



Cavanaugh Macdonald
CONSULTING, LLC

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**Report of the Actuary on the Annual Valuation of
the City of East Point Employees Retirement Plan**

**Prepared as of January 1, 2022
For the City's Fiscal Year July 1, 2023 - June 30, 2024**





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May 17, 2022

Pension Board of Trustees
City of East Point Employees Retirement Plan
P.O. Box 90129
East Point, Georgia 30364

Dear Trustees:

We are pleased to submit the results of the annual actuarial valuation of the City of East Point Employees Retirement Plan prepared as of January 1, 2022. The purpose of this report is to provide a summary of the funded status of the Plan as of January 1, 2022, and to recommend rates of employer contribution. While not verifying the data at source, the actuary performed tests for consistency and reasonability. Separate reports will be required to provide accounting information under Governmental Accounting Standards Board Statements No. 67 and 68.

The January 1, 2014 actuarial valuation was the first valuation prepared by Cavanaugh Macdonald Consulting, LLC. All results presented in the report as of January 1, 2013 and for prior years were prepared by the prior actuary.

The January 1, 2022 valuation will set the City's actuarially determined contribution rate for the 2023/2024 fiscal year.

The City's total actuarially determined contribution rate for the 2023/2024 fiscal year is 38.26% of compensation. In comparison, the City's actuarially determined contribution rate for the 2022/2023 fiscal year was 38.26% of compensation. A detailed analysis of the gains and losses during the year are shown in Section III of the report.

The promised benefits of the Plan are included in the actuarially calculated employer contribution rates which are developed using the entry normal cost method. Gains and losses are reflected in the unfunded accrued liability and are amortized on a closed basis over a two-year period. The assumptions recommended by the actuary are in aggregate reasonably related to the experience under the Plan and to reasonable expectations of anticipated experience under the Plan.

Assuming that the annual required employer contributions to the Plan are made by the City from year to year in the future at the rates recommended on the basis of the successive actuarial valuations, the continued sufficiency of the retirement fund to provide the benefits called for under the Plan may be safely anticipated.



This is to certify that the independent consulting actuaries are Members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems, 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 Plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Plan.

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.

In order to prepare the results in this report we have utilized appropriate actuarial models that were developed for this purpose. These models use assumptions about future contingent events along with recognized actuarial approaches to develop the needed results.

We note that as we are preparing this report, the world is in the midst of a pandemic. We have considered available information but do not believe that there is yet sufficient data to warrant the modification of any of our assumptions. We will continue to monitor the situation and advise the Board in the future of any adjustments that we believe would be appropriate.

Actuarial computations presented in this report are for purposes of determining the funding amounts for the City of East Point Employees Retirement Plan. The calculations in the enclosed report have been made on a basis consistent with our understanding of the Plan's funding requirements and goals. Please direct any inquiries regarding this report to the Pension Board.

We trust that the report will meet the approval of the Board and will furnish the desired information concerning the financial condition of the Plan.

Respectfully submitted,

A handwritten signature in blue ink that reads 'Todd B. Green' followed by a horizontal flourish.

Todd B. Green, ASA, EA, FCA, MAAA
President

A handwritten signature in blue ink that reads 'Beverly V. Bailey' in a cursive style.

Beverly V. Bailey, ASA, EA, FCA, MAAA
Senior Actuary

TBG/BVB/kdh



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Section I – Summary of Principal Results

Summary of Results

For convenience of reference, the principal results of the current valuation are summarized below.

Valuation Date	January 1, 2021	January 1, 2022
Active Participants:		
a. Number	473	416
b. Covered Compensation	\$ 22,847,608	\$ 21,737,702
Retired Participants and Beneficiaries:		
a. Number	347	363
b. Total Annual Benefits	\$ 9,931,190	\$ 9,181,173
Number of Terminated Vested Participants	20	26
Assets:		
a. Market Value	\$ 140,559,067	\$ 162,193,368
b. Actuarial Value	\$ 130,250,946	\$ 143,770,759
Actuarial Accrued Liability	\$ 147,205,381	\$ 151,103,917
Unfunded actuarial accrued liability	\$ 16,954,435	\$ 7,333,158
Amortization Period	4 years	2 years
Fiscal Year Ending	June 30, 2023	June 30, 2024
Actuarially Determined Contribution		
a. Normal Cost Rate	16.06%	16.00%
b. Admin Expenses	0.90%	1.22%
c. Unfunded Accrued Liability Rate	<u>27.30%</u>	<u>27.04%</u>
d. Total Required Contribution	44.26%	44.26%
Required Contribution		
a. Required City Contribution	38.26%	38.26%
b. Required Member Contribution	<u>6.00%</u>	<u>6.00%</u>
c. Total Required Contribution	44.26%	44.26%

