market Value of Assets at July 1, 2023:		\$ 2,449,530,000
b.	Actual Employee and Employer Contributions:		79,087,000
c.	Transfers In / (Out)		18,465,000
d.	Actual Benefit Payments:		(213,594,000)
e.	Expected Investment Earnings ¹ : $7.25\% \times [(2)(a) + 50\% \times ((2)(b) + (2)(c) + (2)(d))]$		<u>173,384,000</u>
f.	Expected Market Value of Assets at July 1, 2024: $(2)(a) + (2)(b) + (2)(c) + (2)(d) + (2)(e)$		\$ 2,506,872,000
3.	Gains/(Losses) at July 1, 2024: $(1) - (2)(f)$		\$ 69,597,000
4.	Asset Gains/(Losses)	<u>Gains/(Losses)</u>	<u>% Not Yet Recognized</u>
a.	2024 Asset Gain (Loss):	\$ 69,597,000	80%
b.	2023 Asset Gain (Loss):	\$ 2,415,000	60%
c.	2022 Asset Gain (Loss):	\$ (475,788,000)	40%
d.	2021 Asset Gain (Loss):	\$ 475,601,000	20%
			<u>95,120,000</u>
5.	Total Unrecognized Asset Gains/(Losses): sum of (4)(a) to (4)(d)		\$ (38,068,000)
6.	Actuarial Value of Assets for Year, prior to the 20% Corridor: $(1) - (5)$		\$ 2,614,537,000
7.	80% of Market Value of Assets: $(1) \times 80\%$		\$ 2,061,175,000
8.	120% of Market Value of Assets: $(1) \times 120\%$		\$ 3,091,763,000
9.	Actuarial Value of Assets at July 1, 2024: (6), but not less than (7) or greater than (8)		\$ 2,614,537,000

¹ Includes half year of interest on net cash flows (contributions less benefit payments).

SECTION IV - CENSUS DATA

CENSUS DATA

	<u>Page</u>
A. Census Information	11
B. Distribution of Active Members by Age and Service for General Employees	12
C. Distribution of Active Members by Age and Service for Police & Fire Employees	13
D. Distribution of Terminated Vested Members by Age and Service	14
E. Distribution of Retired Members, Beneficiaries, and Disabled Members by Age and Number of Years Retired	15
F. Flow of Lives from June 30, 2023 to June 30, 2024	16

SECTION IV - CENSUS DATA

A. Census Information

	<u>June 30, 2022</u>	<u>June 30, 2023</u>	<u>June 30, 2024</u>
1. Active			
a. Number ¹	5,880	6,058	6,168
b. Average Age	43.9	43.4	43.1
c. Average Years of Service	11.5	11.0	10.7
d. Annual Anticipated Payroll	\$ 371,676,000	\$ 415,755,000	\$ 447,466,000
2. Terminated Vested and Nonvested			
a. Number ²	1,447	1,696	1,909
b. Lump Sum- Refund of Contribution	\$ 11,501,000	\$ 13,911,000	\$ 16,122,000
3. Retiree, Beneficiary, and DROP Enrollees			
a. Number ³	4,828	4,825	4,915
b. Annual Benefits Payable	\$ 174,598,000	\$ 176,493,000	\$ 183,011,000
c. DROP Account Balance	\$ 15,286,000	\$ 15,171,000	\$ 12,690,000
4. Disabled			
a. Number	758	758	767
b. Annual Benefits Payable	\$ 22,430,000	\$ 22,706,000	\$ 23,294,000

¹ As of June 30, 2024, active count includes 2,598 participants in the 2016 Plan, of which 1,981 are in the General Plan and 617 in the Police and Fire Plan.

² As of June 30, 2024, terminated vested count includes 1,149 participants in the 2016 Plan, of which 749 are in the General Plan and 400 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 Active Members by Age and Service as of June 30, 2024										
	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	86	50	2								138
25-29	86	109	17								212
30-34	74	121	74	9	1						279
35-39	44	98	84	24	5	1					256
40-44	43	98	78	44	40	15					318
45-49	41	72	54	42	35	46	5				295
50-54	38	105	75	48	44	49	24	1			384
55-59	33	70	61	44	45	60	22	5	2		342
60-64	17	45	66	42	32	42	28	12	7	2	293
65-69	2	19	26	25	16	21	7	3		1	120
70&Up	2	7	10	4	7	12	3	3		2	50
Total	466	794	547	282	225	246	89	24	9	5	2,687

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, 2024										
	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	109	146	12								267
25-29	99	290	110								499
30-34	37	191	249	13							490
35-39	22	86	193	118	78	4					501
40-44	10	45	88	92	144	53					432
45-49	3	10	39	44	137	173	38				444
50-54		2	9	21	81	172	159	15	2		461
55-59		5	9	8	31	75	96	40	16		280
60-64		1	3	1	3	23	25	16	13	2	87
65-69				2	2	3	1	1	6	2	17
70&Up				1		1	1				3
Total	280	776	712	300	476	504	320	72	37	4	3,481

