Addenda Number 1

Chattanooga Area Regional Transportation Authority

Request for Proposals to Provide Actuary Services

Please see the responses below to questions from a potential proposer.

1. **How long has the current actuary been providing actuarial services to CARTA?**

   -The current actuary been providing actuarial services to Carta from 04/2015 through current.

2. **Is the current actuarial service provider permitted to submit a proposal? If not, why not (e.g., service quality, fees, other)?**

   - Yes, the current actuarial service provider is permitted to submit a proposal.

3. **Can you please provide copies of the last two actuarial funding valuation reports for both the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union and the Chattanooga Area Regional Transportation Authority Defined Benefit Plan?**

   - Please see attached.

4. **Can you please provide the last two GASB 67/68 valuation reports for the same plans?**

   - Please, see attached.

5. **Can you please provide the last two GASB 74/75 reports for the other post-employment benefits plan?**

   - Please, see attached.

6. **Can you please provide Summary Plan Descriptions for the two pension plans and the OPEB plan (or similar documentation that provides an overview of the general plan provisions for each plan)?**

   - Please, see attached.

7. **What are the annual actuarial fees CARTA paid for during each of the previous three years for each pension plan and the OPEB plan?**

- The annual actuarial fees Carta paid for during each of the previous three years for each pension plan and the OPEB plan is $14,500 annually plus $9,500 one-time fee for the study.

   a. **Can you split the fees between annual valuation work and special projects?**

- Please, see above.

   b. **If so, please provide a description of any special projects**.

- Please, see above.

8. **How does CARTA administer the pension plan benefits? Does CARTA staff prepare calculations for terminating and retiring participants, or does the plan actuary prepare this paperwork?**

   - CARTA Staff prepares calculations for terminating and retiring participants.

9. Does CARTA have an online portal for pension participants so that they can prepare estimates of their pension benefits at various termination and commencement dates under various salary increase assumptions? If not, would CARTA have an interest in learning about a pension portal?

   - CATRA does not have an online portal for pension participants and Carta does not have an interest in learning about a pension portal.

February 11, 2025

Jana Bucharova

Cavanaugh Macdonald
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CARTA

GASB STATEMENT NO. 67 REPORT

FOR THE

DISABILITY AND RETIREMENT PLAN

OF THE CHATTANOOGA AREA

REGIONAL TRANSPORTATION AUTHORITY

AND LOCAL 1212 OF THE

AMALGAMATED TRANSIT UNION

PREPARED AS OF DECEMBER 31, 2022

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CONSULTING, LLC
The experience and dedication you deserve

August 16, 2023

Pension Board of Trustees
Chattanooga Area Regional Transportation Authority
617 Wilcox Boulevard
Chattanooga, TN 37406

Ladies and Gentlemen:

Presented in this report is information to assist the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union (the Plan), in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statements No. 67. This report has been prepared as of December 31, 2022 (the Measurement Date) to assist the Plan in better understanding the requirements of GASB 67 and to identify the information to be provided by the Plan's actuary, Cavanaugh Macdonald Consulting (CMC).

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of January 1, 2023. The valuation was based upon data, furnished by the Plan, concerning active, inactive and retired members along with pertinent financial information.

To the best of our knowledge, this report is complete and accurate. The necessary calculations were performed by, and under the supervision of, independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems.

The calculations were prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board, and, in our opinion, meet the requirements of GASB 67.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the Plan, and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the Plan. In addition, the calculations were completed in compliance with the laws governing the Plan. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com
Offices in Kennesaw, GA • Bellevue, NE

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.

These results are only for financial reporting and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 67 may produce significantly different results. Future actuarial results may differ significantly from the current results presented in this report due to such factors as changes in plan experience or changes in economic or demographic assumptions.

Respectfully submitted,

Edward J. Koebel

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

Jennifer Johnson

Jennifer Johnson
Senior Consultant

EJK:jj

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REQUIRED INFORMATION FOR THE
THE DISABILITY AND RETIREMENT PLAN
OF THE CHATTANOOGA AREA
REGIONAL TRANSPORTATION AUTHORITY
AND LOCAL 1212 OF THE AMALGAMATED TRANSIT UNION

PREPARED AS OF DECEMBER 31, 2022

SECTION I – INTRODUCTION

The Governmental Accounting Standards Board issued Statement No. 67 (GASB 67), *"Financial Reporting for Pension Plans"*, in June 2012. This report, prepared as of December 31, 2022 (the Measurement Date), presents information to assist the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union (the Plan), in meeting the requirements of GASB 67. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the Plan as of January 1, 2023. The results of that valuation were detailed in a report dated July 10, 2023.

GASB 67 requires a measurement of the Total Pension Liability (TPL) utilizing the Entry Age Normal actuarial funding method. The Net Pension Liability (NPL) is equal to the TPL minus the System's Fiduciary Net Position (FNP) (basically the market values of assets) as of the measurement date. The benefit provisions recognized in the calculation of the TPL are summarized in Appendix B.

Among the assumptions needed for the liability calculation is a Single Equivalent Interest Rate (SEIR). To determine the SEIR, the FNP must be projected into the future for as long as there are anticipated benefits payable under the plan's provisions applicable to the members and beneficiaries of the Plan on the Measurement Date. Future contributions were projected to be made in accordance with the Funding Policy adopted by the Board. If the FNP is not projected to be depleted at any point in the future, as the results currently indicate, the long term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR.

If, however, at a future measurement date, the FNP is projected to be depleted, the SEIR is determined as the single rate that will generate a present value of benefit payments equal to the sum of the present value determined by discounting all projected benefit payments through the date of depletion by the long term expected rate of return, and the present value determined by discounting those benefits after the date of depletion by a 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate. The rate used, if necessary, for this purpose is the December average of the Bond Buyer General Obligation 20-year Municipal Bond Index published weekly by the Board of Governors of the Federal Reserve System.We have determined that a discount rate of 7.00 percent meets the requirements of GASB 67.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 67 for note disclosure and Required Supplementary Information (RSI).

SECTION II – FINANCIAL STATEMENT NOTES

The material presented herein will follow the order presented in GASB 67. Paragraph numbers are provided for ease of reference.

Paragraphs 30.a. (1)-(3): This information will be supplied by the Plan.

Paragraph 30.a. (4): The data required regarding the membership of the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union were furnished by the Plan. The following table summarizes the membership of the Plan as of January 1, 2023, the Valuation Date.

Membership

	Number
Retired participants and beneficiaries currently receiving benefits	120
Terminated participants and beneficiaries entitled to benefits but not yet receiving benefits	9
Active participants	178
Total	307

Paragraphs 30.a. (5)-(6) and Paragraphs 30.b.-f.: This information will be supplied by the Plan.

Paragraph 31.a. (1)-(4): As stated earlier, the NPL is equal to the TPL minus the FNP. That result as of December 31, 2022 is presented in the following table.

	Fiscal Year Ending December 31, 2022
Total Pension Liability	$34,915,648
Fiduciary Net Position	18,909,950
Net Pension Liability	$16,005,698
Ratio of Fiduciary Net Position to Total Pension Liability	54.16%

Paragraph 31.b.: This paragraph requires information regarding the actuarial assumptions used to measure the TPL. The set of actuarial assumptions utilized in developing the TPL are outlined in Appendix C. The total pension liability was determined based on an actuarial valuation as of January 1, 2023, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00 percent
Salary increases	3.50 percent, including inflation
Investment rate of return	7.00 percent, net of pension plan investment expense, and including inflation
Mortality	Both pre-retirement and post-retirement mortality rates were based on the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

The actuarial assumptions used in the January 1, 2023 valuation were based on the results of the last actuarial experience analysis performed by the prior actuary in conjunction with the January 1, 2015 valuation. However, the Pension Board voted to lower the investment return assumption from 7.50% to 7.00% at its April 12, 2022 meeting to ensure that the CARTA assumption was within 50 basis points of the assumption used by the Tennessee Consolidated Retirement System (TCRS), which used 6.75% as of their most recent valuation.

Paragraph 31.b.(1)

(a) **Discount rate**. The discount rate used to measure the total pension liability was 7.00 percent.

(b) **Projected cash flows:** The projection of cash flows used to determine the discount rate assumed that plan members contribute 4.50 percent of pay and that the Board of Trustees adopts the required employer contribution rate in accordance with the recommendation of the Plan's independent actuary based on the Plan's funding policy.

(c) **Long term rate of return:** The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

(d) **Municipal bond rate:** the discount rate determination does not use a municipal bond rate.

(e) **Periods of projected benefit payments:** Projected future benefit payments for all current plan members were projected through 2121.

(f) **Assumed asset allocation**: This information may need to come from the investment consultant.

(g) **Sensitivity analysis**: Disclosure of the sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability of the Plan, calculated using the discount rate of 7.00 percent, as well as what the Plan's net pension liability calculated using a discount rate that is 1-percentage-point lower (6.00 percent) or 1-percentage-point higher (8.00 percent) than the current rate:

	1% Decrease (6.00%)	Current Discount Rate (7.00%)	1% Increase (8.00%)
Plan's Net Pension Liability	$19,401,003	$16,005,698	$13,135,918

Paragraph 31.c.: The date of the actuarial valuation upon which the actual TPL is based is January 1, 2023. We have determined an expected TPL as of December 31, 2022 based on the TPL in the December 31, 2021 GASB 67 report. The difference between this amount and the actual TPL as of December 31, 2022 is reflected as an experience gain or loss for the year. These procedures are shown in the following table:

TPL Roll- Forward	
(a) TPL as of December 31, 2021	$33,476,988
(b) Entry Age Normal Cost for the period January 1, 2022 – December 31, 2022	1,217,910
(c) Actual Benefit Payments and Refunds for January 1, 2022 – December 31, 2022	1,769,394
(d) Expected TPL as of December 31, 2022 = [(a) x (1.07)] + (b) – [(c) x (1.035)]	$35,206,964
(e) Actual TPL as of December 31, 2022	$34,915,648
(f) Experience (Gain)/Loss = (e) - (d)	($291,316)

SECTION III - REQUIRED SUPPLEMENTARY INFORMATION

There are several tables of Required Supplementary Information (RSI) that need to be included in the Plan's financial statements:

Paragraphs 32.a.-c.: The required tables of schedules are provided in Appendix A.

Paragraph 32.d.: The money-weighted rates of return will be supplied by the Plan's investment consultant.

Paragraph 34: The following information should be noted regarding the RSI:

> ***Changes of benefit terms:*** Effective July 1, 2017, the employee contribution rate has been changed from 4.00% to 4.25% of compensation. Effective July 1, 2018, the employee contribution rate has been changed from 4.25% to 4.50% of compensation.
>
> ***Changes in actuarial assumptions and methods:*** Effective January 1, 2022, the investment rate of return was lowered from 7.50% to 7.00%.

Method and assumptions used in calculations of actuarially determined contributions.

The actuarially determined contribution rates in the schedule of employer contributions are calculated as of the December 31, twelve months prior to the fiscal year end in which contributions are reported (January 1, 2021 valuation for the December 31, 2022 fiscal year). The following actuarial methods and assumptions were used to determine actuarial contribution rates reported in that schedule:

Actuarial cost method	Entry age
Amortization method	Level dollar, closed
Remaining amortization period	25.2 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
Inflation	3.00 percent
Salary increase	3.50 percent, including inflation
Investment rate of return	7.50 percent, net of pension plan investment expense, and including inflation

APPENDIX A

REQUIRED SUPPLEMENTARY INFORMATION TABLES

(EXHIBIT A AND B FOLLOW)

Exhibit A

GASB 67 Paragraph 32.a.

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY

	2014*	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability										
Service Cost	$640,413	$781,830	$825,353	$876,699	$897,515	$897,913	$1,031,265	$1,024,251	$1,217,910	
Interest	1,702,982	1,685,711	1,793,901	1,889,138	1,998,546	2,037,895	2,088,343	2,215,237	2,281,460	
Benefit changes	0	0	1,613	0	0	0	0	0	0	
Difference between expected and actual experience	599,063	427,251	119,241	315,281	(530,294)	(230,162)	635,477	(87,820)	(291,316)	
Changes of assumptions	0	0	0	0	0	0	0	1,732,793	0	
Benefit payments	(1,863,839)	(1,354,069)	(1,550,446)	(1,390,100)	(1,854,598)	(1,827,627)	(2,238,379)	(1,887,946)	(1,769,394)	
Refunds of contributions	0	0	0	0	0	0	0	0	0	
Net change in total pension liability	$1,078,619	$1,540,723	$1,189,662	$1,691,018	$511,169	$878,019	$1,516,706	$2,996,515	$1,438,660	
Total pension liability - beginning	$22,074,557	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$28,963,767	$30,480,473	$33,476,988	
Total pension liability - ending (a)	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$28,963,767	$30,480,473	$33,476,988	$34,915,648	
Plan net position										
Contributions - employer	$948,691	$1,151,775	$1,209,166	$1,481,647	$1,639,268	$1,799,928	$1,746,168	$1,474,491	$1,847,680	
Contributions - member	285,125	301,249	$316,547	$342,803	$403,345	$303,884	$461,933	$388,882	$470,554	
Net investment income	689,053	(234,245)	$717,533	$1,741,636	($997,225)	$2,924,506	$2,030,848	$2,930,169	($3,497,711)	
Benefit payments	(1,863,839)	(1,354,069)	($1,550,446)	($1,390,100)	($1,854,598)	($1,827,627)	($2,238,379)	($1,887,946)	($1,769,394)	
Administrative expense	(91,581)	(104,038)	($25,581)	($86)	($24,333)	($58,591)	($54,703)	($79,324)	($89,492)	
Refunds of contributions	0	0	0	0	0	0	0	0	0	
Other	0	0	0	0	0	0	0	0	0	
Net change in plan net position	($32,551)	($239,328)	$667,219	$2,175,900	($833,543)	$3,142,100	$1,945,867	$2,826,272	($3,038,363)	
Plan net position - beginning	$12,296,377	$12,263,826	$12,024,498	$12,691,717	$14,867,617	$14,034,074	$17,176,174	$19,122,041	$21,948,313	
Plan net position - ending (b)	$12,263,826	$12,024,498	$12,691,717	$14,867,617	$14,034,074	$17,176,174	$19,122,041	$21,948,313	$18,909,950	
Net pension liability - ending (a) - (b)	$10,889,350	$12,669,401	$13,191,844	$12,706,962	$14,051,674	$11,787,593	$11,358,432	$11,528,675	$16,005,698	

* As reported by prior actuary.

Exhibit A (Continued)
GASB 67 Paragraph 32.b.

SCHEDULE OF THE NET PENSION LIABILITY

	2014*	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$29,841,786	$30,480,473	$33,476,988	$34,915,648	
Plan net position	12,263,826	12,024,498	12,691,717	14,867,617	14,034,074	20,318,274	19,122,041	21,948,313	18,909,950	
Net pension liability	$10,889,350	$12,669,401	$13,191,844	$12,706,962	$14,051,674	$9,523,512	$11,358,432	$11,528,675	$16,005,698	
Ratio of plan net position to total pension liability	52.97%	48.69%	49.03%	53.92%	49.97%	68.09%	62.74%	65.56%	54.16%	
Covered payroll	$7,460,259	$8,249,619	8,721,617	9,407,872	9,537,829	9,513,855	10,609,212	10,647,609	11,067,543	
Net pension liability as a percentage of covered payroll	145.96%	153.58%	151.25%	135.07%	147.33%	100.10%	107.06%	108.27%	144.62%	

*As reported by prior actuary.

Exhibit B

GASB 67 Paragraph 32.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	$1,597,649	$1,497,359	$1,503,274	$1,497,141	$1,435,535	$1,379,283	$1,309,734	1,231,247	1,231,247			
Actual employer contributions	1,847,680	1,474,491	1,746,168	1,799,928	1,639,268	1,481,647	1,209,166	1,147,202	948,691			
Annual contribution deficiency/(excess)	($250,031)	$22,868	($242,894)	($302,787)	($203,733)	($102,364)	$100,568	84,045	282,556			
Covered payroll	$11,067,543	$10,647,609	$10,609,212	$9,513,855	$9,537,829	$9,407,872	$8,721,617	8,249,619	7,460,259			
Actual contributions as a percentage of covered payroll	16.69%	13.85%	16.46%	18.92%	17.19%	15.75%	13.86%	13.91%	12.72%			

APPENDIX B

SUMMARY OF MAIN BENEFIT PROVISIONS

The following summary gives the main participation, benefit and contribution provisions of the Plan as interpreted in preparing the actuarial valuation. “Monthly Average Earnings” 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. “Service” is the length of time a person participated in the Plan or any former plan prior to the date as of which Service is being determined, expressed in years and completed calendar months.

Effective Date	September 1, 1945 (Southern Coach) August, 1 1989 (CARTA only)
Date last Amended	Through December 2013 as reflective in collective bargaining agreement dated August 1, 2012
Eligibility to Participate	After 60 days of service with CARTA

CONTRIBUTIONS

Employee	2.00% of Earnings $195 monthly max 3.00% of Earnings effective September 1, 2007 3.50% of Earnings effective September 1, 2008 4.00% of Earnings effective August 1, 2012 4.25% of Earnings effective July 1, 2017 4.50% of Earnings effective July 1, 2018 Effective September 1, 2008 – employee contribution will earn 4.5%
Employer	7% of Earnings effective July 1, 2003 and $195 monthly max 9% of Earnings effective September 1, 2007 10.5% of Earnings effective September 1, 2008 11.75% of Earnings effective August 1, 2012 12.6% of Earnings effective July 1, 2013 ADEC based on Funding Policy effective January 1, 2015

NORMAL RETIREMENT

Eligibility

Earlier of:
1) Age 65 and 5 years of service
2) Age when sum of service and age first equals or exceeds 85 (Rule of 85).

Benefit

For employees hired before October 1, 2012:
Greater of (a) or (b)

a) 2% of three-year monthly average earnings multiplied by service

b) if more than 20 years of service, accrual rate is 2.15% for all service

For employees hired after September 30, 2012:

2% of three-year monthly average earnings multiplied by service and minimum monthly benefit of $115.00.

For all employees, the maximum monthly benefit is 50% of three-year monthly average earnings.

EARLY RETIREMENT

Eligibility

Age 55 and 15 years of service.

Benefit

Accrued normal retirement benefit deferred to age 65 of immediate benefit equal to deferred benefit multiplied by the applicable percentage as follows:

Retirement Age	Early Retirement Percentage
55	50.0%
56	53.3
57	56.7
58	60.0
59	63.3
60	66.7
61	73.3
62	80.0
63	86.7
64	93.3

DEFERRED VESTED RETIREMENT

Eligibility	5 years of service.
Benefit	Accrued benefit deferred to age 65, or, if at least 15 years of service, reduced benefit at age 55. Reduction same as for early retirement.

DISABILITY RETIREMENT

Eligibility	Disability occurring after ten years of service but prior to age 65.
Benefit	Accrued Normal Retirement Benefit reduced according to the following:

Years of Service	Percentage of Accrued Normal Retirement Benefit
10 but less than 15	50%
15 but less than 20	75%
20 but less than 25	90%
25 but less than 30	95%
At least 30	100%

SPOUSE'S BENEFIT

Eligibility	Death while employed.
Benefit	
Non-vested	Return of employee contributions (without interest)
Vested but Prior to Eligibility for Early or Normal Retirement	Accrued benefit payable under a 50% joint and survivor option, deferred to the earliest date the member would have been eligible for a normal retirement benefit. If the member had at least 15 years of service at death, assumed deferred to age 55 and payable at 50% joint and survivor early retirement benefit.
Eligible for Early or Normal Retirement	Benefit employee would have received had he retired on the date of death under the 50% joint and survivor option.

OTHER BENEFITS ON SEPARATION FROM SERVICE

Prior to Eligibility for a Retirement Benefit	Return of employee contributions with interest credited after September 1, 2008.

FORM OF BENEFITS

Normal Form	Life annuity with guarantee of return of employee contributions.
Optional Forms	(a) Reduced benefit payable for life but with payments guaranteed for 10 years.
	(b) Reduced benefit during retiree's life with 50% or 100% of reduced amount payable to spouse after death.

DEFFERED RETIREMENT OPTION PLAN (DROP)

Eligibility	Rule of 85.
Benefit	Monthly Accrued Retirement Benefit payable into separate account in Plan while member is still working.
Duration	For Employees hired before October 1, 2012: 60 months, after which member formally retires and regular monthly benefit commences.
	For Employees hired after September 30, 2012: 48 months, after which member formally retires and regular monthly benefit commences.
Investment return on DROP account	4.5%

APPENDIX C

STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions used in this valuation were developed by the previous actuary. However, the Pension Board adopted the investment return assumption of 7.00% at its meeting on April 12, 2022 to be used for this valuation and all others in the future.

INVESTMENT RATE OF RETURN: 7.00% per annum, compounded annually, net of investment expenses.

CONTRIBUTION EARNINGS RATE: 2.5% 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. Effective September 1, 2008, 4.5% 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: 3.50% per annum, compounded annually.

SEPARATIONS FROM ACTIVE SERVICE: Mortality rates are according to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. Representative values of the assumed annual rates of disability, withdrawal and service retirement are as follows:

	Annual Rate of			
			Retirement	
Age	**Disability**	**Withdrawal**	**Reduced**	**Unreduced**
20		17.13%		
25		14.62		
30	0.09%	7.80		
35	0.11	5.73		
40	0.17	4.71		
45	0.30	3.29		
50	0.50	2.11		4.0%
55	0.88	1.06	1.20%	5.0
60	1.56	0.40	1.82	10.0
61	1.71		2.46	100.0
62	1.88		3.12	100.0
63	2.05		3.96	100.0
64	2.25		4.94	100.0
65				100.0

DEATHS AFTER RETIREMENT: According to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014, for service retirements and beneficiaries of retired participants. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

PERCENT MARRIED: 100% of all participants are assumed to be married, with husbands three years older than their wives.

ACTUARIAL COST METHOD: Entry age normal.

ASSET VALUATION METHOD: Market Value.

Report on the GASB Statement No. 67 of the Disability and Retirement Plan of the

Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union

Prepared as of December 31, 2023

August 21, 2024

Pension Board of Trustees
Chattanooga Area Regional Transportation Authority
617 Wilcox Boulevard
Chattanooga, TN 37406

Ladies and Gentlemen:

Presented in this report is information to assist the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union (the Plan), in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statements No. 67. This report has been prepared as of December 31, 2023 (the Measurement Date) to assist the Plan in better understanding the requirements of GASB 67 and to identify the information to be provided by the Plan's actuary, CavMac.

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of January 1, 2024. The valuation was based upon data, furnished by the Plan, concerning active, inactive and retired members along with pertinent financial information.

To the best of our knowledge, this report is complete and accurate. The necessary calculations were performed by, and under the supervision of, independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems.

The calculations were prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board, and, in our opinion, meet the requirements of GASB 67.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the Plan, and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the Plan. In addition, the calculations were completed in compliance with the laws governing the Plan. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

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.

These results are only for financial reporting and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 67 may produce significantly different results. Future actuarial results may differ significantly from the current results presented in this report due to such factors as changes in plan experience or changes in economic or demographic assumptions.

Respectfully submitted,

Edward J. Koebel

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

Jennifer Johnson

Jennifer Johnson
Managing Director

EJK:dv

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REPORT OF THE ANNUAL GASB STATEMENT NO. 67
REQUIRED INFORMATION FOR THE
THE DISABILITY AND RETIREMENT PLAN
OF THE CHATTANOOGA AREA
REGIONAL TRANSPORTATION AUTHORITY
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PREPARED AS OF DECEMBER 31, 2023

The Governmental Accounting Standards Board issued Statement No. 67 (GASB 67), *"Financial Reporting for Pension Plans"*, in June 2012. This report, prepared as of December 31, 2023 (the Measurement Date), presents information to assist the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union (the Plan), in meeting the requirements of GASB 67. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the Plan as of January 1, 2024. The results of that valuation were detailed in a report dated July 9, 2024.

GASB 67 requires a measurement of the Total Pension Liability (TPL) utilizing the Entry Age Normal actuarial funding method. The Net Pension Liability (NPL) is equal to the TPL minus the System's Fiduciary Net Position (FNP) (basically the market values of assets) as of the measurement date. The benefit provisions recognized in the calculation of the TPL are summarized in Schedule B.

Among the assumptions needed for the liability calculation is a Single Equivalent Interest Rate (SEIR). To determine the SEIR, the FNP must be projected into the future for as long as there are anticipated benefits payable under the plan's provisions applicable to the members and beneficiaries of the Plan on the Measurement Date. Future contributions were projected to be made in accordance with the Funding Policy adopted by the Board. If the FNP is not projected to be depleted at any point in the future, as the results currently indicate, the long term expected rate of return on plan investments expected to be used to finance the benefit payments may be used as the SEIR.

If, however, at a future measurement date, the FNP is projected to be depleted, the SEIR is determined as the single rate that will generate a present value of benefit payments equal to the sum of the present value determined by discounting all projected benefit payments through the date of depletion by the long term expected rate of return, and the present value determined by discounting those benefits after the date of depletion by a 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate. The rate used, ifnecessary, for this purpose is the December average of the Bond Buyer General Obligation 20-year Municipal Bond Index published weekly by the Board of Governors of the Federal Reserve System.We have determined that a discount rate of 7.00 percent meets the requirements of GASB 67.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 67 for note disclosure and Required Supplementary Information (RSI).

The material presented herein will follow the order presented in GASB 67. Paragraph numbers are provided for ease of reference.

Paragraphs 30.a. (1)-(3): This information will be supplied by the Plan.

Paragraph 30.a. (4): The data required regarding the membership of the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union were furnished by the Plan. The following table summarizes the membership of the Plan as of January 1, 2024, the Valuation Date.

Membership

	Number
Retired participants and beneficiaries currently receiving benefits	120
Terminated participants and beneficiaries entitled to benefits but not yet receiving benefits	12
Active participants	167
Total	299

Paragraphs 30.a. (5)-(6) and Paragraphs 30.b.-f.: This information will be supplied by the Plan.

Paragraph 31.a. (1)-(4): As stated earlier, the NPL is equal to the TPL minus the FNP. That result as of December 31, 2023 is presented in the following table.

	Fiscal Year Ending December 31, 2023
Total Pension Liability	$35,830,802
Fiduciary Net Position	21,977,197
Net Pension Liability	$13,853,605
Ratio of Fiduciary Net Position to Total Pension Liability	61.34%

Paragraph 31.b.: This paragraph requires information regarding the actuarial assumptions used to measure the TPL. The set of actuarial assumptions utilized in developing the TPL are outlined in Appendix C. The total pension liability was determined based on an actuarial valuation as of January 1, 2024, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00 percent
Salary increases	3.50 percent, including inflation
Investment rate of return	7.00 percent, net of pension plan investment expense, and including inflation
Mortality	Both pre-retirement and post-retirement mortality rates were based on the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

The actuarial assumptions used in the January 1, 2024 valuation were based on the results of the last actuarial experience analysis performed by the prior actuary in conjunction with the January 1, 2015 valuation. However, the Pension Board voted to lower the investment return assumption from 7.50% to 7.00% at its April 12, 2022 meeting to ensure that the CARTA assumption was within 50 basis points of the assumption used by the Tennessee Consolidated Retirement System (TCRS), which used 6.75% as of their most recent valuation.

Paragraph 31.b.(1)

- **(a) Discount rate**. The discount rate used to measure the total pension liability was 7.00 percent.
- **(b) Projected cash flows:** The projection of cash flows used to determine the discount rate assumed that plan members contribute 4.50 percent of pay and that the Board of Trustees adopts the required employer contribution rate in accordance with the recommendation of the Plan's independent actuary based on the Plan's funding policy.
- **(c) Long term rate of return:** The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.
- **(d) Municipal bond rate:** the discount rate determination does not use a municipal bond rate.
- **(e) Periods of projected benefit payments:** Projected future benefit payments for all current plan members were projected through 2122.
- **(f) Assumed asset allocation**: This information may need to come from the investment consultant.

(g) Sensitivity analysis: Disclosure of the sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability of the Plan, calculated using the discount rate of 7.00 percent, as well as what the Plan's net pension liability calculated using a discount rate that is 1-percentage-point lower (6.00 percent) or 1-percentage-point higher (8.00 percent) than the current rate:

	1% Decrease (6%)	Current Discount Rate (7%)	1% Increase (8%)
Plan's Net Pension Liability	$17,326,236	$13,853,605	$10,904,172

Paragraph 31.c.: The date of the actuarial valuation upon which the actual TPL is based is January 1, 2024. We have determined an expected TPL as of December 31, 2023 based on the TPL in the December 31, 2022 GASB 67 report. The difference between this amount and the actual TPL as of December 31, 2023 is reflected as an experience gain or loss for the year. These procedures are shown in the following table:

TPL Roll- Forward	
(a) TPL as of December 31, 2022	$34,915,648
(b) Entry Age Normal Cost for the period January 1, 2023 – December 31, 2023	1,203,656
(c) Actual Benefit Payments and Refunds for January 1, 2023 – December 31, 2023	1,984,785
(d) Expected TPL as of December 31, 2023 = [(a) x (1.07)] + (b) – [(c) x (1.035)]	$36,509,147
(e) Actual TPL as of December 31, 2023	$35,830,802
(f) Experience (Gain)/Loss = (e) - (d)	($678,345)

SECTION III – REQUIRED SUPPLEMENTARY INFORMATION

There are several tables of Required Supplementary Information (RSI) that need to be included in the Plan's financial statements:

Paragraphs 32.a.-c.: The required tables of schedules are provided in Appendix A.