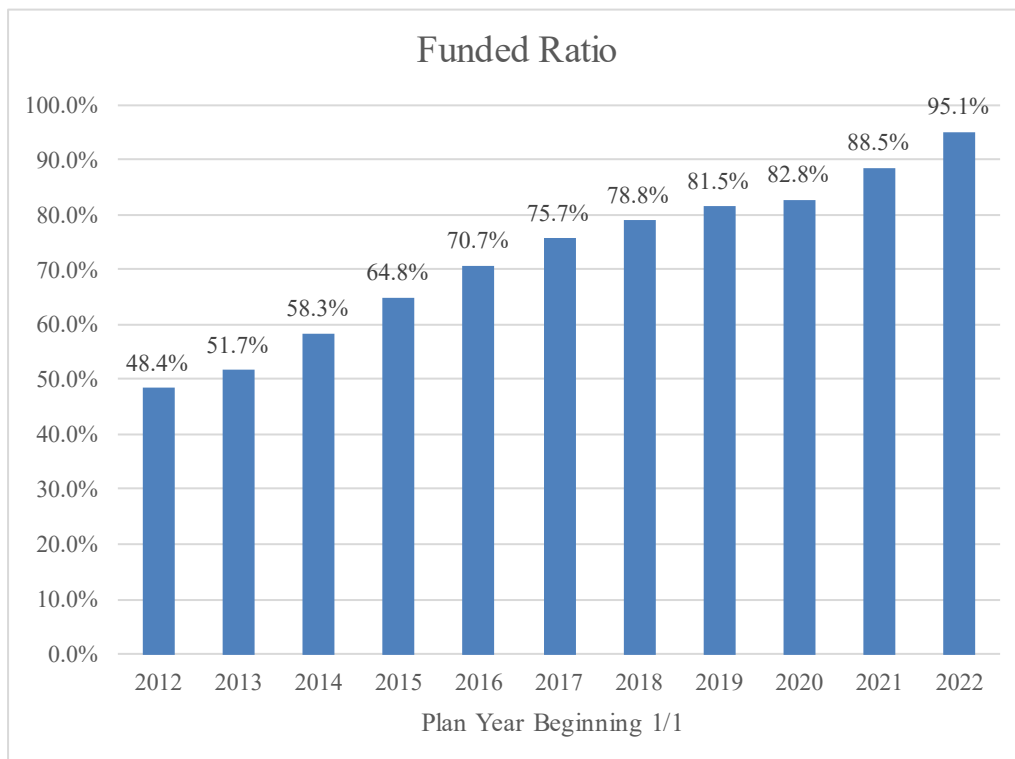


Section I – Summary of Principal Results

- A. The promised benefits of the City of East Point Employees Retirement Plan are included in the actuarially determined contribution rates which are developed using the entry age normal cost method. Gains and losses are reflected in the unfunded accrued liability that is being amortized by regular annual contributions as a level dollar amount over a two-year period. The assumptions recommended by the actuary are in the aggregate reasonably related to the experience under the Plan and to reasonable expectations of anticipated experience under the Plan.

The valuation has been prepared in accordance with the parameters set forth in Georgia funding standards as set forth in Code Section 47-20-10 of the Georgia Public Retirement System Standards.

The following table represents the City’s historical funded ratio for the past eleven years. The funded ratio represents the percentage of the plan actuarial accrued liability that is covered by the actuarial value of plan assets as of the valuation date.





Section I – Summary of Principal Results

- B.** The major benefit and contribution provisions of the City as reflected in the valuation are summarized in Section IX. Since the previous valuation, the benefit payable to City Council Participants has been increased to \$45 per month for each year of credited service.
- C.** Section VIII of this report outlines the full set of actuarial assumptions and methods used in the valuation.

For the January 1, 2020, January 2021, January 2022, and January 1, 2023 valuations, the Board has adopted a fixed employer contribution rate of 38.26% where the unfunded liability is amortized over a reasonable period of time. As of January 1, 2022, the amortization period of the UAAL is two years. The funding policy will be reevaluated again for the January 1, 2024 valuation.

The future funding status of the System will be determined by the System's experience. The System's actual asset returns and retirement rates, as well as member longevity, salary increases, withdrawal rates, disability rates and future legislation will all impact the funding status of the System. The entry age normal cost method and five year smoothing of asset gains and losses will help to provide a more orderly funding of the System's liabilities, but will not change the actual experience. The amortization period of the unfunded actuarial accrued liability is expected to decrease or increase, reflecting gains and losses due to experience different than the actuarial assumptions.

- D.** The individual entry age normal cost method was used to prepare the valuation. Section VII contains a brief description of the actuarial cost method.
- E.** Comments on the valuation results as of January 1, 2022 are given in Section I and further discussion of the contributions is set out in Section II.



Section I – Summary of Principal Results

Contributions Payable

- A. The City of East Point Employees Retirement Plan requires employees to contribute 6% of pay on a before-tax basis.
- B. The City contribution for the fiscal year ending June 30, 2024 consists of three components. The first component is the normal cost. Under the entry age normal cost method, the normal cost is a level percentage of payroll over the service life of each individual. The employer portion of the normal cost for the fiscal year ending June 30, 2024, is 10.00% of covered payroll.
- C. The second component of the City contribution is a load for administration expenses. The administration expenses for the fiscal year ending June 30, 2024, is 1.22% of covered payroll.
- D. The third component of the City contribution is the amortization of the unfunded liability. The amortization cost for the fiscal year ending June 30, 2024, is 27.04% of covered payroll based on a level dollar amortization over a two-year period.
- E. The City's total required contribution to the Plan for the fiscal year ending June 30, 2024 is 38.26% of covered payroll.
- F. The following table summarizes the employer contribution, which was determined as of January 1, 2022.

**City Actuarially Determined Contribution
For Fiscal Year Ending June 30, 2024**

Contribution	Percentage of Active Participants' Compensation
a. Normal Cost Rate	10.00%
b. Admin Expenses	1.22%
c. Unfunded Accrued Liability Rate	<u>27.04%</u>
d. Total City Actuarially Determined Contribution	38.26%



Section I – Summary of Principal Results

Assets

As of January 1, 2022, the total market value of assets amounted to \$162,193,368. The actuarial value of assets used for the current valuation was \$143,770,759. Section V shows the development of the actuarial value of assets as of January 1, 2022. The method for determining the Actuarial Value of Assets recognizes investment gains and losses over a five-year period. Asset information was provided by Resource Centers.

