

Fulton County Employees Retirement System

Actuarial Valuation and Review as of January 1, 2023



This report has been prepared at the request of the Board of Trustees to assist in administering the System. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Trustees and may only be provided to other parties in its entirety, unless expressly authorized by Segal. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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May 8, 2023

Board of Trustees
Fulton County Employees Retirement System
141 Pryor Street, Suite 7001
Atlanta, GA 30303

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of January 1, 2023. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for fiscal 2023.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board of Trustees to assist in administering the Retirement System. The census information and financial information on which our calculations were based was prepared by the staff of Fulton County. That assistance is gratefully acknowledged.

We hereby certify that the Fulton County Employees Retirement System has been funded in conformity with the minimum funding standards specified in Code Section 47-20-10 of the Official Code of Georgia Annotated, known as the Public Retirement Systems Standards Law. This certification covers the 2022 fiscal year of the Plan.

Segal does not audit the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. To the extent we can, however, Segal does review the data for reasonableness and consistency. Based on our review of the data, we have no reason to doubt the substantial accuracy of the information on which we have based this report and we have no reason to believe there are facts or circumstances that would affect the validity of these results.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; and changes in plan provisions or applicable law.

The actuarial calculations were directed under my supervision. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my knowledge, the information supplied in this actuarial valuation is complete and accurate, except as noted in *Section 4*. Further, in my opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the System.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,
Segal



Malichi S. Waterman, FCA, MAAA, EA
Vice President and Consulting Actuary

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Section 1: Actuarial Valuation Summary

Purpose and basis

This report has been prepared by Segal to present a valuation of the Fulton County Employees Retirement System as of January 1, 2023. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to provide information for required disclosures under Governmental Accounting Standards Board (GASB) Statements No. 67 and 68.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension Plan, as administered by the Board;
- The characteristics of covered active participants, inactive vested participants, and retired participants and beneficiaries as of December 31, 2022, provided by the County;
- The assets of the Plan as of December 31, 2022, provided by the County;
- Economic assumptions regarding future salary increases and investment earnings;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. and
- The funding policy adopted by the Board.

The majority of the assumptions and methods used to value the System were approved by the Pension Board in 2023, based on the experience study for the five-year period ended December 31, 2021.

Section 1: Actuarial Valuation Summary

Valuation highlights

1. Segal strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and the principal balance. The funding policy adopted by the Board meets this standard.
2. Actual contributions made during the fiscal year ending December 31, 2022 were \$65.0 million, 115.3% of the actuarially determined contribution (ADC). In the prior fiscal year, actual contributions were \$71.7 million, 115.0% of the prior year ADC.
3. Georgia Code Section 47-20-10(b) allows a Plan to be in compliance with the minimum funding standards under Georgia law if the sponsor makes contributions equal to or greater than the annual required contribution (ARC) under Governmental Accounting Standards Board (GASB) Statements No. 25 and No. 27 as in effect on June 15, 2013. The lowest ARC allowable is based on a 30-year level percent-of-pay amortization of the Plan's unfunded actuarial liability. The County is making annual contributions in excess of this amount, and therefore the Plan is in compliance with Georgia law.
4. Additionally, the Georgia law allows sponsors to offset future required contributions with accumulated contributions in excess of the minimum (i.e., credit balance). The County currently has a credit balance of \$24.7 million. It should be understood that the contributions that contributed to this balance are already recognized in the System's assets, and drawing upon the credit balance to cover a portion of County contribution requirements has the impact of increasing future actuarially determined contributions.
5. With the completion of the Review of Actuarial Experience for the Five-Year Period from January 1, 2017 to December 31, 2021, published February 8, 2023, the Board approved the following changes in actuarial assumptions:
 - Healthy Annuitant Mortality: Changed to the Pri-2012 Healthy Retiree Blue Collar Amount-weighted Mortality Table times 105% for Males (No adjustment for Females), projected generationally with Scale MP-2020 from 2012
 - Disabled Mortality: Changed to Pri-2012 Disabled Retiree Amount-weighted Mortality Table, projected generationally with Scale MP-2020 from 2012
 - Pre-Retirement Mortality: Changed to Pri-2012 Employee Blue Collar Amount-weighted Mortality Table, projected generationally with Scale MP-2020 from 2012
 - Investment Return: Lowered from 6.90% to 6.80%
 - Inflation Rate: Increased from 2.00% to 2.50%
 - Active Withdrawal and Active Disability rate assumptions were removed
 - Retirement rates were adjusted slightly to better reflect recent experience

