Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

Report on the Actuarial Valuation of the City of Chattanooga General Pension Plan

Prepared as of January 1, 2024

www.CavMacConsulting.com

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

May 14, 2024

General Pension Board of Trustees
City of Chattanooga
101 East 11th Street
Suite 201, City Hall
Chattanooga, TN 37402

Ladies and Gentlemen:

We are pleased to submit the results of the annual pension actuarial valuation of the City of Chattanooga General Pension Plan, prepared as of January 1, 2024 in accordance with the provisions of Subsection (2) of Section 3.39 of the Chattanooga City Charter. The purpose of the report is to provide a summary of the funded status of the Plan as of January 1, 2024 and to recommend an actuarially determined contribution rate for the fiscal year ending June 30, 2025.

The information needed for the City under Governmental Accounting Standards Board Statement No. 67 and Statement No. 68 will be provided in a separate report. However, for informational purposes only, we have also provided some accounting information in Section VI of this report.

On the basis of the valuation, it is recommended that the City contributions be set at a rate of 20.94% of compensation for the fiscal year ending June 30, 2025, to support the benefits of the Plan as in effect as of the valuation. In preparing the valuation, the actuary relied on data provided by the Plan. While not verifying data at the source, the actuary performed tests for consistency and reasonableness.

The Plan is funded on an actuarial reserve basis. The actuarial assumptions recommended by the actuary and adopted by the Board are reasonably related to the experience under the Plan and to reasonable expectations of anticipated experience under the Plan. The assumptions and methods used for financial reporting purposes meet the parameters set by the Actuarial Standards of Practice (ASOPs). The funding objective of the Plan is that contribution rates over time will remain level as a percent of payroll. The valuation method used is the entry age normal cost method. The normal contribution rate to cover current cost has been determined as a level percent of payroll. As adopted by the Board of Trustees, the Transitional Unfunded Accrued Liability (UAL) as of January 1, 2015 is being amortized by regular annual contributions as a level dollar with a closed period. Future gains and losses in subsequent years are amortized within a closed 25-year period from the valuation it is established.

Since the previous valuation, various assumptions and methods have been revised to reflect the results of the experience investigation for the five-year period ending December 31, 2022. The revised assumptions were adopted by the Board on November 16, 2023.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public Pension Plans, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the Pension Plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Plan.

In order to prepare the results in this report, we have utilized actuarial models that were developed to measure liabilities and develop actuarial costs. These models include tools that we have produced and tested, along with commercially available valuation software that we have reviewed to confirm the appropriateness and accuracy of the output. In utilizing these models, we develop and use input parameters and assumptions about future contingent events along with recognized actuarial approaches to develop the needed results.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology 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); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the Plan. Use of these computations for purposes other than meeting these requirements may not be appropriate.

Sincerely yours,

Edward J. Koebel, EA, FCA, MAAA
Chief Executive Officer

Alisa A. Bennett, FSA, EA, FCA, MAAA
President

Jennifer Johnson
Managing Director

EJK/AAB:dc

Table of Contents

Section I – Summary of Principal Results

REPORT ON THE ACTUARIAL VALUATION OF
THE CITY OF CHATTANOOGA GENERAL PENSION PLAN
PREPARED AS OF JANUARY 1, 2024

1. For convenience of reference, the principal results of the valuation and a comparison with the results of the previous valuation are summarized below:

VALUATION DATE	January 1, 2024	January 1, 2023
Number of active participants	1,483	1,439
Annual compensation	$ 83,236,532	$ 81,077,975
Number of retired participants and beneficiaries	1,379	1,352
Annual benefits	$ 26,788,917	$ 25,744,569
Number of former participants entitled to deferred vested benefits	185	154
Annual deferred vested benefits	$ 1,543,974	$ 1,238,630
Assets:		
Actuarial value	$ 375,029,423	$ 360,296,118
Market value	350,467,901	325,078,311
Unfunded accrued liability	$ 71,630,139	$ 69,872,905
Weighted Amortization Period	12.2 years	12.3 years
Funded Ratio		
Actuarial value	84.0%	83.8%
Market value	78.5%	75.6%
DISCOUNT RATE	**6.75%**	**6.75%**
CONTRIBUTION RATES FOR FISCAL YEAR ENDING*	**June 30, 2025**	**June 30, 2024**
Actuarially Determined Contribution (ADC) Rate:		
Normal Cost**	10.68%	10.76%
Unfunded accrued liability	10.26	10.18
Total	20.94%	20.94%

* To reduce fluctuations in the employer contribution rates, the employer accrued liability contribution rate amortization period in the current valuation was adjusted so that the total ADC will remain the same as the previous valuation.

** Includes administrative expenses.

2. Comments on the valuation results as of January 1, 2024 are given in Section IV and further discussion of the contribution levels is set out in Section V. In addition, comments on the experience and actuarial gains and losses during the year are provided in Section VII.

3. Schedule E of this report outlines the full set of actuarial assumptions and methods used to prepare the valuation. Since the previous valuation, various assumptions and methods have been revised to reflect the results of the experience investigation for the five-year period ending December 31, 2022. The revised assumptions are summarized in the following table:

Summary of Recommended Assumptions	
Economic Assumptions	
Price Inflation	No change.
Real Rate of Investment Return	No change.
Total Rate of Investment Return	No change.
Demographic Assumptions	
Withdrawal	Changed to a purely service-based table and increased the rates of withdrawal at most service levels.
Retirement	Changed assumed rates to better match experience.
Mortality	Changed mortality table to Pub-2010 tables projected generationally with adjustments for health retirees, contingent annuitants, and active members.
Disability	No change.
Merit/Promotion Scale	No change.
Other Assumptions and Methods and Administrative Changes	
Asset Smoothing	No change.
Administrative Expenses	Changed from 0.50% of payroll to 0.40% of payroll.
Amortization Method	No change.
All others	No change to other actuarial methods.

4. The Entry Age Normal actuarial cost method was used to prepare the valuation. Schedule F contains a brief description of this method.

5. Schedule G of this report outlines the Board's funding policy. There have been no changes since the previous valuation.

6. Schedule I of this report outlines the main plan provisions employed. There have been no changes since the previous valuation.

7. As shown in the Summary of Principal Results, the funded ratio is the ratio of the actuarial value of assets to the accrued liability and is different based on market value of assets. The funded ratio is an indication of progress in funding the promised benefits. Since the ratio is less than 100%, there is a need for additional contributions toward payment of the unfunded accrued liability. In addition, this funded ratio does not have any relationship to measuring sufficiency if the plan had to settle its liabilities.

8. Contributions are developed with the intent of being level as a percentage of covered payroll, assuming the number of active members remains stable. Furthermore, the funding policy is expected to accumulate sufficient assets to make all future benefit payments as they become due if all assumptions are met. Actuarial Standard of Practice Number 4 (ASOP 4) requires the disclosure of a reasonable actuarial determined contribution rate. The current statutory funding rate is expected to fully fund the plan and reduce the unfunded actuarial accrued liability each year. While there are potentially other reasonable actuarial determined contribution rates, in our professional judgement, the current funding policy meets the guidelines of ASOP 4.

Section II – Participant Data

1. Data regarding the participants of the Plan for use as a basis of the valuation were furnished by the Plan. The valuation included 1,483 active participants with annualized compensation totaling $83,236,532. Below is a breakdown of active members by employer:

EMPLOYER	NUMBER	ANNUALIZED COMPENSATION
General Employees		
General Government	342	$22,077,215
Economic & Community Development	145	8,110,934
Public Safety	98	4,967,721
Public Works	301	16,005,528
Early Learning	155	6,401,043
Parks and Outdoors	108	5,720,627
Subtotal	1,149	$63,283,068
Enterprise Employees		
Interceptor Sewer System	163	$10,090,429
Solid Waste	7	352,146
Water Quality	114	6,056,376
TVRCS	7	440,865
Subtotal	291	$16,939,816
Airport Authority	43	$3,013,648
Total	1,483	$83,236,532

Section II – Participant Data

2. The following table shows the number of retired participants and beneficiaries in receipt of a benefit as of January 1, 2024 together with the amount of their annual retirement allowances payable under the Plan as of that date.

THE NUMBER AND ANNUAL RETIREMENT BENEFITS OF RETIRED PARTICIPANTS AND BENEFICIARIES AS OF JANUARY 1, 2024

GROUP	NUMBER	ANNUAL RETIREMENT BENEFITS
Service Retirements	1,099	$ 22,607,917
Disability Retirements	57	745,385
Beneficiaries of Deceased Participants	223	3,435,615
Total	1,379	$ 26,788,917

In addition, there are 185 former participants entitled to deferred vested retirement benefits totaling $1,543,974.

3. Table 1 in Schedule J gives a reconciliation of participating members for the past plan year; Table 2 shows the distribution by age and service groups of the number and average pay of active participants included in the valuation. Tables 3, 4, 5 and 6 give the number and annual benefits of retired participants and beneficiaries included in the valuation, distributed by age.