Comments on the Valuation

Section II of this report contains the valuation balance sheet which shows the present assets and liabilities of the Plan as of January 1, 2022. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method set forth in Section VII.

The valuation balance sheet shows that the Plan has a present value of prospective benefits of \$174,111,073, of which \$101,715,500 is for the future benefits payable on behalf of inactive members and \$72,395,573 is payable on account of future benefits for present active members. Against these liabilities, the Plan has present actuarial value of assets of \$143,770,759 as of January 1, 2022. The difference of \$30,340,314 between the total present value of benefits and total present actuarial value of assets represents the present value of contributions to be made in the future.

The normal cost contribution rate is equal to the actuarial present value of benefits accruing during the current year divided by the annual active participant's payroll. For the 2023 plan year the total normal cost contribution rate is determined to be 16.00% of payroll and is determined under the entry age normal cost method. Members contribute 6.00% of compensation; therefore, the City's portion of the total normal cost rate is 10.00%. Prospective employer normal contributions have a present value of \$14,171,757 and prospective member contributions have a present value of \$8,835,399. When these amounts are subtracted from \$30,340,314, there remains \$7,333,158 as the amount of unfunded accrued liability. The amount necessary to amortize the unfunded liability is 27.04% of payroll. The development of the unfunded accrued liability is shown in Section II.



Section II - Plan Contribution Development

Normal Cost

The Normal Cost component of the contribution represents active participant benefits accruing during the 2022 plan year. The following table shows the Normal Cost attributable to plan benefits under the current plan.

	January 1, 2021	January 1, 2022
1. Total Normal Cost		
a. Retirement Benefits	\$ 2,084,605	\$ 2,032,189
b. Termination Benefits	1,012,479	925,086
c. Death Benefits	118,720	115,186
d. Disability Benefits	<u>89,586</u>	<u>84,357</u>
e. Total	\$ 3,305,390	\$ 3,156,818
2. Valuation Payroll	\$ 20,575,451	\$ 19,725,914
3. Total Normal Cost as a Percent of Payroll	16.06%	16.00%
4. Member Portion of Normal Cost	6.00%	6.00%
5. Employer Portion of Normal Cost	10.06%	10.00%



Section II - Plan Contribution Development

Actuarial Accrued Liability

The Actuarial Accrued Liability represents the obligations of the plan as of the valuation date for active and inactive participant benefits. The following table shows the components of the liability.

	January 1, 2021	January 1, 2022
1. Actuarial Accrued Liability		
a. Inactive Participants		
i. Retired Participants and Beneficiaries	\$ 91,808,941	\$ 97,961,952
ii. Terminated Vested Participants Deferred	2,448,187	3,323,115
iii. Terminated Non-Vested Participants	<u>257,093</u>	<u>430,433</u>
iv. Total Inactive	94,514,221	101,715,500
b. Active Participants	\$ 52,691,160	\$ 49,388,417
2. Total Actuarial Accrued Liability	\$147,205,381	\$151,103,917



Section II - Plan Contribution Development

Development of the Unfunded Actuarial Accrued Liability

The Unfunded Actuarial Accrued Liability represents the Actuarial Accrued Liability less the Actuarial Value of Assets. The Unfunded Actuarial Accrued Liability as of January 1, 2022, is \$7,333,158. In other words, the plan liabilities exceed the plan assets by this amount as of the valuation date. The following table shows the components of the Unfunded Actuarial Accrued Liability of the plan.

	January 1, 2021	January 1, 2022
1. Actuarial Accrued Liability		
a. Present Active Participants	\$ 52,691,160	\$ 49,388,417
b. Present retired participants, beneficiaries, terminated participants entitled to deferred vested benefits and participants due a refund	<u>94,514,221</u>	<u>101,715,500</u>
c. Total	\$ 147,205,381	\$ 151,103,917
2. Actuarial Value of Assets	\$ 130,250,946	\$ 143,770,759
3. Unfunded Actuarial Accrued Liability (1c.) - (2)	\$ 16,954,435	\$ 7,333,158
4. Payment to Amortize Unfunded Actuarial Accrued Liability	\$ 6,237,397	\$ 5,877,875
5. Covered Compensation	\$ 22,847,608	\$ 21,737,702
6. Contribution Rate to Amortize Unfunded Actuarial Accrued Liability	27.30%	27.04%



Section II - Plan Contribution Development

Development of the Annual Contribution

The following exhibits show the development of the required contribution for the fiscal year ending June 30, 2024. This contribution was developed using level dollar amortization of the unfunded liability with a two-year closed amortization period.

