RETIREMENT SYSTEM OF THE CITY OF BARTLETT

Results of Actuarial Valuation
As of January 1, 2022

RETIREMENT SYSTEM OF THE CITY OF BARTLETT

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APPENDICES

ELLIS & WARD
Consulting Group Inc.

Voice 901.756.9925
Fax 901.756.9927
www.ellisbenefits.com

Mailing Address: P.O. Box 2470, Cordova, TN 38088-2470, Deliveries: 985 Cordova Station, Suite 102, Cordova, TN 38018

February 11, 2022

VIA EMAIL

Mr. Dick Phebus
Finance Director
City of Bartlett
6400 Stage Road
Bartlett, TN 38134

Dear Mr. Phebus:

Actuarial Valuation of RETIREMENT SYSTEM OF THE CITY OF BARTLETT

As requested, the enclosed report sets forth the results of the actuarial valuation for the Retirement System of the City of Bartlett as of January 1, 2022. The valuation establishes the Actuarially Determined Contribution for fiscal year ending June 30, 2023.

The amounts shown in the following summary were taken from Table A.

	Actuarially Determined Contribution
1. Annual Cost	$3,478,234
2. Percentage of covered payroll of $17,702,771	19.6%

There has been a decrease in costs from last year when measured as a percentage of payroll and a decrease when measured in the dollar amount of costs. As indicated in Line 8 of Table B, the Actuarially Determined Contribution decreased from $3,831,374 in 2021 to $3,478,234 in 2022.

Risk Discussion

The risks that may reasonably be anticipated to significantly affect the plan's future financial condition are discussed below. It is recommended that these risks be continually monitored.

Investment Risk

The investment risk is expected to be the single most important factor in determining the future cost of the plan. Due to the plan's significant equity exposure and low correlation between fixed income assets and liabilities, there is risk that the funded status (and required cash contributions) of the plan could be very volatile. The history of approximate annual investment returns is shown in the Trend Information Table of the July 1, 2021 Actuarial Valuation Report. The historical returns highlight the substantial volatility from year to year.

Interest Rate Risk

Related to the investment risk section above, the assumed future returns implied in the interest rate used to value the liabilities is a significant factor in determining the plan's funded status. Due to the plan's liability duration (a measurement of how sensitive the liability is to change in the interest rate) of around 11-12, a 1% decrease in the assumed interest rate would increase the liability by approximately 11-12%.

Inflation Risk

Since benefit amounts are pay-related, pay increases in excess of the valuation assumption will result in an increase in the liabilities (and required cash contributions) of the plan. An increase in inflation is one factor that could lead to higher pay increases. However, the inflation risk is dampened due to inflation being a component of the interest rate used to value the liabilities. An increase in inflation would likely result in an increase in the interest rate, which could mitigate the pay increases.

Mortality Risk

Since the primary benefits of the plan are paid as annuities, the plan is sensitive to changes in the longevity of the population. As a result, the liabilities (and required cash contributions) of the plan will increase if the participants live longer than expected and decrease if they live shorter than expected.

Contribution Risk

The required contributions calculated in this report are based on the actuarial methods and assumptions as documented in the Summary of Actuarial Methods and Assumptions section of the appendices. The required contribution includes the normal cost for new benefits being earned during the year, plus an amortization to cover any unfunded accrued liability over a period of 20 years or less. Based on this contribution method, all plan benefits are projected to be systematically funded. This method is not expected to cause additional volatility in the required contribution beyond the underlying risk factors discussed above. However, since the legacy plan is closed to new entrants, expected contribution requirements as a percentage of payroll will likely increase as payroll declines.

Actuarial Opinion

This valuation has been completed in accordance with generally accepted actuarial principles and practices and is based on our interpretation of the plan provisions as shown in the Appendices.

In preparing this report, we relied on the financial statements as submitted to us by the plan's trustee and on the employee data as submitted to us by the plan administrator. Based on comparisons of this data with information received in prior years, it is our opinion that the financial statements and the employee data are sufficient and reliable for the purposes of our calculations.

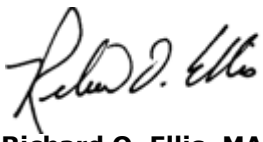
Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law.