SECTION IV - CENSUS DATA

D. Distribution of Terminated Vested and Nonvested Members by Age and Service

Attained Age	Distribution of Terminated Vested Members by Age and Service as of June 30, 2024							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	99							99
25-29	244	10						254
30-34	292	29						321
35-39	300	27	7	1				335
40-44	227	33	18	5				283
45-49	166	22	11	6				205
50-54	128	13	10	7	2			160
55-59	84	25	9	4	5			127
60-64	49	11	2	1	1	1		65
65-69	30	3	2					35
70&Up	22	2	1					25
Total	1,641	175	60	24	8	1		1,909

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, 2024							
	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	26	7	6	17			1	57
40-44	19	27	3	15			1	65
45-49	59	31	8	13	1		1	113
50-54	211	92	27	55	11	9		405
55-59	253	189	103	75	10	13	3	646
60-64	191	202	221	105	26	11	16	772
65-69	170	122	221	205	80	39	30	867
70-74	54	99	207	201	154	139	66	920
75-79	18	37	88	123	190	229	156	841
80-84	4	7	17	41	68	164	231	532
85-89	6	1	7	9	25	61	199	308
90&Up		1		4	10	16	125	156
Total	1,011	815	908	863	575	681	829	5,682

¹ For the above exhibit, the average of 18 years of retirement was used for 265 retirees who did not have a date of retirement in the data. This does not impact the plan's liability.

² Includes 199 employees currently participating in the DROP. These members are reflected in the "under 5 years" of retirement column.

SECTION IV - CENSUS DATA

F. Flow of Lives from June 30, 2023 to June 30, 2024

	<u>Actives</u>	<u>Terminated</u>	<u>Disabled</u>	<u>Retired</u>	<u>Beneficiary</u>	<u>DROP</u>	<u>Total</u>
June 30, 2023	6,058	1,696	758	3,656	963	206	13,337
New Entrants	823						823
Rehires	13	(13)					-
DROP	(95)					95	-
Vested Terminations	(345)	345					-
Retirements	(100)	(2)		202		(100)	-
Disablements	(28)	(2)	31	(1)			-
Beneficiaries	(2)		(7)	(43)	53	(1)	-
Deaths	(9)		(16)	(72)	(53)	(1)	(151)
Refunds	(179)	(149)			(1)		(329)
Data Adjustments	<u>32</u>	<u>34</u>	<u>1</u>	<u>3</u>	<u>9</u>		<u>79</u>
June 30, 2024	6,168	1,909	767	3,745	971	199	13,759

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

ACTUARIAL ASSUMPTIONS AND METHODS

	<u>Page</u>
A. Actuarial Assumptions: General Employees	17
B. Actuarial Assumptions: Police and Fire Employees	24
C. Actuarial Assumptions Rationale	31
D. Actuarial Methods for Funding Purposes	33
E. Assessment of Risk Associated with Measurement of Pension Liability and Contributions	34
F. Low-Default-Risk Obligation Measure	37

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial 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 funding purposes

Interest Crediting Rate

 Cash Balance Account 6.25% (Valuation interest rate less 1.0%)
 IRC 401(a) Account 5.25% (Valuation interest rate less 2.0%)

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%

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

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions: General Employees (continued)

Mortality

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 (Current and Future): Fully Generational PubS-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 2024 applicable mortality table for 2024 and 2025 applicable mortality table for years thereafter 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 - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial 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	55.0%	52.0%	47.0%	45.0%	40.0%	25.0%
25	63.0%	57.0%	31.0%	17.0%	7.0%	15.0%
30	46.0%	46.0%	18.0%	14.0%	14.0%	15.0%
35	22.0%	22.0%	17.0%	7.0%	7.0%	8.0%
40	26.0%	4.0%	11.0%	11.0%	10.0%	6.0%
45	5.0%	5.0%	5.0%	5.0%	5.0%	6.0%
50	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	25.0%	22.0%	20.0%	20.0%	20.0%	15.0%
25	24.0%	16.0%	14.0%	10.0%	12.0%	10.0%
30	26.0%	17.0%	12.0%	13.0%	13.0%	8.0%
35	14.0%	11.0%	15.0%	11.0%	11.0%	7.0%
40	18.0%	14.0%	8.0%	8.0%	7.0%	7.0%
45	18.0%	14.0%	8.0%	8.0%	5.0%	7.0%
50	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 - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions: General Employees (continued)

Termination (cont.) Select and Ultimate rates. Sample rates are shown below:

2016 Plan

Males

Age	Years of Service			
	0	1	2	3+
20	40.0%	40.0%	40.0%	25.0%
25	40.0%	40.0%	40.0%	15.0%
30	35.0%	35.0%	35.0%	15.0%
35	25.0%	25.0%	25.0%	8.0%
40	15.0%	15.0%	15.0%	6.0%
45	6.0%	6.0%	6.0%	6.0%
50	6.0%	6.0%	6.0%	5.0%
55+	6.0%	6.0%	6.0%	5.0%