	January 1, 2021	January 1, 2022
1. Actuarial Accrued Liability		
a. Active Participants	\$ 52,691,160	\$ 49,388,417
b. Retirees & Beneficiaries	91,808,941	97,961,952
c. Deferred Vested & Non-Vested	<u>2,705,280</u>	<u>3,753,548</u>
d. Total	\$ 147,205,381	\$ 151,103,917
2. Covered Compensation for Active Participants	\$ 22,847,608	\$ 21,737,702
3. Actuarial Value of Assets	\$ 130,250,946	\$ 143,770,759
4. Unfunded Actuarial Accrued Liability	\$ 16,954,435	\$ 7,333,158
5. City Actuarially Determined Contribution (Fiscal Year Ending)	June 30, 2023	June 30, 2024
a. Normal Cost Rate	10.06%	10.00%
b. Admin Expenses	0.90%	1.22%
c. Unfunded Accrued Liability Rate	<u>27.30%</u>	<u>27.04%</u>
d. Total City ADC	38.26%	38.26%



Section III – Gain/(Loss) Analysis

Development of the Actuarial Gain/(Loss)

(1)	Unfunded Accrued Liability (UAL) as of January 1, 2021	\$ 16,954,435
(2)	Normal Cost	3,305,390
(3)	Contributions	9,734,478
(4)	Interest	1,077,481
(5)	Expected UAL at January 1, 2022 (1) + (2) - (3) + (4)	11,602,828
(6)	Actual UAL at January 1, 2022	7,333,158
(7)	Total Gain / (Loss) (5) - (6)	4,269,670
(8)	Asset Gain / (Loss)	6,784,397
(9)	Assumption, Benefit and Method Changes	(97,449)
(10)	Liability Gain / (Loss) (7) - (8) - (9)	\$ (2,417,278)



Section III – Gain/(Loss) Analysis

Analysis of Total Gain / (Loss) January 1, 2021 to January 1, 2022

(1)	Actuarial assets (return of 7.00%)	\$ 6,784,397
(2)	Salary increases more than expected	(2,159,865)
(3)	Retirements	764,091
(4)	Data changes *	(217,899)
(5)	New Plan participants and rehires	(141,837)
(6)	Mortality	1,405,505
(7)	Disability	(677)
(8)	Benefit Payments	(1,711,658)
(9)	Termination	1,313,844
(10)	Cost of Living Adjustment (Class 1-3) (in excess of assumed)	(1,668,782)
(11)	Assumption, Benefit and Method Changes	(97,449)
(12)	Other Gains / (Losses)	<u>-</u>
(13)	Total Gain / (Loss)	<u>\$ 4,269,670</u>

*Includes data corrections, changes in non-vested terminations, and active retiree load.



Section IV – Additional Disclosures

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
January 1, 2022	\$ 143,770,759	\$ 151,103,917	\$ 7,333,158	95.1%	\$ 21,737,702	33.7%
January 1, 2021	130,250,946	147,205,381	16,954,435	88.5%	22,847,608	74.2%
January 1, 2020	115,896,679	140,049,490	24,152,811	82.8%	22,937,995	105.3%
January 1, 2019	106,076,018	130,151,587	24,075,569	81.5%	22,125,150	108.8%
January 1, 2018	99,712,936	126,467,147	26,754,211	78.8%	20,545,009	130.2%
January 1, 2017	91,243,478	120,587,907	29,344,429	75.7%	19,192,214	152.9%
January 1, 2016	83,584,374	118,177,465	34,593,091	70.7%	19,171,323	180.4%
January 1, 2015	75,496,622	116,476,102	40,979,480	64.8%	17,949,686	228.3%
January 1, 2014	67,442,177	115,671,696	48,229,519	58.3%	17,920,581	269.1%
January 1, 2013	59,041,617	114,213,800	55,186,563	51.7%	17,732,754	311.1%
January 1, 2012	55,473,617	114,717,480	59,243,863	48.4%	18,920,699	313.1%
January 1, 2011	54,407,669	111,721,874	57,314,205	48.7%	18,471,549	310.3%

Actuarial Methods and Assumptions

Valuation date	January 1, 2022
Actuarial cost method	Individual Entry Age Normal
Amortization method	Level Dollar – Closed
Remaining amortization period	2 years
Asset valuation method	Five-year smoothed market value
Actuarial assumptions:	
Investment rate of return (includes inflation)	7.00%
Projected salary increases (includes inflation)	3.50%
Inflation	2.25%
COLA	2.25%



Section V – Assets

Reconciliation of Market Value of Assets

	January 1, 2021	January 1, 2022
1. Beginning of Year Market Value of Assets	\$ 123,665,136	\$ 140,559,067
2. Expenditures		
a. Benefit Payments	\$ 9,449,719	\$ 11,771,020
b. Administrative Expenses	204,572	265,052
c. Total	<u>\$ 9,654,291</u>	<u>\$ 12,036,072</u>
3. Income		
a. Employer Contributions	\$ 9,322,981	\$ 8,407,637
b. Employee Contributions	1,446,435	1,302,975
c. Other Receipts	-	23,866
d. Total	<u>\$ 10,769,416</u>	<u>\$ 9,734,478</u>
4. Investment Income		
a. Investment gains/losses	\$ 16,461,114	\$ 24,744,703
b. Investment expense	(682,308)	(808,808)
c. Total	<u>\$ 15,778,806</u>	<u>\$ 23,935,895</u>
5. End of Year Market Value of Assets (1 - 2c + 3d + 4c)	\$ 140,559,067	\$ 162,193,368
6. Rate of Return on Market Value of Assets	12.70%	17.17%