Section III – Assets

1. As of January 1, 2024, the market value of assets amounted to $350,467,901, as provided by First Horizon Bank. The estimated investment return for the plan year was 10.39%. Schedule D shows the receipts and disbursements of the System for the year preceding the valuation date and a reconciliation of the System balances at market value.

2. The market-related actuarial value of assets using a 5-year smoothing technique of investment gains and losses is $375,029,423. The estimated investment return for the plan year ending January 1, 2024 on an actuarial value of assets basis was 6.37%, which can be compared to the investment return assumed for the period of 6.75%. Schedule C shows the development of the actuarial value of assets as of January 1, 2024.

Section IV – Comments on Valuation

1. Schedule B of this report contains the valuation balance sheet which shows the present and prospective assets and liabilities of the Plan as of January 1, 2024. The valuation was prepared in accordance with the actuarial assumptions set forth in Schedule E and the actuarial cost method which is described in Schedule F.

2. The valuation balance sheet shows that the Plan has total prospective liabilities of $508,739,433. Of this amount, $296,791,196 is for the prospective benefits payable on account of present retired participants, beneficiaries of deceased participants and former participants entitled to deferred vested benefits or a refund of contributions, and $211,948,237 is for the prospective benefits payable on account of present active participants. Against these liabilities, the Plan has total assets of $375,029,423 as of January 1, 2024. The difference of $133,710,010 between the total liabilities and the total assets represents the present value of future contributions.

3. The contributions to the Plan consist of normal contributions and accrued liability contributions. The valuation indicates that normal contributions at the rate of 12.28% of payroll are required under the entry age cost method. Of this amount, 2.00% will be paid by the participants and the remaining 10.28% is payable by the City. An additional contribution of 0.40% of payroll is required by the City for administrative expenses. **The total normal contribution rate including administrative expenses is, therefore, 10.68% of payroll.**

4. Prospective normal contributions at the rate of 12.28% have a present value of $62,079,871. When this amount is subtracted from $133,710,010, which is the present value of total future contributions, there remains $71,630,139 as the amount of unfunded accrued liability (UAL) contributions.

5. The funding policy adopted by the Board provides that the UAL as of January, 1, 2015 (Transitional UAL) will be amortized as a level dollar amount over a closed period. There are 7.84 years remaining on the amortization of the Transitional UAL. In each subsequent valuation, all benefit changes, assumption and method changes and experience gains and/or losses that have occurred since the previous valuation will determine a New Incremental UAL.

Each New Incremental UAL will be amortized as a level dollar amount over a closed 25-year period from the date it is established. We have determined that an accrued liability contribution rate of 10.26% of payroll will comply with the Board's funding policy.

6. Schedule H of this report shows the amortization schedules for the Transitional UAL and New Incremental UAL's.

7. The following table shows the components of the total UAL and the derivation of the UAL contribution rate in accordance with the funding policy:

TOTAL UAL AND UAL CONTRIBUTION RATE

	Remaining Balance UAAL	Remaining Amortization Period	Amortization Payment
Transitional	$26,808,717	7.84*	$4,370,227
New Incremental 1/1/2016	$12,305,204	17	$1,198,826
New Incremental 1/1/2017	$17,590,138	18	$1,662,079
New Incremental 1/1/2018	$7,770,685	19	$714,094
New Incremental 1/1/2019	$6,527,092	20	$584,777
New Incremental 1/1/2020	$620,972	21	$54,358
New Incremental 1/1/2021	($7,952,441)	22	($681,485)
New Incremental 1/1/2022	($9,896,039)	23	($831,650)
New Incremental 1/1/2023	$12,284,995	24	$1,014,054
New Incremental 1/1/2024	$5,570,816	25	$452,303
Total	$71,630,139		$8,537,583
Blended Amortization Period (years)			12.2
Estimated Payroll			$83,236,532
UAAL Contribution Rate			10.26%

* To reduce fluctuations in the employer contribution rates, the employer accrued liability contribution rate amortization period in the current valuation was adjusted so that the total ADC will remain the same as the previous valuation.

8. **Therefore, when the total normal contribution rate including administrative expenses of 10.68% is added to the UAL contribution rate of 10.26%, the total contribution rate required for the fiscal year ending June 30, 2025 is 20.94% of payroll.**

Section IV – Comments on Valuation

9. The Plan had an overall composite loss for the year of approximately $5.6 million. The majority of the loss ($11.7 million) was due to changes in assumptions that were adopted after the 5-year experience investigation for the period ending December 31, 2022. Other losses were due to investment earnings less than expected ($1.3 million), and retirant mortality and disability retirement ($1.1 million). These losses were offset by gains due to salary increases less than expected ($6.5 million) and other gains due to service retirement, withdrawal experience, and data changes ($2.0 million). See Schedule K of our report for a complete breakdown of the experience of the Plan.

Section V – Contributions Payable by City

It is recommended on the basis of the present valuation that the City make contributions during the fiscal year ending June 30, 2025 to the Plan according to the rates shown in the following table:

CONTRIBUTION	PERCENTAGE OF PARTICIPANTS' COMPENSATION
Normal	10.68%
Unfunded accrued liability*	10.26
Total	20.94%

* To reduce fluctuations in the employer contribution rates, the employer accrued liability contribution rate amortization period in the current valuation was adjusted so that the total ADC will remain the same as the previous valuation.

Section VI – Accounting Information

The information required under the Governmental Accounting Standards Board (GASB) Statement No. 67 and Statement No. 68 will be issued in a separate report. The following information is provided for informational purposes only.

1. The following is a distribution of the number of employees by type of membership, as follows:

NUMBER OF ACTIVE AND RETIRED PARTICIPANTS
AS OF JANUARY 1, 2024

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	1,379
Terminated participants entitled to benefits but not yet receiving them	185
Active participants	1,483
Total	3,047

1. Another such item is the schedule of funding progress as shown below.

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Accrued Liability (AL) Entry Age (b)	Unfunded AL (UAL) (b – a)	Funded Ratio (a / b)	Covered Payroll (c)	UAL as a Percentage of Covered Payroll ((b – a) / c)
1/01/2019	$292,811,879	$374,977,671	$82,165,792	78.1%	$62,944,765	130.5%
1/01/2020*	304,115,275	385,725,177	81,609,902	78.8	65,158,198	125.2
1/01/2021	320,690,779	392,644,838	71,954,059	81.7	61,223,547	117.5
1/01/2022	347,576,454	407,984,226	60,407,772	85.2	68,884,020	87.7
1/01/2023	360,296,118	430,169,023	69,872,905	83.8	81,077,975	86.2
1/01/2024*	375,029,423	446,659,562	71,630,139	84.0	83,236,532	86.1

* Reflects changes in assumptions.

Section VI – Accounting Information

1. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at January 1, 2024. Additional information as of the latest actuarial valuation follows.

Valuation date	January 1, 2024
Actuarial cost method	Entry Age Normal
Amortization method	Level dollar closed
Weighted amortization period	12.2 years
Asset valuation method	Market value, with 5 year recognition of investment gains and losses, not less than 80% or greater than 120% of market value
Actuarial assumptions:	
Investment rate of return*	6.75%
Projected salary increases*	3.00– 5.25%
Cost-of-living adjustments	3.00%
*Includes inflation at	2.50%

Section VII – Experience

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is assumed that gains and losses will be in balance over a period of years, but sizable year to year fluctuations are common. Detail on the derivation of the experience gain/(loss) for the January 1, 2024 valuation is shown below:

			$ Thousands
(1)	UAL as of January 1, 2023	$	69,872.9
(2)	Total normal cost from last valuation		8,726.0
(3)	Total actual contributions		19,033.2
(4)	Interest accrual: [[(1) + (2)] x .0675] – (3) x .03375		4,663.1
(5)	Expected UAL before changes: (1) + (2) – (3) + (4)	$	64,228.8
(6)	Change due to plan amendments		0.0
(7)	Change due to actuarial assumptions or methods		11,699.1
(8)	Additional liability due to new members		1,780.3
(9)	Expected UAL after changes: (5) + (6) + (7) + (8)	$	77,708.2
(10)	Actual UAL as of January 1, 2024	$	71,630.1
(11)	Gain/(loss): (9) – (10)	$	6,078.1
(12)	Gain/(loss) as percent of accrued liabilities at start of year ($430,169.0)		1.41%

Valuation Date January 1	Actuarial Gain/(Loss) as a % of Beginning Accrued Liabilities
2021	1.99%
2022	2.13%
2023	(3.49)%
2024	1.41%

Section VIII – Risk Assessment

Overview

Actuarial Standards of Practice (ASOP) No. 51, issued by the Actuarial Standards Board, provides guidance on assessing and disclosing risks related to pension plan funding. This guidance is binding on all credentialed actuaries practicing in the United States. This standard was issued as final in September 2017 with application to measurement dates on or after November 1, 2018.