Females

Age	Years of Service			
	0	1	2	3+
20	25.0%	25.0%	25.0%	15.0%
25	20.0%	20.0%	20.0%	10.0%
30	17.5%	17.5%	17.5%	8.0%
35	15.0%	15.0%	15.0%	7.0%
40	15.0%	15.0%	15.0%	7.0%
45	15.0%	15.0%	15.0%	7.0%
50	10.0%	10.0%	10.0%	7.0%
55+	10.0%	10.0%	10.0%	5.0%

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial 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 Plan¹

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	0.10%
25	0.10%
30	0.10%
35	0.10%
40	0.17%
45	0.28%
50	0.63%
55+	1.33%

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.

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 but rather reflects the City's best estimate of future experience and will continue to be monitored as additional experience becomes available.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions: General Employees (continued)

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: Current General active Employees who are assumed to terminate prior to retirement age are assumed to elect to receive their employee contributions times the applicable return multiple.</p> <p>2016 Plan: Current General active Employees who are assumed to terminate prior to five 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 five years of service will elect to receive their entire accrued benefit payable in the normal form (and assuming no portion distributed as a partial lump sum) 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 five years of service).</p> <p>For current retirees, disabled and DROP participants, the payment form determination is based on whether a spouse date of birth is provided or not by the City. Therefore, for such participants where a spouse date of birth is provided, a joint & survivor annuity is the assumed payment form and for such participants where a spouse date of birth is not provided, a single life annuity is the assumed payment form.</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>Actual Cash balance accounts for the period ending June 30, 2024 are used as confirmed by the City of Memphis.</p> <p>If the FY24 pensionable earnings is missing for actives and newly terminated vested members, their earnings is assumed to equal \$70,700 (prorated for partial service during the year).</p>

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions: General Employees (continued)

Data Assumptions (cont.) If a 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 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 (appears that the member received a refund of their legacy contributions in lieu of receiving an annuity of their legacy benefit).

Changes in Assumptions

For the 2016 Plan, the account balance conversion mortality table used to convert account balances to annuities was updated to the 2024 applicable mortality table for 2024 and 2025 applicable mortality table for years thereafter under IRC section 417(e).

For current retirees, disabled and DROP participants, the payment form determination was updated to be based on if a spouse date of birth was provided instead of marital status per the City of Memphis.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial 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 funding purposes

Interest Crediting Rate

 Cash Balance Account 6.25% (Valuation interest rate less 1.0%)
 IRC 401(a) Account 5.25% (Valuation interest rate less 2.0%)

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%

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

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Assumptions: Police and Fire Employees (continued)

Mortality	<p>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.</p> <p>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.</p> <p>Survivors Police and Fire (Current and Future): 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.</p>
Account Balance Conversion	<p>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 2024 applicable mortality table for 2024 and 2025 applicable mortality table for years thereafter 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.</p>

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Assumptions: Police and Fire Employees (continued)

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

1978 Plan

Males

	Years of Service					
Age	0	1	2	3	4	5+
20	13.0%	5.0%	5.0%	5.0%	5.0%	7.0%
25	15.0%	5.0%	5.0%	5.0%	5.0%	7.0%
30	17.0%	5.0%	4.0%	4.0%	3.0%	5.0%
35	15.0%	5.0%	5.0%	5.0%	4.0%	5.0%
40	18.0%	4.0%	4.0%	4.0%	2.0%	3.0%
45	17.0%	20.0%	5.0%	5.0%	2.0%	3.0%
50	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

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

B. Actuarial Assumptions: Police and Fire Employees (continued)

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

2016 Plan

Males

Age	Years of Service	
	0	1+
20	25.0%	7.0%
25	25.0%	7.0%
30	25.0%	5.0%
35	25.0%	5.0%
40	15.0%	3.0%
45	15.0%	3.0%
50	15.0%	3.0%
55+	15.0%	3.0%

Females

Age	Years of Service	
	0	1+
20	15.0%	15.0%
25	15.0%	15.0%
30	15.0%	15.0%
35	15.0%	15.0%
40	15.0%	15.0%
45	15.0%	15.0%
50	15.0%	15.0%
55+	15.0%	15.0%

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Assumptions: Police and Fire Employees (continued)

Retirement Rates

The retirement rates vary by age and plan:

1978 Plan

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

2016 Plan¹

Age	Rate
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:

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

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 but rather reflects the City's best estimate of future experience and will continue to be monitored as additional experience becomes available.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Assumptions: Police and Fire Employees (continued)

Data Assumptions (cont.)

If the FY24 pensionable earnings is missing for actives and newly terminated vested members, their earnings is assumed to equal \$70,700 (prorated for partial service during the year).