Section V - Assets



Development of Actuarial Value of Assets

Valuation Date January 1:	2021	2022	2023	2024	2025	2026
1. Actuarial Value Beginning of Year	\$ 115,896,679	\$ 130,250,946				
2. Market Value End of Year	\$ 140,559,067	\$ 162,193,368				
3. Market Value Beginning of Year	\$ 123,665,136	\$ 140,559,067				
4. Cash Flow						
a. Contributions	\$ 10,769,416	\$ 9,734,478				
b. Other Revenue	0	0				
c. Benefit Payments	(9,449,719)	(11,771,020)				
d. Administrative Expenses	(204,572)	(265,052)				
e. Investment Expenses	(682,308)	(808,808)				
f. Net	\$ 432,817	\$ (3,110,402)				
5. Investment Income						
a. Market Total	\$ 16,461,114	\$ 24,744,703				
b. Assumed Rate	7.75%	7.00%				
c. Amount for Immediate Recognition	\$ 10,309,567	\$ 10,567,387				
d. Amount for Phased-In Recognition	\$ 6,151,547	\$ 14,177,316				
6. Phased-In Recognition of Investment Income						
a. Current Year: 0.20 *5.d.	\$ 1,230,309	\$ 2,835,463	\$ 0	\$ 0	\$ 0	\$ 0
b. First Prior Year	2,740,013	1,230,309	2,835,463	0	0	0
c. Second Prior Year	(2,090,205)	2,740,013	1,230,309	2,835,463	0	0
d. Third Prior Year	1,347,248	(2,090,205)	2,740,013	1,230,309	2,835,463	0
e. Fourth Prior Year	384,518	1,347,248	(2,090,205)	2,740,013	1,230,309	2,835,463
f. Total Recognized Investment Gain	\$ 3,611,883	\$ 6,062,828	\$ 4,715,580	\$ 6,805,785	\$ 4,065,772	\$ 2,835,463
7. Actuarial Value End of Year	\$ 130,250,946	\$ 143,770,759				
8. Difference Between Market & Actuarial Values	\$ 10,308,121	\$ 18,422,609	\$ 13,707,020	\$ 6,901,235	\$ 2,835,463	\$ -
9. Rate of Return on Actuarial Value	11.37%	12.26%				
10. Rate of Return on Market Value	12.70%	17.17%				

The actuarial value of assets recognizes assumed investment income (line 5c) fully each year. Differences between actual and assumed investment income (line 5d) are phased in over a closed five-year period. During periods when investment performance exceeds the assumed rate, the actuarial value will tend to be less than market value. During periods when investment performance is less than assumed, the actuarial value will tend to be greater than the market value.



Section VI – Risk Considerations

A typical retirement plan faces many different risks, but the greatest risk is the inability to make benefit payments when due. If plan assets are depleted, benefits may not be paid which could create legal and litigation risk or the plan could become “pay as you go”. The term “risk” is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

The various risk factors for a given plan can have a significant impact – positive or negative – on the actuarial projection of liability and contribution rates.

There are a number of risks inherent in the funding of a defined benefit plan. These include:

- economic risks, such as investment return and price inflation;
- demographic risks such as mortality, payroll growth, aging population including impact of baby boomers, and retirement ages;
- contribution risk, i.e., the potential for contribution rates to be too high for the plan sponsor/employer to pay and
- external risks such as the regulatory and political environment.

There is a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to the full actuarial contribution rate each year. The Plan is primarily funded by member and employer contributions to the trust fund, together with the earnings on these accumulated contributions. These contributions fund benefit accruals for current active members and administrative expenses. The remainder of the contributions amortizes the unfunded actuarial accrued liability. The purpose of the valuation is to determine the Required Contribution Rate needed to for continued sufficiency of the retirement fund to provide the benefits called for under the Plan may be safely anticipated.



Section VI – Risk Considerations

The other significant risk factor for the System is investment return because of the volatility of returns and the size of plan assets compared to payroll. A perusal of historical returns over 10-20 years reveals that the actual return each year is rarely close to the average return for the same period. This is to be expected, given the underlying capital market assumptions and the Plan's asset allocation. To the extent market rates of interest affect the expected return on assets, there is a risk of change to the discount rate which determines the present value of liabilities and actuarial valuation results. Please see the summary of results of this report which demonstrates the sensitivity of valuation results to differing discount rates.

A key demographic risk for the City of East Point is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect a margin for improvement in mortality experience these assumptions are refined every experience study, the risk arises because there is a possibility of some sudden shift, perhaps from a significant medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, which would also be significant, although more easily absorbed. While either of these events could happen, it represents a small probability and thus represents much less risk than the volatility associated with investment returns.

The following exhibits summarize some historical information that helps indicate how certain key risk metrics have changed over time. Many are due to the maturing of the retirement system.



Section VI – Risk Considerations

Historical Asset Volatility Ratios

As a retirement system matures, the size of the market value of assets increases relative to the covered payroll of active members, on which the Plan is funded. The size of the plan assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk for the System. The higher this ratio, the more sensitive a plan's contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contributions.

Valuation	Market Value of Assets	Covered Payroll	Asset Volatility Ratio
2014	\$72,915,491	\$17,920,726	4.07
2015	\$79,000,656	\$17,949,686	4.40
2016	\$80,569,741	\$19,171,323	4.20
2017	\$89,921,618	\$19,192,214	4.69
2018	\$103,550,250	\$20,545,009	5.04
2019	\$101,259,072	\$22,125,150	4.58
2020	\$123,665,136	\$22,937,995	5.39
2021	\$140,559,067	\$22,847,608	6.15
2022	\$162,193,368	\$21,737,702	7.46

The assets as of January 1, 2022, are 746% of payroll, so underperforming the investment return assumption by 1.00% (i.e., earn 6.00% for one year) is equivalent to 7.46% of payroll. While the actual impact in the first year is mitigated by the asset smoothing method and amortization of the UAL, this illustrates the risk associated with volatile investment returns.