Paragraph 32.d.: The money-weighted rates of return will be supplied by the Plan's investment consultant.

Paragraph 34: The following information should be noted regarding the RSI:

> ***Changes of benefit terms:*** Effective July 1, 2017, the employee contribution rate has been changed from 4.00% to 4.25% of compensation. Effective July 1, 2018, the employee contribution rate has been changed from 4.25% to 4.50% of compensation.
>
> ***Changes in actuarial assumptions and methods:*** Effective January 1, 2022, the investment rate of return was lowered from 7.50% to 7.00%.

Method and assumptions used in calculations of actuarially determined contributions.

The actuarially determined contribution rates in the schedule of employer contributions are calculated as of the December 31, twelve months prior to the fiscal year end in which contributions are reported (January 1, 2022 valuation for the December 31, 2023 fiscal year). The following actuarial methods and assumptions were used to determine actuarial contribution rates reported in that schedule:

Actuarial cost method	Entry age
Amortization method	Level dollar, closed
Remaining amortization period	24.6 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
Inflation	3.00 percent
Salary increase	3.50 percent, including inflation
Investment rate of return	7.00 percent, net of pension plan investment expense, and including inflation

Exhibit A
GASB 67 Paragraph 32.a.
SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY

	2014*	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability										
Service Cost	$640,413	$781,830	$825,353	$876,699	$897,515	$897,913	$1,031,265	$1,024,251	$1,217,910	1,203,656
Interest	1,702,982	1,685,711	1,793,901	1,889,138	1,998,546	2,037,895	2,088,343	2,215,237	2,281,460	2,374,628
Benefit changes	0	0	1,613	0	0	0	0	0	0	0
Difference between expected and actual experience	599,063	427,251	119,241	315,281	(530,294)	(230,162)	635,477	(87,820)	(291,316)	(678,345)
Changes of assumptions	0	0	0	0	0	0	0	1,732,793	0	0
Benefit payments	(1,863,839)	(1,354,069)	(1,550,446)	(1,390,100)	(1,854,598)	(1,827,627)	(2,238,379)	(1,887,946)	(1,769,394)	(1,984,785)
Refunds of contributions	0	0	0	0	0	0	0	0	0	0
Net change in total pension liability	$1,078,619	$1,540,723	$1,189,662	$1,691,018	$511,169	$878,019	$1,516,706	$2,996,515	$1,438,660	915,154
Total pension liability - beginning	$22,074,557	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$28,963,767	$30,480,473	$33,476,988	34,915,648
Total pension liability - ending (a)	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$28,963,767	$30,480,473	$33,476,988	$34,915,648	35,830,802
Plan net position										
Contributions - employer	$948,691	$1,151,775	$1,209,166	$1,481,647	$1,639,268	$1,799,928	$1,746,168	$1,474,491	$1,847,680	1,882,151
Contributions - member	285,125	301,249	$316,547	$342,803	$403,345	$303,884	$461,933	$388,882	$470,554	463,197
Net investment income	689,053	(234,245)	$717,533	$1,741,636	($997,225)	$2,924,506	$2,030,848	$2,930,169	($3,497,711)	2,793,853
Benefit payments	(1,863,839)	(1,354,069)	($1,550,446)	($1,390,100)	($1,854,598)	($1,827,627)	($2,238,379)	($1,887,946)	($1,769,394)	(1,984,785)
Administrative expense	(91,581)	(104,038)	($25,581)	($86)	($24,333)	($58,591)	($54,703)	($79,324)	($89,492)	(87,169)
Refunds of contributions	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0
Net change in plan net position	($32,551)	($239,328)	$667,219	$2,175,900	($833,543)	$3,142,100	$1,945,867	$2,826,272	($3,038,363)	3,067,247
Plan net position - beginning	$12,296,377	$12,263,826	$12,024,498	$12,691,717	$14,867,617	$14,034,074	$17,176,174	$19,122,041	$21,948,313	18,909,950
Plan net position - ending (b)	$12,263,826	$12,024,498	$12,691,717	$14,867,617	$14,034,074	$17,176,174	$19,122,041	$21,948,313	$18,909,950	21,977,197
Net pension liability - ending (a) - (b)	$10,889,350	$12,669,401	$13,191,844	$12,706,962	$14,051,674	$11,787,593	$11,358,432	$11,528,675	$16,005,698	13,853,605

* As reported by prior actuary.

Exhibit A (Continued)
GASB 67 Paragraph 32.b.

SCHEDULE OF THE NET PENSION LIABILITY

	2014*	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$29,841,786	$30,480,473	$33,476,988	$34,915,648	35,830,802
Plan net position	12,263,826	12,024,498	12,691,717	14,867,617	14,034,074	20,318,274	19,122,041	21,948,313	18,909,950	21,977,197
Net pension liability	$10,889,350	$12,669,401	$13,191,844	$12,706,962	$14,051,674	$9,523,512	$11,358,432	$11,528,675	$16,005,698	13,853,605
Ratio of plan net position to total pension liability	52.97%	48.69%	49.03%	53.92%	49.97%	68.09%	62.74%	65.56%	54.16%	61.34%
Covered payroll	$7,460,259	$8,249,619	8,721,617	9,407,872	9,537,829	9,513,855	10,609,212	10,647,609	11,067,543	11,283,355
Net pension liability as a percentage of covered payroll	145.96%	153.58%	151.25%	135.07%	147.33%	100.10%	107.06%	108.27%	144.62%	122.78%

*As reported by prior actuary.

Exhibit B

GASB 67 Paragraph 32.c.
SCHEDULE OF EMPLOYER CONTRIBUTIONS

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Actuarially determined employer contribution	$1,749,656	$1,597,649	$1,497,359	$1,503,274	$1,497,141	$1,435,535	$1,379,283	$1,309,734	1,231,247	1,231,247
Actual employer contributions	1,882,151	1,847,680	1,474,491	1,746,168	1,799,928	1,639,268	1,481,647	1,209,166	1,147,202	948,691
Annual contribution deficiency/(excess)	($132,495)	($250,031)	$22,868	($242,894)	($302,787)	($203,733)	($102,364)	$100,568	84,045	282,556
Covered payroll	$11,283,355	$11,067,543	$10,647,609	$10,609,212	$9,513,855	$9,537,829	$9,407,872	$8,721,617	8,249,619	7,460,259
Actual contributions as a percentage of covered payroll	16.68%	16.69%	13.85%	16.46%	18.92%	17.19%	15.75%	13.86%	13.91%	12.72%

SCHEDULE B – SUMMARY OF MAIN BENEFIT PROVISIONS

The following summary gives the main participation, benefit and contribution provisions of the Plan as interpreted in preparing the actuarial valuation. “Monthly Average Earnings” 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. “Service” is the length of time a person participated in the Plan or any former plan prior to the date as of which Service is being determined, expressed in years and completed calendar months.

Effective Date	September 1, 1945 (Southern Coach) August, 1 1989 (CARTA only)
Date last Amended	Through December 2013 as reflective in collective bargaining agreement dated August 1, 2012
Eligibility to Participate	After 60 days of service with CARTA
CONTRIBUTIONS	
Employee	2.00% of Earnings $195 monthly max 3.00% of Earnings effective September 1, 2007 3.50% of Earnings effective September 1, 2008 4.00% of Earnings effective August 1, 2012 4.25% of Earnings effective July 1, 2017 4.50% of Earnings effective July 1, 2018 Effective September 1, 2008 – employee contribution will earn 4.5%
Employer	7% of Earnings effective July 1, 2003 and $195 monthly max 9% of Earnings effective September 1, 2007 10.5% of Earnings effective September 1, 2008 11.75% of Earnings effective August 1, 2012 12.6% of Earnings effective July 1, 2013 ADEC based on Funding Policy effective January 1, 2015

NORMAL RETIREMENT

Eligibility	Earlier of: 1) Age 65 and 5 years of service 2) Age when sum of service and age first equals or exceeds 85 (Rule of 85).
Benefit	For employees hired before October 1, 2012: Greater of (a) or (b) a) 2% of three-year monthly average earnings multiplied by service b) if more than 20 years of service, accrual rate is 2.15% for all service For employees hired after September 30, 2012: 2% of three-year monthly average earnings multiplied by service and minimum monthly benefit of $115.00. For all employees, the maximum monthly benefit is 50% of three-year monthly average earnings.

EARLY RETIREMENT

Eligibility — Age 55 and 15 years of service.

Benefit — Accrued normal retirement benefit deferred to age 65 of immediate benefit equal to deferred benefit multiplied by the applicable percentage as follows:

Retirement Age	Early Retirement Percentage
55	50.0%
56	53.3
57	56.7
58	60.0
59	63.3
60	66.7
61	73.3
62	80.0
63	86.7
64	93.3

DEFERRED VESTED RETIREMENT

Eligibility — 5 years of service.

Benefit — Accrued benefit deferred to age 65, or, if at least 15 years of service, reduced benefit at age 55. Reduction same as for early retirement.

DISABILITY RETIREMENT

Eligibility	Disability occurring after ten years of service but prior to age 65.
Benefit	Accrued Normal Retirement Benefit reduced according to the following:

Years of Service	Percentage of Accrued Normal Retirement Benefit
10 but less than 15	50%
15 but less than 20	75%
20 but less than 25	90%
25 but less than 30	95%
At least 30	100%

SPOUSE'S BENEFIT

Eligibility	Death while employed.
Benefit	
Non-vested	Return of employee contributions (without interest)
Vested but Prior to Eligibility for Early or Normal Retirement	Accrued benefit payable under a 50% joint and survivor option, deferred to the earliest date the member would have been eligible for a normal retirement benefit. If the member had at least 15 years of service at death, assumed deferred to age 55 and payable at 50% joint and survivor early retirement benefit.
Eligible for Early or Normal Retirement	Benefit employee would have received had he retired on the date of death under the 50% joint and survivor option.

OTHER BENEFITS ON SEPARATION FROM SERVICE

Prior to Eligibility for a Retirement Benefit	Return of employee contributions with interest credited after September 1, 2008.

FORM OF BENEFITS

Normal Form	Life annuity with guarantee of return of employee contributions.
Optional Forms	(a) Reduced benefit payable for life but with payments guaranteed for 10 years.
	(b) Reduced benefit during retiree's life with 50% or 100% of reduced amount payable to spouse after death.

DEFFERED RETIREMENT OPTION PLAN (DROP)

Eligibility	Rule of 85.
Benefit	Monthly Accrued Retirement Benefit payable into separate account in Plan while member is still working.
Duration	For Employees hired before October 1, 2012: 60 months, after which member formally retires and regular monthly benefit commences.
	For Employees hired after September 30, 2012: 48 months, after which member formally retires and regular monthly benefit commences.
Investment return on DROP account	4.5%

The assumptions used in this valuation were developed by the previous actuary. However, the Pension Board adopted the investment return assumption of 7.00% at its meeting on April 12, 2022 to be used for this valuation and all others in the future.

INVESTMENT RATE OF RETURN: 7.00% per annum, compounded annually, net of investment expenses.

CONTRIBUTION EARNINGS RATE: 2.5% 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. Effective September 1, 2008, 4.5% 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: 3.50% per annum, compounded annually.

SEPARATIONS FROM ACTIVE SERVICE: Mortality rates are according to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. Representative values of the assumed annual rates of disability, withdrawal and service retirement are as follows:

Annual Rate of				
			Retirement	
Age	Disability	Withdrawal	Reduced	Unreduced
20		17.13%		
25		14.62		
30	0.09%	7.80		
35	0.11	5.73		
40	0.17	4.71		
45	0.30	3.29		
50	0.50	2.11		4.0%
55	0.88	1.06	1.20%	5.0
60	1.56	0.40	1.82	10.0
61	1.71		2.46	100.0
62	1.88		3.12	100.0
63	2.05		3.96	100.0
64	2.25		4.94	100.0
65				100.0

DEATHS AFTER RETIREMENT: According to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014, for service retirements and beneficiaries of retired participants. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

PERCENT MARRIED: 100% of all participants are assumed to be married, with husbands three years older than their wives.

ACTUARIAL COST METHOD: Entry age normal.

ASSET VALUATION METHOD: Market Value.

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

CARTA

GASB STATEMENT NO. 68 REPORT

FOR THE

DISABILITY AND RETIREMENT PLAN

OF THE CHATTANOOGA AREA

REGIONAL TRANSPORTATION AUTHORITY

AND LOCAL 1212 OF THE

AMALGAMATED TRANSIT UNION

PREPARED AS OF DECEMBER 31, 2022

www.CavMacConsulting.com

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

August 16, 2023

Pension Board of Trustees
Chattanooga Area Regional Transportation Authority
1617 Wilcox Boulevard
Chattanooga, TN 37406

Ladies and Gentlemen:

Presented in this report is information to assist the Chattanooga Area Regional Transportation Authority (CARTA) in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 68 relating to the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union (the Plan). The information is presented for the period ending December 31, 2022 (the Measurement Date) to assist CARTA in better understanding the requirements of GASB 68 and to identify the information to be provided by the Plan's actuary, Cavanaugh Macdonald Consulting (CMC).

GASB 68 established accounting and financial reporting requirements for governmental employers that provide pension benefits to their employees through a trust.

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of January 1, 2023. The valuation was based upon data, furnished by the Plan, concerning active, inactive, and retired members along with pertinent financial information. While not verifying data at the source, the actuary performed tests for consistency and reasonableness.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the Plan, and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the Plan. In addition, the calculations were completed in compliance with the laws governing the Plan. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com
Offices in Kennesaw, GA • Bellevue, NE

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.

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Respectfully submitted,

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

Jennifer Johnson
Senior Consultant

EJK:jj

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PREPARED AS OF DECEMBER 31, 2022**

SECTION I – INTRODUCTION

The Governmental Accounting Standards Board issued Statement No. 68 (GASB 68), "Accounting and Financial Reporting For Pensions", in June 2012. The Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union (the Plan) is a single-employer defined benefit pension plan for general CARTA employees. This report has been prepared as of December 31, 2022. Much of the material provided in this report is based on the data, assumptions, and results of the annual actuarial valuation of the Plan as of January 1, 2023. The results of that valuation were detailed in a report dated July 10, 2023.

GASB 68 includes disclosure and reporting requirements that may or may not be consistent with the basis used for funding the Plan. Two major changes in GASB 68 are the requirements to include a Net Pension Liability (NPL) and recognize a Pension expense (PE) in the financial statements of the participating employer.

Pension Expense includes amounts for service cost (the Normal Cost under Entry Age Normal actuarial cost method for the year), interest on the Total Pension Liability (TPL), changes in benefit structure, amortization of increases/decreases in liability due to actuarial experience and actuarial assumption changes, and amortization of investment gains/losses. The actuarial experience and assumption change impacts are amortized over the average expected remaining service life of the Plan membership as of the Measurement Date, and investment gains/losses are amortized over five years. The development of the PE is shown in Section IV.

The unamortized portions of each year's experience, assumption changes and investment gains/losses are used to develop deferred inflows and outflows, which also must be included on the employer's balance sheet. The development of the collective deferred inflows and outflows is shown in Section III.

Section II of this report is a summary of the principal results of the amounts under GASB 68. The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 68 for note disclosure and Required Supplementary Information (RSI).

SECTION II – SUMMARY OF PRINCIPAL RESULTS

Valuation Date (VD):	January 1, 2023
Measurement Date (MD):	December 31, 2022
Reporting Date (RD):	December 31, 2023
Membership Data:	
Retirees and Survivors	120
Terminated Employees Not Yet Receiving Benefits	9
Active Members	178
Total	307
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	7.00%
Municipal Bond Index Rate at Measurement Date	3.72%
Fiscal Year in which Plan's Fiduciary Net Position is projected to be depleted from the future benefit payments for current members	N/A
Single Equivalent Interest Rate	7.00%
Net Pension Liability:	
Total Pension Liability (TPL)	$34,915,648
Fiduciary Net Position (FNP)	18,909,950
Net Pension Liability (NPL = TPL – FNP)	$16,005,698
FNP as a percentage of TPL	54.16%
Pension Expense:	$2,447,664
Deferred Outflows of Resources:	$3,906,954
Deferred Inflows of Resources	$450,660

SECTION III – FINANCIAL STATEMENT NOTES

The material presented herein will follow the order presented in GASB 68. Paragraph numbers are provided for ease of reference.

Paragraphs 40(a) and (b): The information required is to be supplied by the Employer.

Paragraph 40(c): The data required regarding the membership of the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority were furnished by the Plan. The following table summarizes the membership of the Plan as of January 1, 2023, the Valuation Date.

Membership

	Number
Inactive Members Or Their Beneficiaries Currently Receiving Benefits	120
Inactive Members Entitled To But Not Yet Receiving Benefits	9
Active Members	178
Total	307

Paragraphs 40(d) and (e): The information required is to be supplied by the Employer.

Paragraphs 41 and 42: These paragraphs require information regarding the actuarial assumptions used to measure the TPL. The actuarial assumptions utilized in developing the TPL are outlined in Schedule C. The total pension liability was determined by an actuarial valuation as of January 1, 2023 using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00 percent
Salary increases	3.50 percent, including inflation
Investment rate of return	7.00 percent, net of pension plan investment expense, including inflation

Both pre-retirement and post-retirement mortality rates were based on the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement. The actuarial assumptions used in the January 1, 2023 valuation were based on the results of the last actuarial experience analysis performed by the prior actuary in conjunction with the January 1, 2015 valuation. However, the Pension Board voted to lower the investment return assumption from 7.50% to 7.00% at its April 12, 2022 meeting to ensure that the CARTA assumption was within 50 basis points of the assumption used by the Tennessee Consolidated Retirement System (TCRS), which used 6.75% as of their most recent valuation.

Discount rate. The discount rate used to measure the Total Pension Liability was 7.00 percent. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate of 4.50 percent and that Employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Projected future benefit payments for all current plan members were projected through the year 2121. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability and a municipal bond rate was not used in determining the discount rate.

Paragraph 42(g): This paragraph requires disclosure of the sensitivity of the NPL to changes in the discount rate. The following presents the NPL of the Plan, calculated using the discount rate of 7.00 percent, as well as what the Plan's NPL calculated using a discount rate that is 1-percentage-point lower (6.00 percent) or 1-percentage-point higher (8.00 percent) than the current rate:

	1% Decrease 6.00%	Current Discount Rate 7.00%	1% Increase 8.00%
Plan's Net Pension Liability	$19,401,003	$16,005,698	$13,135,918

Paragraph 44: This paragraph requires a schedule of changes in Net Pension Liability. The needed information is provided in the table below.

CHANGES IN THE NET PENSION LIABILITY

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
Balances at December 31, 2021	$33,476,988	$21,948,313	$11,528,675
Changes for the year:			
Service cost	1,217,910		1,217,910
Interest	2,281,460		2,281,460
Benefit changes	0		0
Changes of assumptions	0		0
Difference between expected and actual experience	(291,316)		(291,316)
Contributions - employer		1,847,680	(1,847,680)
Contributions - employee		470,554	(470,554)
Net investment income		(3,497,711)	3,497,711
Benefit payments, including refunds of employee contributions	(1,769,394)	(1,769,394)	0
Administrative expense		(89,492)	89,492
Other changes	0	0	0
Net changes	1,438,660	(3,038,363)	4,477,023
Balances at December 31, 2022	$34,915,648	$18,909,950	$16,005,698

Paragraph 45(a): The date of the actuarial valuation upon which the actual TPL is based on is January 1, 2023. We have determined an expected TPL as of December 31, 2022 based on the TPL in the December 31, 2021 GASB 67 report. The difference between this amount and the actual TPL as of December 31, 2022 is reflected as an experience gain or loss for the year. These procedures are shown in the following table:

TPL Roll- Forward	
(a) TPL as of December 31, 2021	$33,476,988
(b) Entry Age Normal Cost for the period January 1, 2022 – December 31, 2022	1,217,910
(c) Actual Benefit Payments and Refunds for January 1, 2022 – December 31, 2022	1,769,394
(d) Expected TPL as of December 31, 2022 = [(a) x (1.07)] + (b) – [(c) x (1.035)]	$35,206,964
(e) Actual TPL as of December 31, 2022	$34,915,648
(f) Experience (Gain)/Loss = (e) - (d)	($291,316)

Paragraph 45(c): There have been no changes of assumptions or other inputs used in the measurement of the TPL since the prior measurement date.

Paragraph 45(d): There have been no changes in the benefit terms used in the measurement of the TPL since the prior measurement date.

Paragraph 45(f): There have been no known changes between the measurement date of the net pension liability and reporting date that are expected to have a significant effect on the net pension liability.

Paragraph 45(g): See Section IV for the annual Pension Expense.

Paragraph 45(h): Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce Pension Expense they are labeled deferred inflows. If they will increase Pension Expense they are labeled deferred outflows. The amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average expected remaining service life of the active and inactive Plan members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five-year period.

The table below provides a summary of the deferred inflows and outflows as of December 31, 2022.

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$310,933	$450,660
Changes of Assumptions	1,126,921	0
Net difference between projected and actual earnings on plan investments	2,469,100	0
Employer contributions subsequent to the Measurement Date	0	0
Total	$3,906,954	$450,660

Paragraph 45(i): Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in Pension Expense as follows:

Deferred Outflows and Inflows for Differences between Expected and Actual Experience

Year	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense through FY 2022 (c)	Balances as of December 31, 2022 Deferred Outflows (a) - (c)	Deferred Inflows (b) - (c)
2016	$119,241	$0	$119,241	$0	$0
2017	$315,281	$0	$311,130	$4,151	$0
2018	$0	$530,294	$447,130	$0	$83,164
2019	$0	$230,162	$157,644	$0	$72,518
2020	$635,477	$0	$328,695	$306,782	$0
2021	$0	$87,820	$30,706	$0	$57,114
2022	$0	$291,316	$53,452	$0	$237,864
Total				$310,933	$450,660

Deferred Outflows and Inflows for Differences from Assumption Changes

Year	Assumption Losses (a)	Assumption Gains (b)	Amounts Recognized in Pension Expense through FY 2022 (c)	Balances as of December 31, 2022 Deferred Outflows (a) - (c)	Deferred Inflows (b) - (c)
2021	$1,732,793	$0	$605,872	$1,126,921	$0
Total				$1,126,921	$0

Deferred Outflows and Inflows for Differences from Investment Experience					
				Balances as of December 31, 2022	
Year	Investment Losses (a)	Investment Gains (b)	Amounts Recognized in Pension Expense through FY 2022 (c)	Deferred Outflows (a) - (c)	Deferred Inflows (b) - (c)
2018	$2,118,434	$0	$2,118,434	$0	$0
2019	$0	$1,863,790	$1,491,032	$0	$372,758
2020	$0	$745,822	$447,492	$0	$298,330
2021	$0	$1,499,912	$599,964	$0	$899,948
2022	$5,050,170	$0	$1,010,034	$4,040,136	$0
Total				$4,040,136	$1,571,036
Net difference between projected and actual earnings on investments				$2,469,100	$0

Amortization of Deferrals						
	2014 Experience Loss		2015 Experience Loss		2016 Experience Loss	
Fiscal Year End	Amount Recognized*	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
12/31/2021	17,163	0	13,113	0	19,326	3,285
12/31/2022	0	0	0	0	3,285	0
12/31/2023	0	0	0	0	0	0
12/31/2024	0	0	0	0	0	0
12/31/2025	0	0	0	0	0	0
12/31/2026	0	0	0	0	0	0
12/31/2027	0	0	0	0	0	0
12/31/2028	0	0	0	0	0	0

*Remaining balance as of December 31, 2014 was re-amortized over expected future working lifetime.

Amortization of Deferrals (cont.)								
	2017 Investment Gain		2017 Experience Loss		2018 Investment Loss		2018 Experience Gain	
Fiscal Year End	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
12/31/2021	(154,696)	0	51,855	56,006	423,687	423,686	(89,426)	(172,590)
12/31/2022	0	0	51,855	4,151	423,686	0	(89,426)	(83,164)
12/31/2023	0	0	4,151	0	0	0	(83,164)	0
12/31/2024	0	0	0	0	0	0	0	0
12/31/2025	0	0	0	0	0	0	0	0
12/31/2026	0	0	0	0	0	0	0	0
12/31/2027	0	0	0	0	0	0	0	0
12/31/2028	0	0	0	0	0	0	0	0

Amortization of Deferrals (cont.)

Fiscal Year End	2019 Investment Gain Amount Recognized	2019 Investment Gain EOY Balance	2019 Experience Gain Amount Recognized	2019 Experience Gain EOY Balance	2020 Investment Gain Amount Recognized	2020 Investment Gain EOY Balance	2020 Experience Loss Amount Recognized	2020 Experience Loss EOY Balance
12/31/2021	(372,758)	(745,516)	(39,411)	(111,929)	(149,164)	(447,494)	109,565	416,347
12/31/2022	(372,758)	(372,758)	(39,411)	(72,518)	(149,164)	(298,330)	109,565	306,782
12/31/2023	(372,758)	0	(39,411)	(33,107)	(149,164)	(149,166)	109,565	197,217
12/31/2024	0	0	(33,107)	0	(149,166)	0	109,565	87,652
12/31/2025	0	0	0	0	0	0	87,652	0
12/31/2026	0	0	0	0	0	0	0	0
12/31/2027	0	0	0	0	0	0	0	0
12/31/2028	0	0	0	0	0	0	0	0

Amortization of Deferrals (cont.)

Fiscal Year End	2021 Investment Gain Amount Recognized	2021 Investment Gain EOY Balance	2021 Experience Gain Amount Recognized	2021 Experience Gain EOY Balance	2021 Assumption Change Loss Amount Recognized	2021 Assumption Change Loss EOY Balance
12/31/2021	(299,982)	(1,199,930)	(15,353)	(72,467)	302,936	1,429,857
12/31/2022	(299,982)	(899,948)	(15,353)	(57,114)	302,936	1,126,921
12/31/2023	(299,982)	(599,966)	(15,353)	(41,761)	302,936	823,985
12/31/2024	(299,982)	(299,984)	(15,353)	(26,408)	302,936	521,049
12/31/2025	(299,984)	0	(15,353)	(11,055)	302,936	218,113
12/31/2026	0	0	(11,055)		218,113	
12/31/2027	0	0	0	0	0	0
12/31/2028	0	0	0	0	0	0

Amortization of Deferrals (cont.)						
	2022 Investment Loss		2022 Experience Gain		Total Deferrals	
Fiscal Year End	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
12/31/2021	0	5,050,170	0	(291,316)	(183,145)	4,338,109
12/31/2022	1,010,034	4,040,136	(53,452)	(237,864)	881,815	3,456,294
12/31/2023	1,010,034	3,030,102	(53,452)	(184,412)	413,402	3,042,892
12/31/2024	1,010,034	2,020,068	(53,452)	(130,960)	871,475	2,171,417
12/31/2025	1,010,034	1,010,034	(53,452)	(77,508)	1,031,833	1,139,584
12/31/2026	1,010,034	0	(53,452)	(24,056)	1,163,640	(24,056)
12/31/2027	0	0	(24,056)		(24,056)	0
12/31/2028	0	0	0	0	0	0

SECTION IV – PENSION EXPENSE

As noted earlier, the Pension Expense (PE) consists of several different items. GASB 68 refers to the first as Service Cost which is the Normal Cost using the Entry Age Normal actuarial funding method, or $1,217,910. The second item is interest on the beginning of year TPL and the cash flows during year at the 7.00% rate of return in effect for the previous valuation used for the calculations. This amounts to $2,281,460.

The next three items refer to any changes that occurred in the actuarial accrued liability (AAL) under EAN (i.e., the change in TPL) due to benefits, experience, or assumptions. Benefit changes can be positive, if there is a benefit improvement for existing Plan members, or negative if there is a benefit reduction. For the year ended December 31, 2022, there was not a benefit change to be recognized.

The next item to be recognized is the portion of current year changes in TPL due to Plan experience, which amounted to ($291,316) for the year. The portion to recognize in the current year is determined by spreading the total change over the average expected remaining service life of the entire Plan membership. The remaining service life of active members is the average number of years the active members are expected to remain active. For the year ended December 31, 2022 this number is 9.52. The remaining service life of the inactive members is zero. Therefore, the figure to use for the amortization is the weighted average of these two amounts, or 5.45. As a result, the amount to recognize in the current year for changes due to Plan experience is ($53,452).