If a 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 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 (appears that the member received a refund of their legacy contributions in lieu of receiving an annuity of their legacy benefit).

Changes in Assumptions

For the 2016 Plan, the account balance conversion mortality table used to convert account balances to annuities was updated to the 2024 applicable mortality table for 2024 and 2025 applicable mortality table for years thereafter under IRC section 417(e).

For current retirees, disabled and DROP participants, the payment form determination was updated to be based on if a spouse date of birth was provided instead of marital status per the City of Memphis.

No assumption is currently being made for eligible public safety and non-commissioned dispatcher or paramedic roles with the choice to participate in either the 2016 Plan and the 1978 Plan that are still in the probationary period as of June 30, 2024 to elect to transfer from the 2016 Plan (the default Plan) to the 1978 Plan at the end of their probationary period. These eligible individuals have not been separately identified in the valuation census data.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

C. Actuarial Assumptions Rationale

Interest Rate / Investment Return	Equal to the expected return on assets and is selected by the City based on the asset allocation under the trust and the City's view of capital market expected returns of each underlying asset class.
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.
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.

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 - ACTUARIAL ASSUMPTIONS AND METHODS

C. Actuarial Assumptions Rationale (continued)

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 - ACTUARIAL ASSUMPTIONS AND METHODS

D. Actuarial Methods for Funding 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

The actuarial value of assets is equal to the fair value of assets adjusted for gains and losses on investments recognized over a five-year period. The annual investment gain/loss amount is equal to the difference between the expected return on the fair value of assets and the actual return on assets. If the resulting value is outside the 80% to 120% range, the amount is further adjusted to be a maximum of 120% of market value or a minimum of 80% of market value.

3. Anticipated Payroll

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. The Anticipated Payroll does not include amounts for members who have reached the age at which retirement is assumed to occur immediately. This does not include payroll pertaining to members of the DROP as employee and City contributions cease upon entering the DROP Program.

4. Changes in Actuarial Methods

No changes from the prior year.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

E. Assessment and Disclosure of Risk Associated with Measurement of Pension Liability and Contributions

The actuarial valuation results presented herein are based on a single set of actuarial assumptions; however, there is a risk that emerging results may differ significantly if actual experience proves to be different than expected by the current assumptions.

In accordance with Actuarial Standard of Practice No. 51, the following risks related to the measurement of the Plan's obligations and determination of contributions were identified as being the most significant risks:

- Investment risk
- Valuation interest rate risk
- Asset/Liability mismatch risk
- Longevity and other demographic risks
- Contribution risk

A numerical assessment of the risks identified was beyond the scope of this engagement, though we encourage such an assessment be performed to better understand exposure to these risks.

Investment risk: *The potential that investment returns will be different than expected.*

Poor investment performance decreases the Plan's funded position and could increase actuarial determined contributions. The cash balance and 401(a)(4) components of the 2016 plan design mitigates this risk during a member's active service due to the nature of the interest crediting rate feature. However, it is our understanding that new hires may elect the 1978 Plan or 2016 Plan. Depending on the distribution of members in the 1978 Plan or 2016 Plan in the future, the investment risk may increase (if higher proportion of actives/terminated vested members in 1978 Plan) or decrease (if higher proportion of actives/terminated vested members in 2016 Plan).

Valuation interest rate risk: *The potential that interest rates will be different than expected.*

The valuation interest rate is used to measure the estimate of both the actuarial accrued liability and normal cost (cost of benefits earned during the current plan year). As interest rates decline, the benefit obligation and normal cost increases, which will result in an increase of the actuarially determined contribution. Following is the impact of the valuation interest rate on the **actuarial accrued liability**:

	<u>1.0% decrease (6.25%)</u>	<u>Current rate (7.25%)</u>	<u>1.0% increase (8.25%)</u>
Interest rate sensitivity	\$3,505,470,000	\$3,157,378,000	\$2,864,731,000

Asset/Liability mismatch risk: *The potential that changes in asset values are not matched by changes in the value of liabilities.*

For assets that are not liability hedged, asset/liability mismatch exists to the extent that market fluctuations do not have the same impact on assets and liabilities. This impacts the funded status of the plan and the unfunded actuarial accrued liability that needs to be funded in the future.

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

E. Assessment of Risk Associated with Measurement of Pension Liability and Contributions (continued)

Longevity and other demographic risks: *The potential that mortality or other demographic experience will be different than expected.*

For participants whose benefits are paid as lifetime annuities, living longer than expected could increase the funding deficiency of the Plan. Similarly, turnover, retirement, and other demographic experience different than assumed could result in an increase in funding deficiency of the Plan.