The term "risk" frequently has a negative connotation, but from an actuarial perspective, it may be thought of as simply the fact that what actually happens in the real world will not always match what was expected, based on actuarial assumptions. Of course, when actual experience is better than expected, the favorable risk is easily absorbed. The risk of unfavorable experience will likely be unpleasant, and so there is an understandable focus on aspects of risk that are negative.

Risk usually can be reduced or eliminated at some cost. Consumers, for example, buy auto and home insurance to reduce the risk of accidents or catastrophes. Another way to express this concept, however, is that there is generally some reward for assuming risk. Thus, retirement plans invest not just in US Treasury bonds which have almost no risk, but also in equities which are considerably riskier – because they have an expected reward of a higher return that justifies the risk.

Under ASOP 51, the actuary is called on to identify the significant risks to the pension plan and provide information to help those sponsoring and administering the plan understand the implications of these risks. In this section, we identify some of the key risks for the Plan and provide information to help interested parties better understand these risks.

Section VIII – Risk Assessment

Investment Risk

The investment return on assets is the most obvious risk – and usually the largest risk – to funding a pension plan. To illustrate the magnitude of this risk, please review the following chart showing the Asset Volatility Ratio (AVR), defined as the market value of assets divided by covered payroll.

($ in thousands)

Valuation	Market Value of Assets	Covered Payroll	Asset Volatility Ratio
2016	$258,549	$57,609	4.49
2017	$266,836	$59,221	4.51
2018	$292,092	$60,195	4.85
2019	$277,574	$62,945	4.41
2020	$312,002	$65,158	4.79
2021	$345,748	$61,224	5.65
2022	$392,166	$68,884	5.69
2023	$325,078	$81,078	4.01
2024	$350,468	$83,237	4.21

The asset volatility ratio is especially useful to compare across plans or through time. It is also frequently useful to consider how the AVR translates into changes in the Required Contribution Rate (actuarially determined contribution rate). For example, the following table demonstrates that with an AVR of 4.00, if the market value return is 10% below assumed, or -3.25% for the City of Chattanooga, there will be an increase in the Required Contribution Rate of 0.61% payroll in the first year. Without asset smoothing or without returns above the expected return in the next four years, the impact on the Required Contribution Rate would be 3.04%. A higher AVR would produce more volatility in the Required Contribution Rate.

AVR	Unsmoothed Amortization	Smoothed Amortization
3.0	2.28%	0.46%
4.0	3.04%	0.61%
5.0	3.80%	0.76%
6.0	4.56%	0.91%

Section VIII – Risk Assessment

Sensitivity Measures

Valuations are generally performed with a single set of assumptions that reflects the best estimate of future conditions, in the opinion of the actuary and typically the governing board. Note that under actuarial standards of practice, the set of economic assumptions used for funding must be consistent. To enhance the understanding of the importance of an assumption, a sensitivity test can be performed where the valuation results are recalculated using a different assumption or set of assumptions.

The following tables contains the key measures for the City of Chattanooga using the market value of assets under the valuation assumption for investment return of 6.75%, along with the results if the assumption were 5.75% or 7.75%. In this analysis, only the investment return assumption is changed. Consequently, there may be inconsistencies between the investment return and other economic assumptions such as inflation or payroll increases. In addition, simply because the valuation results under alternative assumptions are shown here, it should not be implied that CMC believes that either assumption (5.75% or 7.75%) would comply with actuarial standards of practice.

($ in thousands)

As of January 1, 2024	Current Discount Rate (6.75%)	-1% Discount Rate (5.75%)	+1% Discount Rate (7.75%)
Plan's Normal Rate	10.68%	13.71%	8.35%
Accrued Liability	$446,660	$497,895	$403,566
Unfunded Liability	$71,630	$122,866	$28,536
Funded Ratio	84.0%	75.3%	92.9%

Section VIII – Risk Assessment

Mortality Risk

The mortality assumption is a significant assumption for valuation results, second only to the investment assumption in most situations. The City of Chattanooga's mortality assumption utilizes a mortality table (with separate rates for males and females, as well as different rates by status) and a projection scale for how the mortality table is expected to improve through time. This approach is the current state of the art in retirement actuarial practice, made possible by the increase in computational power over the past 20 years.

The future, however, is not known, and actual mortality improvements may occur at a faster rate than expected, or at a slower rate than expected (or even decline). Although changes in mortality will affect the benefits paid, this assumption is carefully studied during the regular experience studies that the City conducts so that incremental changes can be made to smoothly reflect unfolding experience.

Contribution Risk

The City is primarily funded by member and employer contributions to the trust fund, together with the earnings on those accumulated contributions. Each year in the valuation, the Required Contribution Rate is determined, based on the City's funding policy. This rate is the sum of the rates for the normal cost for the plan, the amortization of the UAAL, and the administrative expenses. Since the City is obligated to make 100% of the Required Contribution Rate by statute, there is no contribution risk for the General Pension Plan.

Section VIII – Risk Assessment

Liquidation Risk

Under the revised Actuarial Standards of Practice (ASOP) No. 4 effective for valuations after February 15, 2023, we must now include a low-default-risk obligation measure of the System's liability in our funding valuation report. This is an informational disclosure as described below and would not be appropriate for assessing the funding progress or health of the plan.

This measure uses the unit credit cost method and reflects all the assumptions and provisions of the funding valuation except that the discount rate is derived from considering low-default-risk fixed income securities. We considered the FTSE Pension Discount Curve based on market bond rates published by the Society of Actuaries as of December 31, 2023 and with the 30-year spot rate used for all durations beyond 30. Using these assumptions, we calculate a liability of approximately $517.6 million.

This amount approximates the termination liability if the plan (or all covered employment) ended on the valuation date and all of the accrued benefits had to be paid with cash-flow matched bonds. This assurance of funded status and benefit security is typically more relevant for corporate plans than for governmental plans since governments rarely have the need or option to completely terminate a plan.

Schedule A – Development of the Unfunded Accrued Liability

AS OF JANUARY 1, 2024

(1)	Present Value of Future Benefits:		
	a)	Present Active Participants	$ 211,948,237
	b)	Present Retired Participants, Beneficiaries and Former Participants Entitled to Deferred Vested Benefits or Refunds of Contributions	296,791,196
	c)	Total	$ 508,739,433
(2)	Present Value of Future City and Participant Normal Contributions		62,079,871
(3)	Accrued Liabilities [1(c) – (2)]		$ 446,659,562
(4)	Actuarial Value of Assets		375,029,423
(5)	Unfunded Accrued Liabilities (UAL) [(3) – (4)]		$ 71,630,139
(6)	Amortization of UAL		$ 8,537,583
(7)	Contribution Rate as a % of Payroll		
	(a)	Normal Cost	10.68%
	(b)	UAL	10.26
	(c)	Total	20.94%

Schedule B – Valuation Balance Sheet

SHOWING THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES OF THE GENERAL PENSION PLAN FOR EMPLOYEES OF CITY OF CHATTANOOGA PREPARED AS OF JANUARY 1, 2024

ASSETS		
Present Assets of the Plan		$ 375,029,423
Present Value of Prospective Contributions:		
City and Participants Normal Contributions	$ 62,079,871	
Unfunded Accrued Liability Contributions	71,630,139	
Total Prospective Contributions		133,710,010
Total Assets		$ 508,739,433
LIABILITIES		
Present Value of Benefits Payable on Account of Retired Participants, Beneficiaries and Former Participants Entitled to Deferred Vested Benefits or Refunds of Contributions		$ 296,791,196
Present Value of Prospective Benefits payable on Account of Present Active Participants		211,948,237
Total Liabilities		$ 508,739,433

Schedule C – Development of Actuarial Value of Assets

AS OF JANUARY 1, 2024

(1)	Actuarial Value Beginning of Year		$ 360,296,118
(2)	Market Value End of Year		$ 350,467,901
(3)	Market Value Beginning of Year		$ 325,078,311
(4)	Cash Flow		
	a.	Contributions	$ 19,033,192
	b.	Benefit Payments/Refunds	(26,745,330)
	c.	Administrative Expenses	(258,224)
	d.	Net	$ (7,970,362)
(5)	Investment Income		
	a.	Market total: [(2) – (3) – (4)d]	$ 33,359,952
	b.	Assumed Rate	6.75%
	c.	Amount of Immediate Recognition [(3) x (5)b] + [(4)d x (5)b * 0.5]	$ 21,673,786
	d.	Amount for Phased-in Recognition: [(5)a – (5)c]	$ 11,686,166
(6)	Phased-In Recognition of Investment Income		
	a.	Current Year Recognized [0.20 * (5)d]	$ 2,337,233
	b.	First Prior Year Recognized	(17,050,838)
	c.	Second Prior Year Recognized	6,425,272
	d.	Third Prior Year Recognized	4,391,529
	e.	Fourth Prior Year Recognized	4,926,685
	f.	Total Recognized Investment Gain/(Loss)	$ 1,029,881
(7)	Preliminary Actuarial Value End of Year [(1) + (4)d + (5)c + (6)f]		$ 375,029,423
(8)	Corridor Lower Limit (80% of Market Value End of Year)		$ 280,374,321
(9)	Corridor Upper Limit (120% of Market Value End of Year)		$ 420,561,481
(10)	Final Actuarial Value End of Year [(7) not less than (8) and not greater than (9)]		$ 375,029,423
(11)	Difference Between Market & Actuarial Values [(2) – (10)]		$ (24,561,522)