I am a Member of the American Academy of Actuaries and an Enrolled Actuary under ERISA. I meet the Qualification Standards of these organizations.

If you have any questions concerning this information, please do not hesitate to call or write.

Sincerely,

Ellis & Ward
Consulting Group, Inc.



Richard O. Ellis, MAAA, EA
Consulting Actuary

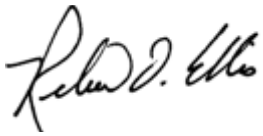
ROE/am
Enclosures

TABLE A

Summary and Certification of Valuation as of January 1, 2022
(Fiscal Year Ending June 30, 2023)

1.	**Basic data included in valuation**	
	a. Active participants	**297**
	b. Individuals receiving benefits	**216**
	c. Vested terminated participants	**39**
	d. Total participants	**552**
	e. Total annual compensation	**$17,702,771**
	f. Average annual compensation	**59,605**
2.	**Actuarial accrued liability**	
	a. Individuals receiving benefits	**57,339,042**
	b. Vested terminated participants	**3,204,766**
	c. Active participants	**67,069,333**
	d. Total	**127,613,141**
3.	**Actuarial value of assets as of valuation date**	**102,641,439**
4.	**Unfunded actuarial accrued liability (UAL)**	**24,971,702**
5.	**Normal cost**	**1,759,037**
6.	**Amortization of UAL**	**2,192,183**
7.	**Expected employee contributions**	**708,111**
8.	**Actuarially determined contribution for fiscal year ending June 30, 2023**	**3,478,234**

Certified by: Ellis & Ward Consulting Group, Inc.



Richard O. Ellis, MAAA, EA
Consulting Actuary

TABLE B

Comparison of Valuation Results

	Valuation as of 01-01-21 (1)	Valuation as of 01-01-22 (2)
1. Basic data		
a. Active participants	313	297
b. Individuals receiving benefits	206	216
c. Vested terminated participants	37	39
d. Total participants	556	552
e. Total annual compensation	$18,626,233	$17,702,771
2. Averages for active participants		
a. Age	48.7	49.4
b. Past service	17.0	17.7
c. Compensation	59,509	59,605
3. Projected monthly retirement income	2,160,260	2,085,642
4. Actuarial accrued liability	123,921,878	127,613,141
5. Actuarial value of assets	92,754,143	102,641,439
6. Unfunded actuarial accrued liability	31,167,685	24,971,702
7. Normal cost	1,668,628 9.0%	1,759,037 9.9%
8. Actuarially determined contribution	3,831,374 20.6%	3,478,234 19.6%

TABLE C-1

Change in Assets During Plan Year
Ending December 31, 2021

1.	**Change in market value of assets**	
	a. Assets in trust fund as of beginning of plan year	**$100,933,203**
	b. Employer contributions	**4,238,784**
	c. Employee contributions	**729,995**
	d. Benefit payments made	**(5,456,861)**
	e. Expenses	**(390,230)**
	f . Investment return	**11,862,342**
	g. Assets in trust fund as of end of plan year	**111,917,233**
	h. Average invested assets	**100,689,162**
	i. Approximate rate of return on average invested assets	**11.39%**
2.	**Calculation of adjusted value of assets**	
	a. Market value of assets	**$111,917,233**
	b. Unrecognized Gains/(Losses)	**9,275,794**
	c. Adjusted asset value (2a – 2b)	**102,641,439**
3.	**Actuarial value of assets (2c but not less than 80% of 2a nor more than 120% of 2a)**	**102,641,439**

TABLE C-2

Change in Assets During Plan Year
Ending December 31, 2021

Schedule of Investment Gain/Losses Unrecognized

Plan Year	Gain/ (Loss)	Percentage Deferred	Unrecognized at 01-01-2022
2021	4,172,148	80%	3,337,718
2020	7,321,356	60%	4,392,814
2019	8,839,864	40%	3,535,946
2018	(9,953,418)	20%	(1,990,684)
			9,275,794

Actuarial Methods and Assumptions
(Adopted Effective January 1, 2022)

A. Actuarial Assumptions

1. Interest ..... 7.25% Pre-retirement
7.25% Post-retirement

2. Mortality — Pub G-2010 for General Employees

Attained Age	Sample Rates Per 1,000 Lives Males	Females
25	.280	.090
35	.470	.230
45	.980	.560
55	4.310	1.230
65	9.130	2.960

3. Withdrawal Rates..... Withdrawal rates were used as shown below for representative ages

Attained Age	Sample Rates Per 1,000 Lives
25	52.704
35	44.736
45	32.149
55	3.344
65	0.000

4. Salary Scales

In the computations, salary scales were used in which it was assumed that future compensation would increase at the rate of 3.5% per year, compounded annually.