Contribution risk: *The potential of actual future contributions deviating from expected future contributions.*

The City has adopted a formal funding policy with the objective of fully funding the system over a closed 30-year period while adhering to the applicable statutes of the state law, as well as sound financial principles, such as maintaining contribution rate stability and intergenerational equity. The risks noted above could trigger changes in the funding deficiency of the Plan, thus requiring additional funding. In addition, the financial viability and cash position, as well as applicable law of the state law, could change over time. There is risk that the actuarially determined contribution could become unaffordable to the City.

As the population ages and the plan matures, the level of risk associated with funding the plan increases. Below are some plan maturity measures that are significant to understanding the risks associated with the plan.

Ratio of Retired Life Actuarial Accrued Liability to Total Actuarial Accrued Liability: As the plan is a mature pension plan, the percentage of the liability attributable to retirees and other inactive participants is generally proportionately larger than the liability for the active participants. The volatility of future investment returns may deteriorate the funded status of the plan, which may make it more challenging to recover from investment losses. A higher retiree AAL percentage means that the City contribution rate would be more sensitive to investment returns that are higher or lower than expected.

Valuation Date	Retiree AAL (a)	Total AAL (b)	Retiree AAL Percentage (c) = (a)/(b)
6/30/2015	\$ 1,716,047,000	\$ 2,582,865,000	66%
6/30/2016	\$ 1,742,568,000	\$ 2,618,812,000	67%
6/30/2017	\$ 1,723,282,000	\$ 2,680,855,000	64%
6/30/2018	\$ 1,736,774,000	\$ 2,664,367,000	65%
6/30/2019	\$ 1,841,054,000	\$ 2,773,138,000	66%
6/30/2020	\$ 1,871,112,000	\$ 2,742,485,000	68%
6/30/2021	\$ 1,963,814,000	\$ 2,876,572,000	68%
6/30/2022	\$ 2,022,106,000	\$ 2,940,257,000	69%
6/30/2023	\$ 2,042,049,000	\$ 3,035,846,000	67%
6/30/2024	\$ 2,121,594,000	\$ 3,157,378,000	67%

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

E. Assessment of Risk Associated with Measurement of Pension Liability and Contributions (continued)

Ratio of Contributions Less Benefit Payments to Market Value of Assets: The ratio of net cash flow to assets is an indicator of investment risk. When a plan has negative cash flows, meaning benefit payments are greater than contributions, and has a year with lower than expected investment returns, there will then be less total assets invested to recover those losses in future years.

Valuation Date	Contributions (a)	Benefit Payments (b)	Net Cash Flow (c) = (a) - (b)	Market Value of Assets (d)	Ratio (e) = (c)/(d)
6/30/2015	\$ 69,534,000	\$ 173,991,000	\$ (104,457,000)	\$ 2,200,549,000	(4.7%)
6/30/2016	\$ 75,787,000	\$ 176,566,000	\$ (100,779,000)	\$ 2,091,586,000	(4.8%)
6/30/2017	\$ 75,457,000	\$ 176,205,000	\$ (100,748,000)	\$ 2,261,585,000	(4.5%)
6/30/2018	\$ 73,637,000	\$ 179,985,000	\$ (106,348,000)	\$ 2,388,109,000	(4.5%)
6/30/2019	\$ 76,923,000	\$ 180,484,000	\$ (103,561,000)	\$ 2,337,399,000	(4.4%)
6/30/2020	\$ 72,078,000	\$ 191,109,000	\$ (119,031,000)	\$ 2,262,361,000	(5.3%)
6/30/2021	\$ 79,314,000	\$ 193,431,000	\$ (114,117,000)	\$ 2,807,681,000	(4.1%)
6/30/2022	\$ 74,472,000	\$ 201,510,000	\$ (127,038,000)	\$ 2,406,676,000	(5.3%)
6/30/2023	\$ 74,571,000	\$ 205,799,000	\$ (131,228,000)	\$ 2,449,530,000	(5.4%)
6/30/2024	\$ 79,087,000	\$ 213,594,000	\$ (134,507,000)	\$ 2,576,469,000	(5.2%)

SECTION V - ACTUARIAL ASSUMPTIONS AND METHODS

F. Low-Default-Risk Obligation Measure ("LDROM")

In accordance with Actuarial Standard of Practice No. 4, when performing a funding valuation, actuaries are required to calculate and disclose a low-default-risk obligation measure ("LDROM") of the benefits and costs as of the measurement date. The measurement of the LDROM is not required to be calculated or disclosed more than once per year.

The LDROM is intended to represent what the actuarial accrued liability would be if the plan invested its assets solely in a portfolio of high-quality bonds whose cash flows approximately match future benefit payments. Consequently, the difference between the plan's Actuarial Accrued Liability and the LDROM can be thought of as representing the expected employer and member savings from investing in the plan's diversified portfolio compared to investing only in high quality bonds.

When calculating the LDROM, the discount rate or discount rates selected should be derived from low-default-risk fixed income securities whose cash flows are reasonably consistent with the pattern of benefits expected to be paid from the plan. Examples include, but are not limited to, US treasury yields, rates implicit in the settlement of pension obligations (e.g., purchases of annuities from insurance companies), and yields on corporate or tax-exempt muni-bonds that receive one of the two highest ratings given by a recognized ratings agency.