Schedule D – Reconciliation of Market Value of Assets

	January 1, 2024	January 1, 2023
Market Value of Assets as of January 1 of Previous Year	$ 325,078,311	$ 392,166,191
Expenditures		
- Benefit Payments and Refunds	$ (26,745,330)	$ (25,286,946)
- Administrative Expenses	(258,224)	(249,067)
- Total	$ (27,003,554)	$ (25,536,013)
Contributions		
- Employer	$ 17,380,607	$ 15,450,093
- Employee	1,652,585	2,052,154
- Other	0	0
- Total	$ 19,033,192	$ 17,502,247
Investment Income	$ 33,359,952	$ (59,054,114)
Market Value of Assets as of January 1 of Current Year	$ 350,467,901	$ 325,078,311
Estimated Investment Rate of Return*	10.39%	(15.21%)

* Calculated assuming cash flow occurs in the middle of the year.

Schedule E – Outline of Actuarial Assumptions and Methods

INVESTMENT RATE OF RETURN: 6.75% per annum, compounded annually, net of investment expenses.

CONTRIBUTION EARNINGS RATE: 6.00% per annum, compounded annually, from the time of termination to the time of payment, if the participant had at least 5 years of Credited Service at the time of termination.

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases are as follows and include inflation at 2.50% per annum:

Annual Rate of Salary Increase	
Years of Service	**Rate**
<1	5.25%
1 – 5	4.75
6 - 10	4.25
11 – 15	3.75
16 – 20	3.50
21 – 25	3.25
26+	3.00

SEPARATIONS FROM ACTIVE SERVICE: Mortality rates are according to the Pub-2010 General Employee Below Median Table set forward one year, and adjusted by 105% for males and 107% for females and projected generationally using projection scale MP-2021.

Representative values of the assumed annual rates of death, disability, withdrawal and service retirement are as follows:

	Annual Rate of		
Age	**Death – Male***	**Death – Female***	**Disability**
20	0.04%	0.01%	0.10%
25	0.05	0.01	0.10
30	0.06	0.02	0.10
35	0.08	0.03	0.10
40	0.11	0.05	0.18
45	0.16	0.08	0.26
50	0.25	0.12	0.34
55	0.36	0.18	0.44
60	0.53	0.28	0.44
65	0.77	0.45	
69	1.08	0.67	

**Base rates as of 2010 before application of the improvement scale*

Schedule E – Outline of Actuarial Assumptions and Methods

Years of Service	Annual Rate of Withdrawal
Less than 1	20.0%
1	18.0%
2	15.0%
3	14.0%
4	12.0%
5	11.0%
6	10.0%
7	9.0%
8	7.0%
9	5.0%
10 – 14	5.0%
15+	3.5%

Annual Rate of Service Retirement		
Age	Standard Rate	Rule of 80 Rate
50 – 51	0.0%	15.0%
52	0.0	12.0
53 – 54	0.0	9.0
55 – 60	6.5	9.0
61	11.0	23.0
62	20.0	
63	18.0	
64	18.0	
65	20.0	
66	21.0	
67	23.0	
68	20.0	
69	19.0	
70	22.0	
71	15.0	
72 - 74	18.0	
75+	100.0	

Schedule E – Outline of Actuarial Assumptions and Methods

DEATHS AFTER RETIREMENT: According to the Pub-2010 General Healthy Retiree Below Median Table set forward three years, and adjusted 102% for males and 104% for females, and projected generationally using projection scale MP-2021 for service retirements. The Pub-2010 General Contingent Survivor Below Median Table set forward three years and projected generationally using projection scale MP-2021 is used for beneficiaries of retired participants. The Pub-2010 General Disability Table projected generationally using projection scale MP-2021 is used for disability retirements. Representative values of the assumed annual rates of death after retirement are as follows:

	Annual Rate of Death*					
	Service Retirement		Beneficiaries		Disability Retirement	
Age	Male	Female	Male	Female	Male	Female
40	0.12%	0.06%	0.12%	0.06%	0.65%	0.63%
50	0.84	0.47	0.99	0.63	1.61	1.48
60	1.23	0.64	1.45	1.10	2.50	1.96
70	2.88	1.73	3.22	2.28	3.90	2.86
80	8.33	5.43	7.80	5.76	7.35	6.01
90	21.00	16.97	19.96	15.87	16.25	13.67
100	39.38	35.87	38.60	34.49	32.61	28.16

**Base rates as of 2010 before application of the improvement scale*

PERCENT MARRIED: 85% of all participants are assumed to be married, with males assumed to be four years older than females.

ACTUARIAL COST METHOD: Entry age normal. Gains and losses are reflected in the total unfunded accrued liability and amortized over separate bases.

ASSET VALUATION METHOD: Actuarial value as developed in Schedule C. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between the actual market value and the expected market value. The actuarial value is not less than 80% or greater than 120% of market value.

EXPENSE ASSUMPTION: 0.40% of annual salaries.

Schedule F – Actuarial Cost Method

1. The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently 6.75%), of each participant's expected benefit payable at retirement or death is determined, based on his age, service, sex and compensation. The calculations take into account the probability of a participant's death or termination of employment prior to becoming eligible for a benefit, as well as the probability of his terminating with a service, disability, or survivor's benefit. Future salary increases are also anticipated. The present value of the expected benefits payable on account of the active participants is added to the present value of the expected future payments to retired participants and beneficiaries to obtain the present value of all expected benefits payable from the Plan on account of the present group of participants and beneficiaries.
2. The contributions required to support the benefits of the Plan are determined following a level funding approach and consist of a normal contribution and an unfunded accrued liability contribution.
3. The normal contribution is determined using the "entry age normal" method. Using this method, a calculation is made to determine the uniform and constant percentage rate of City contribution which, if applied to the compensation of each participant during the entire period of his anticipated covered service, would be required in addition to the contributions of the participant to meet the cost of all benefits payable on his behalf.
4. The present value of future unfunded accrued liability contributions is determined by subtracting the present value of prospective normal contributions together with the current assets held, from the present value of expected benefits to be paid from the Plan.

Schedule G – Board Funding Policy

The Board of Trustees of the City of Chattanooga General Pension Plan ("Board") hereby adopts this document as the Defined Benefit Plan Funding Policy (the "Funding Policy").

Preamble

The intent of this funding policy is to establish a formal methodology for financing the pension obligations accruing under the Plan. It is intended that current assets plus future assets from employer contributions, employee contributions, and investment earnings should be sufficient to finance all benefits provided by the Plan. The Funding Policy is intended to reflect a reasonable, conservative approach with each generation of taxpayers financing, to the greatest extent possible, the cost of pension benefits being accrued. This Funding Policy recognizes that there will be investment marketplace volatility and that actual economic and demographic experience will differ from assumed experience. Accordingly, this Funding Policy is intended to provide flexibility to smooth such volatility and experience in a reasonable, systematic, and financially sound manner. Further, it is the intent that this funding policy comply with all applicable Federal, State and Local laws, rules, and regulations.

This funding policy is being adopted by the Board both as a prudent action and as its fiduciary duty. Also, the Board is required to adopt a funding policy which complies with the provision of Chapter Number 990 of the Public Acts of 2014. Moreover, adoption of a funding policy is recommended by the Government Finance Officers Association, the Governmental Accounting Standards Board, and the actuarial profession. It should be noted that the Funding Policy addresses pension benefits and retiree healthcare benefits. In addition to periodic reviews of this Funding Policy, the Board will amend the policy as required by State or federal law and/or the GASB.

I. Funding Objectives

The goal in requiring employer and member contributions to the Plan in addition to investment returns is to accumulate sufficient assets during a member's employment to fully finance the benefits the member is entitled to receive throughout retirement. To meet the goal, the Plan will strive to achieve the following objectives:

1. Develop a pattern of stable or decreasing contribution rates expressed as a percentage of employer payroll and measured by valuations prepared in accordance with the Actuarial Standards of Practice established by the Actuarial Standards Board.
2. Maintain an increasing funded ratio (ratio of actuarial value of assets to actuarial accrued liabilities) that reflects a trend of improved actuarial condition. The long-term objective is to comply with the 100% annual funding requirement set forth in the Public Employee Defined Benefits Financial Security Act of 2014 ("PEDBFS Act"), T.C.A. § 9-3-501, *et seq*.
3. Maintain adequate asset levels to finance the benefits promised to members.
4. Provide intergenerational equity for taxpayers with respect to contributions required for the benefits provided by the Plan.
5. Fund benefit improvements through increases in contributions to avoid reduction in funded ratios.
6. Comply with all other provisions contained in the PEDBFS Act.