Section VI – Risk Considerations

Historical Cash Flows

Plans with negative cash flows will experience increased sensitivity to investment return volatility. Cash flows, for this purpose, are measured as contributions less benefit payments and administrative expenses. If the Plan has negative cash flows and then experiences returns below the assumed rate, there are fewer assets to be reinvested to earn the higher returns that typically follow. While any negative cash flow will produce such a result, it is typically a negative cash flow of more than 5% of MVA that may cause significant concerns. The Plan has had positive cash flows of less than 5%, so there is no concern for the foreseeable future.

Plan Year Beg 1/1	Market Value of Assets (MVA)	Contributions	Benefit Payments and Expenses	Net Cash Flow	Net Cash Flow as a Percent of MVA
2014	\$72,915,491	\$10,682,745	\$8,477,804	\$2,204,941	3.02%
2015	\$79,000,656	\$10,234,460	\$8,991,348	\$1,243,112	1.57%
2016	\$80,569,741	\$10,630,792	\$8,589,973	\$2,040,819	2.53%
2017	\$89,921,618	\$10,030,557	\$8,889,637	\$1,140,920	1.27%
2018	\$103,550,250	\$9,818,181	\$9,891,859	(\$73,678)	(0.07%)
2019	\$101,259,072	\$10,392,434	\$10,262,756	\$129,678	0.13%
2020	\$123,665,136	\$10,230,105	\$9,403,707	\$826,398	0.67%
2021	\$140,559,067	\$10,769,416	\$9,654,291	\$1,115,125	0.79%
2022	\$162,193,368	\$9,734,478	\$12,036,072	(\$2,301,594)	(1.42%)



Section VI – Risk Considerations

Liability Maturity Measurement

Most public sector retirement systems have been in operation for many years. As a result, they have aging plan populations, and in some cases declining active populations, resulting in an increasing ratio of retirees to active members and a growing percentage of retiree liability. The retirement of the remaining baby boomers over the next decade is expected to further exacerbate the aging of the retirement system population. With more of the total liability residing with retirees, investment volatility has a greater impact on the funding of the system since it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs. Below are two tables which demonstrate the ratio of the Plan’s retiree liability compared to the total accrued liability and the ratio of the number of retirees and beneficiaries to the number of active members.

Historical Liability Statistics

Year	Retiree Liability	Total Actuarial Liability	Ratio
2015	77,657,184	116,476,102	0.67
2016	77,876,217	118,177,464	0.66
2017	77,888,939	120,587,907	0.65
2018	82,035,677	126,467,147	0.65
2019	88,101,055	130,151,587	0.68
2020	92,317,790	140,049,490	0.66
2021	94,514,221	147,205,381	0.64
2022	101,715,500	151,103,917	0.67

Historical Member Statistics

	Active Count	Retiree Count	Ratio
2010	474	366	1.30
2011	481	369	1.30
2012	484	364	1.33
2013	476	364	1.31
2014	446	364	1.23
2015	435	356	1.22
2016	462	351	1.32
2017	447	345	1.30
2018	468	344	1.36
2019	473	356	1.33
2020	473	351	1.35
2021	473	347	1.36
2022	416	363	1.15



Section VII – Data

- A. Data regarding the participants in the Plan for use as a basis of the valuation were furnished by the City and Resource Centers. The valuation included active participants with annualized compensation totaling \$21,737,702.
- B. The following table shows the number of retired participants and beneficiaries as of January 1, 2022, together with the amount of their annual retirement benefits payable under the Plan as of that date.

**The Number and Average Annual Benefits of
Retired Participants and Beneficiaries
as of January 1, 2022**

Group	Number	Average Annual Benefits
Service Retirements	281	\$ 27,702
Beneficiaries of Deceased Members	78	17,072
Disability Retirements	<u>4</u>	16,353
Total	363	\$ 25,292

- C. Table 1 on the next page shows the distribution by age and years of service of the number of active participants included in the valuation, while Table 2 shows the number and annual benefits of retired participants and beneficiaries included in the valuation, distributed by age. Table 3 shows the reconciliation of valuation data from last year's valuation carried forward to this year's valuation. Table 4 shows the historical cost-of-living increases for the Plan.



Section VII – Data

Table 1: Distribution of Active Participants by Age and Service Groups as of January 1, 2022

Attained Age	Completed Years of Service									Total
	Under 3	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 or More	
Under 25	9	0	0	0	0	0	0	0	0	9
Average Pay	41,293	0	0	0	0	0	0	0	0	41,293
25 to 29	24	9	5	0	0	0	0	0	0	38
Average Pay	45,653	50,390	52,255	0	0	0	0	0	0	47,643
30 to 34	24	12	10	0	0	0	0	0	0	46
Average Pay	45,109	52,279	48,435	0	0	0	0	0	0	47,702
35 to 39	20	13	10	8	3	0	0	0	0	54
Average Pay	44,520	54,053	62,569	55,074	66,974	0	0	0	0	52,969
40 to 44	14	6	12	12	4	3	0	0	0	51
Average Pay	44,885	51,691	42,998	56,297	68,805	62,230	0	0	0	50,823
45 to 49	9	9	8	14	6	11	1	0	0	58
Average Pay	49,815	52,205	49,479	67,641	55,831	64,920	130,400	0	0	59,319
50 to 54	12	9	7	7	8	17	5	2	0	67
Average Pay	39,779	49,897	45,552	44,605	64,999	68,202	81,813	86,383	0	56,997
55 to 59	10	2	9	7	8	5	1	3	1	46
Average Pay	60,812	32,760	42,509	59,519	41,971	49,360	33,183	64,353	88,938	51,535
60 to 64	5	4	5	8	5	3	3	1	0	34
Average Pay	33,526	52,058	48,996	54,217	57,381	41,041	40,792	45,942	0	48,027
65 to 69	1	1	4	4	1	0	0	0	0	11
Average Pay	52,500	70,106	47,380	56,705	34,398	0	0	0	0	52,122
70 & up	0	0	0	0	0	1	1	0	0	2
Average Pay	0	0	0	0	0	16,000	56,895	0	0	36,447
Total Count	128	65	70	60	35	40	11	6	1	416
Average Pay	45,489	51,638	48,844	57,543	56,805	61,154	68,356	68,628	88,938	52,254