5. Retirement Age

It was assumed that participants will retire upon attainment of age 62, or if already over age 62, at the end of the current plan year.

Professional judgment was used to develop retirement probabilities. It is anticipated that the average retirement age used will not cause liabilities to differ significantly from those calculated using retirement rates varying from early retirement age to normal retirement age as defined in the plan document.

6. Expense Loading ..... None

7. Marriage

80% of active participants are assumed to be married and wives are assumed to be three years younger than husbands.

B. Actuarial Methods

The Entry Age Normal cost method was used to determine the Actuarially Determined Contribution. Costs for withdrawal and early retirement benefits were provided for by the withdrawal rates. A loading of the withdrawal rates was used for the incidence of Involuntary Termination.

C. Method of Valuing Investments

The investments in the trust fund are valued using a five (5) year asset smoothing method.

RETIREMENT SYSTEM OF THE CITY OF BARTLETT

Summary of Principal Provisions
As Amended Effective July 1, 2014

1. **Employees Included in Plan: Includes employees whose date of hire was prior to July 1, 2014 as a condition of employment. Employees contribute 4% of earnings to the retirement system.**

2. **Credited Service: Credited service is the period of service computed in completed years and months from last date of employment until normal retirement date or termination of employment, if earlier.**

3. **Vesting Service: Vesting service is equal to the total period of elapsed time, computed in years and days, from date of employment until normal retirement date or termination of employment, if earlier.**

4. **Initial Vesting Date: A participant's Initial Vesting Date is the date he has completed five (5) years of vesting service.**

5. **Vested Percentage:**

Years of Vesting Service (1)	Vested Percentage (2)
Less than 5 years	0%
5 years	100%

If employment is terminated prior to the completion of five years of service, a refund of the participant's contributions, without interest, is payable.

6. **Average Monthly Compensation: Average Monthly Compensation is the average rate of compensation for the thirty-six (36) consecutive month period which gives the highest rate of compensation for the participant.**

7. **Normal Retirement Age and Normal Form of Retirement Income:**
   Normal retirement age is the earlier of (a), (b), or (c):

   (a) the date a participant has completed at least twenty-five (25) years of service and has attained age 55;

   (b) the later of the date a participant attains age 65 or has completed five (5) years of service;

   (c) the date of a participant's Involuntary Retirement.

   Normal form of retirement income is life income with a 50% survivor benefit.

8. **Retirement Benefit: Monthly income equal to 2.5% of Average Monthly Compensation times months of service up to 300, plus 1% of Average Monthly Compensation for each month of service (up to 120) over 300 months. The minimum benefit is 455 per month for 15 years of service.**

   A participant is eligible for early retirement when he has both attained age 55 and completed at least 15 years of credited service. The normal retirement income for early retirement is the accrued retirement income calculated as described above, and reduced by an actuarial reduction factor due to younger age at retirement and earlier commencement of retirement income payments.

9. **Disability Benefits:**
   IN LINE OF DUTY: If a participant becomes disabled in line-of-duty, he will be entitled to 60% of Average Monthly Compensation reduced by any Workman's Compensation benefits paid.

   NOT IN LINE OF DUTY: If a participant becomes disabled not in line-of-duty after five (5) years of service but before eligible for service retirement, he will be entitled to a benefit equal to his accrued benefit subject to a minimum of 25% of Average Monthly Compensation and subject to a maximum of 90% of the benefit he would have received at the minimum age of service retirement.

10. **Death Benefits:**
    IN LINE OF DUTY: An annual benefit equal to 100% of the participant's Average Annual Compensation will be paid to the spouse until death or remarriage or to children under age 18, if no living spouse.

    NOT IN LINE OF DUTY: A benefit based on the Joint and 100% Survivor Annuity will be paid to the participant's spouse until death or remarriage or to children under age 18, if no living spouse.