For purposes of the LDROM calculation and disclosure, a valuation interest rate of 4.61% was used, which is based on the 20-year US treasury yield as of the June 30, 2024 measurement date. This impacts the measurement of both the actuarial accrued liability and the normal cost under the plan. It is important to note that for the purpose of the LDROM measurement, the cash balance interest crediting rate for the 2016 Plan was also set equal to 3.61% (given it is based on 1% below the return on assets under the plan). All other actuarial assumptions are the same as those summarized in Section V of this report.

The table below presents the annual LDROM requirements for the measurement of the actuarial accrued liability (AAL) and the actuarially determined contribution (ADC):

	Valuation Interest Rate	AAL	Unfunded Liability	ADC
Pension Plan	7.25%	\$ 3,157,000,000	\$ 543,000,000	\$ 71,200,000
LDROM	4.61%	\$ 4,237,000,000	\$ 1,623,000,000	\$ 167,400,000

Conclusion: The actuarial valuation reports the funded status and develops contributions based on the expected return of the plan's investment portfolio. If instead, the plan switched to investing exclusively in high quality bonds, the LDROM illustrates that reported funded status would be lower (which also implies that the ADC would be higher), perhaps significantly. Unnecessarily high contribution requirements in the near term may not be affordable and could imperil plan sustainability and benefit security.

Note: The assets are not invested in an all-bond portfolio, so the LDROM is not indicative of the funding status or progress, nor does it provide information on necessary plan contributions or the security of participant benefits. In addition, the LDROM is not intended to be interpreted as a recommendation of investing entirely in high-quality bonds. Instead, it is a required annual disclosure intended to help plan sponsors and tax-payers understand the impact if they plan was invested entirely in high-quality bonds.

SECTION VI - SUMMARY OF PLAN PROVISIONS

SUMMARY OF PLAN PROVISIONS

	<u>Page</u>
A. Summary of Plan Provisions: General Employees	38
B. Summary of Plan Provisions: Police and Fire Employees	48

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

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

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

2016 Plan All regular salaried employees on their date of hire and hired on or after July 1, 2016. In addition, any nongrandfathered employee in the 1978 Plan participates in the 2016 Plan as of July 1, 2016. [Certain eligible nongrandfathered participants elected to be transferred from the 2016 Plan to the 1978 Plan in 2021 under the referendum.]

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. In addition, certain bonuses are also pension eligible.

Average Monthly Compensation For 1948 Plan employees and 1978 Plan employees hired before July 1, 2012, the highest average monthly Compensation received for any five consecutive years of service, or the most recent year's earnings, if greater.

For 1978 Plan employees hired after June 30, 2012, highest average monthly Compensation received for any three consecutive years of service.

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

SECTION VI - SUMMARY OF PLAN PROVISIONS

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

Accrued Benefit

1948 Plan

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

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

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

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

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

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

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

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

SECTION VI - SUMMARY OF PLAN PROVISIONS

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

Accrued Benefit (continued)

1978 Plan

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

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

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

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

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

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

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

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

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

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

SECTION VI - SUMMARY OF PLAN PROVISIONS

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

Accrued Benefit (continued)

2016 Plan

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

Market-rate Cash Balance Account

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

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

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

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

Defined Contribution Account Balance

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

Normal Retirement

1948 Plan

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

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

Benefit Amount: Accrued Benefit

1978 Plan

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

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

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

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

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

Benefit Amount (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 employees, first day of the month coincident with or next following the earlier of the following dates:

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

Benefit Amount: Accrued Benefit

Disability

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

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

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

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

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

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

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

SECTION VI - SUMMARY OF PLAN PROVISIONS

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

Vested Termination

Eligibility: Termination of employment after completion of 10 Years of Service for 1948 and 1978 Plan participants.
Termination of employment after completion of 5 Years of Service for 2016 Plan participants.

Benefit Amount:

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

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

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

Nonvested Termination

Eligibility: Termination of employment before completion of 10 Years of Service for 1948 and 1978 Plan participants.
Termination of employment before completion of 5 Years of Service for 2016 Plan participants.

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 1, 2016 are refunded.

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

SECTION VI - SUMMARY OF PLAN PROVISIONS

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

<i>1948 Plan</i>	Employees in the 1948 Plan must contribute five percent (5%) of Compensation.
<i>1978 Plan</i>	Employees in the 1978 Plan must contribute eight percent (8%) of Compensation.
<i>2016 Plan</i>	Employees in the 2016 Plan must contribute two percent (2%) of Compensation to the cash balance account and six percent (6%) of Compensation to the defined contribution account.