Section 1: Actuarial Valuation Summary

- The spousal age difference assumption was changed for female participants, from three years younger than their male spouses to two years younger than male spouses
- The salary scale for non-public safety participants was changed to 3.0% for all years
- The liability loads for unused vacation, 27th pay periods and unused vacation time were combined into a single 8.2% load

As a result of these assumption changes, the net employer normal cost increased by \$0.06 million and the actuarial accrued liability increased by \$22.4 million. The total impact was an increase in the actuarially determined contribution of \$2.2 million.

6. The actuarial experience loss for the year was \$30.1 million, or 1.60% of actuarial accrued liability. This includes a loss of 1.13% from investment returns, and net losses of 0.47% from all other sources.
7. The rate of return on the market value of assets was -15.83% for the 2022 plan year. The return on the actuarial value of assets was 5.43% for the same period due to the recognition of prior years' investment gains and losses. As noted above, this resulted in an actuarial loss when measured against the assumed rate of return of 6.90%. The actuarial investment loss increased the employer contribution by \$2.2 million. Given the low fixed income interest rate environment, target asset allocation and expectations of future investment returns for various classes, we advise the Board to continue to monitor actual and anticipated investment returns relative to the assumed long-term rate of return on investments. As noted previously, the Trustees lowered the assumption to 6.80% with this valuation.
8. As requested by County Staff, the actuarially determined contribution has been allocated to various County Funds and to DFACS. The allocation schedule is provided on page 12 in this report.
9. The Retirement System was closed to new entrants in 1999, and the covered active employee group is declining. There are 90 actives remaining as of the valuation date. There are 3,066 annuitants, and monthly benefit payments totaled \$150.5 million in 2022. Due to cost-of-living adjustments and new retirements, benefit payments are projected to grow to \$156.2 million by 2030. Thereafter, total benefits are projected to decline as the number of individuals in pay status decreases. A ten-year benefit projection is provided in Exhibit G of Section 3.

Section 1: Actuarial Valuation Summary

Changes from prior valuation

10. The funded ratio (the ratio of the actuarial value of assets to actuarial accrued liability) is 78.1%, compared to the prior year funded ratio of 78.8%. This ratio is one measure of funding status, and its history is a measure of funding progress. Using the market value of assets, the funded ratio is 69.5%, compared to 87.9% as of the prior valuation date. These measurements are not necessarily appropriate for assessing the sufficiency of System assets to cover the estimated cost of settling the System's benefit obligation or the need for or the amount of future contributions.
11. The actuarially determined contribution for the upcoming year is \$61.5 million, an increase of \$5.2 million from last year. Most of this increase is due to investment losses and changes in actuarial assumptions.
12. The unfunded actuarial accrued liability is \$416.9 million, which is an increase of \$15.1 million since the prior valuation.

Risk

13. It is important to note that this actuarial valuation is based on plan assets as of December 31, 2022. The Plan's funded status does not reflect short-term fluctuations of the market, but rather is based on the market values on the last day of the plan year. Moreover, this actuarial valuation does not include any possible short-term or long-term impacts on mortality of the covered population that may emerge after December 31, 2022 due to COVID-19. Segal is available to prepare projections of potential outcomes of market conditions and other demographic experience upon request.
14. Since the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions. Segal has not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the System's future financial condition, but has included a brief discussion of some risks that may affect the System in Section 2. A more detailed assessment would provide the Board with a better understanding of the inherent risks. This could be important because retired participants account for most of the System's liabilities, leaving limited options for reducing costs in the event of adverse experience.