Schedule G – Board Funding Policy

II. Components of this Funding Policy

1. Contributions
2. Procurement of actuarial services
3. Actuarial experience study
4. Actuarial valuation
5. Actuarial audit

III. Contributions

In each valuation subsequent to the adoption of this Funding Policy the City's contribution to the Plan will be based on an ***Actuarially Determined Contribution*** (ADC) that will be determined as the summation of the employer normal cost rate, a contribution rate for administrative expenses, the amortization rate for the transitional unfunded accrued liabilities, and the individual amortization rate for each of the new incremental unfunded accrued liabilities (UAL).

- Mortality assumptions should consider the effect of expected mortality improvements. These assumptions should be utilized beginning on or before the plan fiscal year after June 15, 2024 and continue to be utilized thereafter.

- Investment earning assumptions should not be greater than fifty (50) basis points above the rate adopted by the Tennessee Consolidated Retirement System.

- For City civilian employees hired on or after the effective date of the PEDBFS Act, the City may freeze, suspend, or modify benefits, employee contributions, plan terms and design on a prospective basis. This provision does not affect any judicial precedents or statutory law as they apply to employees who were employed before the effective date of the PEDBFS Act.

- Any Accrued benefits earned prior to this policy shall remain an enforceable right and may not be reduced without the written consent of the employee, unless the employee is subject to the forfeiture of the employee's retirement benefits provided in T.C.A 8-35-124.

- Should funded ratio of the Plan fall below 60%, no enhancements shall be made to benefits without approval by the State Treasurer.

- In the event the City fails to fund the ADC as required in T.C.A. 9-3-505, the Tennessee Commissioner of Finance and Administration, at the direction of the Comptroller of the Treasury, is authorized to withhold such amount or part of such amount from any state-shared taxes that are otherwise apportioned to the City. The money withheld will be paid to the General Pension Plan.

- Pension fund contributions will have the same budget priority as other salaries and wages.

Schedule G – Board Funding Policy

IV. Procurement of Actuarial Services

The Board shall acquire the services of professional actuarial firms to perform an actuarial experience study, an actuarial valuation, an actuarial audit, and other necessary actuarial services. Actuarial firms shall be selected by a competitive process. The actuarial firm that performs the actuarial audit shall not be the same firm that performs the actuarial valuation and the actuarial experience study. The contractual agreement with an actuarial firm shall not exceed five (5) years. The actuarial firm shall be independent and shall act as an advisor on actuarial matters on behalf of the Board.

The lead actuaries of actuarial firms shall have the requisite experience, capabilities, strengths, and qualifications including, but not limited to, the following:

1. Member of the American Academy of Actuaries;
2. Attainment of the Fellowship of the Society of Actuaries (FSA) designation;
3. Attainment of the Enrolled Actuary (EA) designation;
4. At least seven (7) years of actuarial experience in the defined benefit field; and
5. Ineligible to participate in the Plans

V. Actuarial Experience Study

An actuarial experience study shall be conducted at least every five (5) years. As determined necessary by the Board, assumptions may be evaluated on an interim basis.

Assumptions adopted by the Board should be established based on past experience and future expectations as the result of an extensive actuarial experience study.

Demographic assumptions to be established include without limitation the following:

1. Turnover pattern
2. Pre-retirement mortality based on expected improvement in mortality
3. Pattern of retirement
4. Pattern of disability
5. Post-retirement mortality with expected improvement in mortality to be phased in by June 15, 2024

Economic assumptions to be established include, but are not limited to, the following:

1. Investment earnings (net of investment expenses)
2. Salary
3. Retiree COLA

Economic assumptions shall include an underlying assumption for inflation.

The actuarial experience study shall also generate administrative factors including, but not limited to, the following: (1) survivorship benefit option factors, (2) early retirement reduction factors, (3) age 62 actuarial equivalent factors, and (4) annuity factors. These factors shall be determined on a cost neutral basis.

Schedule G – Board Funding Policy

VI. Actuarial Valuation

Valuation method and frequency. An actuarial valuation to determine the ADC rate to finance pension obligations shall be performed annually. The valuation shall utilize the entry-age normal actuarial method. The ADC shall include (1) the normal cost, (2) the unfunded actuarial accrued liability cost, and (3) the cost of administration for the operation of the Plan. The ADC shall be calculated and become applicable on July 1 of the fiscal year immediately following the valuation date.

Funding the ADC. The ADC, as determined by an actuarial valuation, shall provide annual funding at a level of no less than 100%. With respect to the obligations of the Plan, the Plan's budget shall include funding of at least 100% of the ADC. Tenn. Code Ann. § 9-3-504(c)(3). Tenn. Code Ann. § 9-3-505(a) requires the City to annually pay a payment to the Plan of no less than one hundred (100%) percent of the ADC.

Asset smoothing method. An asset smoothing method shall be utilized to determine the actuarial value of assets. The difference between the amount actually earned and the earnings assumption for a particular year shall be amortized in level amounts. The asset smoothing period shall be no more than ten (10) years. However, there shall be a corridor so that the actuarial value of assets cannot be 20% more than or 20% less than the market value of assets existing as of the actuarial valuation date.

Amortization methodology for actuarial gains and losses. Unfunded actuarial accrued liabilities shall be amortized utilizing the level dollar amortization method over a closed period not to exceed twenty-five (25) years. The unfunded actuarial accrued liabilities established as of the initial valuation date for which this Funding Policy is adopted is the transitional liabilities. The transitional liabilities will be amortized over a closed period beginning on the initial valuation date for which this Funding Policy is adopted. A tier approach will be utilized with new actuarial gains and losses from each actuarial valuation. Each tier shall be amortized over a closed, maximum twenty-five (25) year period. The amortization period may be shortened or extended from valuation to valuation but the gains and losses for a specific tier must be completely amortized within twenty-five (25) years. Any extension of the amortization period for a specific tier cannot exceed the twenty-five (25) year maximum less whatever time has elapsed from the beginning of the amortization period.

The unfunded actuarial accrued liability based on the 2015 actuarial valuation shall be funded no later than 2043. In subsequent actuarial valuations, new tiers of actuarial gains and losses where actual experience differed from assumed experience, changes in demographic and economic assumptions are made, and changes in benefit provisions are enacted shall be amortized over a closed period not to exceed twenty-five (25) years.

Demographic data. The demographic data in an actuarial valuation shall include: (1) all active members, (2) all inactive vested members, (3) all inactive non-vested members with an account balance, and (4) all annuitants (including beneficiary annuitants and disability annuitants).

Benefit provisions. The actuarial valuation shall include all benefits being accrued by members of the Plan including, but not limited to, retirement, disability, death benefits, and post-employment cost-of-living adjustments (COLAs). The valuation shall be based on the benefit eligibility and benefit terms as set out in City Code.

Assumptions utilized. Demographic and economic assumptions as determined by an actuarial experience study and adopted by the Board shall be utilized in the actuarial valuation.

Schedule G – Board Funding Policy

VII. Actuarial Audit

An actuarial audit by an independent actuarial audit firm shall be conducted at least once in a ten (10) year period. The purpose of the actuarial audit shall be: (1) the validation and verification of actuarial valuation results for both funding and accounting; (2) an evaluation of the reasonableness of actuarial assumptions and methods; (3) compliance with professional standards such as generally accepted actuarial standards; and (4) compliance with applicable laws, regulations, and Board policy.

VIII. Transparency and Accountability

This funding policy, the actuarial experience study, the actuarial valuation, and the actuarial audit shall be readily available for review. Accordingly, the Funding Policy shall be posted on the City website. Further, the actuarial experience study, the actuarial valuation, and the actuarial audit shall be maintained on the City website for a period of no less than five years after being published.

IX. Effective Date

This policy shall remain in effect until amended by the Board or preempted by State law.