The last item under changes in TPL is changes in actuarial assumptions. There were no changes in assumptions since the last Measurement Date. The change in TPL due to changes in actuarial assumptions is spread over the remaining service life of the entire membership just like Plan experience in the prior paragraph.

Member contributions for the year of $470,554 and projected earnings on the TPL, again at the rate used to calculate the liabilities for the previous valuation, of ($1,552,459) are subtracted from the amount determined thus far. The portion of current-period differences between actual and projected earnings on the FNP $5,050,170 is included next. This portion is the total difference divided by five, or $1,010,034.

The current year portions of previously determined experience, assumption, and earnings amounts, recognized as deferred inflows and outflows (see Section III) are included next. These amount to $542,408 of deferred inflows subtracted from the PE and $467,641 of deferred outflows added to the PE. Finally, administrative expenses $89,492 are included.

As shown in the table below, the Pension Expense for the year ended December 31, 2022 is $2,447,664.

Pension Expense
For the Year Ended December 31, 2022

Service Cost	$1,217,910
Interest on the total pension liability	2,281,460
Current-period benefit changes	0
Expensed portion of current-period difference between expected and actual experience in the total pension liability	(53,452)
Expensed portion of current-period changes of assumptions	0
Member contributions	(470,554)
Projected earnings on plan investments	(1,552,459)
Expensed portion of current-period differences between actual and projected earnings on plan investments	1,010,034
Administrative expense	89,492
Other	0
Recognition of beginning deferred outflows of resources as pension expense	467,641
Recognition of beginning deferred inflows of resources as pension expense	(542,408)
Pension Expense	$2,447,664

SECTION V – REQUIRED SUPPLEMENTARY INFORMATION

There are several tables of Required Supplementary Information (RSI) that need to be included in the Plan's financial statements:

Paragraphs 46(a) and (b): The required tables are provided in Schedule A and the information is as of the Measurement Dates.

Paragraph 46(c): The required table is provided in Schedule A and the information is as of the Employer's Fiscal Year Ends.

Paragraph 47: In addition, the following should be noted regarding the RSI:

Changes of benefit terms: Effective July 1, 2017, the employee contribution rate has been changed from 4.00% to 4.25% of compensation. Effective July 1, 2018, the employee contribution rate has been changed from 4.25% to 4.50% of compensation.

Changes in actuarial assumptions and methods: Effective January 1, 2022, the investment rate of return was lowered from 7.50% to 7.00%.

Method and assumptions used in calculations of actuarially determined contributions. The actuarially determined contribution rates in the schedule of employer contributions are calculated as of the December 31, 12 months prior to the fiscal year end in which contributions are reported (January 1, 2021 valuation for the December 31, 2022 fiscal year). The following actuarial methods and assumptions were used to determine actuarial contribution rates reported in that schedule:

Actuarial cost method	Entry age
Amortization method	Level dollar, closed
Remaining amortization period	25.2 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
Inflation	3.00 percent
Salary increase	3.50 percent, including inflation
Investment rate of return	7.50 percent, net of pension plan investment expense, and including inflation

SCHEDULE A

REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY

	2014*	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability										
Service Cost	$640,413	$781,830	$825,353	$876,699	$897,515	$897,913	$1,031,265	$1,024,251	$1,217,910	
Interest	1,702,982	1,685,711	1,793,901	1,889,138	1,998,546	2,037,895	2,088,343	2,215,237	2,281,460	
Benefit changes	0	0	1,613	0	0	0	0	0	0	
Difference between expected and actual experience	599,063	427,251	119,241	315,281	(530,294)	(230,162)	635,477	(87,820)	(291,316)	
Changes of assumptions	0	0	0	0	0	0	0	1,732,793	0	
Benefit payments	(1,863,839)	(1,354,069)	(1,550,446)	(1,390,100)	(1,854,598)	(1,827,627)	(2,238,379)	(1,887,946)	(1,769,394)	
Refunds of contributions	0	0	0	0	0	0	0	0	0	
Net change in total pension liability	$1,078,619	$1,540,723	$1,189,662	$1,691,018	$511,169	$878,019	$1,516,706	$2,996,515	$1,438,660	
Total pension liability - beginning	$22,074,557	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$28,963,767	$30,480,473	$33,476,988	
Total pension liability - ending (a)	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$28,963,767	$30,480,473	$33,476,988	$34,915,648	
Plan net position										
Contributions - employer	$948,691	$1,151,775	$1,209,166	$1,481,647	$1,639,268	$1,799,928	$1,746,168	$1,474,491	$1,847,680	
Contributions - member	285,125	301,249	$316,547	$342,803	$403,345	$303,884	$461,933	$388,882	$470,554	
Net investment income	689,053	(234,245)	$717,533	$1,741,636	($997,225)	$2,924,506	$2,030,848	$2,930,169	($3,497,711)	
Benefit payments	(1,863,839)	(1,354,069)	($1,550,446)	($1,390,100)	($1,854,598)	($1,827,627)	($2,238,379)	($1,887,946)	($1,769,394)	
Administrative expense	(91,581)	(104,038)	($25,581)	($86)	($24,333)	($58,591)	($54,703)	($79,324)	($89,492)	
Refunds of contributions	0	0	0	0	0	0	0	0	0	
Other	0	0	0	0	0	0	0	0	0	
Net change in plan net position	($32,551)	($239,328)	$667,219	$2,175,900	($833,543)	$3,142,100	$1,945,867	$2,826,272	($3,038,363)	
Plan net position - beginning	$12,296,377	$12,263,826	$12,024,498	$12,691,717	$14,867,617	$14,034,074	$17,176,174	$19,122,041	$21,948,313	
Plan net position - ending (b)	$12,263,826	$12,024,498	$12,691,717	$14,867,617	$14,034,074	$17,176,174	$19,122,041	$21,948,313	$18,909,950	
Net pension liability - ending (a) - (b)	$10,889,350	$12,669,401	$13,191,844	$12,706,962	$14,051,674	$11,787,593	$11,358,432	$11,528,675	$16,005,698	

* As reported by prior actuary.

SCHEDULE OF THE NET PENSION LIABILITY

	2014*	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$29,841,786	$30,480,473	$33,476,988	$34,915,648	
Plan net position	12,263,826	12,024,498	12,691,717	14,867,617	14,034,074	20,318,274	19,122,041	21,948,313	18,909,950	
Net pension liability	$10,889,350	$12,669,401	$13,191,844	$12,706,962	$14,051,674	$9,523,512	$11,358,432	$11,528,675	$16,005,698	
Ratio of plan net position to total pension liability	52.97%	48.69%	49.03%	53.92%	49.97%	68.09%	62.74%	65.56%	54.16%	
Covered payroll	$7,460,259	$8,249,619	8,721,617	9,407,872	9,537,829	9,513,855	10,609,212	10,647,609	11,067,543	
Net pension liability as a percentage of covered payroll	145.96%	153.58%	151.25%	135.07%	147.33%	100.10%	107.06%	108.27%	144.62%	

* As reported by prior actuary.

SCHEDULE OF EMPLOYER CONTRIBUTIONS

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Actuarially determined employer contribution	$1,597,649	$1,497,359	$1,503,274	$1,497,141	$1,435,535	$1,379,283	$1,309,734	1,231,247	1,231,247			
Actual employer contributions	1,847,680	1,474,491	1,746,168	1,799,928	1,639,268	1,481,647	1,209,166	1,147,202	948,691			
Annual contribution deficiency/(excess)	($250,031)	$22,868	($242,894)	($302,787)	($203,733)	($102,364)	$100,568	84,045	282,556			
Covered payroll	$11,067,543	$10,647,609	$10,609,212	$9,513,855	$9,537,829	$9,407,872	$8,721,617	8,249,619	7,460,259			
Actual contributions as a percentage of covered payroll	16.69%	13.85%	16.46%	18.92%	17.19%	15.75%	13.86%	13.91%	12.72%			

SCHEDULE B

SUMMARY OF BENEFIT PROVISIONS EVALUATED

The following summary gives the main participation, benefit and contribution provisions of the Plan as interpreted in preparing the actuarial valuation. "Monthly Average Earnings" 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. "Service" is the length of time a person participated in the Plan or any former plan prior to the date as of which Service is being determined, expressed in years and completed calendar months.

Effective Date	September 1, 1945 (Southern Coach) August, 1 1989 (CARTA only)
Date last Amended	Through December 2013 as reflective in collective bargaining agreement dated August 1, 2012
Eligibility to Participate	After 60 days of service with CARTA

CONTRIBUTIONS

Employee	2.00% of Earnings $195 monthly max 3.00% of Earnings effective September 1, 2007 3.50% of Earnings effective September 1, 2008 4.00% of Earnings effective August 1, 2012 4.25% of Earnings effective July 1, 2017 4.50% of Earnings effective July 1, 2018 Effective September 1, 2008 – employee contribution will earn 4.5%
Employer	7% of Earnings effective July 1, 2003 and $195 monthly max 9% of Earnings effective September 1, 2007 10.5% of Earnings effective September 1, 2008 11.75% of Earnings effective August 1, 2012 12.6% of Earnings effective July 1, 2013 ADEC based on Funding Policy effective January 1, 2015

NORMAL RETIREMENT

Eligibility	Earlier of: 1) Age 65 and 5 years of service 2) Age when sum of service and age first equals or exceeds 85 (Rule of 85).
Benefit	For employees hired before October 1, 2012: Greater of (a) or (b) a) 2% of three-year monthly average earnings multiplied by service b) if more than 20 years of service, accrual rate is 2.15% for all service For employees hired after September 30, 2012: 2% of three-year monthly average earnings multiplied by service and minimum monthly benefit of $115.00. For all employees, the maximum monthly benefit is 50% of three-year monthly average earnings.

EARLY RETIREMENT

Eligibility	Age 55 and 15 years of service.
Benefit	Accrued normal retirement benefit deferred to age 65 of immediate benefit equal to deferred benefit multiplied by the applicable percentage as follows:

Retirement Age	Early Retirement Percentage
55	50.0%
56	53.3
57	56.7
58	60.0
59	63.3
60	66.7
61	73.3
62	80.0
63	86.7
64	93.3

DEFERRED VESTED RETIREMENT

Eligibility	5 years of service.
Benefit	Accrued benefit deferred to age 65, or, if at least 15 years of service, reduced benefit at age 55. Reduction same as for early retirement.

DISABILITY RETIREMENT

Eligibility	Disability occurring after ten years of service but prior to age 65.
Benefit	Accrued Normal Retirement Benefit reduced according to the following:

Years of Service	Percentage of Accrued Normal Retirement Benefit
10 but less than 15	50%
15 but less than 20	75%
20 but less than 25	90%
25 but less than 30	95%
At least 30	100%

SPOUSE'S BENEFIT

Eligibility	Death while employed.
Benefit	
Non-vested	Return of employee contributions (without interest)
Vested but Prior to Eligibility for Early or Normal Retirement	Accrued benefit payable under a 50% joint and survivor option, deferred to the earliest date the member would have been eligible for a normal retirement benefit. If the member had at least 15 years of service at death, assumed deferred to age 55 and payable at 50% joint and survivor early retirement benefit.
Eligible for Early or Normal Retirement	Benefit employee would have received had he retired on the date of death under the 50% joint and survivor option.

OTHER BENEFITS ON SEPARATION FROM SERVICE

Prior to Eligibility for a Retirement Benefit	Return of employee contributions with interest credited after September 1, 2008.

FORM OF BENEFITS

Normal Form	Life annuity with guarantee of return of employee contributions.
Optional Forms	(a) Reduced benefit payable for life but with payments guaranteed for 10 years. (b) Reduced benefit during retiree's life with 50% or 100% of reduced amount payable to spouse after death.

DEFFERED RETIREMENT OPTION PLAN (DROP)

Eligibility	Rule of 85.
Benefit	Monthly Accrued Retirement Benefit payable into separate account in Plan while member is still working.
Duration	For Employees hired before October 1, 2012: 60 months, after which member formally retires and regular monthly benefit commences. For Employees hired after September 30, 2012: 48 months, after which member formally retires and regular monthly benefit commences.
Investment return on DROP account	4.5%

SCHEDULE C

STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions used in this valuation were developed by the previous actuary. However, the Pension Board adopted the investment return assumption of 7.00% at its meeting on April 12, 2022 to be used for this valuation and all others in the future.

INVESTMENT RATE OF RETURN: 7.00% per annum, compounded annually, net of investment expenses.

CONTRIBUTION EARNINGS RATE: 2.5% 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. Effective September 1, 2008, 4.5% 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: 3.50% per annum, compounded annually.

SEPARATIONS FROM ACTIVE SERVICE: Mortality rates are according to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. Representative values of the assumed annual rates of disability, withdrawal and service retirement are as follows:

Annual Rate of				
			Retirement	
Age	Disability	Withdrawal	Reduced	Unreduced
20		17.13%		
25		14.62		
30	0.09%	7.80		
35	0.11	5.73		
40	0.17	4.71		
45	0.30	3.29		
50	0.50	2.11		4.0%
55	0.88	1.06	1.20%	5.0
60	1.56	0.40	1.82	10.0
61	1.71		2.46	100.0
62	1.88		3.12	100.0
63	2.05		3.96	100.0
64	2.25		4.94	100.0
65				100.0

DEATHS AFTER RETIREMENT: According to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014, for service retirements and beneficiaries of retired participants. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

PERCENT MARRIED: 100% of all participants are assumed to be married, with husbands three years older than their wives.

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

ASSET VALUATION METHOD: Market Value.

Report on the GASB Statement No. 68 of the Disability and Retirement Plan of the

Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union

Prepared as of December 31, 2023

August 21, 2024

Pension Board of Trustees
Chattanooga Area Regional Transportation Authority
1617 Wilcox Boulevard
Chattanooga, TN 37406

Ladies and Gentlemen:

Presented in this report is information to assist the Chattanooga Area Regional Transportation Authority (CARTA) in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 68 relating to the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union (the Plan). The information is presented for the period ending December 31, 2023 (the Measurement Date) to assist CARTA in better understanding the requirements of GASB 68 and to identify the information to be provided by the Plan's actuary, CavMac.

GASB 68 established accounting and financial reporting requirements for governmental employers that provide pension benefits to their employees through a trust.

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of January 1, 2024. The valuation was based upon data, furnished by the Plan, concerning active, inactive, and retired members along with pertinent financial information. While not verifying data at the source, the actuary performed tests for consistency and reasonableness.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the Plan, and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the Plan. In addition, the calculations were completed in compliance with the laws governing the Plan. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

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.

These results are only for financial reporting and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 67 and GASB 68 may produce significantly different results. Future actuarial results may differ significantly from the current results presented in this report due to such factors as changes in plan experience or changes in economic or demographic assumptions.

Respectfully submitted,

Edward J. Koebel

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

Jennifer Johnson

Jennifer Johnson
Managing Director

EJK:dv

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**REPORT OF THE ANNUAL GASB STATEMENT NO. 68
REQUIRED INFORMATION FOR
THE DISABILITY AND RETIREMENT PLAN
OF THE CHATTANOOGA AREA
REGIONAL TRANSPORTATION AUTHORITY
AND LOCAL 1212 OF THE AMALGAMATED TRANSIT UNION
PREPARED AS OF DECEMBER 31, 2023**

The Governmental Accounting Standards Board issued Statement No. 68 (GASB 68), "Accounting and Financial Reporting For Pensions", in June 2012. The Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union (the Plan) is a single-employer defined benefit pension plan for general CARTA employees. This report has been prepared as of December 31, 2023. Much of the material provided in this report is based on the data, assumptions, and results of the annual actuarial valuation of the Plan as of January 1, 2024. The results of that valuation were detailed in a report dated July 9, 2024.

GASB 68 includes disclosure and reporting requirements that may or may not be consistent with the basis used for funding the Plan. Two major changes in GASB 68 are the requirements to include a Net Pension Liability (NPL) and recognize a Pension expense (PE) in the financial statements of the participating employer.

Pension Expense includes amounts for service cost (the Normal Cost under Entry Age Normal actuarial cost method for the year), interest on the Total Pension Liability (TPL), changes in benefit structure, amortization of increases/decreases in liability due to actuarial experience and actuarial assumption changes, and amortization of investment gains/losses. The actuarial experience and assumption change impacts are amortized over the average expected remaining service life of the Plan membership as of the Measurement Date, and investment gains/losses are amortized over five years. The development of the PE is shown in Section IV.

The unamortized portions of each year's experience, assumption changes and investment gains/losses are used to develop deferred inflows and outflows, which also must be included on the employer's balance sheet. The development of the collective deferred inflows and outflows is shown in Section III.

SECTION I – INTRODUCTION

Section II of this report is a summary of the principal results of the amounts under GASB 68. The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 68 for note disclosure and Required Supplementary Information (RSI).

SECTION II – SUMMARY OF PRINCIPAL RESULTS

Valuation Date (VD):	January 1, 2024
Measurement Date (MD):	December 31, 2023
Reporting Date (RD):	December 31, 2024
Membership Data:	
Retirees and Survivors	120
Terminated Employees Not Yet Receiving Benefits	12
Active Members	167
Total	299
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	7.00%
Municipal Bond Index Rate at Measurement Date	3.26%
Fiscal Year in which Plan’s Fiduciary Net Position is projected to be depleted from the future benefit payments for current members	N/A
Single Equivalent Interest Rate	7.00%
Net Pension Liability:	
Total Pension Liability (TPL)	$35,830,802
Fiduciary Net Position (FNP)	21,977,197
Net Pension Liability (NPL = TPL – FNP)	$13,853,605
FNP as a percentage of TPL	61.34%
Pension Expense:	$1,868,708
Deferred Outflows of Resources:	$2,133,702
Deferred Inflows of Resources	$816,058

The material presented herein will follow the order presented in GASB 68. Paragraph numbers are provided for ease of reference.

Paragraphs 40(a) and (b): The information required is to be supplied by the Employer.

Paragraph 40(c): The data required regarding the membership of the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority were furnished by the Plan. The following table summarizes the membership of the Plan as of January 1, 2024, the Valuation Date.

Membership

	Number
Inactive Members Or Their Beneficiaries Currently Receiving Benefits	120
Inactive Members Entitled To But Not Yet Receiving Benefits	12
Active Members	167
Total	299

Paragraphs 40(d) and (e): The information required is to be supplied by the Employer.

Paragraphs 41 and 42: These paragraphs require information regarding the actuarial assumptions used to measure the TPL. The actuarial assumptions utilized in developing the TPL are outlined in Schedule C. The total pension liability was determined by an actuarial valuation as of January 1, 2024 using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	3.00 percent
Salary increases	3.50 percent, including inflation
Investment rate of return	7.00 percent, net of pension plan investment expense, including inflation

Both pre-retirement and post-retirement mortality rates were based on the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. The RP-2014

Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement. The actuarial assumptions used in the January 1, 2024 valuation were based on the results of the last actuarial experience analysis performed by the prior actuary in conjunction with the January 1, 2015 valuation. However, the Pension Board voted to lower the investment return assumption from 7.50% to 7.00% at its April 12, 2022 meeting to ensure that the CARTA assumption was within 50 basis points of the assumption used by the Tennessee Consolidated Retirement System (TCRS), which used 6.75% as of their most recent valuation.

Discount rate. The discount rate used to measure the Total Pension Liability was 7.00 percent. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate of 4.50 percent and that Employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Projected future benefit payments for all current plan members were projected through the year 2122. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability and a municipal bond rate was not used in determining the discount rate.

Paragraph 42(g): This paragraph requires disclosure of the sensitivity of the NPL to changes in the discount rate. The following presents the NPL of the Plan, calculated using the discount rate of 7.00 percent, as well as what the Plan's NPL calculated using a discount rate that is 1-percentage-point lower (6.00 percent) or 1-percentage-point higher (8.00 percent) than the current rate:

	1% Decrease 6.00%	Current Discount Rate 7.00%	1% Increase 8.00%
Plan's Net Pension Liability	$17,326,236	$13,853,605	$10,904,172

Paragraph 44: This paragraph requires a schedule of changes in Net Pension Liability. The needed information is provided in the table below.

CHANGES IN THE NET PENSION LIABILITY

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
Balances at December 31, 2022	$34,915,648	$18,909,950	$16,005,698
Changes for the year:			
Service cost	1,203,656		1,203,656
Interest	2,374,628		2,374,628
Benefit changes	0		0
Changes of assumptions	0		0
Difference between expected and actual experience	(678,345)		(678,345)
Contributions - employer		1,882,151	(1,882,151)
Contributions - employee		463,197	(463,197)
Net investment income		2,793,853	(2,793,853)
Benefit payments, including refunds of employee contributions	(1,984,785)	(1,984,785)	0
Administrative expense		(87,169)	87,169
Other changes	0	0	0
Net changes	915,154	3,067,247	(2,152,093)
Balances at December 31, 2023	$35,830,802	$21,977,197	$13,853,605

Paragraph 45(a): The date of the actuarial valuation upon which the actual TPL is based on is January 1, 2024. We have determined an expected TPL as of December 31, 2023 based on the TPL in the December 31, 2022 GASB 67 report. The difference between this amount and the actual TPL as of December 31, 2023 is reflected as an experience gain or loss for the year. These procedures are shown in the following table:

TPL Roll- Forward	
(a) TPL as of December 31, 2022	$34,915,648
(b) Entry Age Normal Cost for the period January 1, 2023 – December 31, 2023	1,203,656
(c) Actual Benefit Payments and Refunds for January 1, 2023 – December 31, 2023	1,984,785
(d) Expected TPL as of December 31, 2023 = [(a) x (1.07)] + (b) – [(c) x (1.035)]	$36,509,147
(e) Actual TPL as of December 31, 2023	$35,830,802
(f) Experience (Gain)/Loss = (e) - (d)	($678,345)

Paragraph 45(c): There have been no changes of assumptions or other inputs used in the measurement of the TPL since the prior measurement date.

Paragraph 45(d): There have been no changes in the benefit terms used in the measurement of the TPL since the prior measurement date.

Paragraph 45(f): There have been no known changes between the measurement date of the net pension liability and reporting date that are expected to have a significant effect on the net pension liability.

Paragraph 45(g): See Section IV for the annual Pension Expense.

Paragraph 45(h): Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce Pension Expense they are labeled deferred inflows. If they will increase Pension Expense they are labeled deferred outflows. The amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average expected remaining service life of the active and inactive Plan members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five-year period.

The table below provides a summary of the deferred inflows and outflows as of December 31, 2023.

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$197,217	$816,058
Changes of Assumptions	823,985	0
Net difference between projected and actual earnings on plan investments	1,112,500	0
Employer contributions subsequent to the Measurement Date	0	0
Total	$2,133,702	$816,058

Paragraph 45(i): Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in Pension Expense as follows:

Deferred Outflows and Inflows for Differences between Expected and Actual Experience

				Balances as of December 31, 2023	
Year	Experience Losses (a)	Experience Gains (b)	Amounts Recognized in Pension Expense through FY 2023 (c)	Deferred Outflows (a) - (c)	Deferred Inflows (b) - (c)
2017	$315,281	$0	$315,281	$0	$0
2018	$0	$530,294	$530,294	$0	$0
2019	$0	$230,162	$197,055	$0	$33,107
2020	$635,477	$0	$438,260	$197,217	$0
2021	$0	$87,820	$46,059	$0	$41,761
2022	$0	$291,316	$106,904	$0	$184,412
2023	$0	$678,345	$121,567	$0	$556,778
Total				$197,217	$816,058

Deferred Outflows and Inflows for Differences from Assumption Changes

				Balances as of December 31, 2023	
Year	Assumption Losses (a)	Assumption Gains (b)	Amounts Recognized in Pension Expense through FY 2023 (c)	Deferred Outflows (a) - (c)	Deferred Inflows (b) - (c)
2021	$1,732,793	$0	$908,808	$823,985	$0
Total				$823,985	$0

Deferred Outflows and Inflows for Differences from Investment Experience					
				Balances as of December 31, 2023	
Year	Investment Losses (a)	Investment Gains (b)	Amounts Recognized in Pension Expense through FY 2023 (c)	Deferred Outflows (a) - (c)	Deferred Inflows (b) - (c)
2019	$0	$1,863,790	$1,863,790	$0	$0
2020	$0	$745,822	$596,656	$0	$149,166
2021	$0	$1,499,912	$899,946	$0	$599,966
2022	$5,050,170	$0	$2,020,068	$3,030,102	$0
2023	$0	$1,460,587	$292,117	$0	$1,168,470
Total				$3,030,102	$1,917,602
Net difference between projected and actual earnings on investments				$1,112,500	$0

SECTION III – FINANCIAL STATEMENT NOTES

Amortization of Deferrals						
	2016 Experience Loss		2017 Investment Gain		2017 Experience Loss	
Fiscal Year End	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
12/31/2022	3,285	0	0	0	51,855	4,151
12/31/2023	0	0	0	0	4,151	0
12/31/2024	0	0	0	0	0	0
12/31/2025	0	0	0	0	0	0
12/31/2026	0	0	0	0	0	0
12/31/2027	0	0	0	0	0	0
12/31/2028	0	0	0	0	0	0
12/31/2029	0	0	0	0	0	0

Amortization of Deferrals (cont.)								
	2018 Investment Loss		2018 Experience Gain		2019 Investment Gain		2019 Experience Gain	
Fiscal Year End	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
12/31/2022	423,686	0	(89,426)	(83,164)	(372,758)	(372,758)	(39,411)	(72,518)
12/31/2023	0	0	(83,164)	0	(372,758)	0	(39,411)	(33,107)
12/31/2024	0	0	0	0	0	0	(33,107)	0
12/31/2025	0	0	0	0	0	0	0	0
12/31/2026	0	0	0	0	0	0	0	0
12/31/2027	0	0	0	0	0	0	0	0
12/31/2028	0	0	0	0	0	0	0	0
12/31/2029	0	0	0	0	0	0	0	0

SECTION III – FINANCIAL STATEMENT NOTES

Amortization of Deferrals (cont.)				
	2020 Investment Gain		2020 Experience Loss	
Fiscal Year End	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
12/31/2022	(149,164)	(298,330)	109,565	306,782
12/31/2023	(149,164)	(149,166)	109,565	197,217
12/31/2024	(149,166)	0	109,565	87,652
12/31/2025	0	0	87,652	0
12/31/2026	0	0	0	0
12/31/2027	0	0	0	0
12/31/2028	0	0	0	0
12/31/2029	0	0	0	0

Amortization of Deferrals (cont.)						
	2021 Investment Gain		2021 Experience Gain		2021 Assumption Change Loss	
Fiscal Year End	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
12/31/2022	(299,982)	(899,948)	(15,353)	(57,114)	302,936	1,126,921
12/31/2023	(299,982)	(599,966)	(15,353)	(41,761)	302,936	823,985
12/31/2024	(299,982)	(299,984)	(15,353)	(26,408)	302,936	521,049
12/31/2025	(299,984)	0	(15,353)	(11,055)	302,936	218,113
12/31/2026	0	0	(11,055)	0	218,113	0
12/31/2027	0	0	0	0	0	0
12/31/2028	0	0	0	0	0	0
12/31/2029	0	0	0	0	0	0

Amortization of Deferrals (cont.)				
	2022 Investment Loss		2022 Experience Gain	
Fiscal Year End	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
12/31/2022	1,010,034	4,040,136	(53,452)	(237,864)
12/31/2023	1,010,034	3,030,102	(53,452)	(184,412)
12/31/2024	1,010,034	2,020,068	(53,452)	(130,960)
12/31/2025	1,010,034	1,010,034	(53,452)	(77,508)
12/31/2026	1,010,034	0	(53,452)	(24,056)
12/31/2027	0	0	(24,056)	0
12/31/2028	0	0	0	0
12/31/2029	0	0	0	0

SECTION III – FINANCIAL STATEMENT NOTES

Amortization of Deferrals (cont.)						
	2023 Investment Gain		2023 Experience Gain		Total Deferrals	
Fiscal Year End	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance	Amount Recognized	EOY Balance
12/31/2022	0	(1,460,587)	0	(678,345)	881,815	1,317,362
12/31/2023	(292,117)	(1,168,470)	(121,567)	(556,778)	(282)	1,317,644
12/31/2024	(292,117)	(876,353)	(121,567)	(435,211)	457,791	859,853
12/31/2025	(292,117)	(584,236)	(121,567)	(313,644)	618,149	241,704
12/31/2026	(292,117)	(292,119)	(121,567)	(192,077)	749,956	(508,252)
12/31/2027	(292,119)	0	(121,567)	(70,510)	(437,742)	(70,510)
12/31/2028	0	0	(70,510)	0	(70,510)	0
12/31/2029	0	0	0	0	0	0

As noted earlier, the Pension Expense (PE) consists of several different items. GASB 68 refers to the first as Service Cost which is the Normal Cost using the Entry Age Normal actuarial funding method, or $1,203,656. The second item is interest on the beginning of year TPL and the cash flows during year at the 7.00% rate of return in effect for the previous valuation used for the calculations. This amounts to $2,374,628.