Section 1: Actuarial Valuation Summary

GASB

15. This report constitutes an actuarial valuation for the purpose of determining the ADC under the Plan's funding policy. The information contained in Section 5 provides the accounting information for GASB Statements No. 67 and No. 68, for inclusion in the plan and employer's financial statements as of December 31, 2022.
16. The Net Pension Liability (NPL) is equal to the difference between the Total Pension Liability (TPL) and the Plan's fiduciary net position (equal to the market value of assets). The NPL as of December 31, 2022 is \$579.4 million.

Section 1: Actuarial Valuation Summary

Summary of key valuation results

		<u>2023</u>	<u>2022</u>
Contributions for plan year beginning January 1:	• Actuarially determined employer contributions	\$61,500,464	\$56,324,598
	• Actual employer contributions	--	64,968,000
	• Georgia credit balance, with adjustment for timing	25,509,352	15,483,969
Actuarial accrued liability for plan year beginning January 1:	• Retired participants and beneficiaries	\$1,836,263,072	\$1,817,801,075
	• Inactive vested participants	2,941,816	3,310,018
	• Active participants	61,415,122	71,934,591
	• Total	1,900,620,010	1,893,045,684
	• Normal cost including administrative expenses	2,001,989	2,149,481
Assets for plan year beginning January 1:	• Market value of assets (MVA)	\$1,321,228,000	\$1,664,070,000
	• Actuarial value of assets (AVA)	1,483,715,571	1,491,220,910
	• Actuarial value of assets as a percentage of market value of assets	112.30%	89.61%
Funded status for plan year beginning January 1:	• Unfunded actuarial accrued liability on market value of assets	\$579,392,010	\$228,975,684
	• Funded percentage on MVA basis	69.52%	87.90%
	• Unfunded actuarial accrued liability on actuarial value of assets	\$416,904,439	\$401,824,774
	• Funded percentage on AVA basis	78.06%	78.77%
Key assumptions	• Net investment return	6.80%	6.90%
	• Inflation rate	2.50%	2.00%
GASB information	• Discount rate	6.80%	6.90%
	• Total pension liability	\$1,900,620,010	\$1,893,045,684
	• Plan fiduciary net position	1,321,228,000	1,664,070,000
	• Net pension liability	579,392,010	228,975,684
	• Plan fiduciary net position as a percentage of total pension liability	69.52%	87.90%
	• Pension expense		(16,415,028)
Demographic data for plan year beginning January 1:	• Number of retired participants and beneficiaries	3,066	3,145
	• Number of inactive vested participants	18	17
	• Number of active participants	90	117
	• Total payroll	\$7,176,761	\$8,034,013
	• Average payroll	79,742	68,667

Section 1: Actuarial Valuation Summary

Actuarially determined employer contribution allocated by fund

Fulton County Fund	Fund Number	Percentage of Total Liability	Actuarially Determined Employer Contribution (ADEC) ¹
General	100 & 210	69.27%	\$42,603,191
Airport	200	0.20%	122,197
Water & Sewer	201 & 203	3.08%	1,892,054
Old SSD	300	6.41%	3,944,283
South Fulton District	301 & 307	9.43%	5,799,571
Emergency 911	340	0.49%	301,046
Fulton Employee Retirement	415	0.14%	83,646
Restricted Assets	441	0.10%	62,977
Grants	461	0.29%	180,751
Risk Management	725	0.04%	22,490
Grants - Health & Wellness	818 & 310	5.66%	3,483,277
Comm Dev Block Grants	865	0.02%	12,024
DFACS	DFACS	4.87%	2,992,957
Total		100.00%	\$61,500,464

¹Each Fund's normal cost was calculated independently. The administrative expenses and the amortization of the unfunded liability were allocated based on the actuarial accrued liability of each Fund as a percentage of the System's total, and then added to normal cost to determine an ADEC. Allocating the cost in this manner ensures that the funded percentage for each Fund equals the funded percentage for the System as a whole.