Changes From Prior Valuation

- The June 30, 2024 valuation results reflect the impact of the following plan amendments:
- Offer to specified eligible public safety employees and non-commissioned dispatchers and paramedics currently participating in the 2016 Plan to make a one-time irrevocable election to return to the legacy 1978 Plan. Accordingly, benefits for all years of service were restored as if the participant always participated in the 1978 Plan. For those that elected to return to the 1978 Plan, their 401(a) balance was transferred to the pension plan trust.
 - Offer to eligible public safety employees and non-commissioned dispatchers and paramedics new hires to choose to participate in the 1978 Plan or the 2016 Plan. New hires initially are placed in the 2016 Plan but can elect, after the end of their probationary period, to move to the 1978 Plan.
 - The Plan was amended such that General 2016 Plan participants who terminate prior to attaining normal retirement age are eligible to receive a deferred annuity payable at age 60 after completion of 5 years of service (previously 10 years of service were required).

There were no other 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 participates in the 2016 Plan as of July 1, 2016. [Certain eligible nongrandfathered participants elected to be transferred from the 2016 Plan to the 1978 Plan in 2021 under the referendum.]
	For this purpose, a nongrandfathered employee is any employee with less than 7½ Years of Service as of July 1, 2016. In 2024, an amendment allowed specified nongrandfathered, eligible public safety employees and non-commissioned dispatchers and paramedics were provided a one-time irrevocable election to transfer from the 2016 Plan to the 1978 Plan. In addition, the amendment provided choice to eligible future new hires to make a Plan election.
Compensation	Basic salary, excluding overtime and double time compensation for holiday pay, but including shift premium, hazardous pay, longevity pay, and incentive pay. Also, certain bonuses are pension eligible.
Average Monthly Compensation	For 1948 Plan participants, the highest average monthly Compensation received for any five consecutive years of service, or the most recent year's earnings, if greater.
	For 1978 Plan employee and 2012 Plan employees, the highest average monthly Compensation received for any three consecutive years of service preceding the participant's date of termination. Police officers hired prior to January 31, 1979 who retire with thirty years of service have their accrued benefit determined based on Captain's compensation if greater than their actual compensation, regardless of their rank.
Year of Service	One year of service is earned for each 12-month period beginning at date of employment. Fractional periods (months and days) are also credited.

SECTION VI - SUMMARY OF PLAN PROVISIONS

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

Accrued Benefit

1948 Plan

The sum of (1) and (2):

- (1) $2\frac{1}{4}\%$ 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.

- (2) 1% of Average Monthly Compensation times Years of Service in excess of 25, up to a maximum total retirement benefit of $72\frac{1}{2}\%$.

1978 Plan

A grandfathered employee is any employee hired before July 1, 2016 and who has $7\frac{1}{2}$ or more Years of Service as of July 1, 2016. All other employees are nongrandfathered.

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

The sum of (1) and (2):

- (1) For employees hired before July 1, 2012: $2\frac{1}{4}\%$ 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.

For employees hired after June 30, 2012: $2\frac{1}{4}\%$ 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 $72\frac{1}{2}\%$.

SECTION VI - SUMMARY OF PLAN PROVISIONS

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

Accrued Benefit (continued)

2016 Plan

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

Market-rate Cash Balance Account

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

<u>Years of Service</u>	<u>Allocation %</u>
0.00 - 4.99	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. 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

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

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

Benefit Amount: Accrued Benefit

SECTION VI - SUMMARY OF PLAN PROVISIONS

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

Normal Retirement (continued)

1978 Plan

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

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

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

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

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

Benefit Amount (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 employees, first day of the month coincident with or next following the earlier of the following dates:

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

Benefit Amount: Accrued Benefit

SECTION VI - SUMMARY OF PLAN PROVISIONS

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

Disability

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

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

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

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

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

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

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

SECTION VI - SUMMARY OF PLAN PROVISIONS

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

Vested Termination

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

Benefit Amount:

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

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

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

Nonvested Termination

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

Benefit Amount:

1948 Plan Return of Employee Contributions.

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

2016 Plan The portion of 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:

1948 Plan

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%

1978 Plan

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

2016 Plan

Cash Balance Account	2.00%
Defined Contribution Account	6.00%

Changes From Prior Valuation

The June 30, 2024 valuation results reflect the impact of the following plan amendment:

- Offer to specified eligible public safety employees and non-commissioned dispatchers and paramedics currently participating in the 2016 Plan to make a one-time irrevocable election to return to the legacy 1978 Plan. Accordingly, benefits for all years of service were restored as if the participant always participated in the 1978 Plan. For those that elected to return to the 1978 Plan, their 401(a) balance was transferred to the pension plan trust.
- Offer to eligible new hires to choose to participate in the 1978 Plan or the 2016 Plan. New hires initially are placed in the 2016 Plan but can elect, after the end of their probationary period, to move to the 1978 Plan.