Schedule H – Amortization of UAL

AMORTIZATION OF 2015 TRANSITIONAL UAL

Valuation Date	Amortization Period*	Balance of Transitional UAAL	Annual Amortization Payment
1/1/2015	28	$35,499,590	$2,958,414
1/1/2016	27	35,094,710	2,894,183
1/1/2017	26	34,641,815	2,831,907
1/1/2018	25	34,137,395	2,831,907
1/1/2019	24	33,597,665	2,773,288
1/1/2020	23	33,000,148	2,773,288
1/1/2021	22	32,362,300	2,773,288
1/1/2022	10.49	31,681,396	4,172,850
1/1/2023	8.46	29,508,507	4,540,863
1/1/2024	**7.84**	**26,808,717**	**4,370,227**
1/1/2025	6.84	24,102,992	4,370,227
1/1/2026	5.84	21,214,629	4,370,227
1/1/2027	4.84	18,131,303	4,370,227
1/1/2028	3.84	14,839,852	4,370,227
1/1/2029	2.84	11,326,228	4,370,227
1/1/2030	1.84	7,575,434	4,370,227
1/1/2031	1	3,571,462	3,690,031
1/1/2032	0	0	0

* To reduce fluctuations in the employer contribution rates, the employer accrued liability contribution rate amortization period in the current valuation will be adjusted so that the total ADC will remain the same as the previous valuation.

Schedule H – Amortization of UAL

AMORTIZATION OF 2016 INCREMENTAL UAL*

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2016	Annual Amortization Payment
1/1/2016	30	$14,145,913	$1,128,536
1/1/2017	29	13,988,648	1,101,458
1/1/2018	28	13,828,497	1,101,458
1/1/2019	27	13,657,135	1,076,827
1/1/2020	26	13,466,415	1,076,827
1/1/2021	25	13,262,821	1,076,827
1/1/2022	19	13,045,484	1,198,826
1/1/2023	18	12,687,428	1,198,826
1/1/2024	**17**	**12,305,204**	**1,198,826**
1/1/2025	16	11,897,180	1,198,826
1/1/2026	15	11,461,614	1,198,826
1/1/2027	14	10,996,647	1,198,826
1/1/2028	13	10,500,296	1,198,826
1/1/2029	12	9,970,440	1,198,826
1/1/2030	11	9,404,819	1,198,826
1/1/2031	10	8,801,019	1,198,826
1/1/2032	9	8,156,462	1,198,826
1/1/2033	8	7,468,397	1,198,826
1/1/2034	7	6,733,889	1,198,826
1/1/2035	6	5,949,801	1,198,826
1/1/2036	5	5,112,786	1,198,826
1/1/2037	4	4,219,274	1,198,826
1/1/2038	3	3,265,449	1,198,826
1/1/2039	2	2,247,242	1,198,826
1/1/2040	1	1,160,305	1,198,826
1/1/2041	0	0	0

* Beginning with the January 1, 2022 valuation, the amortization period for all incremental bases was reduced to a 25-year period from the original effective date.

Schedule H – Amortization of UAL

AMORTIZATION OF 2017 INCREMENTAL UAL*

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2017	Annual Amortization Payment
1/1/2017	30	$19,786,641	$1,541,494
1/1/2018	29	19,577,171	1,541,494
1/1/2019	28	19,353,039	1,506,230
1/1/2020	27	19,103,135	1,506,230
1/1/2021	26	18,836,362	1,506,230
1/1/2022	20	18,551,581	1,662,079
1/1/2023	19	18,086,554	1,662,079
1/1/2024	**18**	**17,590,138**	**1,662,079**
1/1/2025	17	17,060,214	1,662,079
1/1/2026	16	16,494,520	1,662,079
1/1/2027	15	15,890,641	1,662,079
1/1/2028	14	15,246,001	1,662,079
1/1/2029	13	14,557,848	1,662,079
1/1/2030	12	13,823,244	1,662,079
1/1/2031	11	13,039,054	1,662,079
1/1/2032	10	12,201,932	1,662,079
1/1/2033	9	11,308,304	1,662,079
1/1/2034	8	10,354,356	1,662,079
1/1/2035	7	9,336,016	1,662,079
1/1/2036	6	8,248,939	1,662,079
1/1/2037	5	7,088,483	1,662,079
1/1/2038	4	5,849,697	1,662,079
1/1/2039	3	4,527,293	1,662,079
1/1/2040	2	3,115,627	1,662,079
1/1/2041	1	1,608,673	1,662,079
1/1/2042	0	0	0

* Beginning with the January 1, 2022 valuation, the amortization period for all incremental bases was reduced to a 25-year period from the original effective date.

Schedule H – Amortization of UAL

AMORTIZATION OF 2018 INCREMENTAL UAL*

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2018	Annual Amortization Payment
1/1/2018	30	$8,573,549	$667,929
1/1/2019	29	8,482,786	652,317
1/1/2020	28	8,381,401	652,317
1/1/2021	27	8,273,172	652,317
1/1/2022	21	8,157,638	714,094
1/1/2023	20	7,970,478	714,094
1/1/2024	**19**	**7,770,685**	**714,094**
1/1/2025	18	7,557,405	714,094
1/1/2026	17	7,329,729	714,094
1/1/2027	16	7,086,685	714,094
1/1/2028	15	6,827,235	714,094
1/1/2029	14	6,550,273	714,094
1/1/2030	13	6,254,615	714,094
1/1/2031	12	5,939,001	714,094
1/1/2032	11	5,602,083	714,094
1/1/2033	10	5,242,423	714,094
1/1/2034	9	4,858,485	714,094
1/1/2035	8	4,448,632	714,094
1/1/2036	7	4,011,114	714,094
1/1/2037	6	3,544,064	714,094
1/1/2038	5	3,045,487	714,094
1/1/2039	4	2,513,257	714,094
1/1/2040	3	1,945,101	714,094
1/1/2041	2	1,338,594	714,094
1/1/2042	1	691,148	714,094
1/1/2043	0	0	0

* Beginning with the January 1, 2022 valuation, the amortization period for all incremental bases was reduced to a 25-year period from the original effective date.

Schedule H – Amortization of UAL

AMORTIZATION OF 2019 INCREMENTAL UAL*

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2019	Annual Amortization Payment
1/1/2019	30	$7,075,167	$538,049
1/1/2020	29	6,996,830	538,049
1/1/2021	28	6,913,205	538,049
1/1/2022	22	6,823,935	584,777
1/1/2023	21	6,680,359	584,777
1/1/2024	**20**	**6,527,092**	**584,777**
1/1/2025	19	6,363,479	584,777
1/1/2026	18	6,188,823	584,777
1/1/2027	17	6,002,377	584,777
1/1/2028	16	5,803,346	584,777
1/1/2029	15	5,590,881	584,777
1/1/2030	14	5,364,074	584,777
1/1/2031	13	5,121,958	584,777
1/1/2032	12	4,863,498	584,777
1/1/2033	11	4,587,593	584,777
1/1/2034	10	4,293,064	584,777
1/1/2035	9	3,978,655	584,777
1/1/2036	8	3,643,023	584,777
1/1/2037	7	3,284,735	584,777
1/1/2038	6	2,902,264	584,777
1/1/2039	5	2,493,975	584,777
1/1/2040	4	2,058,127	584,777
1/1/2041	3	1,592,859	584,777
1/1/2042	2	1,096,186	584,777
1/1/2043	1	565,987	584,777
1/1/2044	0	0	0

* Beginning with the January 1, 2022 valuation, the amortization period for all incremental bases was reduced to a 25-year period from the original effective date.

Schedule H – Amortization of UAL

AMORTIZATION OF 2020 INCREMENTAL UAL*

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2020	Annual Amortization Payment
1/1/2020	30	$661,973	$50,342
1/1/2021	29	654,644	50,342
1/1/2022	23	646,820	54,358
1/1/2023	22	634,318	54,358
1/1/2024	**21**	**620,972**	**54,358**
1/1/2025	20	606,725	54,358
1/1/2026	19	591,516	54,358
1/1/2027	18	575,281	54,358
1/1/2028	17	557,950	54,358
1/1/2029	16	539,449	54,358
1/1/2030	15	519,700	54,358
1/1/2031	14	498,617	54,358
1/1/2032	13	476,111	54,358
1/1/2033	12	452,086	54,358
1/1/2034	11	426,439	54,358
1/1/2035	10	399,061	54,358
1/1/2036	9	369,835	54,358
1/1/2037	8	338,637	54,358
1/1/2038	7	305,332	54,358
1/1/2039	6	269,780	54,358
1/1/2040	5	231,827	54,358
1/1/2041	4	191,313	54,358
1/1/2042	3	148,064	54,358
1/1/2043	2	101,896	54,358
1/1/2044	1	52,611	54,358
1/1/2045	0	0	0

* Beginning with the January 1, 2022 valuation, the amortization period for all incremental bases was reduced to a 25-year period from the original effective date.