The next three items refer to any changes that occurred in the actuarial accrued liability (AAL) under EAN (i.e., the change in TPL) due to benefits, experience, or assumptions. Benefit changes can be positive, if there is a benefit improvement for existing Plan members, or negative if there is a benefit reduction. For the year ended December 31, 2023, there was not a benefit change to be recognized.

The next item to be recognized is the portion of current year changes in TPL due to Plan experience, which amounted to ($678,345) for the year. The portion to recognize in the current year is determined by spreading the total change over the average expected remaining service life of the entire Plan membership. The remaining service life of active members is the average number of years the active members are expected to remain active. For the year ended December 31, 2023 this number is 9.63. The remaining service life of the inactive members is zero. Therefore, the figure to use for the amortization is the weighted average of these two amounts, or 5.58. As a result, the amount to recognize in the current year for changes due to Plan experience is ($121,567).

The last item under changes in TPL is changes in actuarial assumptions. There were no changes in assumptions since the last Measurement Date. The change in TPL due to changes in actuarial assumptions is spread over the remaining service life of the entire membership just like Plan experience in the prior paragraph.

Member contributions for the year of $463,197 and projected earnings on the TPL, again at the rate used to calculate the liabilities for the previous valuation, of ($1,333,266) are subtracted from the amount determined thus far. The portion of current-period differences between actual and projected earnings on the FNP ($1,460,587) is included next. This portion is the total difference divided by five, or ($292,117).

The current year portions of previously determined experience, assumption, and earnings amounts, recognized as deferred inflows and outflows (see Section III) are included next. These amount to $191,380 of deferred inflows subtracted from the PE and $604,782 of deferred outflows added to the PE. Finally, administrative expenses $87,169 are included.

SECTION IV – PENSION EXPENSE

As shown in the table below, the Pension Expense for the year ended December 31, 2023 is $1,868,708.

Pension Expense
For the Year Ended December 31, 2023

Service Cost	$1,203,656
Interest on the total pension liability	2,374,628
Current-period benefit changes	0
Expensed portion of current-period difference between expected and actual experience in the total pension liability	(121,567)
Expensed portion of current-period changes of assumptions	0
Member contributions	(463,197)
Projected earnings on plan investments	(1,333,266)
Expensed portion of current-period differences between actual and projected earnings on plan investments	(292,117)
Administrative expense	87,169
Other	0
Recognition of beginning deferred outflows of resources as pension expense	604,782
Recognition of beginning deferred inflows of resources as pension expense	(191,380)
Pension Expense	$1,868,708

SECTION V – REQUIRED SUPPLEMENTARY INFORMATION

There are several tables of Required Supplementary Information (RSI) that need to be included in the Plan's financial statements:

Paragraphs 46(a) and (b): The required tables are provided in Schedule A and the information is as of the Measurement Dates.

Paragraph 46(c): The required table is provided in Schedule A and the information is as of the Employer's Fiscal Year Ends.

Paragraph 47: In addition, the following should be noted regarding the RSI:

Changes of benefit terms: Effective July 1, 2017, the employee contribution rate has been changed from 4.00% to 4.25% of compensation. Effective July 1, 2018, the employee contribution rate has been changed from 4.25% to 4.50% of compensation.

Changes in actuarial assumptions and methods: Effective January 1, 2022, the investment rate of return was lowered from 7.50% to 7.00%.

Method and assumptions used in calculations of actuarially determined contributions. The actuarially determined contribution rates in the schedule of employer contributions are calculated as of the December 31, 12 months prior to the fiscal year end in which contributions are reported (January 1, 2022 valuation for the December 31, 2023 fiscal year). The following actuarial methods and assumptions were used to determine actuarial contribution rates reported in that schedule:

Actuarial cost method	Entry age
Amortization method	Level dollar, closed
Remaining amortization period	24.6 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
Inflation	3.00 percent
Salary increase	3.50 percent, including inflation
Investment rate of return	7.00 percent, net of pension plan investment expense, and including inflation

SCHEDULE A – REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY

	2014*	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability										
Service Cost	$640,413	$781,830	$825,353	$876,699	$897,515	$897,913	$1,031,265	$1,024,251	$1,217,910	1,203,656
Interest	1,702,982	1,685,711	1,793,901	1,889,138	1,998,546	2,037,895	2,088,343	2,215,237	2,281,460	2,374,628
Benefit changes	0	0	1,613	0	0	0	0	0	0	0
Difference between expected and actual experience	599,063	427,251	119,241	315,281	(530,294)	(230,162)	635,477	(87,820)	(291,316)	(678,345)
Changes of assumptions	0	0	0	0	0	0	0	1,732,793	0	0
Benefit payments	(1,863,839)	(1,354,069)	(1,550,446)	(1,390,100)	(1,854,598)	(1,827,627)	(2,238,379)	(1,887,946)	(1,769,394)	(1,984,785)
Refunds of contributions	0	0	0	0	0	0	0	0	0	0
Net change in total pension liability	$1,078,619	$1,540,723	$1,189,662	$1,691,018	$511,169	$878,019	$1,516,706	$2,996,515	$1,438,660	915,154
Total pension liability - beginning	$22,074,557	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$28,963,767	$30,480,473	$33,476,988	34,915,648
Total pension liability - ending (a)	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$28,963,767	$30,480,473	$33,476,988	$34,915,648	35,830,802
Plan net position										
Contributions - employer	$948,691	$1,151,775	$1,209,166	$1,481,647	$1,639,268	$1,799,928	$1,746,168	$1,474,491	$1,847,680	1,882,151
Contributions - member	285,125	301,249	$316,547	$342,803	$403,345	$303,884	$461,933	$388,882	$470,554	463,197
Net investment income	689,053	(234,245)	$717,533	$1,741,636	($997,225)	$2,924,506	$2,030,848	$2,930,169	($3,497,711)	2,793,853
Benefit payments	(1,863,839)	(1,354,069)	($1,550,446)	($1,390,100)	($1,854,598)	($1,827,627)	($2,238,379)	($1,887,946)	($1,769,394)	(1,984,785)
Administrative expense	(91,581)	(104,038)	($25,581)	($86)	($24,333)	($58,591)	($54,703)	($79,324)	($89,492)	(87,169)
Refunds of contributions	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0
Net change in plan net position	($32,551)	($239,328)	$667,219	$2,175,900	($833,543)	$3,142,100	$1,945,867	$2,826,272	($3,038,363)	3,067,247
Plan net position - beginning	$12,296,377	$12,263,826	$12,024,498	$12,691,717	$14,867,617	$14,034,074	$17,176,174	$19,122,041	$21,948,313	18,909,950
Plan net position - ending (b)	$12,263,826	$12,024,498	$12,691,717	$14,867,617	$14,034,074	$17,176,174	$19,122,041	$21,948,313	$18,909,950	21,977,197
Net pension liability - ending (a) - (b)	$10,889,350	$12,669,401	$13,191,844	$12,706,962	$14,051,674	$11,787,593	$11,358,432	$11,528,675	$16,005,698	13,853,605

* As reported by prior actuary.

SCHEDULE A – REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF THE NET PENSION LIABILITY

	2014*	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability	$23,153,176	$24,693,899	$25,883,561	$27,574,579	$28,085,748	$29,841,786	$30,480,473	$33,476,988	$34,915,648	35,830,802
Plan net position	12,263,826	12,024,498	12,691,717	14,867,617	14,034,074	20,318,274	19,122,041	21,948,313	18,909,950	21,977,197
Net pension liability	$10,889,350	$12,669,401	$13,191,844	$12,706,962	$14,051,674	$9,523,512	$11,358,432	$11,528,675	$16,005,698	13,853,605
Ratio of plan net position to total pension liability	52.97%	48.69%	49.03%	53.92%	49.97%	68.09%	62.74%	65.56%	54.16%	61.34%
Covered payroll	$7,460,259	$8,249,619	8,721,617	9,407,872	9,537,829	9,513,855	10,609,212	10,647,609	11,067,543	11,283,355
Net pension liability as a percentage of covered payroll	145.96%	153.58%	151.25%	135.07%	147.33%	100.10%	107.06%	108.27%	144.62%	122.78%

* As reported by prior actuary.

SCHEDULE A – REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF EMPLOYER CONTRIBUTIONS

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Actuarially determined employer contribution	$1,749,656	$1,597,649	$1,497,359	$1,503,274	$1,497,141	$1,435,535	$1,379,283	$1,309,734	1,231,247	1,231,247
Actual employer contributions	1,882,151	1,847,680	1,474,491	1,746,168	1,799,928	1,639,268	1,481,647	1,209,166	1,147,202	948,691
Annual contribution deficiency/(excess)	($132,495)	($250,031)	$22,868	($242,894)	($302,787)	($203,733)	($102,364)	$100,568	84,045	282,556
Covered payroll	$11,283,355	$11,067,543	$10,647,609	$10,609,212	$9,513,855	$9,537,829	$9,407,872	$8,721,617	8,249,619	7,460,259
Actual contributions as a percentage of covered payroll	16.68%	16.69%	13.85%	16.46%	18.92%	17.19%	15.75%	13.86%	13.91%	12.72%

SCHEDULE B – SUMMARY OF BENEFIT PROVISIONS EVALUATED

The following summary gives the main participation, benefit and contribution provisions of the Plan as interpreted in preparing the actuarial valuation. "Monthly Average Earnings" 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. "Service" is the length of time a person participated in the Plan or any former plan prior to the date as of which Service is being determined, expressed in years and completed calendar months.

Effective Date	September 1, 1945 (Southern Coach) August, 1 1989 (CARTA only)
Date last Amended	Through December 2013 as reflective in collective bargaining agreement dated August 1, 2012
Eligibility to Participate	After 60 days of service with CARTA

CONTRIBUTIONS

Employee	2.00% of Earnings $195 monthly max 3.00% of Earnings effective September 1, 2007 3.50% of Earnings effective September 1, 2008 4.00% of Earnings effective August 1, 2012 4.25% of Earnings effective July 1, 2017 4.50% of Earnings effective July 1, 2018 Effective September 1, 2008 – employee contribution will earn 4.5%
Employer	7% of Earnings effective July 1, 2003 and $195 monthly max 9% of Earnings effective September 1, 2007 10.5% of Earnings effective September 1, 2008 11.75% of Earnings effective August 1, 2012 12.6% of Earnings effective July 1, 2013 ADEC based on Funding Policy effective January 1, 2015

NORMAL RETIREMENT

Eligibility	Earlier of: 1) Age 65 and 5 years of service 2) Age when sum of service and age first equals or exceeds 85 (Rule of 85).
Benefit	For employees hired before October 1, 2012: Greater of (a) or (b) a) 2% of three-year monthly average earnings multiplied by service b) if more than 20 years of service, accrual rate is 2.15% for all service For employees hired after September 30, 2012: 2% of three-year monthly average earnings multiplied by service and minimum monthly benefit of $115.00. For all employees, the maximum monthly benefit is 50% of three-year monthly average earnings.

EARLY RETIREMENT

Eligibility	Age 55 and 15 years of service.

Benefit

Accrued normal retirement benefit deferred to age 65 of immediate benefit equal to deferred benefit multiplied by the applicable percentage as follows:

Retirement Age	Early Retirement Percentage
55	50.0%
56	53.3
57	56.7
58	60.0
59	63.3
60	66.7
61	73.3
62	80.0
63	86.7
64	93.3

DEFERRED VESTED RETIREMENT

Eligibility

5 years of service.

Benefit

Accrued benefit deferred to age 65, or, if at least 15 years of service, reduced benefit at age 55. Reduction same as for early retirement.

DISABILITY RETIREMENT

Eligibility

Disability occurring after ten years of service but prior to age 65.

Benefit

Accrued Normal Retirement Benefit reduced according to the following:

Years of Service	Percentage of Accrued Normal Retirement Benefit
10 but less than 15	50%
15 but less than 20	75%
20 but less than 25	90%
25 but less than 30	95%
At least 30	100%

SPOUSE'S BENEFIT

Eligibility	Death while employed.
Benefit	
Non-vested	Return of employee contributions (without interest)
Vested but Prior to Eligibility for Early or Normal Retirement	Accrued benefit payable under a 50% joint and survivor option, deferred to the earliest date the member would have been eligible for a normal retirement benefit. If the member had at least 15 years of service at death, assumed deferred to age 55 and payable at 50% joint and survivor early retirement benefit.
Eligible for Early or Normal Retirement	Benefit employee would have received had he retired on the date of death under the 50% joint and survivor option.

OTHER BENEFITS ON SEPARATION FROM SERVICE

Prior to Eligibility for a Retirement Benefit	Return of employee contributions with interest credited after September 1, 2008.

FORM OF BENEFITS

Normal Form	Life annuity with guarantee of return of employee contributions.
Optional Forms	(a) Reduced benefit payable for life but with payments guaranteed for 10 years. (b) Reduced benefit during retiree's life with 50% or 100% of reduced amount payable to spouse after death.

DEFFERED RETIREMENT OPTION PLAN (DROP)

Eligibility	Rule of 85.
Benefit	Monthly Accrued Retirement Benefit payable into separate account in Plan while member is still working.
Duration	For Employees hired before October 1, 2012: 60 months, after which member formally retires and regular monthly benefit commences. For Employees hired after September 30, 2012: 48 months, after which member formally retires and regular monthly benefit commences.
Investment return on DROP account	4.5%

SCHEDULE C – STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions used in this valuation were developed by the previous actuary. However, the Pension Board adopted the investment return assumption of 7.00% at its meeting on April 12, 2022 to be used for this valuation and all others in the future.

INVESTMENT RATE OF RETURN: 7.00% per annum, compounded annually, net of investment expenses.

CONTRIBUTION EARNINGS RATE: 2.5% 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. Effective September 1, 2008, 4.5% 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: 3.50% per annum, compounded annually.

SEPARATIONS FROM ACTIVE SERVICE: Mortality rates are according to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. Representative values of the assumed annual rates of disability, withdrawal and service retirement are as follows:

Annual Rate of				
			Retirement	
Age	Disability	Withdrawal	Reduced	Unreduced
20		17.13%		
25		14.62		
30	0.09%	7.80		
35	0.11	5.73		
40	0.17	4.71		
45	0.30	3.29		
50	0.50	2.11		4.0%
55	0.88	1.06	1.20%	5.0
60	1.56	0.40	1.82	10.0
61	1.71		2.46	100.0
62	1.88		3.12	100.0
63	2.05		3.96	100.0
64	2.25		4.94	100.0
65				100.0

DEATHS AFTER RETIREMENT: According to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014, for service retirements and beneficiaries of retired participants. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

PERCENT MARRIED: 100% of all participants are assumed to be married, with husbands three years older than their wives.

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

ASSET VALUATION METHOD: Market Value.

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GASB STATEMENT NO. 75 REPORT

FOR THE

POST-RETIREMENT BENEFITS OF THE

CHATTANOOGA AREA REGIONAL TRANSPORTATION AUTHORITY

AND LOCAL 1212 OF THE AMALGAMATED TRANSIT UNION

PREPARED AS OF JUNE 30, 2023

FOR JUNE 30, 2023 FINANCIAL REPORTING

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August 16, 2023

Pension Board of Trustees
Chattanooga Area Regional Transportation Authority
617 Wilcox Boulevard
Chattanooga, TN 37406

Re: June 30, 2023 GASB 75 Report for the Post-Retirement Benefits of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union (CARTA)

Members of the Board:

Presented in this report is information to assist The Chattanooga Area Regional Transportation Authority (CARTA) in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 75 for the Other Post-Retirement Benefits of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Authority (Plan). GASB Statement No. 75 (GASB 75) establishes accounting and financial reporting requirements for governmental employers who have other postemployment benefits (OPEB) plans. This report has been prepared by CARTA's actuary, Cavanaugh Macdonald Consulting (CMC), as of June 30, 2023 (Measurement Date) for financial reporting as of June 30, 2023.

The information contained in this report is intended to be used by CARTA for financial reporting purposes for the fiscal year ending on June 30, 2023 and its use for other purposes may not be appropriate. Calculations for purposes other than satisfying the requirements of GASB 75 may produce significantly different results. This report supersedes all June 30, 2023 actuarial valuation reports for the Plan issued prior to the date of this report.

The actuarial valuation used as a basis for much of the information presented in this report was performed as of June 30, 2023 (Valuation Date). In preparing the valuation, the actuary relied on data provided by CARTA. This information was reviewed for completeness and internal consistency but was not audited by us. The valuation results depend on the integrity of the data. If any of the information is inaccurate or incomplete, our results may be different, and our calculations may need to be revised. Likewise, this report may need to be revised to reflect any significant event that affects the plan subsequent to the valuation date.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial principles and practices, as well as in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board. The calculations are based on the current provisions of the Plan, and on actuarial assumptions other than discount rates under GASB accounting rules that are internally consistent and individually reasonable based on the actual or anticipated experience of the Plan. Discount rates for financial accounting purposes are determined based on the methods prescribed by GASB accounting rules. The actuarial cost and amortization methods are prescribed by CARTA and/or GASB accounting rules. In addition, we believe that the calculations were completed in compliance with the laws governing the Plan and meet the requirements of GASB 75, including any applicable guidance provided by CARTA or its audit partners as of the date of this report. Ed Koebel is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. All sections of this report, including any appendices and attachments, are considered an integral part of the actuarial opinions.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com
Offices in Kennesaw, GA • Bellevue, NE

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: retiree group benefits program experience differing from that anticipated by the assumptions; changes in 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 retiree group benefits program provisions or applicable law. Retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. 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. This report does not consider all possible scenarios.

The funded status measurements included in this report are based on the assumptions and methods used to determine the Plan's obligations and asset values as of the valuation and/or measurement date under GASB accounting rules. Funded status measurements for financial accounting purposes may not be appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations. Likewise, funded status measurements for financial accounting purposes may not be appropriate for assessing the need for or the amount of future actuarially determined contributions. Funded status measurements would also be different if there is any change in the plan's funding vehicle that would allow a market value of assets to be used in these calculations.

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.

Cavanaugh Macdonald Consulting, LLC does not provide legal, investment, or accounting advice. Thus, the information in this report is not intended to supersede or supplant the advice and interpretations of the Commission or its audit partners.

If you have any questions, please call us at 678-388-1700.

Respectfully submitted,

Edward J. Koebel

Jennifer Johnson

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

Jennifer Johnson
Senior Consultant

EJK/jj

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Section I – Summary of Principal Results

**REPORT OF THE ANNUAL GASB STATEMENT NO. 75
REQUIRED INFORMATION FOR THE
POST-RETIREMENT BENEFITS OF THE CHATTANOOGA AREA REGIONAL TRANSPORTATION AUTHORITY AND LOCAL 1212 OF THE AMALGAMATED TRANSIT UNION**

Valuation Date (VD):	June 30, 2023
Measurement Date (MD):	June 30, 2023
Reporting Date (RD):	June 30, 2023
Membership Data as of June 30, 2023:	
Retired Members Currently Receiving Benefits	102
Inactive Members Entitled To But Not Yet Receiving Benefits	0
DROP Members	12
Active Members	178
Total Membership	292
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	3.00%
Municipal Bond Index Rate at Measurement Date	3.66%
Fiscal Year in which Plan's Fiduciary Net Position is projected to be depleted from future benefit payments for current members	2023
Single Equivalent Interest Rate	3.66%
Total OPEB Liability as of Measurement Date:	$189,917
OPEB Expense:	$273
Deferred I/O Balances as of the Measurement Date*	
Deferred Inflow of Resources:	$32,707
Deferred Outflow of Resources:	$5,467

*Deferred Outflows and Deferred Inflows of Resources subsequent to the Measurement Date may need to be reported by the employer. CMC did not incorporate these amounts in this report.

Section II – Introduction

The Governmental Accounting Standards Board issued Statement No. 75 (GASB 75), "*Accounting and Financial Reporting for Postemployment Benefit Plans Other Than Pensions*" in June 2015. GASB 75's effective date is for an employer's fiscal year beginning after June 15, 2017. For the purposes of reporting under GASB 75, the Plan is assumed to be a single-employer defined benefit OPEB plan without a special funding situation where no assets are accumulated in a trust that meets the criteria in paragraph 4 of GASB 75.

This report, prepared as of June 30, 2023 (Measurement Date or MD), presents information to assist CARTA in meeting the requirements of GASB 75. Much of the material provided in this report is based on the data, assumptions, and results of the annual actuarial valuation of the Plan, as of June 30, 2023 (Valuation Date or VD).

GASB 75 replaced GASB 45 and represents a significant departure from the requirements of the prior statement. GASB 45 required employers providing benefits through OPEB plans to report items consistent with the results of the plan's actuarial valuations as long as those valuations met certain parameters. GASB 75 creates disclosure and reporting requirements that may or may not be consistent with the basis used for funding the Plan. In fact, GASB 75 paragraph B10 states:

> "The Board concluded that it is not within the scope of its activities to set standards that establish a specific method of financing OPEB (that being a policy decision for government officials or other responsible authorities to make) or to regulate a government's compliance with the financing policy or method it adopts. Accordingly, the Board established standards in this Statement within the context of accounting and financial reporting, not within the context of the funding of OPEB."

A major change in GASB 75 is the requirement to determine the Total OPEB Liability (TOL) utilizing the Entry Age Normal (EAN) actuarial funding method. If the valuation date at which the TOL is determined is the initial measurement date, as is the case here, the TOL must be rolled back to the prior measurement date. For purposes of the rollback, the expected payments are assumed equal to the actual payments for the period. The plan provisions recognized in the calculation of the TOL are summarized in Schedule B. The changes in the TOL during the measurement period are shown in Section III.

Among the items needed for the liability calculation is the discount rate, as defined by Paragraph 155 of GASB 75 to be a 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate (Municipal Bond Index Rate). The Municipal Bond Index Rate used for this purpose is the June average of the Bond Buyer General Obligation 20-year Municipal Bond Index published weekly by The Bond Buyer (www.bondbuyer.com). The Municipal Bond Index Rate as of the Measurement Date was 3.66%.

Section II – Introduction (continued)

Another major change in GASB 75 is the requirement to determine and disclose an OPEB Expense (OE) in the Notes to Financial Statements. The OE includes amounts for Service Cost (the Normal Cost under EAN for the year), interest, and recognition of increases/decreases in the TOL due to changes in benefit structure, actuarial experience, and actuarial assumption changes. The actuarial experience and assumption change impacts are recognized over the average expected remaining service life of the plan membership (active employees and inactive employees) at the beginning of the measurement period. The development of the OE is shown in Section IV.

The unrecognized portions of each year's experience and assumption changes are used to develop the Deferred Outflows of Resources and Deferred Inflows of Resources that must be included on the Statement of Net Position.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 75, for note disclosure and Required Supplementary Information (RSI) of the reporting entity's financial report.

Section III – Financial Statement Notes

The material presented herein will follow the order presented in GASB 75. Paragraph numbers are provided for ease of reference.

Paragraphs 165(a)-(b): CMC was not expected to supply this information.

Paragraph 165(c): The data required regarding the membership of the Plan was furnished by CARTA. The following table summarizes the membership of the Plan as of June 30, 2023, the Valuation Date.

Membership

	Number
Inactive Employees or Beneficiaries Currently Receiving Benefits	102
Inactive Members Entitled To But Not Yet Receiving Benefits	0
DROP Members	12
Active Employees	178
Total Membership	292

Paragraphs 165(d): CMC was not expected to supply this information.

Paragraphs 165(e): CMC was not expected to supply this information.

Section III – Financial Statement Notes (continued)

Paragraph 166: Listed below is the information to be disclosed regarding the actuarial assumptions and other inputs used to measure the TOL. The complete set of actuarial assumptions and other inputs utilized in developing the TOL are outlined in Schedule C. The TOL was determined by an actuarial valuation as of June 30, 2023, using the following key actuarial assumptions and other inputs:

Inflation	3.00%
Salary increases	N/A
Municipal Bond Index Rate at Measurement Date	3.66%
Single Equivalent Interest Rate	3.66%

Mortality rates were based on the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014, for service. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

Paragraphs 167(a): Not applicable

Paragraphs 167(b): This paragraph requires disclosure of the sensitivity of the TOL to changes in the discount rate. The following exhibits present the TOL of the Plan, calculated using the discount rate of 3.66%, as well as what the Plan's TOL would be if it were calculated using a Discount Rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate:

	1% Decrease (2.66%)	Current Assumption (3.66%)	1% Increase (4.66%)
Total OPEB liability	$ 215,865	$ 189,917	$ 169,008

Section III – Financial Statement Notes (continued)

Paragraph 168(a)-(c): This paragraph requires a schedule of changes in the Total OPEB Liability (TOL). The needed information is shown in the following table:

Changes in the TOL	
Total OPEB Liability as of June 30, 2022	$196,763
Changes for the year:	
Service Cost at the end of the year*	3,276
Interest on TOL and Cash Flows	6,479
Change in benefit terms	0
Difference between expected and actual experience	(650)
Changes of assumptions or other inputs	(6,942)
Benefit payments	(9,009)
Other	0
Net changes	($6,846)
Total OPEB Liability as of June 30, 2023	$189,917

*The service cost includes interest for the year.

Paragraph 168(d): The employer does not have a special funding situation.

Paragraph 169(a): The TOL is based upon an actuarial valuation performed as of the Valuation Date, June 30, 2023. An expected TOL is determined as of June 30, 2023 using standard roll forward techniques. The roll forward calculation begins with the TOL as of the prior Measurement Date, June 30, 2022, adds the annual Normal Cost (also called the Service Cost), adds interest at the Discount Rate for the year, and then subtracts the expected benefit payments for the year. The difference between this expected TOL and the actual TOL as of the Measurement Date before reflecting any assumption changes is reflected as an experience gain or loss for the year. The difference between the actual TOL as of the Measurement Date before and after reflecting any assumption changes is reflected as an assumption change gain or loss for the year.

Paragraph 169(b): Our understanding is that the employer does not have a special funding situation.

Paragraph 169(c): The discount rate has been changed from 3.37% to 3.66% since the Prior Measurement Date as a result of the change in the Municipal Bond Rate.

Paragraph 169(d): There have been no benefit changes since the Prior Measurement Date.

Section III – Financial Statement Notes (continued)

Paragraph 169(e): No benefit payments are attributable to the purchase of allocated insurance contracts.

Paragraph 169(f): CMC was not expected to supply this information.

Paragraph 169(g): Please see Section IV for the development of the OPEB Expense (OE).

Paragraphs 169(h)(1)-(2): Since certain expense items are recognized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts will increase OPEB Expense they are labeled Deferred Outflows of Resources. If they serve to reduce OPEB Expense they are labeled Deferred Inflows of Resources. The recognition of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions or other inputs, if any, are recognized over the average expected remaining service life of the active and inactive Plan members at the beginning of the measurement period.

Section III – Financial Statement Notes (continued)

The following table provides a summary of the Deferred Outflows of Resources and Deferred Inflows of Resources as of June 30, 2023:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 325	$ 6,441
Changes of assumptions or other inputs	5,142	26,266
Total	$ 5,467	$ 32,707

Deferred Outflows and Deferred Inflows of Resources subsequent to the Measurement Date may need to be reported by the employer. CMC will not provide or incorporate these amounts in this report.

Paragraph 169(h)(3): Our understanding is that the employer does not have a special funding situation.

Paragraph 169(h)(4): CMC was not expected to supply this information.

Paragraphs 169(i)(1)-(2): Amounts reported as Deferred Outflows of Resources and Deferred Inflows of Resources related to OPEB benefits will be recognized in OPEB Expense as follows:

Measurement Period Ended June 30:		
2024	$	(9,647)
2025	$	(8,587)
2026	$	(8,014)
2027	$	(992)
2028	$	0
Thereafter	$	0

Paragraph 169(i)(3): Our understanding is that the employer does not have a special funding situation.

Paragraph 169(j): CMC was not expected to supply this information.

Section IV – OPEB Expense

The OPEB Expense (OE) consists of several different items. GASB 75 refers to the first item as Service Cost which is the Normal Cost using the Entry Age Normal actuarial funding method. The second item is interest on the TOL at 3.37%, the Discount Rate in effect as of the Prior Measurement Date.

The next three items refer to any changes that occurred in the TOL due to:

- benefit changes, or
- actual versus expected experience, or
- changes in assumptions or other inputs.

Benefit changes, which are reflected immediately, will increase OE, if there is a benefit improvement for existing Plan members, or decrease OE, if there is a benefit reduction. For the year ended June 30, 2023, there were no benefit changes to be recognized.