Section 1: Actuarial Valuation Summary

Important information about actuarial valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal relies on a number of input items. These include:

Plan provisions	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
Participant information	An actuarial valuation for a plan is based on data provided to the actuary by the County. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
Financial information	Part of the cost of a plan will be paid from existing assets — the balance will need to come from future contributions and investment income. The valuation is based on the asset values as of the valuation date, typically reported by the County. A snapshot as of a single date may not be an appropriate value for determining a single year's contribution requirement, especially in volatile markets. Plan sponsors often use an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
Actuarial assumptions	In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of participants in each year, as well as forecasts of the plan's benefits for each of those events. In addition, the benefits forecasted for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that will be achieved on the plan's assets. All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which assumptions are selected within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model may use approximations and estimates that will have an immaterial impact on our results. In addition, the actuarial assumptions may change over time, and while this can have a significant impact on the reported results, it does not mean that the previous assumptions or results were unreasonable or wrong.

Section 1: Actuarial Valuation Summary

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

The actuarial valuation is prepared at the request of the County. Segal is not responsible for the use or misuse of its report, particularly by any other party.

An actuarial valuation is a measurement at a specific date — it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted.

If the County is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.

Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan provisions, but they may be subject to alternative interpretations. The County should look to their other advisors for expertise in these areas.

While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.

Segal's report shall be deemed to be final and accepted by the County upon delivery and review. Trustees should notify Segal immediately of any questions or concerns about the final content.

As Segal has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

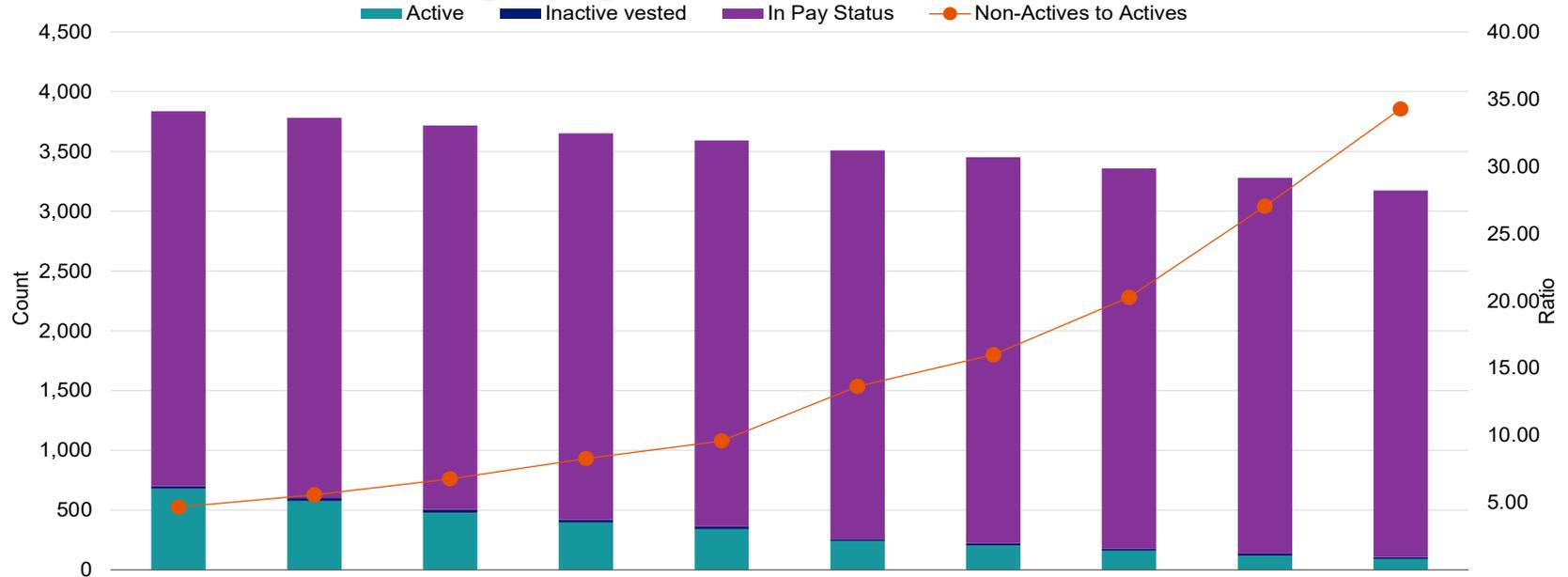
Section 2: Actuarial Valuation Results

Participant information

This section presents a summary of significant statistical data on covered participants. More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A, B, and C.