Schedule H – Amortization of UAL

AMORTIZATION OF 2021 INCREMENTAL UAL*

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2021	Annual Amortization Payment
1/1/2021	30	($8,348,445)	($634,878)
1/1/2022	24	(8,256,009)	(681,485)
1/1/2023	23	(8,109,180)	(681,485)
1/1/2024	**22**	**(7,952,441)**	**(681,485)**
1/1/2025	21	(7,785,121)	(681,485)
1/1/2026	20	(7,606,508)	(681,485)
1/1/2027	19	(7,415,838)	(681,485)
1/1/2028	18	(7,212,297)	(681,485)
1/1/2029	17	(6,995,018)	(681,485)
1/1/2030	16	(6,763,073)	(681,485)
1/1/2031	15	(6,515,471)	(681,485)
1/1/2032	14	(6,251,156)	(681,485)
1/1/2033	13	(5,969,000)	(681,485)
1/1/2034	12	(5,667,798)	(681,485)
1/1/2035	11	(5,346,265)	(681,485)
1/1/2036	10	(5,003,028)	(681,485)
1/1/2037	9	(4,636,624)	(681,485)
1/1/2038	8	(4,245,486)	(681,485)
1/1/2039	7	(3,827,947)	(681,485)
1/1/2040	6	(3,382,225)	(681,485)
1/1/2041	5	(2,906,415)	(681,485)
1/1/2042	4	(2,398,489)	(681,485)
1/1/2043	3	(1,856,278)	(681,485)
1/1/2044	2	(1,277,467)	(681,485)
1/1/2045	1	(659,587)	(681,485)
1/1/2046	0	0	0

* Beginning with the January 1, 2022 valuation, the amortization period for all incremental bases was reduced to a 25-year period from the original effective date.

Schedule H – Amortization of UAL

AMORTIZATION OF 2022 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2022	Annual Amortization Payment
1/1/2022	25	($10,243,074)	($831,650)
1/1/2023	24	(10,075,221)	(831,650)
1/1/2024	**23**	**(9,896,039)**	**(831,650)**
1/1/2025	22	(9,704,762)	(831,650)
1/1/2026	21	(9,500,573)	(831,650)
1/1/2027	20	(9,282,602)	(831,650)
1/1/2028	19	(9,049,918)	(831,650)
1/1/2029	18	(8,801,528)	(831,650)
1/1/2030	17	(8,536,371)	(831,650)
1/1/2031	16	(8,253,316)	(831,650)
1/1/2032	15	(7,951,155)	(831,650)
1/1/2033	14	(7,628,599)	(831,650)
1/1/2034	13	(7,284,269)	(831,650)
1/1/2035	12	(6,916,697)	(831,650)
1/1/2036	11	(6,524,315)	(831,650)
1/1/2037	10	(6,105,446)	(831,650)
1/1/2038	9	(5,658,304)	(831,650)
1/1/2039	8	(5,180,980)	(831,650)
1/1/2040	7	(4,671,436)	(831,650)
1/1/2041	6	(4,127,498)	(831,650)
1/1/2042	5	(3,546,844)	(831,650)
1/1/2043	4	(2,926,996)	(831,650)
1/1/2044	3	(2,265,309)	(831,650)
1/1/2045	2	(1,558,957)	(831,650)
1/1/2046	1	(804,927)	(831,650)
1/1/2047	0	0	0

Schedule H – Amortization of UAL

AMORTIZATION OF 2023 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2023	Annual Amortization Payment
1/1/2023	25	$12,489,662	$1,014,054
1/1/2024	**24**	**$12,284,995**	**$1,014,054**
1/1/2025	23	$12,066,513	$1,014,054
1/1/2026	22	$11,833,284	$1,014,054
1/1/2027	21	$11,584,311	$1,014,054
1/1/2028	20	$11,318,533	$1,014,054
1/1/2029	19	$11,034,815	$1,014,054
1/1/2030	18	$10,731,946	$1,014,054
1/1/2031	17	$10,408,633	$1,014,054
1/1/2032	16	$10,063,496	$1,014,054
1/1/2033	15	$9,695,063	$1,014,054
1/1/2034	14	$9,301,761	$1,014,054
1/1/2035	13	$8,881,910	$1,014,054
1/1/2036	12	$8,433,720	$1,014,054
1/1/2037	11	$7,955,277	$1,014,054
1/1/2038	10	$7,444,539	$1,014,054
1/1/2039	9	$6,899,326	$1,014,054
1/1/2040	8	$6,317,311	$1,014,054
1/1/2041	7	$5,696,011	$1,014,054
1/1/2042	6	$5,032,772	$1,014,054
1/1/2043	5	$4,324,765	$1,014,054
1/1/2044	4	$3,568,968	$1,014,054
1/1/2045	3	$2,762,154	$1,014,054
1/1/2046	2	$1,900,880	$1,014,054
1/1/2047	1	$981,470	$1,014,054
1/1/2048	0	$0	$0

Schedule H – Amortization of UAL

AMORTIZATION OF 2024 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2024	Annual Amortization Payment
1/1/2024	**25**	**$5,570,815**	**$452,303**
1/1/2025	24	$5,479,527	$452,303
1/1/2026	23	$5,382,076	$452,303
1/1/2027	22	$5,278,048	$452,303
1/1/2028	21	$5,166,998	$452,303
1/1/2029	20	$5,048,452	$452,303
1/1/2030	19	$4,921,904	$452,303
1/1/2031	18	$4,786,814	$452,303
1/1/2032	17	$4,642,605	$452,303
1/1/2033	16	$4,488,662	$452,303
1/1/2034	15	$4,324,329	$452,303
1/1/2035	14	$4,148,902	$452,303
1/1/2036	13	$3,961,635	$452,303
1/1/2037	12	$3,761,727	$452,303
1/1/2038	11	$3,548,325	$452,303
1/1/2039	10	$3,320,518	$452,303
1/1/2040	9	$3,077,335	$452,303
1/1/2041	8	$2,817,736	$452,303
1/1/2042	7	$2,540,615	$452,303
1/1/2043	6	$2,244,788	$452,303
1/1/2044	5	$1,928,993	$452,303
1/1/2045	4	$1,591,881	$452,303
1/1/2046	3	$1,232,015	$452,303
1/1/2047	2	$847,857	$452,303
1/1/2048	1	$437,769	$452,303
1/1/2049	0	$0	$0

Schedule I – Summary of Main Provisions of the Plan as Interpreted for Valuation Purposes

The following summary gives the main participation, benefit and contribution provisions of the Plan as interpreted in preparing the actuarial valuation. "Average compensation" means the average of the Participant's highest paid three full calendar years of service or, if less than three years of Credited Service have been completed, the average is calculated using the number of years and months actually completed. "Credited Service" is the length of time a person participated in the Plan or any former plan prior to the date as of which Credited Service is being determined, expressed in years and completed calendar months. Appointed and elected charter officials (Mayor, City Council and City Judge) earn Credited Service for the Plan in the amount of 1.5 years for each single year they are employed by the City.

PARTICIPATION

Employees of the City of Chattanooga, including elected officials, join the Plan on the date they become a permanent employee with the following exceptions: seasonal and temporary employees; firefighters and police officers; and persons rendering a service under contract. Each employee hired after February 1, 1979 shall be a participant of the Plan as a condition of employment. Each such employee's participation shall commence with the first payroll period.

BENEFITS

Normal Retirement

Condition for Retirement	Age 62 or upon satisfying the Rule of 80.
Amount of Benefit	Calculated using one of the following formulas: 1) 2% of Average Compensation multiplied by the number of full years of Credited Service (up to 20 years), plus 1% of Average Compensation multiplied by each additional full year of Credited Service beyond 20 years; or

1) 60% of Average Compensation, less 50% of the primary Social Security amount payable at age 62 (PIA), plus 1% of Average Compensation for each full year in excess of 25, multiplied by a fraction, the numerator or which is equal to Credited Service not in excess of 25, and the denominator of which is equal to 25.

Formula 2 only applies to employees hired prior to January 1, 1985. Participants with 10 or more years of Credited Service on December 31, 1994 will receive the larger benefit from Formula 1 or Formula 2. All other participants will have their benefits calculated using Formula 1.

Early Retirement

Condition for Retirement	Age 55 with 5 years of Credited Service
Amount of Benefit	The early retirement benefit is computed in the manner set forth above for the normal retirement benefit, and payable on the Participant's normal retirement date. Subject to written approval by the Board, an immediate benefit shall be payable, the amount of which shall be the amount of the normal retirement benefit reduced by 5/24 of 1% for each full month the early retirement date precedes the Participant's 62nd birthday.

Disability Retirement

Condition for Retirement	Any participant who becomes disabled in the line of duty regardless of the number of years of service or not in the line of duty after five years of service
Amount of Benefit	60% of earnings is paid by the insurance company until age 62. Upon attainment of age 62, the employee becomes entitled to his regular pension as defined under normal retirement above, with full credit for the years of service during which he was disabled if totally disabled in the line of duty. The pension fund shares the cost of the insurance premium with the City, so that the fund's cost is approximately $12,000 per month.

Schedule I – Summary of Main Provisions of the Plan as Interpreted for Valuation Purposes

Pre-Retirement Death (Refund of Contributions)

Condition for Benefit	Any participant who dies before completing 5 years of service and before attaining age 62.
Amount of Benefit	The beneficiary shall receive a refund of the deceased participant's contributions to the Plan, without interest.