The next item to be recognized is the portion of current year changes in TOL due to actual versus expected Plan experience for the year. The portion to recognize in the current year is determined by spreading the total change over the average expected remaining service life of the entire Plan membership at the beginning of the measurement period. The average expected remaining service life of active members is the average number of years the active members are expected to remain in covered employment. The average expected remaining service life of the inactive members is zero. The recognition period is the weighted average of these two amounts (not less than 1 year). The recognition period is 4.6 years.

The last item under changes in TOL is changes in assumptions or other inputs. The change in TOL resulting from the change in assumptions is to be recognized in the OPEB Expense (OE), beginning in the current measurement period, over a closed period equal to 4.6 years, using the same approach applied to Plan experience as described in the prior paragraph.

The current year portions of previously determined experience and assumption amounts, recognized as Deferred Outflows of Resources and Deferred Inflows of Resources (see Section III), are included on the following page. Deferred Outflows of Resources are added to the OE while Deferred Inflows of Resources are subtracted from the OE. Finally, other miscellaneous items are included.

Section IV – OPEB Expense (continued)

The calculation of the OPEB Expense (OE) for the year ended June 30, 2023 is shown in the following table:

OPEB Expense For Year Ending June 30, 2023		
Service Cost at end of year*	$	3,276
Interest on the Total OPEB Liability		6,479
Current-period benefit changes		0
Expensed portion of current-period difference between expected and actual experience in the Total OPEB Liability		(141)
Expensed portion of current-period changes of assumptions		(1,509)
Expensed portion of current-period differences between actual and projected earnings on plan investments		0
Administrative Costs		0
Other		0
Recognition of beginning Deferred Outflows of Resources as OPEB Expense		5,671
Recognition of beginning Deferred Intflows of Resources as OPEB Expense		(13,503)
OPEB expense	$	273

*The service cost includes interest for the year.

Schedule A – Required Supplementary Information

Paragraphs 170(a)-(b)(1): A 10-year schedule of changes in Total OPEB Liability and related ratios are shown in the following table. Only the initial year is displayed. Additional years will be added in the future.

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total OPEB liability											
Service Cost at end of year	$ 3,246	$ 3,273	$ 3,215	$ 4,073	$ 4,429	$ 3,276					
Interest	6,877	6,975	6,930	4,947	4,828	6,479					
Changes of benefit terms	8,107	0	0	0	0	0					
Difference between expected and actual experience	0	1,438	(29,766)	(1,198)	549	(650)					
Changes of assumptions	0	0	23,892	1,945	(35,201)	(6,942)					
Benefit payments	(13,418)	(16,568)	(9,758)	(9,006)	(9,007)	(9,009)					
Other	0	0	0	0	0	0					
Net change in total OPEB liability	4,812	(4,882)	(5,487)	761	(34,402)	(6,846)					
Total OPEB liability - beginning	235,961	240,773	235,891	230,404	231,165	196,763					
Total OPEB liability - ending	$ 240,773	$ 235,891	$ 230,404	$ 231,165	$ 196,763	$ 189,917					
Covered-employee payroll	$ 9,407,872	$ 9,537,829	$ 9,513,855	$ 10,609,212	$10,647,609	$11,067,543					
Total OPEB Liability as a percentage of covered-employee payroll	2.56%	2.47%	2.42%	2.18%	1.85%	1.72%					

Paragraph 170(b)(2): Our understanding is that the employer does not have a special funding situation.

Paragraph 171: CMC was not expected to supply this information.

Schedule B – Summary of Main Plan Provisions

1. Retiree life insurance for all retirees in the amount of $1,500; only for retiree, not spouse or dependents. It begins at the date of retirement. Current retiree life insurance premium is $9.28 per year.
2. A supplemental retirement benefit in the amount of $750 per month for a retiree (birthdate of 5/12/1942).

Schedule C – Statement of Actuarial Assumptions and Methods (continued)

SINGLE EQUIVALENT INTEREST RATE: 3.66% per annum, compounded annually.

SEPARATION FROM ACTIVE SERVICE: Mortality rates are according to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. Representative values of the assumed annual rates of disability, withdrawal and service retirement are as follows:

		Annual Rate of		
			Retirement	
Age	Disability	Withdrawal	Reduced	Unreduced
20		17.13%		
25		14.62		
30	0.09%	7.80		
35	0.11	5.73		
40	0.17	4.71		
45	0.30	3.29		
50	0.50	2.11		4.0%
55	0.88	1.06	1.20%	5.0
60	1.56	0.40	1.82	10.0
61	1.71		2.46	100.0
62	1.88		3.12	100.0
63	2.05		3.96	100.0
64	2.25		4.94	100.0
65				100.0

DEATHS AFTER RETIREMENT: According to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014, for service. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

ASSET VALUATION METHOD: Market value.

ACTUARIAL METHOD: Costs were determined using the Entry Age Normal Actuarial Cost Method. This method allocates the actuarial present value of each member's projected benefits on a level basis over the member's compensation between the entry-age of the member and the expected exit ages. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future costs is called the actuarial accrued liability. The excess of the actuarial accrued liability over current assets is the unfunded actuarial accrued liability.

BENEFITS VALUED: Retiree life insurance for all retirees and supplemental benefits for one retiree.

Schedule D – Actuarial Cost Method

The valuation is prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable at retirement, disability or death. The calculations are based on the member's age, years of service, sex, compensation, expected future salary increases, and an assumed future investment rate of return. The calculations consider the probability of a member's death or termination of employment prior to becoming eligible for a benefit and the probability of the member terminating with a service, disability, or survivor's benefit. The present value of the expected benefits payable to active members is added to the present value of the expected future payments to current benefit recipients to obtain the present value of all expected benefits payable to the present group of members and survivors.

The employer contributions required to support the benefits of the Plan are determined following a level funding approach and consist of a normal contribution and an actuarial accrued liability contribution.

The actuarial accrued liability is determined using the "entry age normal" method. Under this method, the accrued liability is the difference between the present value of expected future benefits payable, as described above, and the present value of expected future normal cost, as described below.

The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made for OPEB benefits to determine the uniform and constant percentage rate of employer contribution. This contribution will be applied to the compensation of the average new member during the entire period of his anticipated covered service, ceasing when both the member and spouse are no longer members of the plan. This contribution would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.

Schedule E – Balances of Deferred Outflows and Deferred Inflows of Resources

The following schedules provide the balances of Deferred Outflows of Resources and Deferred Inflows of Resources that are reported for differences between expected and actual experience and changes of assumptions or other inputs. For the following exhibits:

- There are no differences between expected and actual experience to be recognized from periods prior to June 30, 2019.
- Deferred Outflows of Resources balances increase the OPEB Expense and Deferred Inflows of Resources balances decrease the OPEB Expense.

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Schedule E – Balances of Deferred Outflows and Deferred Inflows of Resources (continued)

DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES ARISING FROM DIFFERENCES BETWEEN EXPECTED AND ACTUAL EXPERIENCE

Measurement Period Ending	Experience Losses (a)	Experience Gains (b)	Recognition Period (Years) (c)	Amounts Recognized in OPEB Expense through June 30, 2023 (d)	Balances as of June 30, 2023: Deferred Outflows of Resources (a) – (d)	Balances as of June 30, 2023: Deferred Inflows of Resources (b) – (d)
2023	$0	$650	4.6	$141	$0	$509
2022	$549	$0	4.9	$224	$325	$0
2021	$0	$1,198	4.9	$732	$0	$466
2020	$0	$29,766	4.9	$24,300	$0	$5,466
2019	$1,438	$0	5.0	$1,438	$0	$0
					$325	$6,441

DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES ARISING FROM CHANGES OF ASSUMPTIONS OR OTHER INPUTS

Measurement Period Ending	Increases in Total OPEB Liability (a)	Decreases in Total OPEB Liability (b)	Recognition Period (Years) (c)	Amounts Recognized in OPEB Expense through June 30, 2023 (d)	Balances as of June 30, 2023: Deferred Outflows of Resources (a) – (d)	Balances as of June 30, 2023: Deferred Inflows of Resources (b) – (d)
2023	$0	$6,942	4.6	$1,509	$0	$5,433
2022	$0	$35,201	4.9	$14,368	$0	$20,833
2021	$1,945	$0	4.9	$1,191	$754	$0
2020	$23,892	$0	4.9	$19,504	$4,388	$0
2019	$0	$0	5.0	$0	$0	$0
					$5,142	$26,266

Report on the GASB Statement No. 75 for the Post-Retirement Benefits of the

Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union

Prepared as of June 30, 2024

August 21, 2024

Pension Board of Trustees
Chattanooga Area Regional Transportation Authority
617 Wilcox Boulevard
Chattanooga, TN 37406

Re: June 30, 2024 GASB 75 Report for the Post-Retirement Benefits of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union (CARTA)

Members of the Board:

Presented in this report is information to assist The Chattanooga Area Regional Transportation Authority (CARTA) in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 75 for the Other Post-Retirement Benefits of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Authority (Plan). GASB Statement No. 75 (GASB 75) establishes accounting and financial reporting requirements for governmental employers who have other postemployment benefits (OPEB) plans. This report has been prepared by CARTA's actuary, CavMac, as of June 30, 2024 (Measurement Date) for financial reporting as of June 30, 2024.

The information contained in this report is intended to be used by CARTA for financial reporting purposes for the fiscal year ending on June 30, 2024 and its use for other purposes may not be appropriate. Calculations for purposes other than satisfying the requirements of GASB 75 may produce significantly different results. This report supersedes all June 30, 2024 actuarial valuation reports for the Plan issued prior to the date of this report.

The actuarial valuation used as a basis for much of the information presented in this report was performed as of June 30, 2024 (Valuation Date). In preparing the valuation, the actuary relied on data provided by CARTA. This information was reviewed for completeness and internal consistency but was not audited by us. The valuation results depend on the integrity of the data. If any of the information is inaccurate or incomplete, our results may be different, and our calculations may need to be revised. Likewise, this report may need to be revised to reflect any significant event that affects the plan subsequent to the valuation date.

ATLANTA OFFICE | 3550 Busbee Parkway | Suite 250 | Kennesaw, GA 30144
Phone: 678-388-1700 | **CavMacConsulting.com**

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial principles and practices, as well as in conformity with the Actuarial Standards of Practice issued by the Actuarial Standards Board. The calculations are based on the current provisions of the Plan, and on actuarial assumptions other than discount rates under GASB accounting rules that are internally consistent and individually reasonable based on the actual or anticipated experience of the Plan. Discount rates for financial accounting purposes are determined based on the methods prescribed by GASB accounting rules. The actuarial cost and amortization methods are prescribed by CARTA and/or GASB accounting rules.

In addition, we believe that the calculations were completed in compliance with the laws governing the Plan and meet the requirements of GASB 75, including any applicable guidance provided by CARTA or its audit partners as of the date of this report. Ed Koebel is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. All sections of this report, including any appendices and attachments, are considered an integral part of the actuarial opinions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: retiree group benefits program experience differing from that anticipated by the assumptions; changes in 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 retiree group benefits program provisions or applicable law. Retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. 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. This report does not consider all possible scenarios.

The funded status measurements included in this report are based on the assumptions and methods used to determine the Plan's obligations and asset values as of the valuation and/or measurement date under GASB accounting rules. Funded status measurements for financial accounting purposes may not be appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations. Likewise, funded status measurements for financial accounting purposes may not be appropriate for assessing the need for or the amount of future actuarially determined contributions. Funded status measurements would also be different if there is any change in the plan's funding vehicle that would allow a market value of assets to be used in these calculations.

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.

Cavanaugh Macdonald Consulting, LLC does not provide legal, investment, or accounting advice. Thus, the information in this report is not intended to supersede or supplant the advice and interpretations of the Commission or its audit partners.

If you have any questions, please call us at 678-388-1700.

Respectfully submitted,

Edward J. Koebel

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

Jennifer Johnson

Jennifer Johnson
Managing Director

EJK/dv

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REPORT OF THE ANNUAL GASB STATEMENT NO. 75 REQUIRED INFORMATION FOR THE POST-RETIREMENT BENEFITS OF THE CHATTANOOGA AREA REGIONAL TRANSPORTATION AUTHORITY AND LOCAL 1212 OF THE AMALGAMATED TRANSIT UNION

Valuation Date (VD):	June 30, 2024
Measurement Date (MD):	June 30, 2024
Reporting Date (RD):	June 30, 2024
Membership Data as of June 30, 2024:	
Retired Members Currently Receiving Benefits	100
Inactive Members Entitled To But Not Yet Receiving Benefits	0
DROP Members	12
Active Members	167
Total Membership	279
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	3.00%
Municipal Bond Index Rate at Measurement Date	3.94%
Fiscal Year in which Plan's Fiduciary Net Position is projected to be depleted from future benefit payments for current	2024
Single Equivalent Interest Rate	3.94%
Total OPEB Liability as of Measurement Date:	$179,867
OPEB Expense/(Asset):	($2,012)
Deferred I/O Balances as of the Measurement Date*	
Deferred Inflow of Resources:	$26,839
Deferred Outflow of Resources:	$570

*Deferred Outflows and Deferred Inflows of Resources subsequent to the Measurement Date may need to be reported by the employer. CavMac did not incorporate these amounts in this report.

SECTION II – INTRODUCTION

The Governmental Accounting Standards Board issued Statement No. 75 (GASB 75), "*Accounting and Financial Reporting for Postemployment Benefit Plans Other Than Pensions*" in June 2015. GASB 75's effective date is for an employer's fiscal year beginning after June 15, 2017. For the purposes of reporting under GASB 75, the Plan is assumed to be a single-employer defined benefit OPEB plan without a special funding situation where no assets are accumulated in a trust that meets the criteria in paragraph 4 of GASB 75.

This report, prepared as of June 30, 2024 (Measurement Date or MD), presents information to assist CARTA in meeting the requirements of GASB 75. Much of the material provided in this report is based on the data, assumptions, and results of the annual actuarial valuation of the Plan, as of June 30, 2024 (Valuation Date or VD).

GASB 75 replaced GASB 45 and represents a significant departure from the requirements of the prior statement. GASB 45 required employers providing benefits through OPEB plans to report items consistent with the results of the plan's actuarial valuations as long as those valuations met certain parameters. GASB 75 creates disclosure and reporting requirements that may or may not be consistent with the basis used for funding the Plan. In fact, GASB 75 paragraph B10 states:

> "The Board concluded that it is not within the scope of its activities to set standards that establish a specific method of financing OPEB (that being a policy decision for government officials or other responsible authorities to make) or to regulate a government's compliance with the financing policy or method it adopts. Accordingly, the Board established standards in this Statement within the context of accounting and financial reporting, not within the context of the funding of OPEB."

A major change in GASB 75 is the requirement to determine the Total OPEB Liability (TOL) utilizing the Entry Age Normal (EAN) actuarial funding method. If the valuation date at which the TOL is determined is the initial measurement date, as is the case here, the TOL must be rolled back to the prior measurement date. For purposes of the rollback, the expected payments are assumed equal to the actual payments for the period. The plan provisions recognized in the calculation of the TOL are summarized in Schedule B. The changes in the TOL during the measurement period are shown in Section III.

Among the items needed for the liability calculation is the discount rate, as defined by Paragraph 155 of GASB 75 to be a 20-year tax-exempt municipal bond (rating AA/Aa or higher) rate (Municipal Bond Index Rate). The Municipal Bond Index Rate used for this purpose is the June average of the Bond Buyer General Obligation 20-year Municipal Bond Index published weekly by The Bond Buyer (www.bondbuyer.com). The Municipal Bond Index Rate as of the Measurement Date was 3.94%.

Another major change in GASB 75 is the requirement to determine and disclose an OPEB Expense (OE) in the Notes to Financial Statements. The OE includes amounts for Service Cost (the Normal Cost under EAN for the year), interest, and recognition of increases/decreases in the TOL due to changes in benefit structure, actuarial experience, and actuarial assumption changes. The actuarial experience and assumption change impacts are recognized over the average expected remaining service life of the plan membership (active employees and inactive employees) at the beginning of the measurement period. The development of the OE is shown in Section IV.

The unrecognized portions of each year's experience and assumption changes are used to develop the Deferred Outflows of Resources and Deferred Inflows of Resources that must be included on the Statement of Net Position.

The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 75, for note disclosure and Required Supplementary Information (RSI) of the reporting entity's financial report.

SECTION III – FINANCIAL STATEMENT NOTES

The material presented herein will follow the order presented in GASB 75. Paragraph numbers are provided for ease of reference.

Paragraphs 165(a)-(b): CavMac was not expected to supply this information.

Paragraph 165(c): The data required regarding the membership of the Plan was furnished by CARTA. The following table summarizes the membership of the Plan as of June 30, 2024, the Valuation Date.

Membership

	Number
Inactive Employees or Beneficiaries Currently Receiving Benefits	100
Inactive Members Entitled To But Not Yet Receiving Benefits	0
DROP Members	12
Active Employees	167
Total Membership	279

Paragraphs 165(d): CavMac was not expected to supply this information.

Paragraphs 165(e): CavMac was not expected to supply this information.

Paragraph 166: Listed below is the information to be disclosed regarding the actuarial assumptions and other inputs used to measure the TOL. The complete set of actuarial assumptions and other inputs utilized in developing the TOL are outlined in Schedule C. The TOL was determined by an actuarial valuation as of June 30, 2024, using the following key actuarial assumptions and other inputs:

Inflation	3.00%
Salary increases	N/A
Municipal Bond Index Rate at Measurement Date	3.94%
Single Equivalent Interest Rate	3.94%

Mortality rates were based on the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014, for service. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

Paragraphs 167(a): Not applicable

Paragraphs 167(b): This paragraph requires disclosure of the sensitivity of the TOL to changes in the discount rate. The following exhibits present the TOL of the Plan, calculated using the discount rate of 3.94%, as well as what the Plan's TOL would be if it were calculated using a Discount Rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate:

	1% Decrease (2.94%)	Current Assumption (3.94%)	1% Increase (4.94%)
Total OPEB liability	$ 203,621	$ 179,867	$ 160,659

Paragraph 168(a)-(c): This paragraph requires a schedule of changes in the Total OPEB Liability (TOL). The needed information is shown in the following table:

Changes in the TOL	
Total OPEB Liability as of June 30, 2023	$189,917
Changes for the year:	
Service Cost at the end of the year*	3,132
Interest on TOL and Cash Flows	6,786
Change in benefit terms	0
Difference between expected and actual experience	(4,821)
Changes of assumptions or other inputs	(6,138)
Benefit payments	(9,009)
Other	0
Net changes	($10,050)
Total OPEB Liability as of June 30, 2024	$179,867

*The service cost includes interest for the year.

Paragraph 168(d): The employer does not have a special funding situation.

Paragraph 169(a): The TOL is based upon an actuarial valuation performed as of the Valuation Date, June 30, 2024. An expected TOL is determined as of June 30, 2024 using standard roll forward techniques. The roll forward calculation begins with the TOL as of the prior Measurement Date, June 30, 2023, adds the annual Normal Cost (also called the Service Cost), adds interest at the Discount Rate for the year, and then subtracts the expected benefit payments for the year. The difference between this expected TOL and the actual TOL as of the Measurement Date before reflecting any assumption changes is reflected as an experience gain or loss for the year. The difference between the actual TOL as of the Measurement Date before and after reflecting any assumption changes is reflected as an assumption change gain or loss for the year.

Paragraph 169(b): Our understanding is that the employer does not have a special funding situation.

Paragraph 169(c): The discount rate has been changed from 3.66% to 3.94% since the Prior Measurement Date as a result of the change in the Municipal Bond Rate.

Paragraph 169(d): There have been no benefit changes since the Prior Measurement Date.

Paragraph 169(e): No benefit payments are attributable to the purchase of allocated insurance contracts.

Paragraph 169(f): CavMac was not expected to supply this information.

Paragraph 169(g): Please see Section IV for the development of the OPEB Expense (OE).

Paragraphs 169(h)(1)-(2): Since certain expense items are recognized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts will increase OPEB Expense they are labeled Deferred Outflows of Resources. If they serve to reduce OPEB Expense they are labeled Deferred Inflows of Resources. The recognition of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions or other inputs, if any, are recognized over the average expected remaining service life of the active and inactive Plan members at the beginning of the measurement period.

The following table provides a summary of the Deferred Outflows of Resources and Deferred Inflows of Resources as of June 30, 2024:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$ 213	$ 4,407
Changes of assumptions or other inputs	357	22,432
Total	$ 570	$ 26,839

Deferred Outflows and Deferred Inflows of Resources subsequent to the Measurement Date may need to be reported by the employer. CavMac will not provide or incorporate these amounts in this report.

Paragraph 169(h)(3): Our understanding is that the employer does not have a special funding situation.

Paragraph 169(h)(4): CavMac was not expected to supply this information.

Paragraphs 169(i)(1)-(2): Amounts reported as Deferred Outflows of Resources and Deferred Inflows of Resources related to OPEB benefits will be recognized in OPEB Expense as follows:

Measurement Period Ended June 30:		
2025	$	(10,870)
2026	$	(10,297)
2027	$	(3,275)
2028	$	(1,827)
2029	$	0
Thereafter	$	0

Paragraph 169(i)(3): Our understanding is that the employer does not have a special funding situation.

Paragraph 169(j): CavMac was not expected to supply this information.

SECTION IV – OPEB EXPENSE

The OPEB Expense (OE) consists of several different items. GASB 75 refers to the first item as Service Cost which is the Normal Cost using the Entry Age Normal actuarial funding method. The second item is interest on the TOL at 3.66%, the Discount Rate in effect as of the Prior Measurement Date.

The next three items refer to any changes that occurred in the TOL due to:

- benefit changes, or
- actual versus expected experience, or
- changes in assumptions or other inputs.

Benefit changes, which are reflected immediately, will increase OE, if there is a benefit improvement for existing Plan members, or decrease OE, if there is a benefit reduction. For the year ended June 30, 2024, there were no benefit changes to be recognized.

The next item to be recognized is the portion of current year changes in TOL due to actual versus expected Plan experience for the year. The portion to recognize in the current year is determined by spreading the total change over the average expected remaining service life of the entire Plan membership at the beginning of the measurement period. The average expected remaining service life of active members is the average number of years the active members are expected to remain in covered employment. The average expected remaining service life of the inactive members is zero. The recognition period is the weighted average of these two amounts (not less than 1 year). The recognition period is 4.8 years.

The last item under changes in TOL is changes in assumptions or other inputs. The change in TOL resulting from the change in assumptions is to be recognized in the OPEB Expense (OE), beginning in the current measurement period, over a closed period equal to 4.8 years, using the same approach applied to Plan experience as described in the prior paragraph.

The current year portions of previously determined experience and assumption amounts, recognized as Deferred Outflows of Resources and Deferred Inflows of Resources (see Section III), are included on the following page. Deferred Outflows of Resources are added to the OE while Deferred Inflows of Resources are subtracted from the OE. Finally, other miscellaneous items are included.

SECTION IV – OPEB EXPENSE

The calculation of the OPEB Expense (OE) for the year ended June 30, 2024 is shown in the following table:

OPEB Expense For Year Ending June 30, 2024		
Service Cost at end of year*	$	3,132
Interest on the Total OPEB Liability		6,786
Current-period benefit changes		0
Expensed portion of current-period difference between expected and actual experience in the Total OPEB Liability		(1,004)
Expensed portion of current-period changes of assumptions		(1,279)
Expensed portion of current-period differences between actual and projected earnings on plan investments		0
Administrative Costs		0
Other		0
Recognition of beginning Deferred Outflows of Resources as OPEB Expense		4,897
Recognition of beginning Deferred Inflows of Resources as OPEB Expense		(14,544)
OPEB expense/(asset)	$	(2,012)

*The service cost includes interest for the year.

Schedule A – Required Supplementary Information

Paragraphs 170(a)-(b)(1): A 10-year schedule of changes in Total OPEB Liability and related ratios are shown in the following table. Only the initial year is displayed. Additional years will be added in the future.

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Total OPEB liability											
Service Cost at end of year	$ 3,246	$ 3,273	$ 3,215	$ 4,073	$ 4,429	$ 3,276	$ 3,132				
Interest	6,877	6,975	6,930	4,947	4,828	6,479	6,786				
Changes of benefit terms	8,107	0	0	0	0	0	0				
Difference between expected and actual experience	0	1,438	(29,766)	(1,198)	549	(650)	(4,821)				
Changes of assumptions	0	0	23,892	1,945	(35,201)	(6,942)	(6,138)				
Benefit payments	(13,418)	(16,568)	(9,758)	(9,006)	(9,007)	(9,009)	(9,009)				
Other	0	0	0	0	0	0	0				
Net change in total OPEB	4,812	(4,882)	(5,487)	761	(34,402)	(6,846)	(10,050)				
Total OPEB liability - beginning	235,961	240,773	235,891	230,404	231,165	196,763	189,917				
Total OPEB liability - ending	$ 240,773	$ 235,891	$ 230,404	$ 231,165	$ 196,763	$ 189,917	$ 179,867				
Covered-employee payroll	$ 9,407,872	$ 9,537,829	$ 9,513,855	$ 10,609,212	$ 10,647,609	$ 11,067,543	$ 11,283,355				
Total OPEB Liability as a percentage of covered-employee	2.56%	2.47%	2.42%	2.18%	1.85%	1.72%	1.59%				

Paragraph 170(b)(2): Our understanding is that the employer does not have a special funding situation.

Paragraph 171: CavMac was not expected to supply this information.

SCHEDULE B – SUMMARY OF MAIN PLAN PROVISIONS

1. Retiree life insurance for all retirees in the amount of $1,500; only for retiree, not spouse or dependents. It begins at the date of retirement. Current retiree life insurance premium is $9.28 per year.
2. A supplemental retirement benefit in the amount of $750 per month for a retiree (birthdate of 5/12/1942).

SCHEDULE C – STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

SINGLE EQUIVALENT INTEREST RATE: 3.94% per annum, compounded annually.

SEPARATION FROM ACTIVE SERVICE: Mortality rates are according to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. Representative values of the assumed annual rates of disability, withdrawal and service retirement are as follows:

	Annual Rate of			
			Retirement	
Age	Disability	Withdrawal	Reduced	Unreduced
20		17.13%		
25		14.62		
30	0.09%	7.80		
35	0.11	5.73		
40	0.17	4.71		
45	0.30	3.29		
50	0.50	2.11		4.0%
55	0.88	1.06	1.20%	5.0
60	1.56	0.40	1.82	10.0
61	1.71		2.46	100.0
62	1.88		3.12	100.0
63	2.05		3.96	100.0
64	2.25		4.94	100.0
65				100.0

DEATHS AFTER RETIREMENT: According to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014, for service. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

ASSET VALUATION METHOD: Market value.

ACTUARIAL METHOD: Costs were determined using the Entry Age Normal Actuarial Cost Method. This method allocates the actuarial present value of each member's projected benefits on a level basis over the member's compensation between the entry-age of the member and the expected exit ages. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future costs is called the actuarial accrued liability. The excess of the actuarial accrued liability over current assets is the unfunded actuarial accrued liability.

BENEFITS VALUED: Retiree life insurance for all retirees and supplemental benefits for one retiree.

SCHEDULE D – ACTUARIAL COST METHOD

The valuation is prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable at retirement, disability or death. The calculations are based on the member's age, years of service, sex, compensation, expected future salary increases, and an assumed future investment rate of return. The calculations consider the probability of a member's death or termination of employment prior to becoming eligible for a benefit and the probability of the member terminating with a service, disability, or survivor's benefit. The present value of the expected benefits payable to active members is added to the present value of the expected future payments to current benefit recipients to obtain the present value of all expected benefits payable to the present group of members and survivors.

The employer contributions required to support the benefits of the Plan are determined following a level funding approach and consist of a normal contribution and an actuarial accrued liability contribution.

The actuarial accrued liability is determined using the "entry age normal" method. Under this method, the accrued liability is the difference between the present value of expected future benefits payable, as described above, and the present value of expected future normal cost, as described below.

The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made for OPEB benefits to determine the uniform and constant percentage rate of employer contribution. This contribution will be applied to the compensation of the average new member during the entire period of his anticipated covered service, ceasing when both the member and spouse are no longer members of the plan. This contribution would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.

SCHEDULE E – BALANCES OF DEFERRED OUTFLOWS AND DEFERRED INFLOWS OF RESOURCES

The following schedules provide the balances of Deferred Outflows of Resources and Deferred Inflows of Resources that are reported for differences between expected and actual experience and changes of assumptions or other inputs. For the following exhibits:

- There are no differences between expected and actual experience to be recognized from periods prior to June 30, 2019.
- Deferred Outflows of Resources balances increase the OPEB Expense and Deferred Inflows of Resources balances decrease the OPEB Expense.