The System was closed to new entrants in 1999. Therefore, the numbers of active participants is declining and the ratio of participants in pay status to actives is increasing.

Participant Population as of December 31



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
In Pay Status	3,137	3,179	3,210	3,232	3,230	3,252	3,229	3,185	3,145	3,066
Inactive Vested ¹	23	27	27	26	23	18	18	17	17	18
Active	678	576	478	394	339	240	203	158	117	90
Ratio	4.66	5.57	6.77	8.27	9.60	13.63	16.00	20.27	27.03	34.27

¹ Excluding terminated participants due a refund of employee contributions

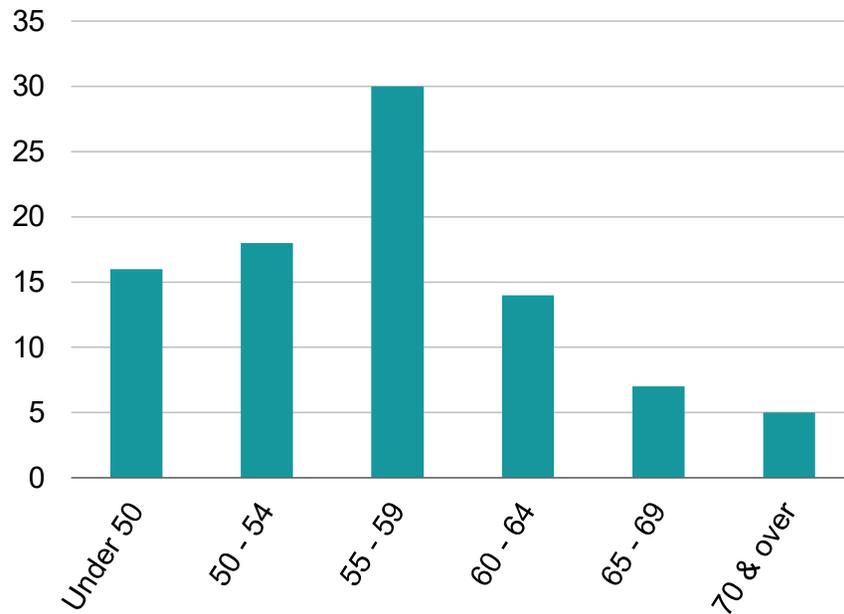
Section 2: Actuarial Valuation Results

Active participants

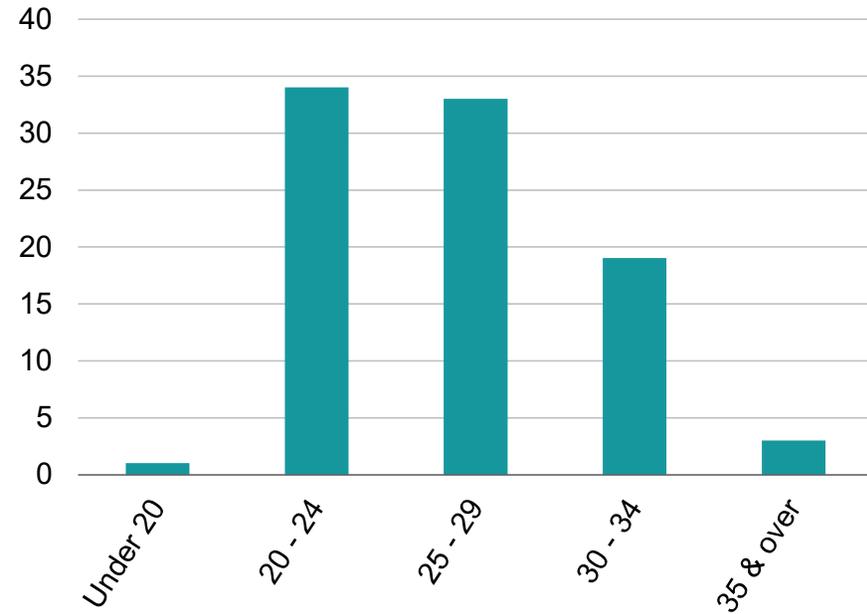
As of December 31,	2022	2021	Change
Active participants	90	117	-23.1%
Average age	57.3	56.6	0.7 years
Average years of service	26.9	26.9	0.0 years
Average compensation	\$79,742	\$68,667	16.1%