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

Appendix I - Summary of Funding Policy

1. The City's funding policy is effective commencing July 1, 2015, and shall remain in effect until duly amended or preempted by state law.
2. The City will engage a professional actuary to compute the Actuarially Determined Contribution (ADC) each plan year.
3. The City will have the professional actuary conduct an actuarial experience study at least every six (6) years.
4. In determining the ADC each year, the actuary will
 - a. use entry-age normal actuarial cost method
 - b. use an actuarial value of assets equal to a smoothed value that recognizes gains and losses over a 5-year period; however, there shall be a corridor so that the actuarial value of assets cannot be 20% more than nor 20% less than the market value of assets existing as of the actuarial valuation date.
 - c. determine actuarial gains and losses to be the result from the difference between experience versus assumptions, changes in demographic and economic assumptions, and changes in benefit provisions.
 - d. amortize unfunded liabilities over a closed period of 30 years. A tiered approach will be utilized with new actuarial gains and losses from each actuarial valuation but no tier will exceed the 30 year maximum.
5. The ADC shall be calculated as of a valuation date twelve (12) months prior to the effective date and become applicable on the effective date that is the first day of July twelve (12) months following the valuation date
6. The investment earnings assumption in an actuarial valuation shall not be greater than fifty (50) basis points above the rate adopted by the Tennessee consolidated retirement system
7. Beginning in plan year commencing July 1, 2015, the City will fund the ADC each year over a graduated progress percentage so that in a maximum of five (5) years the City will be funding 100% of the ADC each year. The graduated progress percentage each year is at a minimum the percentage determined by dividing by five (5) the difference between the percentage of the ADC paid in the plan year commencing July 1, 2014, subtracted from one hundred percent (100%). The ADC shall be recalculated each year and the percentage of funding shall be based on the most recent recalculation of the ADC.

Appendix II - Allocation of ADC by Service Center

Allocation of Actuarially Determined Contribution ("ADC") by Service Center for the Plan Year Ending June 30, 2026

I. Total Actuarial Accrued Liability ("AAL")	\$ 3,157,378,000
II. Total Employer Normal Cost ("NC")	\$ 19,806,000
III. Total Amortization of Unfunded Actuarial Accrued Liability ("UAAL")	\$ 46,564,000
IV. Total Interest	\$ 4,812,000
V. Total Actuarially Determined Contribution ("ADC")	\$ 71,182,000
= II + III + IV	

Service Center	Total Participant Counts (1)	AAL (2)	Allocation % of AAL (3) = (2) ÷ (I)	City NC at July 1, 2024 (4)	Amortization of UAAL (5) = (3) × (III)	Interest to EOY (6) = [(4)+(5)] × (7.25%)	ADC (7) = (4) + (5) + (6)
0111 - General Fund	7,982	\$ 1,438,305,000	45.554%	\$ 18,032,000	\$ 21,212,000	\$ 2,846,000	\$ 42,090,000
0204 - Solid Waste Management Fund	80	10,788,000	0.342%	148,000	159,000	\$ 22,000	329,000
0205 - Miscellaneous Grants Fund	9	1,294,000	0.041%	4,000	19,000	\$ 2,000	25,000
0221 - Community Development Fund	4	117,000	0.004%	2,000	2,000	\$ -	4,000
0601 - Sewer Treatment & Collection - Operating Fund	313	41,212,000	1.305%	417,000	608,000	\$ 74,000	1,099,000
0661 - Metro Alarm Fund	6	354,000	0.011%	10,000	5,000	\$ 1,000	16,000
0671 - Storm Water Fund	137	15,601,000	0.494%	255,000	230,000	\$ 35,000	520,000
0721 - Health Insurance Fund	12	1,791,000	0.057%	31,000	26,000	\$ 4,000	61,000
0851 - Pension Trust Fund	4,627	1,514,890,000	47.979%	-	22,341,000	\$ 1,620,000	23,961,000
0853 - Other Post Employment Benefit Trust Fund	-	-	0.000%	-	-	\$ -	-
0999 - Airport Authority	589	133,026,000	4.213%	907,000	1,962,000	\$ 208,000	3,077,000
Total	13,759	\$ 3,157,378,000	100.000%	\$ 19,806,000	\$ 46,564,000	\$ 4,812,000	\$ 71,182,000

Notes

1. The City of Memphis provided the following instructions:
 - a. The allocation of the unfunded actuarial accrued liability will be a pro rata percentage of the actuarial accrued liability for each Service Center over the total actuarial accrued liability for the Plan. Normal cost for each Service Center will equal the sum of the normal cost for each participant in that Service Center.
 - b. Participants that are assigned to the airport authority per the Organization Number as provided by the City of Memphis are assigned to Service Center 0999 - Airport Authority.
 - c. Current inactives were assigned to Service Center 0851 - Pension Trust Fund where a Service Center is unknown.
 - d. Participants that were included in Service Center 0741 - Fleet Management Fund are incorporated in Service Center 0205 - Miscellaneous Grants Fund.