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SCHEDULE E – BALANCES OF DEFERRED OUTFLOWS AND DEFERRED INFLOWS OF RESOURCES

DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES ARISING FROM DIFFERENCES BETWEEN EXPECTED AND ACTUAL EXPERIENCE

Measurement Period Ending	Experience Losses	Experience Gains	Recognition Period (Years)	Amounts Recognized in OPEB Expense through June 30, 2024	Balances as of June 30, 2024	
					Deferred Outflows of Resources	Deferred Inflows of Resources
	(a)	(b)	(c)	(d)	(a) – (d)	(b) – (d)
2024	$0	$4,821	4.8	$1,004	$0	$3,817
2023	$0	$650	4.6	$282	$0	$368
2022	$549	$0	4.9	$336	$213	$0
2021	$0	$1,198	4.9	$976	$0	$222
2020	$0	$29,766	4.9	$29,766	$0	$0
					$213	$4,407

SCHEDULE E – BALANCES OF DEFERRED OUTFLOWS AND DEFERRED INFLOWS OF RESOURCES

DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES ARISING FROM CHANGES OF ASSUMPTIONS OR OTHER INPUTS

Measurement Period Ending	Increases in Total OPEB Liability (a)	Decreases in Total OPEB Liability (b)	Recognition Period (Years) (c)	Amounts Recognized in OPEB Expense through June 30, 2024 (d)	Balances as of June 30, 2024: Deferred Outflows of Resources (a) – (d)	Balances as of June 30, 2024: Deferred Inflows of Resources (b) – (d)
2024	$0	$6,138	4.8	$1,279	$0	$4,859
2023	$0	$6,942	4.6	$3,018	$0	$3,924
2022	$0	$35,201	4.9	$21,552	$0	$13,649
2021	$1,945	$0	4.9	$1,588	$357	$0
2020	$23,892	$0	4.9	$23,892	$0	$0
					$357	$22,432

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CARTA

Report on the Actuarial Valuation of the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union

Prepared as of January 1, 2023

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

July 10, 2023

Pension Board of Trustees
Chattanooga Area Regional Transportation Authority
617 Wilcox Boulevard
Chattanooga, TN 37406

Ladies and Gentlemen:

We are pleased to submit the results of the annual pension actuarial valuation of the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority (CARTA), prepared as of January 1, 2023. The purpose of the report is to provide a summary of the funded status of the Plan as of January 1, 2023 and to recommend an actuarially determined employer contribution (ADEC) for the fiscal year ending December 31, 2024. The information needed for CARTA under Governmental Accounting Standards Board (GASB) No. 67 and 68 will be provided in a separate report. However, for informational purposes only, we have also provided accounting information in Section V of this report.

On the basis of the valuation and the Funding Policy, it is recommended that CARTA contribute 100% of the ADEC, or $1,837,911, for the fiscal year ending December 31, 2024, 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.

There have been no changes in the plan provisions or actuarial assumptions since the last valuation report.

The Plan is funded on an actuarial reserve basis. The actuarial assumptions are reasonably related to the experience under the Plan and to reasonable expectations of anticipated experience under the Plan. The funding objective of the Plan is that employer contributions over time will remain level. The valuation method used is the entry age normal cost method. The normal contribution to cover current cost has been determined as a level percent of payroll. In accordance with the new Funding Policy, the unfunded accrued liability (UAL) is being amortized by regular annual contributions as a level dollar with a closed 30 year period for the Transitional UAL as of January 1, 2016 and gains and losses in subsequent years are amortized over a closed period from the valuation it is established.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com
Offices in Kennesaw, GA • Bellevue, NE

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 the report are for purposes of determining the recommended funding amount for the Plan. Use of these computations for purposes other than meeting these requirements may not be appropriate.

Sincerely yours,

Edward J. Koebel

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

Jennifer Johnson

Jennifer Johnson
Senior Consultant

EJK/jj

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Section I – Summary of Principal Results

REPORT ON THE ACTUARIAL VALUATION OF
THE DISABILITY AND RETIREMENT PLAN OF THE
CHATTANOOGA AREA REGIONAL TRANSPORTATION AUTHORITY
PREPARED AS OF JANUARY 1, 2023

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, 2023	January 1, 2022
Number of active participants	178	166
Annual compensation	$ 10,353,163	$ 10,026,551
Number of DROP participants	12	11
Annual compensation	$ 714,380	$ 621,058
Number of retired participants and beneficiaries	108	106
Annual benefits	$ 1,655,058	$ 1,603,141
Number of deferred vested participants	9	7
Annual deferred vested benefits	$ 114,485	$ 76,322
Actuarial Accrued Liability	$ 34,915,648	$ 33,476,988
Assets:		
Actuarial value	$ 21,379,051	$ 19,979,061
Market value	18,909,950	21,948,313
Unfunded accrued liability	$ 13,536,597	$ 13,497,927
Blended Amortization Period	23.7 years	24.6 years
Funded Ratio		
Actuarial value	61.2%	59.7%
Market value	54.2%	65.6%
CONTRIBUTION RATES FOR FISCAL YEAR ENDING	**December 31, 2024**	**December 31, 2023**
Actuarially Determined Employer Contribution (ADEC):		
Normal Cost	$ 690,844	$ 622,801
Unfunded accrued liability	1,147,067	1,126,855
Total	$ 1,837,911	$ 1,749,656

2. Comments on the valuation results as of January 1, 2023 are given in Section IV. In addition, comments on the experience and actuarial gains and losses during the year are provided in Section VI.

3. Schedule E of this report outlines the full set of actuarial assumptions and methods used to prepare the valuation.

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

6. As shown in the Summary of Principal Results, the funded ratio is the ratio 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.

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 following table shows a six-year history of active member valuation data.

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

VALUATION DATE	NUMBER	ANNUAL PAYROLL	AVERAGE PAY	AVERAGE AGE	AVERAGE SERVICE
1/01/2018	166	$8,714,456	$52,497	48.8	8.0
1/01/2019	168	8,986,047	53,488	48.5	8.2
1/01/2020	166	8,891,135	53,561	48.6	8.4
1/01/2021	167	10,181,208	60,965	48.8	8.5
1/01/2022	166	10,026,551	60,401	49.4	8.4
1/01/2023	178	10,353,163	58,164	49.3	8.0

In addition, this valuation included 12 DROP participants with annualized compensation totaling $714,380.

2. The following table shows the number of retired participants and beneficiaries in receipt of a benefit as of January 1, 2023 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, 2023

GROUP	NUMBER	ANNUAL RETIREMENT BENEFITS
Service Retirements	84	$ 1,365,483
Disability Retirements	18	217,447
Beneficiaries of Deceased Participants	6	72,128
Total	108	$ 1,655,058

In addition, there are 9 former participants entitled to deferred vested retirement benefits totaling $114,485.

Section II – Participant Data

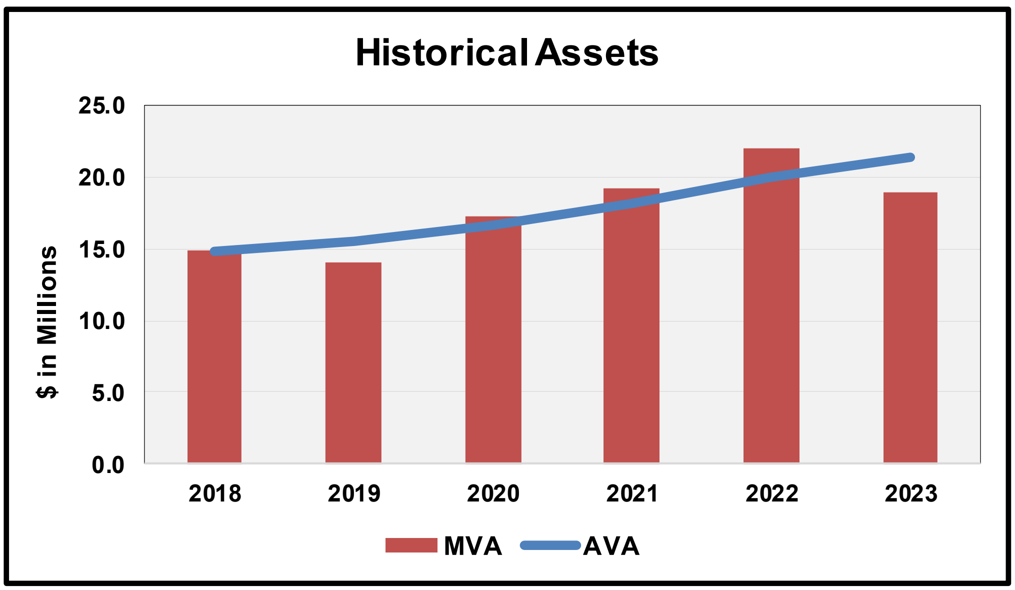
3. Table 1 in Schedule J gives a reconciliation of participating members for the past plan year; Table 2 shows the distribution by age and service groups of the number and average pay of active participants included in the valuation. Tables 3, 4, 5 and 6 give the number and annual benefits of retired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

Section III – Assets

1. As of January 1, 2023, the market value of assets amounted to $18,909,950, as provided by CARTA. The estimated investment return for the plan year was (15.77%). 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 $21,379,051. The estimated investment return for the plan year ending January 1, 2023 on an actuarial value of assets basis was 4.65%, which can be compared to the investment return assumed for the period of 7.00%. Schedule C shows the development of the actuarial value of assets as of January 1, 2023.

3. The graph below shows a 6-year history of market and actuarial value of assets:



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, 2023. 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 $43,532,960. Of this amount, $19,419,179 is for the prospective benefits payable on account of present retired participants, beneficiaries of deceased participants, DROP participants, and former participants entitled to deferred vested benefits or a refund of contributions, and $24,113,781 is for the prospective benefits payable on account of present active participants. Against these liabilities, the Plan has total present assets of $21,379,051 as of January 1, 2023. The difference of $22,153,909 between the total liabilities and the total present 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 of $1,177,399 are required under the entry age cost method. Of this amount, $486,556 is assumed to be paid by the participants and the remaining $690,844 is payable by CARTA.
4. Prospective normal contributions have a present value of $8,617,312. When this amount is subtracted from $22,153,909, which is the present value of total future contributions, there remains $13,536,597 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, 2016 (Transitional UAL) will be amortized as a level dollar amount over a closed 30-year period. 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 period from the date it is established. We have determined that an accrued liability contribution of $1,147,067 will comply with the Board's funding policy.

6. 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

	Initial UAL	Current UAL	Remaining Amortization Period	Amortization Payment
Transitional	$11,845,529	$10,826,299	23	$928,496
New Incremental 1/1/2017	$686,375	$637,576	24	$53,741
New Incremental 1/1/2018	$523,208	$493,287	25	$40,921
New Incremental 1/1/2019	($100,622)	($96,170)	26	($7,862)
New Incremental 1/1/2020	($90,079)	($87,178)	27	($7,031)
New Incremental 1/1/2021	$244,209	$239,078	28	$19,043
New Incremental 1/1/2022	$1,277,789	$1,264,262	29	$99,547
New Incremental 1/1/2023	$259,443	$259,443	30	$20,212
Total		$13,536,597		$1,147,067
Blended Amortization Period (years)				23.7

7. Therefore, the employer contribution required for the fiscal year ending December 31, 2024 is $1,837,911, the total of the employer normal cost, $690,844, and the amortization of the UAL, $1,147,067.

Section V – Accounting Information

Governmental Accounting Standards Board (GASB) has issued Statement No. 67 which replaced Statement 25 for plans beginning after June 15, 2013. The information required under GASB 67 was issued in a separate report. The following information is provided for informational purposes and for disclosure in the financial statements of the employer under GASB 27.

1. One such item is a distribution of the number of employees by type of membership, as follows:

NUMBER OF ACTIVE AND RETIRED PARTICIPANTS AS OF JANUARY 1, 2023

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	108
Terminated participants entitled to benefits but not yet receiving them	9
DROP participants	12
Active participants	178
Total	307

2. 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)	Total Covered Payroll (c)	UAL as a Percentage of Covered Payroll ((b – a) / c)
1/01/2019	$15,520,196	$28,085,748	$12,565,552	55.3%	$9,537,829	131.7%
1/01/2020	16,642,749	28,963,767	12,321,018	57.5	9,513,855	129.5
1/01/2021	18,080,415	30,480,473	12,400,058	59.3	10,609,212	116.9
1/01/2022*	19,979,061	33,476,988	13,497,927	59.7	10,647,609	126.8
1/01/2023	21,379,051	34,915,648	13,536,597	61.2	11,067,543	122.3

* Reflects change in discount rate from 7.50% to 7.00%

Section V – Accounting Information

3. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at January 1, 2023. Additional information as of the latest actuarial valuation follows.

Valuation date	January 1, 2023
Actuarial cost method	Entry Age Normal
Amortization method	Level dollar closed
Remaining amortization period	23.7 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	7.00%
Projected salary increases	3.50%
Cost-of-living adjustments	None

Section VI – 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, 2023 valuation is shown below:

			$ Thousands
(1)	Unfunded Accrued Liability (UAL) as of January 1, 2022	$	13,497.9
(2)	Total normal cost from last valuation		1,054.6
(3)	Total actual contributions		2,318.2
(4)	Interest accrual: [((1)+(2)) x .07] - [(3) x .035]		937.5
(5)	Expected UAL before changes: (1) + (2) – (3) + (4)	$	13,171.8
(6)	Change due to plan amendments		0.0
(7)	Change due to actuarial assumptions or methods		0.0
(8)	Expected UAL after changes: (5) + (6) + (7)	$	13,171.8
(9)	Actual UAL as of January 1, 2023	$	13,536.6
(10)	Gain/(loss): (8) – (9)	$	(364.8)
(11)	Gain/(loss) as percent of actuarial accrued liabilities at start of year ($33,477.0)		(1.09)%

Valuation Date January 1	Actuarial Gain/(Loss) as a % of Beginning Accrued Liabilities
2020	(0.35)%
2021	(1.89)%
2022	2.17%
2023	(1.09)%

Section VII – 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 VII – 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	Total Covered Payroll	Asset Volatility Ratio
2018	$14,868	$9,408	1.58
2019	$14,034	$9,538	1.47
2020	$17,176	$9,514	1.81
2021	$19,122	$10,609	1.80
2022	$21,948	$10,648	2.06
2023	$18,910	$11,068	1.71

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 2.00, if the market value return is 10% below assumed, or -3.00% for CARTA, there will be an increase in the Required Contribution Rate of approximately $34,489 in the first year. A higher AVR would produce even more volatility in the Required Contribution Rate.

AVR	Estimated Increase in Required Contribution
1.0	$17,245
2.0	$34,489
3.0	$51,734
4.0	$68,978

Section VII – 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 table contains the key measures using the market related actuarial value of assets under the valuation assumption for investment return of 7.00%, along with the results if the related actuarial assumption were 6.00% or 8.00%. 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 (6.00% or 8.00%) would comply with actuarial standards of practice.

($ in thousands)

As of January 1, 2023	Current Discount Rate (7.00%)	-1% Discount Rate (6.00%)	+1% Discount Rate (8.00%)
Plan's Normal Cost	$691	$827	$578
Accrued Liability	$34,916	$38,311	$32,046
Unfunded Liability	$13,537	$16,932	$10,667
Funded Ratio	61.2%	55.8%	66.7%

Section VII – Risk Assessment

Mortality Risk

The mortality assumption is a significant assumption for valuation results, second only to the investment assumption in most situations. The 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 CARTA conducts so that incremental changes can be made to smoothly reflect unfolding experience.

Contribution Risk

CARTA 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 Actuarially Determined Contribution is determined, based on CARTA's funding policy. This amount is the sum of the normal cost for the plan and the amortization of the UAAL. Since CARTA is obligated to make 100% of the Actuarially Determined Contribution by statute, there is no contribution risk for the Plan.

Schedule A – Development of the Unfunded Accrued Liability

AS OF JANUARY 1, 2023

(1)	Present Value of Future Benefits:		
	a)	Present Active Participants	$ 24,113,781
	b)	Present Retired Participants, Beneficiaries and Former Participants Entitled to Deferred Vested Benefits or Refunds of Contributions	19,419,179
	c)	Total	$ 43,532,960
(2)	Present Value of Future CARTA and Participant Normal Contributions		8,617,312
(3)	Actuarial Accrued Liabilities [1(c) – (2)]		$ 34,915,648
(4)	Actuarial Value of Assets		21,379,051
(5)	Unfunded Accrued Liabilities (UAL) [(3) – (4)]		$ 13,536,597
(6)	Amortization of UAL		$ 1,147,067
(7)	Actuarially Determined Employer Contribution (ADEC)		
	(a)	Normal Cost	$ 690,844
	(b)	Amortization of UAL	1,147,067
	(c)	Total	$ 1,837,911

Schedule B – Valuation Balance Sheet

THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES OF THE DISABILITY AND RETIREMENT PLAN OF THE CHATTANOOGA AREA REGIONAL TRANSPORTATION AUTHORITY PREPARED AS OF JANUARY 1, 2023

ASSETS		
Present Assets of the Plan		$ 21,379,051
Present Value of Prospective Contributions:		
CARTA and Participants Normal Contributions	$ 8,617,312	
Unfunded Accrued Liability Contributions	13,536,597	
Total Prospective Contributions		22,153,909
Total Assets		$ 43,532,960
LIABILITIES		
Present Value of Benefits Payable on Account of Retired Participants, Beneficiaries and Former Participants Entitled to Deferred Vested Benefits or Refunds of Contributions		$ 19,419,179
Present Value of Prospective Benefits payable on Account of Present Active Participants		24,113,781
Total Liabilities		$ 43,532,960

Schedule C – Development of Actuarial Value of Assets

AS OF JANUARY 1, 2023

(1)	Actuarial Value Beginning of Year		$	19,979,061
(2)	Market Value End of Year		$	18,909,950
(3)	Market Value Beginning of Year		$	21,948,313
(4)	Cash Flow			
	a.	Contributions	$	2,318,234
	b.	Benefit Payments/Refunds		(1,769,394)
	c.	Administrative Expenses		(89,492)
	d.	Net	$	459,348
(5)	Investment Income			
	a.	Market total: [(2) – (3) – (4)d]	$	(3,497,711)
	b.	Assumed Rate		7.00%
	c.	Amount of Immediate Recognition [(3) x (5)b] + [(4)d x (5)b * 0.5]	$	1,552,459
	d.	Amount for Phased-in Recognition: [(5)a – (5)c]	$	(5,050,170)
(6)	Phased-In Recognition of Investment Income			
	a.	Current Year Recognized [0.20 * (5)d]	$	(1,010,034)
	b.	First Prior Year Recognized		299,982
	c.	Second Prior Year Recognized		149,164
	d.	Third Prior Year Recognized		372,758
	e.	Fourth Prior Year Recognized		(423,687)
	f.	Total Recognized Investment Gain/(Loss)	$	(611,817)
(7)	Preliminary Actuarial Value End of Year [(1) + (4)d + (5)c + (6)f]		$	21,379,051
(8)	Corridor Lower Limit (80% of Market Value End of Year)		$	15,127,960
(9)	Corridor Upper Limit (120% of Market Value End of Year)		$	22,691,940
(10)	Final Actuarial Value End of Year [(7) not less than (8) and not greater than (9)]		$	21,379,051
(11)	Difference Between Market & Actuarial Values [(2) – (10)]		$	(2,469,101)
(12)	Actuarial Value of Asset Rate of Return			4.65%

Schedule D – Reconciliation of Market Value of Assets

		January 1, 2023	January 1, 2022
Market Value of Assets as of January 1 of Previous Year		$ 21,948,313	$ 19,122,041
Audit Adjustment		0	0
Expenditures			
-	Benefit Payments and Refunds	$ (1,769,394)	$ (1,887,946)
-	Administrative Expenses	(89,492)	(79,324)
-	Total	$ (1,858,886)	$ (1,967,270)
Contributions			
-	Employer	$ 1,837,711	$ 1,463,927
-	Employee	470,554	388,882
-	Other	9,969	10,564
-	Total	$ 2,318,234	$ 1,863,373
Investment Income		$ (3,497,711)	$ 2,930,169
Market Value of Assets as of January 1 of Current Year		$ 18,909,950	$ 21,948,313
Estimated Market Value Rate of Return *		(15.77%)	15.37%

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

Schedule E – Outline of Actuarial Assumptions and Methods

The assumptions used in this valuation were developed by the previous actuary. However, the Pension Board adopted the investment return assumption of 7.00% at its meeting on April 12, 2022.

INVESTMENT RATE OF RETURN: 7.00% per annum, compounded annually, net of investment expenses.

CONTRIBUTION EARNINGS RATE: 2.5% 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. Effective September 1, 2008, 4.5% 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: 3.50% per annum, compounded annually.

SEPARATIONS FROM ACTIVE SERVICE: Mortality rates are according to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. Representative values of the assumed annual rates of disability, withdrawal and service retirement are as follows:

Annual Rate of				
			Retirement	
Age	Disability	Withdrawal	Reduced	Unreduced
20		17.13%		
25		14.62		
30	0.09%	7.80		
35	0.11	5.73		
40	0.17	4.71		
45	0.30	3.29		
50	0.50	2.11		4.0%
55	0.88	1.06	1.20%	5.0
60	1.56	0.40	1.82	10.0
61	1.71		2.46	100.0
62	1.88		3.12	100.0
63	2.05		3.96	100.0
64	2.25		4.94	100.0
65				100.0

Schedule E – Outline of Actuarial Assumptions and Methods

DEATHS AFTER RETIREMENT: According to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014, for service retirements and beneficiaries of retired participants. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

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

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.

PERCENT MARRIED: 100% of all participants are assumed to be married, with husbands three years older than their wives.

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 7.00%), 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 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 CARTA 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 Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union (“Plan”) 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. 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.

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 Plan'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 (6.75%).

- 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.

- No enhancements shall be made to benefits without approval by the State Treasurer until the funded ratio is above 60% on an actuarial value basis.

- In the event the Plan 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 Plan.

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

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, if applicable.

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, and (3) 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 liability cost, and (3) the cost of administration for the operation of the Plan. The ADC shall be calculated and become applicable on the fiscal year immediately following the valuation date.

Funding the ADC. Tenn. Code Ann. § 9-3-505(a) requires the Plan to annually pay a payment to the Plan of no less than one hundred (100%) percent of the ADC. However, according to Tenn. Code Ann. § 9-3-505(b), if a political subdivision is not paying at least 100% of the ADC in the fiscal year ending in 2015, effort shall be made to increase the rate of the ADC that is being contributed to 100% by fiscal year 2020. The contribution made in 2015 as a percentage of the ADC was 82%. Therefore, at a minimum, the following table shall be used as a plan to get the Plan to funding 100% of the ADC:

Fiscal Year End	Percentage of ADC Contributed
December 31, 2016	86%
December 31, 2017	90%
December 31, 2018	94%
December 31, 2019	98%
December 31, 2020	100%

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 nor 20% less than the market value of assets existing as of the actuarial valuation date.

Amortization methodology for actuarial gains and losses. Unfunded liabilities shall be amortized utilizing the level dollar amortization method over a closed period not to exceed thirty (30) years. The unfunded liabilities established as of the initial valuation date (January 1, 2016) for which this Funding Policy is adopted is the transitional liabilities. The transitional liabilities will be amortized over a closed 30 year 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 thirty (30) 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 thirty (30) years. Any extension of the amortization period for a specific tier cannot exceed the thirty (30) year maximum less whatever time has elapsed from the beginning of the amortization period.

The unfunded liability based on the 2016 actuarial valuation shall be funded no later than 2046. 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 thirty (30) years.

Schedule G – Board Funding Policy

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 Plan 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.

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.

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 2016 TRANSITIONAL UAL

Valuation Date	Amortization Period	Balance of Transitional UAL	Annual Amortization Payment
1/1/2016	30	$11,845,529	$967,356
1/1/2017	29	11,730,968	967,356
1/1/2018	28	11,607,815	967,356
1/1/2019	27	11,475,425	967,356
1/1/2020	26	11,333,107	967,356
1/1/2021	25	11,180,114	967,356
1/1/2022	24	11,015,647	928,496
1/1/2023	**23**	**10,826,299**	**928,496**
1/1/2024	22	10,623,696	928,496
1/1/2025	21	10,406,911	928,496
1/1/2026	20	10,174,951	928,496
1/1/2027	19	9,926,754	928,496
1/1/2028	18	9,661,183	928,496
1/1/2029	17	9,377,022	928,496
1/1/2030	16	9,072,970	928,496
1/1/2031	15	8,747,634	928,496
1/1/2032	14	8,399,525	928,496
1/1/2033	13	8,027,048	928,496
1/1/2034	12	7,628,498	928,496
1/1/2035	11	7,202,049	928,496
1/1/2036	10	6,745,749	928,496
1/1/2037	9	6,257,508	928,496
1/1/2038	8	5,735,090	928,496
1/1/2039	7	5,176,103	928,496
1/1/2040	6	4,577,986	928,496
1/1/2041	5	3,938,001	928,496
1/1/2042	4	3,253,217	928,496
1/1/2043	3	2,520,498	928,496
1/1/2044	2	1,736,489	928,496
1/1/2045	1	897,599	928,496
1/1/2046	0	0	0

AMORTIZATION OF 2017 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAL 1/1/2017	Annual Amortization Payment
1/1/2017	30	$686,375	$56,052
1/1/2018	29	679,737	56,052
1/1/2019	28	672,601	56,052
1/1/2020	27	664,930	56,052
1/1/2021	26	656,684	56,052
1/1/2022	25	647,819	53,741
1/1/2023	**24**	**637,576**	**53,741**
1/1/2024	23	626,616	53,741
1/1/2025	22	614,889	53,741
1/1/2026	21	602,341	53,741
1/1/2027	20	588,915	53,741
1/1/2028	19	574,549	53,741
1/1/2029	18	559,177	53,741
1/1/2030	17	542,729	53,741
1/1/2031	16	525,130	53,741
1/1/2032	15	506,299	53,741
1/1/2033	14	486,150	53,741
1/1/2034	13	464,590	53,741
1/1/2035	12	441,521	53,741
1/1/2036	11	416,837	53,741
1/1/2037	10	390,425	53,741
1/1/2038	9	362,165	53,741
1/1/2039	8	331,926	53,741
1/1/2040	7	299,571	53,741
1/1/2041	6	264,951	53,741
1/1/2042	5	227,907	53,741
1/1/2043	4	188,270	53,741
1/1/2044	3	145,859	53,741
1/1/2045	2	100,479	53,741
1/1/2046	1	51,922	53,741
1/1/2047	0	0	0

Schedule H – Amortization of UAL

AMORTIZATION OF 2018 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAL 1/1/2018	Annual Amortization Payment
1/1/2018	30	$523,208	$42,727
1/1/2019	29	518,148	42,727
1/1/2020	28	512,709	42,727
1/1/2021	27	506,862	42,727
1/1/2022	26	500,576	40,921
1/1/2023	**25**	**493,287**	**40,921**
1/1/2024	24	485,488	40,921
1/1/2025	23	477,143	40,921
1/1/2026	22	468,214	40,921
1/1/2027	21	458,660	40,921
1/1/2028	20	448,437	40,921
1/1/2029	19	437,499	40,921
1/1/2030	18	425,795	40,921
1/1/2031	17	413,272	40,921
1/1/2032	16	399,872	40,921
1/1/2033	15	385,534	40,921
1/1/2034	14	370,192	40,921
1/1/2035	13	353,776	40,921
1/1/2036	12	336,211	40,921
1/1/2037	11	317,417	40,921
1/1/2038	10	297,307	40,921
1/1/2039	9	275,789	40,921
1/1/2040	8	252,765	40,921
1/1/2041	7	228,130	40,921
1/1/2042	6	201,770	40,921
1/1/2043	5	173,565	40,921
1/1/2044	4	143,386	40,921
1/1/2045	3	111,094	40,921
1/1/2046	2	76,542	40,921
1/1/2047	1	39,571	40,921
1/1/2048	0	0	0

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	($100,622)	($8,218)
1/1/2020	29	(99,649)	(8,217)
1/1/2021	28	(98,603)	(8,217)
1/1/2022	27	(97,479)	(7,862)
1/1/2023	**26**	**(96,170)**	**(7,862)**
1/1/2024	25	(94,769)	(7,862)
1/1/2025	24	(93,270)	(7,862)
1/1/2026	23	(91,666)	(7,862)
1/1/2027	22	(89,950)	(7,862)
1/1/2028	21	(88,114)	(7,862)
1/1/2029	20	(86,149)	(7,862)
1/1/2030	19	(84,047)	(7,862)
1/1/2031	18	(81,798)	(7,862)
1/1/2032	17	(79,391)	(7,862)
1/1/2033	16	(76,816)	(7,862)
1/1/2034	15	(74,061)	(7,862)
1/1/2035	14	(71,113)	(7,862)
1/1/2036	13	(67,958)	(7,862)
1/1/2037	12	(64,583)	(7,862)
1/1/2038	11	(60,971)	(7,862)
1/1/2039	10	(57,106)	(7,862)
1/1/2040	9	(52,971)	(7,862)
1/1/2041	8	(48,546)	(7,862)
1/1/2042	7	(43,812)	(7,862)
1/1/2043	6	(38,746)	(7,862)
1/1/2044	5	(33,326)	(7,862)
1/1/2045	4	(27,526)	(7,862)
1/1/2046	3	(21,320)	(7,862)
1/1/2047	2	(14,680)	(7,862)
1/1/2048	1	(7,575)	(7,862)
1/1/2049	0	0	0