Section VII – Data

Table 2: Number of Retired Participants and Beneficiaries and their Benefits as of January 1, 2022

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefit
49 & Under	2	\$ 31,665	\$ 15,833
50 – 54	10	191,232	19,123
55 – 59	32	793,544	24,798
60 – 64	47	1,138,599	24,226
65 – 69	64	1,766,610	27,603
70 – 74	80	2,276,238	28,453
75 – 79	66	1,818,549	27,554
Over 80	<u>62</u>	<u>1,164,736</u>	18,786
Total	363	\$ 9,181,173	\$ 25,292



Section VII – Data

Table 3: Reconciliation of Plan Participants as of January 1, 2022

	Active Participants	Inactive Participants with Deferred Benefits	Inactive Participants Receiving Benefits	Total
January 1, 2021	473	20	347	840
Retirements	(25)		28	3
Deaths	(1)		(21)	(22)
Non Vested Terminations	(32)			(32)
Vested Terminations	(6)	6		
Refunds	(59)			(59)
Rehires	7			7
New Entrants	59			59
New Beneficiaries			9	9
Benefits Expired				
Data Adjustments				
Net Change	(57)	6	16	(35)
January 1, 2022	416	26	363	805



Section VII – Data

Table 4: Historical COLA Rates

Effective Date	History of COLA	
	January 31	Class 5
1999	1.5%	0.0%
2000	2.6%	2.6%
2001	3.0%	0.0%
2002	1.9%	1.9%
2003	2.2%	0.0%
2004	1.8%	2.0%
2005	3.0%	0.0%
2006	3.0%	0.0%
2007	2.0%	2.0%*
2008	3.0%	0.0%
2009	1.1%	0.0%
2010	1.8%	1.1% [^]
2011	1.1%	0.0%
2012	3.0%	0.0%
2013	1.8%	0.0%
2014	1.2%	0.0%
2015	1.3%	1.3%**
2016	0.5%	0.0%
2017	1.7%	1.7% ^{^^}
2018	2.2%	2.2%
2019	2.2%	0.0%
2020	2.1%	0.0%
2021	1.2%	0.0%
2022	3.0%	3%***
Total	48.1%	14.8%
	24	24
	1.65%	0.58%

* Effective July 1, 2007

[^] Effective July 1, 2010

**Effective July 1, 2015

^{^^}Effective May 1, 2017

***Effective March 1, 2022



Section VIII - Actuarial Assumptions & Methods

A. Investment Return:

7.00% per year, compounded annually.

B. Inflation:

2.25% per year

C. Salary Increases:

3.50% per year

D. Cost of Living Adjustment

2.25% per year

E. Pre Retirement Mortality: PUB-2010 Headcount-Weighted Safety and General (Employee) Mortality Table with fully generational projection and mortality improvement scale MP-2020.

F. Post Retirement Mortality:

Service Retirement: PUB-2010 Headcount-Weighted Safety and General (Healthy Retiree) Mortality Table with fully generational projection and mortality improvement scale MP-2020.

Beneficiary: PUB-2010 Headcount-Weighted Safety and General (Contingent Survivor) Mortality Table with fully generational projection and mortality improvement scale MP-2020.



Section VIII - Actuarial Assumptions & Methods

G. Post Disablement Mortality: PUB-2010 Headcount Weighted Safety and General (Disabled Retiree) Mortality Table with fully generational projection and mortality improvement scale MP-2020.

H. Separation From Active Service:

Representative values of the assumed annual rates of withdrawal and disability are shown in the following table.

Age	Rates of Termination	Rates of Disability
20	25.80%	.05%
25	19.80	.06
30	15.60	.06
35	12.15	.06
40	9.45	.07
45	7.80	.10
50	5.85	.18
55	0.00	.34



Section VIII - Actuarial Assumptions & Methods

Representative values of the assumed annual rates of retirement are shown in the following table.

Age	Rates of Retirement	
	Class 2 & 5	Class 3
50 - 59	5%	5%
60	5	100
61	5	100
62	5	100
63	5	100
64	5	100
65	100	100

I. Actuarial Value of Assets:

The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected market value of assets, based on the assumed prior year valuation rate of 7.00%. The amount recognized each year is 20% of the difference between market value and expected market value.

J. Actuarial Cost Method:

Entry Age Normal. This method produces a normal cost as a level percentage of pay over the service life of each participant and amortization of the Unfunded Actuarial Accrued Liability (UAAL). Gains and losses are reflected in the Unfunded Actuarial Accrued Liability and are included in its amortization. The unfunded actuarial accrued liabilities are amortized over a level dollar closed two-year period.

K. Percent Married:

80% of the plan participants are assumed married with males three years older than females.