Pre-Retirement Death Benefit (Monthly Benefit)

Condition for Benefit	Any participant who dies after completing 5 years of service or after attaining age 62.
Amount of Benefit	Upon the death of the participant, any option he may have elected shall be payable as though he had been entitled to have such benefit commence on his date of death. If the participant has not elected any option prior to his death, a benefit shall be payable to his surviving spouse as a ten-year certain annuity. If death occurs in the line of duty, the participant's benefit shall be calculated using 25 years of Credited Service if the participant had less than 25 years of Credited Service at the time of his death.

Termination

Condition for Benefit	Upon termination of service for reasons other than death, before meeting the eligibility requirements for any other benefit.
Amount of Benefit	The participant will receive a refund of his contributions, without interest. However, if the participant has completed at least 5 years of Credited Service, he will receive interest on his contributions at the rate of 6.00% per annum.

Optional Benefits	The normal form of payment for retirement is a straight life annuity that pays the monthly benefit to the participant until his death. The beneficiary received no payment after the participant's death under this method. However, a participant may elect to have his retirement benefit converted to a benefit of equivalent actuarial value in accordance with one of the optional forms below.

Option A – 120 Payments and Life Certain

A reduced benefit payable for life to the retired participant, with the first 120 payments (10 years) guaranteed. Any guaranteed payments due after the death of the participant are paid to the designated surviving beneficiary.

Option B – Joint and Survivor

A reduced benefit payable for life to the retired participant. If the participant dies, a surviving beneficiary will continue to receive the identical benefit. All benefits end when both the participant and the beneficiary are deceased.

Option C – Modified Joint and Survivor

A reduced benefit payable for life to the retired participant. If the participant dies, a surviving beneficiary will continue to receive 50% of the retiree's benefit. All benefits end when both the participant and the beneficiary are deceased.

Option D – Modification of Option B (Pop-up)

A reduced benefit payable for life to the retired participant. If the participant dies before the beneficiary, a surviving beneficiary will continue to receive the identical benefit. If the beneficiary dies before the participant, the benefit will be increased to the full benefit payment as if the participant had elected the normal form.

Option E – Modification of Option C (Pop-up)

A reduced benefit payable for life to the retired participant. If the participant dies before the beneficiary, a surviving beneficiary will continue to receive 50% of the retiree's benefit. If the beneficiary dies before the participant, the benefit will be increased to the full benefit payment as if the participant had elected the normal form.

Schedule I – Summary of Main Provisions of the Plan as Interpreted for Valuation Purposes

Deferred Retirement Option Provision (DROP)	
	The DROP offers a participant the option of receiving a portion of his total benefit as a lump-sum cash payment at the time he retires. When a participant elects the DROP, his monthly benefit payments are reduced. The DROP payment is paid as a lump sum during the first month of retirement. The amount of the lump sum is dependent upon the participant's total Credited Service. The participant must have 26 years of Credited Service to be eligible for a one-year DROP payment, 27 years for a two-year DROP payment and at least 28 years for a three-year DROP payment.
Post Retirement Adjustments	An annual cost-of-living adjustment will be made to amounts paid to or on account of a retired participant each January 1. The adjustment shall be equal to 3%.

CONTRIBUTIONS

By Participants	Each participant contributes 2% of compensation.
By The City	The City contribution rate is determined on the basis of an actuarial review and analysis of the Plan made as of December 31 of the preceding Plan year.

Schedule J – Tables of Participant Data

TABLE 1

STATUS RECONCILIATION OF PARTICIPANTS

	Active	Vested Terminated	LTD	Disabled	Retired	Beneficiaries	Total
Participants as of 1/1/2023	1,439	154	10	49	1,075	218	2,945
A. Receiving Benefits	(57)	(6)			63		-
B. LTD							-
C. Terminated Vested	(26)	26					-
D. Terminated Non-Vested	(7)						(7)
E. Deaths	(2)			(4)	(42)	(9)	(57)
F. Refunds	(120)		(1)				(121)
G. New Participants	230					21	251
H. Rehires	26	(3)					23
I. Certain Period Expired						(7)	(7)
J. Data Corrections		14	3		3		20
Participants as of 1/1/2024	1,483	185	12	45	1,099	223	3,047

Schedule J – Tables of Participant Data

TABLE 2

AGE – SERVICE TABLE

Distribution of Active Participants as of January 1, 2024 by Age and Service Groups

Attained Age	Completed Years of Service									Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Over	No.	Payroll
Under 25	21	18	1							40	$ 1,792,794
25 to 29	32	72	12							116	5,629,212
30 to 34	40	52	33	6						131	7,052,656
35 to 39	37	55	39	7	3					141	7,335,040
40 to 44	27	60	36	17	13	3				156	9,571,530
45 to 49	20	48	42	13	14	17	8			162	9,671,967
50 to 54	20	56	44	25	25	23	18	12		223	12,654,311
55 to 59	19	46	40	24	24	21	15	18	1	208	11,924,531
60 to 61	7	19	16	12	8	8	11	11	3	95	5,266,056
62 to 64	3	16	20	21	13	8	10	4	8	103	5,954,668
65 to 69	3	6	18	11	11	6	6	9	7	77	4,658,569
70 & Over	1	2	3	2	3	8	3	4	5	31	1,725,198
Total Count	230	450	304	138	114	94	71	58	24	1,483	$ 83,236,532

Average Age	48.22
Average Service	9.44

Schedule J – Tables of Participant Data

TABLE 3

NUMBER OF RETIRED PARTICIPANTS AND THEIR BENEFITS BY AGE

SERVICE RETIREMENTS

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
Under 50	0	$ 0	$ 0
50 – 54	3	55,427	18,476
55 – 59	86	1,478,578	17,193
60 – 64	147	2,681,833	18,244
65 – 69	248	4,776,350	19,260
70 – 74	275	6,048,050	21,993
75 – 79	181	3,917,236	21,642
80 – 84	88	1,942,265	22,071
85 – 89	46	1,246,287	27,093
90 and Over	25	461,891	18,476
Total	1,099	$ 22,607,917	$ 20,571

TABLE 4

NUMBER OF RETIRED PARTICIPANTS AND THEIR BENEFITS BY AGE

DISABILITY RETIREMENTS

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
Under 50	2	$ 36,320	$ 18,160
50 – 54	5	128,493	25,699
55 – 59	6	64,598	10,766
60 – 64	11	162,924	14,811
65 – 69	13	138,749	10,673
70 – 74	10	97,207	9,721
75 and Over	10	117,094	11,709
Total	57	$ 745,385	$ 13,077

Schedule J – Tables of Participant Data

TABLE 5

NUMBER OF RETIRED PARTICIPANTS AND THEIR BENEFITS BY AGE

BENEFICIARIES OF DECEASED PARTICIPANTS

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
Under 50	29	$ 238,803	$ 8,235
50 – 54	5	75,662	15,132
55 – 59	12	104,591	8,716
60 – 64	18	281,857	15,659
65 – 69	32	432,270	13,508
70 – 74	26	459,807	17,685
75 – 79	38	795,692	20,939
80 – 84	38	587,839	15,469
85 and Over	25	459,094	18,364
Total	223	$ 3,435,615	$ 15,406

TABLE 6

NUMBER OF DEFERRED FORMER PARTICIPANTS AND THEIR BENEFITS BY AGE

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
40 and Under	33	$ 207,037	$ 6,274
41 – 45	38	263,932	6,946
46 – 50	38	411,620	10,832
51 – 55	47	424,819	9,039
56 – 60	19	177,308	9,332
Over 60	10	59,258	5,926
Total	185	$ 1,543,974	$ 8,346

Schedule K – Analysis of Financial Experience

Gains & Losses in Accrued Liabilities
Resulting from Difference Between
Assumed Experience & Actual Experience
($ Thousands)

Type of Activity	$ Gain (or Loss) For Year Ending 1/1/2024	$ Gain (or Loss) For Year Ending 1/1/2023
Age & Service Retirements. If members retire at older ages, there is a gain. If younger ages, a loss.	$ 499.3	$ 171.3
Disability Retirements. If disability claims are less than assumed, there is a gain. If more claims, a loss.	4.8	(51.5)
Death-in-Service Benefits. If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	(117.4)	50.6
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	1,526.0	640.8
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	6,541.0	(12,059.2)
Investment Income. If there is a greater investment income than assumed, there is a gain. If less income, a loss.	(1,347.3)	(2,436.8)
Death After Retirement. If retirants live longer than assumed, there is a loss. If not as long, a gain.	(685.1)	(170.7)
Other. Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc.	(343.2)	(394.6)
Gain (or Loss) During Year From Experience	$ 6,078.1	$ (14,250.1)
Non-Recurring Items. Adjustments for plan amendments, assumption changes, or method changes.	(11,699.1)	0.0
Composite Gain (or Loss) During Year	$ (5,621.0)	$ (14,250.1)