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	($90,079)	($7,356)
1/1/2021	29	(89,208)	(7,356)
1/1/2022	28	(88,272)	(7,031)
1/1/2023	**27**	**(87,178)**	**(7,031)**
1/1/2024	26	(86,008)	(7,031)
1/1/2025	25	(84,756)	(7,031)
1/1/2026	24	(83,416)	(7,031)
1/1/2027	23	(81,982)	(7,031)
1/1/2028	22	(80,448)	(7,031)
1/1/2029	21	(78,806)	(7,031)
1/1/2030	20	(77,049)	(7,031)
1/1/2031	19	(75,170)	(7,031)
1/1/2032	18	(73,159)	(7,031)
1/1/2033	17	(71,007)	(7,031)
1/1/2034	16	(68,705)	(7,031)
1/1/2035	15	(66,241)	(7,031)
1/1/2036	14	(63,605)	(7,031)
1/1/2037	13	(60,784)	(7,031)
1/1/2038	12	(57,766)	(7,031)
1/1/2039	11	(54,537)	(7,031)
1/1/2040	10	(51,082)	(7,031)
1/1/2041	9	(47,385)	(7,031)
1/1/2042	8	(43,429)	(7,031)
1/1/2043	7	(39,196)	(7,031)
1/1/2044	6	(34,667)	(7,031)
1/1/2045	5	(29,821)	(7,031)
1/1/2046	4	(24,636)	(7,031)
1/1/2047	3	(19,088)	(7,031)
1/1/2048	2	(13,151)	(7,031)
1/1/2049	1	(6,799)	(7,031)
1/1/2050	0	0	0

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	$244,209	$19,943
1/1/2022	29	241,847	19,043
1/1/2023	**28**	**239,078**	**19,043**
1/1/2024	27	236,115	19,043
1/1/2025	26	232,945	19,043
1/1/2026	25	229,553	19,043
1/1/2027	24	225,923	19,043
1/1/2028	23	222,039	19,043
1/1/2029	22	217,883	19,043
1/1/2030	21	213,437	19,043
1/1/2031	20	208,679	19,043
1/1/2032	19	203,588	19,043
1/1/2033	18	198,141	19,043
1/1/2034	17	192,313	19,043
1/1/2035	16	186,077	19,043
1/1/2036	15	179,404	19,043
1/1/2037	14	172,264	19,043
1/1/2038	13	164,624	19,043
1/1/2039	12	156,449	19,043
1/1/2040	11	147,702	19,043
1/1/2041	10	138,343	19,043
1/1/2042	9	128,329	19,043
1/1/2043	8	117,614	19,043
1/1/2044	7	106,149	19,043
1/1/2045	6	93,881	19,043
1/1/2046	5	80,754	19,043
1/1/2047	4	66,709	19,043
1/1/2048	3	51,680	19,043
1/1/2049	2	35,599	19,043
1/1/2050	1	18,393	19,043
1/1/2051	0	0	0

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	30	$1,277,789	$99,547
1/1/2023	**29**	**1,264,262**	**99,547**
1/1/2024	28	1,249,788	99,547
1/1/2025	27	1,234,301	99,547
1/1/2026	26	1,217,730	99,547
1/1/2027	25	1,199,999	99,547
1/1/2028	24	1,181,027	99,547
1/1/2029	23	1,160,727	99,547
1/1/2030	22	1,139,006	99,547
1/1/2031	21	1,115,764	99,547
1/1/2032	20	1,090,894	99,547
1/1/2033	19	1,064,284	99,547
1/1/2034	18	1,035,812	99,547
1/1/2035	17	1,005,346	99,547
1/1/2036	16	972,747	99,547
1/1/2037	15	937,867	99,547
1/1/2038	14	900,544	99,547
1/1/2039	13	860,610	99,547
1/1/2040	12	817,880	99,547
1/1/2041	11	772,159	99,547
1/1/2042	10	723,238	99,547
1/1/2043	9	670,891	99,547
1/1/2044	8	614,881	99,547
1/1/2045	7	554,949	99,547
1/1/2046	6	490,823	99,547
1/1/2047	5	422,208	99,547
1/1/2048	4	348,790	99,547
1/1/2049	3	270,233	99,547
1/1/2050	2	186,176	99,547
1/1/2051	1	96,236	99,547
1/1/2052	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	**30**	**$259,443**	**$20,212**
1/1/2024	29	256,697	20,212
1/1/2025	28	253,758	20,212
1/1/2026	27	250,614	20,212
1/1/2027	26	247,250	20,212
1/1/2028	25	243,650	20,212
1/1/2029	24	239,798	20,212
1/1/2030	23	235,676	20,212
1/1/2031	22	231,266	20,212
1/1/2032	21	226,547	20,212
1/1/2033	20	221,498	20,212
1/1/2034	19	216,095	20,212
1/1/2035	18	210,314	20,212
1/1/2036	17	204,129	20,212
1/1/2037	16	197,511	20,212
1/1/2038	15	190,428	20,212
1/1/2039	14	182,851	20,212
1/1/2040	13	174,742	20,212
1/1/2041	12	166,065	20,212
1/1/2042	11	156,782	20,212
1/1/2043	10	146,849	20,212
1/1/2044	9	136,220	20,212
1/1/2045	8	124,848	20,212
1/1/2046	7	112,679	20,212
1/1/2047	6	99,659	20,212
1/1/2048	5	85,727	20,212
1/1/2049	4	70,819	20,212
1/1/2050	3	54,869	20,212
1/1/2051	2	37,802	20,212
1/1/2052	1	19,540	20,212
1/1/2053	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. "Monthly Average Earnings" 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. "Service" is the length of time a person participated in the Plan or any former plan prior to the date as of which Service is being determined, expressed in years, and completed calendar months.

Effective Date	September 1, 1945 (Southern Coach) August, 1 1989 (CARTA only)
Date last Amended	Through December 2013 as reflective in collective bargaining agreement dated August 1, 2012
Eligibility to Participate	After 60 days of service with CARTA

CONTRIBUTIONS

Employee	2.00% of Earnings $195 monthly max 3.00% of Earnings effective September 1, 2007 3.50% of Earnings effective September 1, 2008 4.00% of Earnings effective August 1, 2012 4.25% of Earnings effective July 1, 2017 **Effective September 1, 2008 – employee contribution will earn 4.5%**
Employer	7% of Earnings effective July 1, 2003 and $195 monthly max 9% of Earnings effective September 1, 2007 10.5% of Earnings effective September 1, 2008 11.75% of Earnings effective August 1, 2012 12.6% of Earnings effective July 1, 2013 **Actuarially Determined effective January 1, 2015**

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

NORMAL RETIREMENT

Eligibility

Earlier of:
1) Age 65 and 5 years of service
2) Age when sum of service and age first equals or exceeds 85 (Rule of 85).

Benefit

For employees hired before October 1, 2012:
Greater of (a) or (b)

a) 2% of three-year monthly average earnings multiplied by service

b) if more than 20 years of service, accrual rate is 2.15% for all service

For employees hired after September 30, 2012:

2% of three-year monthly average earnings multiplied by service and minimum monthly benefit of $115.00.

For all employees, the maximum monthly benefit is 50% of three-year monthly average earnings.

EARLY RETIREMENT

Eligibility

Age 55 and 15 years of service.

Benefit

Accrued normal retirement benefit deferred to age 65 of immediate benefit equal to deferred benefit multiplied by the applicable percentage as follows:

Retirement Age	Early Retirement Percentage
55	50.0%
56	53.3
57	56.7
58	60.0
59	63.3
60	66.7
61	73.3
62	80.0
63	86.7
64	93.3

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

DEFERRED VESTED RETIREMENT

Eligibility	5 years of service.
Benefit	Accrued benefit deferred to age 65, or, if at least 15 years of service, reduced benefit at age 55. Reduction same as for early retirement.

DISABILITY RETIREMENT

Eligibility	Disability occurring after ten years of service but prior to age 65.
Benefit	Accrued Normal Retirement Benefit reduced according to the following:

Years of Service	Percentage of Accrued Normal Retirement Benefit
10 but less than 15	50%
15 but less than 20	75%
20 but less than 25	90%
25 but less than 30	95%
At least 30	100%

SPOUSE'S BENEFIT

Eligibility	Death while employed.
Benefit	
Non-vested	Return of employee contributions (without interest)
Vested but Prior to Eligibility for Early or Normal Retirement	Accrued benefit payable under a 50% joint and survivor option, deferred to the earliest date the member would have been eligible for a normal retirement benefit. If the member had at least 15 years of service at death, assumed deferred to age 55 and payable at 50% joint and survivor early retirement benefit.
Eligible for Early or Normal Retirement	Benefit employee would have received had he retired on the date of death under the 50% joint and survivor option.

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

OTHER BENEFITS ON SEPARATION FROM SERVICE

Prior to Eligibility for a Retirement Benefit	Return of employee contributions with interest credited after September 1, 2008.

FORM OF BENEFITS

Normal Form	Life annuity with guarantee of return of employee contributions.
Optional Forms	(a) Reduced benefit payable for life but with payments guaranteed for 10 years. (b) Reduced benefit during retiree's life with 50% or 100% of reduced amount payable to spouse after death.

DEFFERED RETIREMENT OPTION PLAN (DROP)

Eligibility	Rule of 85.
Benefit	Monthly Accrued Retirement Benefit payable into separate account in Plan while member is still working.
Duration	For Employees hired before October 1, 2012: 60 months, after which member formally retires and regular monthly benefit commences. For Employees hired after September 30, 2012: 48 months, after which member formally retires and regular monthly benefit commences.
Investment return on DROP account	4.5%

Schedule J – Tables of Participant Data

TABLE 1

STATUS RECONCILIATION OF PARTICIPANTS

	Active	Vested Terminated	DROP	Disabled	Retired	Beneficiaries	Total
Participants as of 1/1/2022	166	7	11	19	82	5	290
A. Receiving Benefits	(4)			1	3		
B. Entered DROP	(1)		1				
C. Terminated Vested	(2)	2					
D. Terminated Non-Vested/Refunds	(8)						(8)
E. Deaths				(2)	(1)		(3)
F. Rehires							
G. New Participants	26					1	27
H. Certain Period Expired							
I. Data Corrections	1						
Participants as of 1/1/2023	178	9	12	18	84	6	306

Schedule J – Tables of Participant Data

TABLE 2

AGE – SERVICE TABLE

Distribution of Active Participants as of January 1, 2023 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	1	1	0	0	0	0	0	0	0	2	$ 97,900
25 to 29	3	1	0	0	0	0	0	0	0	4	143,979
30 to 34	2	7	4	1	0	0	0	0	0	14	859,080
35 to 39	2	6	2	1	2	0	0	0	0	13	805,583
40 to 44	6	6	4	2	1	1	0	0	0	20	1,067,533
45 to 49	4	10	4	4	2	1	1	0	0	26	1,427,655
50 to 54	6	12	6	4	5	2	1	0	0	36	1,905,317
55 to 59	1	4	8	8	6	6	2	0	0	35	2,375,798
60 to 64	1	7	11	3	3	1	0	0	0	26	1,552,741
65 to 69	0	0	2	0	0	0	0	0	0	2	117,577
70 & Over	0	0	0	0	0	0	0	0	0	0	0
Total Count	26	54	41	23	19	11	4	0	0	178	10,353,163

Average Payroll:	$58,164
Average Age:	49.3 years
Average Service:	8.0 years

The valuation also includes 12 DROP participants with average annual compensation of $59,532.

TABLE 3

**NUMBER OF RETIRED PARTICIPANTS
AND THEIR BENEFITS BY AGE
SERVICE RETIREMENTS**

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
50 and Under	0	$ 0	$ 0
51 – 55	0	0	0
56 – 60	0	0	0
61 – 65	3	86,679	28,893
66 – 70	18	355,015	19,723
71 – 75	26	397,903	15,304
76 – 80	20	258,204	12,910
81 - 85	14	225,333	16,095
Over 85	3	42,349	14,116
Total	84	$ 1,365,483	$ 16,256

TABLE 4

**NUMBER OF RETIRED PARTICIPANTS
AND THEIR BENEFITS BY AGE
DISABILITY RETIREMENTS**

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
50 and Under	1	$ 12,307	$ 12,307
51 – 55	2	31,515	15,758
56 – 60	3	31,290	10,430
61 – 65	1	14,580	14,580
66 – 70	4	64,485	16,121
71 – 75	2	18,405	9,203
76 - 80	3	31,911	10,637
Over 80	2	12,954	6,477
Total	18	$ 217,447	$ 12,080

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
50 and Under	0	$ 0	0
51 – 55	0	0	0
56 – 60	0	0	0
61 – 65	1	11,930	11,930
66 – 70	0	0	0
71 – 75	1	14,747	14,747
76 – 80	3	32,853	10,951
Over 80	1	12,598	12,598
Total	6	$ 72,128	$ 12,021

TABLE 6

NUMBER OF DROP PARTICIPANTS
AND THEIR BENEFITS BY AGE

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
55 and Under	1	$ 41,504	$ 41,504
56 – 60	0	0	0
61 – 65	3	73,785	24,595
66 – 70	6	79,265	13,211
Over 70	2	21,787	10,893
Total	12	$ 216,341	$ 18,028

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 1/01/2023	$ Gain (or Loss) For Year Ending 1/01/2022
Age & Service Retirements. If members retire at older ages, there is a gain. If younger ages, a loss.	$ (246.3)	$ (20.5)
Disability Retirements. If disability claims are less than assumed, there is a gain. If more claims, a loss.	(47.9)	(108.3)
Death-in-Service Benefits. If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	(26.0)	(22.9)
Withdrawal from Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	6.4	277.7
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	641.6	(103.9)
New Members. Additional unfunded accrued liability will produce a loss.	(100.1)	(54.6)
Investment Income. If there is a greater investment income than assumed, there is a gain. If less income, a loss.	(474.0)	650.4
Death After Retirement. If retirants live longer than assumed, there is a loss. If not as long, a gain.	(99.0)	106.1
Other. Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc.	(19.5)	(61.0)
Gain (or Loss) During Year from Experience	$ (364.8)	$ 663.0
Non-Recurring Items. Adjustments for plan amendments, assumption changes, or method changes.	0.0	(1,732.8)
Composite Gain (or Loss) During Year	$ (364.8)	$ (1,069.8)

Report on the Actuarial Valuation of the Disability and Retirement Plan

Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union

Prepared as of January 1, 2024

July 9, 2024

Pension Board of Trustees
Chattanooga Area Regional Transportation Authority
617 Wilcox Boulevard
Chattanooga, TN 37406

Ladies and Gentlemen:

We are pleased to submit the results of the annual pension actuarial valuation of the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority (CARTA), prepared as of January 1, 2024. 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 employer contribution (ADEC) for the fiscal year ending December 31, 2025. The information needed for CARTA under Governmental Accounting Standards Board (GASB) No. 67 and 68 will be provided in a separate report. However, for informational purposes only, we have also provided accounting information in Section V of this report.

On the basis of the valuation and the Funding Policy, it is recommended that CARTA contribute 100% of the ADEC, or $1,812,013, for the fiscal year ending December 31, 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.

There have been no changes in the plan provisions or actuarial assumptions since the last valuation report.

The Plan is funded on an actuarial reserve basis. The actuarial assumptions are reasonably related to the experience under the Plan and to reasonable expectations of anticipated experience under the Plan. The funding objective of the Plan is that employer contributions over time will remain level. The valuation method used is the entry age normal cost method. The normal contribution to cover current cost has been determined as a level percent of payroll. In accordance with the new Funding Policy, the unfunded accrued liability (UAL) is being amortized by regular annual contributions as a level dollar with a closed 30 year period for the Transitional UAL as of January 1, 2016 and gains and losses in subsequent years are amortized over a closed period from the valuation it is established.

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 the report are for purposes of determining the recommended funding amount 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

Jennifer Johnson
Managing Director

EJK/dv

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**REPORT ON THE ACTUARIAL VALUATION OF
THE DISABILITY AND RETIREMENT PLAN OF THE
CHATTANOOGA AREA REGIONAL TRANSPORTATION AUTHORITY
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	167	178
Annual compensation	$ 10,571,624	$ 10,353,163
Number of DROP participants	12	12
Annual compensation	$ 711,731	$ 714,380
Number of retired participants and beneficiaries	108	108
Annual benefits	$ 1,647,438	$ 1,655,058
Number of deferred vested participants	12	9
Annual deferred vested benefits	$ 173,517	$ 114,485
Actuarial Accrued Liability	$ 35,830,802	$ 34,915,648
Assets:		
Actuarial value	$ 23,089,698	$ 21,379,051
Market value	21,977,197	18,909,950
Unfunded accrued liability	$ 12,741,104	$ 13,536,597
Blended Amortization Period	22.5 years	23.7 years
Funded Ratio		
Actuarial value	64.4%	61.2%
Market value	61.3%	54.2%
CONTRIBUTION RATES FOR FISCAL YEAR ENDING	**December 31, 2025**	**December 31, 2024**
Actuarially Determined Employer Contribution (ADEC):		
Normal Cost	$ 708,302	$ 690,844
Unfunded accrued liability	1,103,711	1,147,067
Total	$ 1,812,013	$ 1,837,911

2. Comments on the valuation results as of January 1, 2024 are given in Section IV. In addition, comments on the experience and actuarial gains and losses during the year are provided in Section VI.

3. Schedule E of this report outlines the full set of actuarial assumptions and methods used to prepare the valuation.

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

6. As shown in the Summary of Principal Results, the funded ratio is the ratio 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.

1. Data regarding the participants of the Plan for use as a basis of the valuation were furnished by the Plan. The following table shows a six-year history of active member valuation data.

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

VALUATION DATE	NUMBER	ANNUAL PAYROLL	AVERAGE PAY	AVERAGE AGE	AVERAGE SERVICE
1/01/2019	168	$8,986,047	$53,488	48.5	8.2
1/01/2020	166	8,891,135	53,561	48.6	8.4
1/01/2021	167	10,181,208	60,965	48.8	8.5
1/01/2022	166	10,026,551	60,401	49.4	8.4
1/01/2023	178	10,353,163	58,164	49.3	8.0
1/01/2024	167	10,571,624	63,303	50.4	8.2

In addition, this valuation included 12 DROP participants with annualized compensation totaling $711,731.

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	84	$ 1,363,941
Disability Retirements	16	185,433
Beneficiaries of Deceased Participants	8	98,064
Total	108	$ 1,647,438

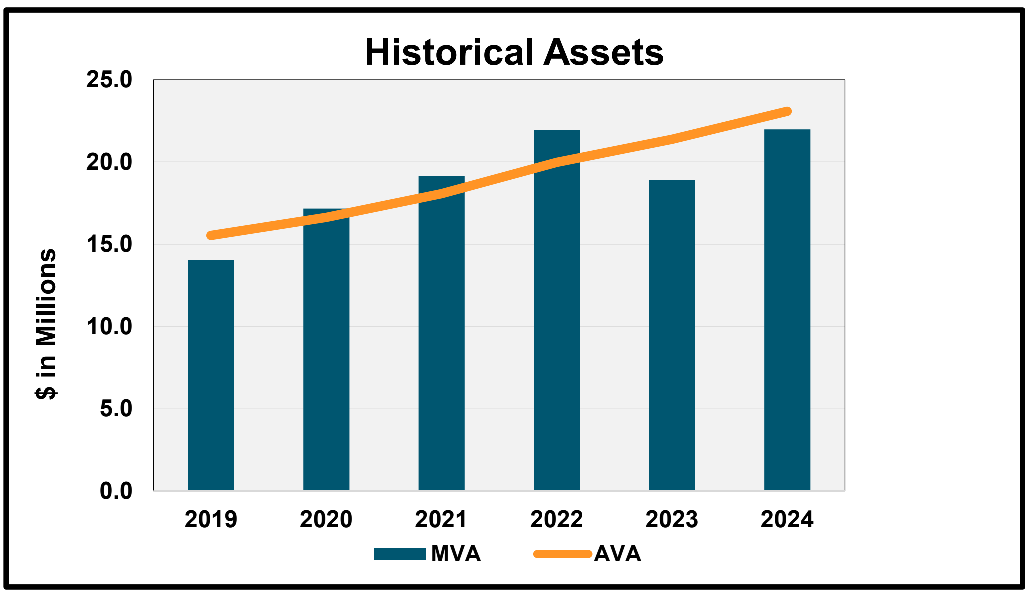
In addition, there are 12 former participants entitled to deferred vested retirement benefits totaling $173,517.

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.

1. As of January 1, 2024, the market value of assets amounted to $21,977,197, as provided by CARTA. The estimated investment return for the plan year was 14.67%. 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 $23,089,698. The estimated investment return for the plan year ending January 1, 2024 on an actuarial value of assets basis was 6.68%, which can be compared to the investment return assumed for the period of 7.00%. Schedule C shows the development of the actuarial value of assets as of January 1, 2024.

3. The graph below shows a 10-year history of market and actuarial value of assets:



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 $44,478,040. Of this amount, $19,957,732 is for the prospective benefits payable on account of present retired participants, beneficiaries of deceased participants, DROP participants, and former participants entitled to deferred vested benefits or a refund of contributions, and $24,520,308 is for the prospective benefits payable on account of present active participants. Against these liabilities, the Plan has total present assets of $23,089,698 as of January 1, 2024. The difference of $21,388,342 between the total liabilities and the total present 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 of $1,204,345 are required under the entry age normal cost method. Of this amount, $496,043 is assumed to be paid by the participants and the remaining $708,302 is payable by CARTA.

4. Prospective normal contributions have a present value of $8,647,238. When this amount is subtracted from $21,388,342, which is the present value of total future contributions, there remains $12,741,104 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, 2016 (Transitional UAL) will be amortized as a level dollar amount over a closed 30-year period. 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 period from the date it is established. We have determined that an accrued liability contribution of $1,103,711 will comply with the Board's funding policy.

6. 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

	Initial UAL	Current UAL	Remaining Amortization Period	Amortization Payment
Transitional	$11,845,529	$10,623,696	22	$928,496
New Incremental 1/1/2017	$686,375	$626,616	23	$53,741
New Incremental 1/1/2018	$523,208	$485,488	24	$40,921
New Incremental 1/1/2019	($100,622)	($94,769)	25	($7,862)
New Incremental 1/1/2020	($90,079)	($86,008)	26	($7,031)
New Incremental 1/1/2021	$244,209	$236,115	27	$19,043
New Incremental 1/1/2022	$1,277,789	$1,249,788	28	$99,547
New Incremental 1/1/2023	$259,443	$256,697	29	$20,212
New Incremental 1/1/2024	($556,519)	($556,519)	30	($43,356)
Total		$12,741,104		$1,103,711
Blended Amortization Period (years)				22.5

7. Therefore, the employer contribution required for the fiscal year ending December 31, 2025 is $1,812,013, the total of the employer normal cost, $708,302, and the amortization of the UAL, $1,103,711.

Governmental Accounting Standards Board (GASB) has issued Statement No. 67 which replaced Statement 25 for plans beginning after June 15, 2013. The information required under GASB 67 was issued in a separate report. The following information is provided for informational purposes and for disclosure in the financial statements of the employer under GASB 27.

1. One such item 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	108
Terminated participants entitled to benefits but not yet receiving them	12
DROP participants	12
Active participants	167
Total	299

2. 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)	Total Covered Payroll (c)	UAL as a Percentage of Covered Payroll ((b – a) / c)
1/01/2020	$16,642,749	$28,963,767	$12,321,018	57.5%	$9,513,855	129.5%
1/01/2021	18,080,415	30,480,473	12,400,058	59.3	10,609,212	116.9
1/01/2022*	19,979,061	33,476,988	13,497,927	59.7	10,647,609	126.8
1/01/2023	21,379,051	34,915,648	13,536,597	61.2	11,067,543	122.3
1/01/2024	23,089,698	35,830,802	12,741,104	64.4	11,283,355	112.9

* Reflects change in discount rate from 7.50% to 7.00%

3. 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
Remaining amortization period	22.5 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	7.00%
Projected salary increases	3.50%
Cost-of-living adjustments	None

SECTION IV – 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)	Unfunded Accrued Liability (UAL) as of January 1, 2023	$	13,536.6
(2)	Total normal cost from last valuation		1,138.2
(3)	Total actual contributions		2,345.3
(4)	Interest accrual: [((1)+(2)) x .07] - [(3) x .035]		945.1
(5)	Expected UAL before changes: (1) + (2) – (3) + (4)	$	13,274.6
(6)	Change due to plan amendments		0.0
(7)	Change due to actuarial assumptions or methods		0.0
(8)	Expected UAL after changes: (5) + (6) + (7)	$	13,274.6
(9)	Actual UAL as of January 1, 2024	$	12,741.1
(10)	Gain/(loss): (8) – (9)	$	533.5
(11)	Gain/(loss) as percent of actuarial accrued liabilities at start of year ($34,915.6)		1.53%

Valuation Date January 1	Actuarial Gain/(Loss) as a % of Beginning Accrued Liabilities
2021	(1.89)%
2022	2.17%
2023	(1.09)%
2024	1.53%

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.

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	Total Covered Payroll	Asset Volatility Ratio
2019	$14,034	$9,538	1.47
2020	$17,176	$9,514	1.81
2021	$19,122	$10,609	1.80
2022	$21,948	$10,648	2.06
2023	$18,910	$11,068	1.71
2024	$21,977	$11,283	1.95

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 2.00, if the market value return is 10% below assumed, or -3.00% for CARTA, there will be an increase in the Required Contribution Rate of approximately $35,162 in the first year. A higher AVR would produce even more volatility in the Required Contribution Rate.

AVR	Estimated Increase in Required Contribution
1.0	$17,581
2.0	$35,162
3.0	$52,742
4.0	$70,323

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 table contains the key measures using the market related actuarial value of assets under the valuation assumption for investment return of 7.00%, along with the results if the related actuarial assumption were 6.00% or 8.00%. 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 (6.00% or 8.00%) would comply with actuarial standards of practice.

($ in thousands)

As of January 1, 2024	Current Discount Rate (7.00%)	-1% Discount Rate (6.00%)	+1% Discount Rate (8.00%)
Plan's Normal Cost	$708	$843	$595
Accrued Liability	$35,831	$39,303	$32,881
Unfunded Liability	$12,741	$16,214	$9,792
Funded Ratio	64.4%	58.7%	70.2%

Mortality Risk

The mortality assumption is a significant assumption for valuation results, second only to the investment assumption in most situations. The 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 CARTA conducts so that incremental changes can be made to smoothly reflect unfolding experience.

Contribution Risk

CARTA 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 Actuarially Determined Contribution is determined, based on CARTA's funding policy. This amount is the sum of the normal cost for the plan and the amortization of the UAAL. Since CARTA is obligated to make 100% of the Actuarially Determined Contribution by statute, there is no contribution risk for the Plan.