The active retiree liability contains a 2% load to account for the GATT lump sum option available to retirees upon retirement.



Section IX – Plan Provisions

A. **Effective Date**

As amended and restated to January 1, 2013

B. **Eligibility Requirements**

Employees working 40 hours (not casual employees) per week, or firefighters on 24 hour on/48 hour off schedule. Certain management positions may be excluded from the Plan.

C. **Classes**

Class 1: Transferred from old Plan on June 19, 1975
Class 2: General Employees and elected officials hired before April 1, 1992
Class 3: Police and Firefighters hired before April 1, 1992
Class 5: Eligible full-time employees hired on or after April 1, 1992

Note: Any Class may elect the Class 5 benefit.

D. **Compensation**

Excludes overtime pay, bonuses, fringe benefits and reimbursed expenses. Annual maximum \$200,000 as adjusted by the Secretary of the Treasury.

E. **Average Monthly Compensation (AMC)**

Classes 2-3: Monthly average of the highest consecutive five years of earnings.
Class 5: Sum of highest 78 consecutive pay periods divided by 36.

F. **Normal Form of Payment**

Class 1: 66 2/3% Joint and Survivor Annuity
Class 3: Life Annuity
Class 2 & 5: 75% Joint and Survivor Annuity

G. **Participant Contributions**

Effective July 1, 1998, participants contribute 6% of pay on a before-tax basis. The plan was noncontributory prior to July 1, 1998.



Section IX – Plan Provisions

H. Normal Retirement Date

- Class 2: Age 65 and 10 years of service. If elected official, Age 60 and 5 years of service.
- Class 3: Age 55 and 10 years of service.
- Class 5: Age 65 (55 Police and Firefighters) and 10 years of service. If elected official, Age 60 and 5 years of service.

I. Early Retirement

- Class 2 & 3: Age 50 and 10 years of service
- Class 5: Age 55 and 10 years of service for general employees. Age 50 and 10 years of service for Police and Firefighters.

The benefit is reduced 3% for each year retirement proceeds Normal Retirement Date.

J. Retirement Benefit Formula (Accrued Benefit)

- Class 2 & 3: 2.25% times AMC times service
- Class 5: Elected: \$45 times service.
Non Elected: AMC times service times Applicable Benefit Percentage

<u>Retirement Age</u>	<u>Applicable Benefit Percentage</u>
50	1.75%*
51	1.80*
52	1.85*
53	1.90*
54	1.95*
55	2.00
56	2.05
57	2.10
58	2.15
59	2.20
60	2.30
61	2.40
62	2.50
63	2.60
64	2.70
65 and above	2.80

*Applicable to Police Officers and Firefighters



Section IX – Plan Provisions

K. Vesting

Class 2 & 3: 10 years

Class 5: 10 years of service and be within 10 years of earliest retirement date. If elected official, 5 years of service.

L. Termination of Employment Before Retirement

Class 5: A 1-time lump sum payment in accordance with the following schedule:

<u>Years of Credited Service</u>	<u>Percentage of Employee Contributions</u>
<1	100%
1 < 2	110
2 < 3	120
3 < 4	130
4 < 5	140
5 < 6	150
6 < 7	160
7 < 8	170
8 < 9	180
9 < 10	190
10 < 11	200
11 < 12	220
12 < 13	240
13 < 14	260
14 < 15	280
15 < 16	300
16 < 17	320
17 < 18	340
18 < 19	360
19 < 20	380
20 < 21	400
21 < 22	420
22 < 23	440
23 < 24	460
24 < 25	480
25 or more	500

Payments to deceased active or retired Class 5 participants will at least equal the above lump sum. Vested employees may elect a deferred monthly benefit.



Section IX – Plan Provisions

M. Disability Benefit

- Class 2 & 3: Annuity payable immediately equal to the greater of Accrued Benefit or 20% times average monthly compensation for the last 12 calendar months.
- Class 5: For less than 10 years of service, lump sum termination benefit. For 10 or more years of service, annuity payable immediately equal to the Accrued Benefit payable at the Normal Retirement Date.

N. Death Benefits for Death Prior to Retirement

- Class 2 & 3: Actuarial reserve at age 65 with add-on (maximum 10 years) for full-time employees employed prior to December 1, 1987. Actuarial reserve without add-on for elected officials and full-time employees employed on and after December 1, 1987.
- Class 5: For active and terminated vested employees, spouse's annuity equal to the greater of the Accrued Benefit or, if an active employee, but not elected official, 60% of AMC. This is actuarially reduced for a qualified spouse under age 50. Minimum of service time \$30.

O. Death Benefits after Retirement

- Class 1: Married: Spouse will receive 2/3 of the benefit received by the member until the earlier of his/her death or remarriage.
Unmarried: The benefit paid to the beneficiary is dependent on the form of payment chosen at retirement by the member.
- Class 2 & 3: The benefit paid to the beneficiary is dependent on the form of payment chosen at retirement by the member.
- Class 5: Qualified Spouses, or Children until age 18 (24 if a full-time student), will receive a benefit equal to 75% of the member's benefit. The total distribution to member and beneficiary must be at least equal to the lump sum termination benefit.

P. Cost of Living Adjustment (COLA)

- Class 1-3: The yearly percentage increase of the Consumer Price Index (CPI) of the most recent November CPI reading. The maximum COLA is 3%, and there is no reduction of benefits if the CPI decreases.
- Class 5: Retirement benefits are subject to a cost of living review and possible adjustment each two years by the City Council.