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 $41.5 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	$ 24,520,308
	b)	Present Retired Participants, Beneficiaries and Former Participants Entitled to Deferred Vested Benefits or Refunds of Contributions	19,957,732
	c)	Total	$ 44,478,040
(2)	Present Value of Future CARTA and Participant Normal Contributions		8,647,238
(3)	Actuarial Accrued Liabilities [1(c) – (2)]		$ 35,830,802
(4)	Actuarial Value of Assets		23,089,698
(5)	Unfunded Accrued Liabilities (UAL) [(3) – (4)]		$ 12,741,104
(6)	Amortization of UAL		$ 1,103,711
(7)	Actuarially Determined Employer Contribution (ADEC)		
	(a)	Normal Cost	$ 708,302
	(b)	Amortization of UAL	1,103,711
	(c)	Total	$ 1,812,013

THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES OF THE DISABILITY AND RETIREMENT PLAN OF THE CHATTANOOGA AREA REGIONAL TRANSPORTATION AUTHORITY PREPARED AS OF JANUARY 1, 2024

ASSETS		
Present Assets of the Plan		$ 23,089,698
Present Value of Prospective Contributions:		
CARTA and Participants Normal Contributions	$ 8,647,238	
Unfunded Accrued Liability Contributions	12,741,104	
Total Prospective Contributions		21,388,342
Total Assets		$ 44,478,040
LIABILITIES		
Present Value of Benefits Payable on Account of Retired Participants, Beneficiaries and Former Participants Entitled to Deferred Vested Benefits or Refunds of Contributions		$ 19,957,732
Present Value of Prospective Benefits payable on Account of Present Active Participants		24,520,308
Total Liabilities		$ 44,478,040

AS OF JANUARY 1, 2024

(1)	Actuarial Value Beginning of Year		$	21,379,051
(2)	Market Value End of Year		$	21,977,197
(3)	Market Value Beginning of Year		$	18,909,950
(4)	Cash Flow			
	a.	Contributions	$	2,345,348
	b.	Benefit Payments/Refunds		(1,984,785)
	c.	Administrative Expenses		(87,169)
	d.	Net	$	273,394
(5)	Investment Income			
	a.	Market total: [(2) – (3) – (4)d]	$	2,793,853
	b.	Assumed Rate		7.00%
	c.	Amount of Immediate Recognition [(3) x (5)b] + [(4)d x (5)b * 0.5]	$	1,333,265
	d.	Amount for Phased-in Recognition: [(5)a – (5)c]	$	1,460,588
(6)	Phased-In Recognition of Investment Income			
	a.	Current Year Recognized [0.20 * (5)d]	$	292,118
	b.	First Prior Year Recognized		(1,010,034)
	c.	Second Prior Year Recognized		299,982
	d.	Third Prior Year Recognized		149,164
	e.	Fourth Prior Year Recognized		372,758
	f.	Total Recognized Investment Gain/(Loss)	$	103,988
(7)	Preliminary Actuarial Value End of Year [(1) + (4)d + (5)c + (6)f]		$	23,089,698
(8)	Corridor Lower Limit (80% of Market Value End of Year)		$	17,581,758
(9)	Corridor Upper Limit (120% of Market Value End of Year)		$	26,372,636
(10)	Final Actuarial Value End of Year [(7) not less than (8) and not greater than (9)]		$	23,089,698
(11)	Difference Between Market & Actuarial Values [(2) – (10)]		$	(1,112,501)
(12)	Actuarial Value of Asset Rate of Return			6.68%

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	$ 18,909,950	$ 21,948,313
Audit Adjustment	0	0
Expenditures		
- Benefit Payments and Refunds	$ (1,984,785)	$ (1,769,394)
- Administrative Expenses	(87,169)	(89,492)
- Total	$ (2,071,954)	$ (1,858,886)
Contributions		
- Employer	$ 1,877,081	$ 1,837,711
- Employee	463,197	470,554
- Other	5,070	9,969
- Total	$ 2,345,348	$ 2,318,234
Investment Income	$ 2,793,853	$ (3,497,711)
Market Value of Assets as of January 1 of Current Year	$ 21,977,197	$ 18,909,950
Estimated Market Value Rate of Return *	14.67%	(15.77)%

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

SCHEDULE E – OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions used in this valuation were developed by the previous actuary. However, the Pension Board adopted the investment return assumption of 7.00% at its meeting on April 12, 2022.

INVESTMENT RATE OF RETURN: 7.00% per annum, compounded annually, net of investment expenses.

CONTRIBUTION EARNINGS RATE: 2.5% 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. Effective September 1, 2008, 4.5% 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: 3.50% per annum, compounded annually.

SEPARATIONS FROM ACTIVE SERVICE: Mortality rates are according to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014. Representative values of the assumed annual rates of disability, withdrawal and service retirement are as follows:

Annual Rate of				
			Retirement	
Age	Disability	Withdrawal	Reduced	Unreduced
20		17.13%		
25		14.62		
30	0.09%	7.80		
35	0.11	5.73		
40	0.17	4.71		
45	0.30	3.29		
50	0.50	2.11		4.0%
55	0.88	1.06	1.20%	5.0
60	1.56	0.40	1.82	10.0
61	1.71		2.46	100.0
62	1.88		3.12	100.0
63	2.05		3.96	100.0
64	2.25		4.94	100.0
65				100.0

DEATHS AFTER RETIREMENT: According to the RP-2014 Total Data Set Mortality Table projected generationally with Scale MP-2014, for service retirements and beneficiaries of retired participants. The RP-2014 Disabled Retiree Mortality Table projected generationally with Scale MP-2014 is used for the period after disability retirement.

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

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.

PERCENT MARRIED: 100% of all participants are assumed to be married, with husbands three years older than their wives.

SCHEDULE F – ACTUARIAL COST METHODS

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 7.00%), 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 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 CARTA 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.

The Board of Trustees of the Disability and Retirement Plan of the Chattanooga Area Regional Transportation Authority and Local 1212 of the Amalgamated Transit Union ("Plan") 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. 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.

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 Plan'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 (6.75%).

- 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.

- No enhancements shall be made to benefits without approval by the State Treasurer until the funded ratio is above 60% on an actuarial value basis.

- In the event the Plan 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 Plan.

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

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, if applicable.

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, and (3) annuity factors. These factors shall be determined on a cost neutral basis.

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 liability cost, and (3) the cost of administration for the operation of the Plan. The ADC shall be calculated and become applicable on the fiscal year immediately following the valuation date.

Funding the ADC. Tenn. Code Ann. § 9-3-505(a) requires the Plan to annually pay a payment to the Plan of no less than one hundred (100%) percent of the ADC. However, according to Tenn. Code Ann. § 9-3-505(b), if a political subdivision is not paying at least 100% of the ADC in the fiscal year ending in 2015, effort shall be made to increase the rate of the ADC that is being contributed to 100% by fiscal year 2020. The contribution made in 2015 as a percentage of the ADC was 82%. Therefore, at a minimum, the following table shall be used as a plan to get the Plan to funding 100% of the ADC:

Fiscal Year End	Percentage of ADC Contributed
December 31, 2016	86%
December 31, 2017	90%
December 31, 2018	94%
December 31, 2019	98%
December 31, 2020	100%

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 nor 20% less than the market value of assets existing as of the actuarial valuation date.

Amortization methodology for actuarial gains and losses. Unfunded liabilities shall be amortized utilizing the level dollar amortization method over a closed period not to exceed thirty (30) years. The unfunded liabilities established as of the initial valuation date (January 1, 2016) for which this Funding Policy is adopted is the transitional liabilities. The transitional liabilities will be amortized over a closed 30 year 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 thirty (30) 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 thirty (30) years. Any extension of the amortization period for a specific tier cannot exceed the thirty (30) year maximum less whatever time has elapsed from the beginning of the amortization period.

The unfunded liability based on the 2016 actuarial valuation shall be funded no later than 2046. 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 thirty (30) 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 Plan 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.

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.

IX. **Effective Date**

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

AMORTIZATION OF 2016 TRANSITIONAL UAL

Valuation Date	Amortization Period	Balance of Transitional UAL	Annual Amortization Payment
1/1/2016	30	$11,845,529	$967,356
1/1/2017	29	11,730,968	967,356
1/1/2018	28	11,607,815	967,356
1/1/2019	27	11,475,425	967,356
1/1/2020	26	11,333,107	967,356
1/1/2021	25	11,180,114	967,356
1/1/2022	24	11,015,647	928,496
1/1/2023	23	10,826,299	928,496
1/1/2024	**22**	**10,623,696**	**928,496**
1/1/2025	21	10,406,911	928,496
1/1/2026	20	10,174,951	928,496
1/1/2027	19	9,926,754	928,496
1/1/2028	18	9,661,183	928,496
1/1/2029	17	9,377,022	928,496
1/1/2030	16	9,072,970	928,496
1/1/2031	15	8,747,634	928,496
1/1/2032	14	8,399,525	928,496
1/1/2033	13	8,027,048	928,496
1/1/2034	12	7,628,498	928,496
1/1/2035	11	7,202,049	928,496
1/1/2036	10	6,745,749	928,496
1/1/2037	9	6,257,508	928,496
1/1/2038	8	5,735,090	928,496
1/1/2039	7	5,176,103	928,496
1/1/2040	6	4,577,986	928,496
1/1/2041	5	3,938,001	928,496
1/1/2042	4	3,253,217	928,496
1/1/2043	3	2,520,498	928,496
1/1/2044	2	1,736,489	928,496
1/1/2045	1	897,599	928,496
1/1/2046	0	0	0

AMORTIZATION OF 2017 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAL 1/1/2017	Annual Amortization Payment
1/1/2017	30	$686,375	$56,052
1/1/2018	29	679,737	56,052
1/1/2019	28	672,601	56,052
1/1/2020	27	664,930	56,052
1/1/2021	26	656,684	56,052
1/1/2022	25	647,819	53,741
1/1/2023	24	637,576	53,741
1/1/2024	**23**	**626,616**	**53,741**
1/1/2025	22	614,889	53,741
1/1/2026	21	602,341	53,741
1/1/2027	20	588,915	53,741
1/1/2028	19	574,549	53,741
1/1/2029	18	559,177	53,741
1/1/2030	17	542,729	53,741
1/1/2031	16	525,130	53,741
1/1/2032	15	506,299	53,741
1/1/2033	14	486,150	53,741
1/1/2034	13	464,590	53,741
1/1/2035	12	441,521	53,741
1/1/2036	11	416,837	53,741
1/1/2037	10	390,425	53,741
1/1/2038	9	362,165	53,741
1/1/2039	8	331,926	53,741
1/1/2040	7	299,571	53,741
1/1/2041	6	264,951	53,741
1/1/2042	5	227,907	53,741
1/1/2043	4	188,270	53,741
1/1/2044	3	145,859	53,741
1/1/2045	2	100,479	53,741
1/1/2046	1	51,922	53,741
1/1/2047	0	0	0

AMORTIZATION OF 2018 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAL 1/1/2018	Annual Amortization Payment
1/1/2018	30	$523,208	$42,727
1/1/2019	29	518,148	42,727
1/1/2020	28	512,709	42,727
1/1/2021	27	506,862	42,727
1/1/2022	26	500,576	40,921
1/1/2023	25	493,287	40,921
1/1/2024	**24**	**485,488**	**40,921**
1/1/2025	23	477,143	40,921
1/1/2026	22	468,214	40,921
1/1/2027	21	458,660	40,921
1/1/2028	20	448,437	40,921
1/1/2029	19	437,499	40,921
1/1/2030	18	425,795	40,921
1/1/2031	17	413,272	40,921
1/1/2032	16	399,872	40,921
1/1/2033	15	385,534	40,921
1/1/2034	14	370,192	40,921
1/1/2035	13	353,776	40,921
1/1/2036	12	336,211	40,921
1/1/2037	11	317,417	40,921
1/1/2038	10	297,307	40,921
1/1/2039	9	275,789	40,921
1/1/2040	8	252,765	40,921
1/1/2041	7	228,130	40,921
1/1/2042	6	201,770	40,921
1/1/2043	5	173,565	40,921
1/1/2044	4	143,386	40,921
1/1/2045	3	111,094	40,921
1/1/2046	2	76,542	40,921
1/1/2047	1	39,571	40,921
1/1/2048	0	0	0

AMORTIZATION OF 2019 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2019	Annual Amortization Payment
1/1/2019	30	($100,622)	($8,218)
1/1/2020	29	(99,649)	(8,217)
1/1/2021	28	(98,603)	(8,217)
1/1/2022	27	(97,479)	(7,862)
1/1/2023	26	(96,170)	(7,862)
1/1/2024	**25**	**(94,769)**	**(7,862)**
1/1/2025	24	(93,270)	(7,862)
1/1/2026	23	(91,666)	(7,862)
1/1/2027	22	(89,950)	(7,862)
1/1/2028	21	(88,114)	(7,862)
1/1/2029	20	(86,149)	(7,862)
1/1/2030	19	(84,047)	(7,862)
1/1/2031	18	(81,798)	(7,862)
1/1/2032	17	(79,391)	(7,862)
1/1/2033	16	(76,816)	(7,862)
1/1/2034	15	(74,061)	(7,862)
1/1/2035	14	(71,113)	(7,862)
1/1/2036	13	(67,958)	(7,862)
1/1/2037	12	(64,583)	(7,862)
1/1/2038	11	(60,971)	(7,862)
1/1/2039	10	(57,106)	(7,862)
1/1/2040	9	(52,971)	(7,862)
1/1/2041	8	(48,546)	(7,862)
1/1/2042	7	(43,812)	(7,862)
1/1/2043	6	(38,746)	(7,862)
1/1/2044	5	(33,326)	(7,862)
1/1/2045	4	(27,526)	(7,862)
1/1/2046	3	(21,320)	(7,862)
1/1/2047	2	(14,680)	(7,862)
1/1/2048	1	(7,575)	(7,862)
1/1/2049	0	0	0

AMORTIZATION OF 2020 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2020	Annual Amortization Payment
1/1/2020	30	($90,079)	($7,356)
1/1/2021	29	(89,208)	(7,356)
1/1/2022	28	(88,272)	(7,031)
1/1/2023	27	(87,178)	(7,031)
1/1/2024	**26**	**(86,008)**	**(7,031)**
1/1/2025	25	(84,756)	(7,031)
1/1/2026	24	(83,416)	(7,031)
1/1/2027	23	(81,982)	(7,031)
1/1/2028	22	(80,448)	(7,031)
1/1/2029	21	(78,806)	(7,031)
1/1/2030	20	(77,049)	(7,031)
1/1/2031	19	(75,170)	(7,031)
1/1/2032	18	(73,159)	(7,031)
1/1/2033	17	(71,007)	(7,031)
1/1/2034	16	(68,705)	(7,031)
1/1/2035	15	(66,241)	(7,031)
1/1/2036	14	(63,605)	(7,031)
1/1/2037	13	(60,784)	(7,031)
1/1/2038	12	(57,766)	(7,031)
1/1/2039	11	(54,537)	(7,031)
1/1/2040	10	(51,082)	(7,031)
1/1/2041	9	(47,385)	(7,031)
1/1/2042	8	(43,429)	(7,031)
1/1/2043	7	(39,196)	(7,031)
1/1/2044	6	(34,667)	(7,031)
1/1/2045	5	(29,821)	(7,031)
1/1/2046	4	(24,636)	(7,031)
1/1/2047	3	(19,088)	(7,031)
1/1/2048	2	(13,151)	(7,031)
1/1/2049	1	(6,799)	(7,031)
1/1/2050	0	0	0

AMORTIZATION OF 2021 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2021	Annual Amortization Payment
1/1/2021	30	$244,209	$19,943
1/1/2022	29	241,847	19,043
1/1/2023	28	239,078	19,043
1/1/2024	**27**	**236,115**	**19,043**
1/1/2025	26	232,945	19,043
1/1/2026	25	229,553	19,043
1/1/2027	24	225,923	19,043
1/1/2028	23	222,039	19,043
1/1/2029	22	217,883	19,043
1/1/2030	21	213,437	19,043
1/1/2031	20	208,679	19,043
1/1/2032	19	203,588	19,043
1/1/2033	18	198,141	19,043
1/1/2034	17	192,313	19,043
1/1/2035	16	186,077	19,043
1/1/2036	15	179,404	19,043
1/1/2037	14	172,264	19,043
1/1/2038	13	164,624	19,043
1/1/2039	12	156,449	19,043
1/1/2040	11	147,702	19,043
1/1/2041	10	138,343	19,043
1/1/2042	9	128,329	19,043
1/1/2043	8	117,614	19,043
1/1/2044	7	106,149	19,043
1/1/2045	6	93,881	19,043
1/1/2046	5	80,754	19,043
1/1/2047	4	66,709	19,043
1/1/2048	3	51,680	19,043
1/1/2049	2	35,599	19,043
1/1/2050	1	18,393	19,043
1/1/2051	0	0	0

AMORTIZATION OF 2022 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2022	Annual Amortization Payment
1/1/2022	30	$1,277,789	$99,547
1/1/2023	29	1,264,262	99,547
1/1/2024	**28**	**1,249,788**	**99,547**
1/1/2025	27	1,234,301	99,547
1/1/2026	26	1,217,730	99,547
1/1/2027	25	1,199,999	99,547
1/1/2028	24	1,181,027	99,547
1/1/2029	23	1,160,727	99,547
1/1/2030	22	1,139,006	99,547
1/1/2031	21	1,115,764	99,547
1/1/2032	20	1,090,894	99,547
1/1/2033	19	1,064,284	99,547
1/1/2034	18	1,035,812	99,547
1/1/2035	17	1,005,346	99,547
1/1/2036	16	972,747	99,547
1/1/2037	15	937,867	99,547
1/1/2038	14	900,544	99,547
1/1/2039	13	860,610	99,547
1/1/2040	12	817,880	99,547
1/1/2041	11	772,159	99,547
1/1/2042	10	723,238	99,547
1/1/2043	9	670,891	99,547
1/1/2044	8	614,881	99,547
1/1/2045	7	554,949	99,547
1/1/2046	6	490,823	99,547
1/1/2047	5	422,208	99,547
1/1/2048	4	348,790	99,547
1/1/2049	3	270,233	99,547
1/1/2050	2	186,176	99,547
1/1/2051	1	96,236	99,547
1/1/2052	0	0	0

AMORTIZATION OF 2023 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2023	Annual Amortization Payment
1/1/2023	30	$259,443	$20,212
1/1/2024	**29**	**256,697**	**20,212**
1/1/2025	28	253,758	20,212
1/1/2026	27	250,614	20,212
1/1/2027	26	247,250	20,212
1/1/2028	25	243,650	20,212
1/1/2029	24	239,798	20,212
1/1/2030	23	235,676	20,212
1/1/2031	22	231,266	20,212
1/1/2032	21	226,547	20,212
1/1/2033	20	221,498	20,212
1/1/2034	19	216,095	20,212
1/1/2035	18	210,314	20,212
1/1/2036	17	204,129	20,212
1/1/2037	16	197,511	20,212
1/1/2038	15	190,428	20,212
1/1/2039	14	182,851	20,212
1/1/2040	13	174,742	20,212
1/1/2041	12	166,065	20,212
1/1/2042	11	156,782	20,212
1/1/2043	10	146,849	20,212
1/1/2044	9	136,220	20,212
1/1/2045	8	124,848	20,212
1/1/2046	7	112,679	20,212
1/1/2047	6	99,659	20,212
1/1/2048	5	85,727	20,212
1/1/2049	4	70,819	20,212
1/1/2050	3	54,869	20,212
1/1/2051	2	37,802	20,212
1/1/2052	1	19,540	20,212
1/1/2053	0	0	0

AMORTIZATION OF 2024 INCREMENTAL UAL

Valuation Date	Amortization Period	Balance of New Incremental UAAL 1/1/2024	Annual Amortization Payment
1/1/2024	**30**	**($556,519)**	**($43,356)**
1/1/2025	29	(550,628)	(43,356)
1/1/2026	28	(544,324)	(43,356)
1/1/2027	27	(537,579)	(43,356)
1/1/2028	26	(530,362)	(43,356)
1/1/2029	25	(522,640)	(43,356)
1/1/2030	24	(514,377)	(43,356)
1/1/2031	23	(505,536)	(43,356)
1/1/2032	22	(496,076)	(43,356)
1/1/2033	21	(485,954)	(43,356)
1/1/2034	20	(475,123)	(43,356)
1/1/2035	19	(463,534)	(43,356)
1/1/2036	18	(451,134)	(43,356)
1/1/2037	17	(437,865)	(43,356)
1/1/2038	16	(423,667)	(43,356)
1/1/2039	15	(408,475)	(43,356)
1/1/2040	14	(392,219)	(43,356)
1/1/2041	13	(374,827)	(43,356)
1/1/2042	12	(356,216)	(43,356)
1/1/2043	11	(336,303)	(43,356)
1/1/2044	10	(314,995)	(43,356)
1/1/2045	9	(292,197)	(43,356)
1/1/2046	8	(267,803)	(43,356)
1/1/2047	7	(241,700)	(43,356)
1/1/2048	6	(213,771)	(43,356)
1/1/2049	5	(183,887)	(43,356)
1/1/2050	4	(151,910)	(43,356)
1/1/2051	3	(117,696)	(43,356)
1/1/2052	2	(81,087)	(43,356)
1/1/2053	1	(41,914)	(43,356)
1/1/2054	0	0	0

Schedule I – Summary of Plan 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. "Monthly Average Earnings" 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. "Service" is the length of time a person participated in the Plan or any former plan prior to the date as of which Service is being determined, expressed in years, and completed calendar months.

Effective Date	September 1, 1945 (Southern Coach) August, 1 1989 (CARTA only)
Date last Amended	Through December 2013 as reflective in collective bargaining agreement dated August 1, 2012
Eligibility to Participate	After 60 days of service with CARTA

CONTRIBUTIONS

Employee	2.00% of Earnings $195 monthly max 3.00% of Earnings effective September 1, 2007 3.50% of Earnings effective September 1, 2008 4.00% of Earnings effective August 1, 2012 4.25% of Earnings effective July 1, 2017 **Effective September 1, 2008 – employee contribution will be 4.5%**
Employer	7% of Earnings effective July 1, 2003 and $195 monthly max 9% of Earnings effective September 1, 2007 10.5% of Earnings effective September 1, 2008 11.75% of Earnings effective August 1, 2012 12.6% of Earnings effective July 1, 2013 **Actuarially Determined effective January 1, 2015**

SCHEDULE I – SUMMARY OF PLAN PROVISIONS OF THE PLAN AS INTERPRETED FOR VALUATION PURPOSES

NORMAL RETIREMENT

Eligibility	Earlier of: 1) Age 65 and 5 years of service 2) Age when sum of service and age first equals or exceeds 85 (Rule of 85).
Benefit	For employees hired before October 1, 2012: Greater of (a) or (b) a) 2% of three-year monthly average earnings multiplied by service b) if more than 20 years of service, accrual rate is 2.15% for all service For employees hired after September 30, 2012: 2% of three-year monthly average earnings multiplied by service and minimum monthly benefit of $115.00. For all employees, the maximum monthly benefit is 50% of three-year monthly average earnings.

EARLY RETIREMENT

Eligibility	Age 55 and 15 years of service.
Benefit	Accrued normal retirement benefit deferred to age 65 of immediate benefit equal to deferred benefit multiplied by the applicable percentage as follows:

Retirement Age	Early Retirement Percentage
55	50.0%
56	53.3
57	56.7
58	60.0
59	63.3
60	66.7
61	73.3
62	80.0
63	86.7
64	93.3

DEFERRED VESTED RETIREMENT

Eligibility	5 years of service.
Benefit	Accrued benefit deferred to age 65, or, if at least 15 years of service, reduced benefit at age 55. Reduction same as for early retirement.

DISABILITY RETIREMENT

Eligibility	Disability occurring after ten years of service but prior to age 65.
Benefit	Accrued Normal Retirement Benefit reduced according to the following:

Years of Service	Percentage of Accrued Normal Retirement Benefit
10 but less than 15	50%
15 but less than 20	75%
20 but less than 25	90%
25 but less than 30	95%
At least 30	100%

SPOUSE'S BENEFIT

Eligibility	Death while employed.
Benefit	
Non-vested	Return of employee contributions (without interest)
Vested but Prior to Eligibility for Early or Normal Retirement	Accrued benefit payable under a 50% joint and survivor option, deferred to the earliest date the member would have been eligible for a normal retirement benefit. If the member had at least 15 years of service at death, assumed deferred to age 55 and payable at 50% joint and survivor early retirement benefit.
Eligible for Early or Normal Retirement	Benefit employee would have received had he retired on the date of death under the 50% joint and survivor option.

OTHER BENEFITS ON SEPARATION FROM SERVICE

Prior to Eligibility for a Retirement Benefit	Return of employee contributions with interest credited after September 1, 2008.

FORM OF BENEFITS

Normal Form	Life annuity with guarantee of return of employee contributions.
Optional Forms	(a) Reduced benefit payable for life but with payments guaranteed for 10 years. (b) Reduced benefit during retiree's life with 50% or 100% of reduced amount payable to spouse after death.

DEFFERED RETIREMENT OPTION PLAN (DROP)

Eligibility	Rule of 85.
Benefit	Monthly Accrued Retirement Benefit payable into separate account in Plan while member is still working.
Duration	For Employees hired before October 1, 2012: 60 months, after which member formally retires and regular monthly benefit commences. For Employees hired after September 30, 2012: 48 months, after which member formally retires and regular monthly benefit commences.
Investment return on DROP account	4.5%

TABLE 1

STATUS RECONCILIATION OF PARTICIPANTS

	Active	Vested Terminated	DROP	Disabled	Retired	Beneficiaries	Total
Participants as of 1/1/2023	178	9	12	18	84	6	307
A. Receiving Benefits	(2)		(3)		5		
B. Entered DROP	(3)		3				
C. Terminated Vested	(3)	3					
D. Terminated Non-Vested/Refunds	(27)						(27)
E. Deaths				(2)	(5)		(7)
F. Rehires							
G. New Participants	23					2	25
H. Certain Period Expired							
I. Data Corrections	1						1
Participants as of 1/1/2024	167	12	12	16	84	8	299

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	2	1	0	0	0	0	0	0	0	3	$ 126,314
25 to 29	0	1	0	0	0	0	0	0	0	1	44,331
30 to 34	4	2	2	1	0	0	0	0	0	9	556,952
35 to 39	1	5	4	1	1	0	0	0	0	12	845,919
40 to 44	3	11	3	2	2	1	0	0	0	22	1,320,765
45 to 49	3	8	6	3	1	2	1	0	0	24	1,477,105
50 to 54	4	9	6	3	5	1	1	0	0	29	1,841,084
55 to 59	2	5	6	7	5	4	2	0	0	31	2,100,194
60 to 64	4	6	12	3	2	3	1	0	0	31	1,925,985
65 to 69	0	0	3	1	1	0	0	0	0	5	332,975
70 & Over	0	0	0	0	0	0	0	0	0	0	0
Total Count	23	48	42	21	17	11	5	0	0	167	10,571,624

Average Payroll:	$63,303
Average Age:	50.4 years
Average Service:	8.2 years

The valuation also includes 12 DROP participants with average annual compensation of $59,311.

TABLE 3

**NUMBER OF RETIRED PARTICIPANTS
AND THEIR BENEFITS BY AGE
SERVICE RETIREMENTS**

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
50 and Under	0	$ 0	$ 0
51 – 55	0	0	0
56 – 60	1	24,609	24,609
61 – 65	3	63,380	21,127
66 – 70	19	400,470	21,077
71 – 75	23	301,937	13,128
76 – 80	20	301,915	15,096
81 - 85	13	194,739	14,980
Over 85	5	76,891	15,378
Total	84	$ 1,363,941	$ 16,237

TABLE 4

NUMBER OF RETIRED PARTICIPANTS
AND THEIR BENEFITS BY AGE
DISABILITY RETIREMENTS

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
50 and Under	1	$ 12,307	$ 12,307
51 – 55	1	10,901	10,901
56 – 60	1	11,601	11,601
61 – 65	3	34,269	11,423
66 – 70	3	49,703	16,568
71 – 75	2	25,676	12,838
76 - 80	3	28,022	9,341
Over 80	2	12,954	6,477
Total	16	$ 185,433	$ 11,590

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
50 and Under	0	$ 0	$ 0
51 – 55	0	0	0
56 – 60	0	0	0
61 – 65	0	0	0
66 – 70	1	11,930	11,930
71 – 75	1	18,654	18,654
76 – 80	4	53,718	13,430
Over 80	2	13,762	6,881
Total	8	$ 98,064	$ 12,258

TABLE 6

NUMBER OF DROP PARTICIPANTS
AND THEIR BENEFITS BY AGE

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
55 and Under	0	$ 0	$ 0
56 – 60	2	85,166	42,583
61 – 65	3	78,104	26,035
66 – 70	4	47,480	11,870
Over 70	3	29,800	9,933
Total	12	$ 240,550	$ 20,046

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

Type of Activity	$ Gain (or Loss) For Year Ending 1/01/2024	$ Gain (or Loss) For Year Ending 1/01/2023
Age & Service Retirements. If members retire at older ages, there is a gain. If younger ages, a loss.	$ (22.4)	$ (246.3)
Disability Retirements. If disability claims are less than assumed, there is a gain. If more claims, a loss.	(61.9)	(47.9)
Death-in-Service Benefits. If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	(26.8)	(26.0)
Withdrawal from Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	304.1	6.4
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	(119.7)	641.6
New Members. Additional unfunded accrued liability will produce a loss.	(76.6)	(100.1)
Investment Income. If there is a greater investment income than assumed, there is a gain. If less income, a loss.	(68.8)	(474.0)
Death After Retirement. If retirants live longer than assumed, there is a loss. If not as long, a gain.	623.3	(99.0)
Other. Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc.	(17.7)	(19.5)
Gain (or Loss) During Year from Experience	$ 533.5	$ (364.8)
Non-Recurring Items. Adjustments for plan amendments, assumption changes, or method changes.	0.0	(0.0)
Composite Gain (or Loss) During Year	$ 533.5	$ (364.8)