Distribution of Active Participants as of December 31, 2022

Actives by Age



Actives by Years of Service



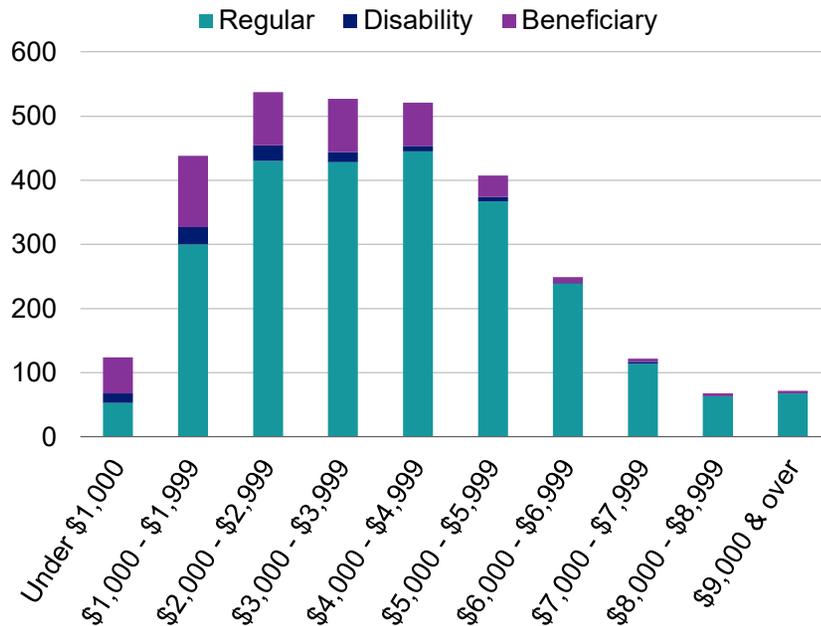
Section 2: Actuarial Valuation Results

Retired participants and beneficiaries

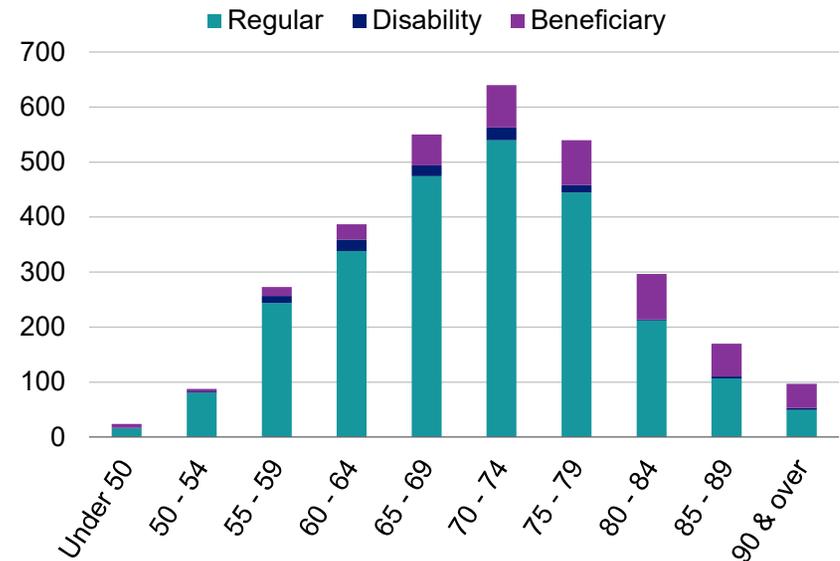
As of December 31,	2022	2021	Change
Retired participants	2,608	2,684	-2.8%
Beneficiaries	458	461	-0.7%
Average age	71.1	70.6	0.5 years
Average amount	\$4,040	\$3,897	3.7%
Total monthly amount	12,385,372	12,256,959	1.0%

Distribution of Retired Participants and Beneficiaries as of December 31, 2022

By Type and Monthly Amount



By Type and Age



Section 2: Actuarial Valuation Results

Historical plan population

Participant Data Statistics: 2013 – 2022

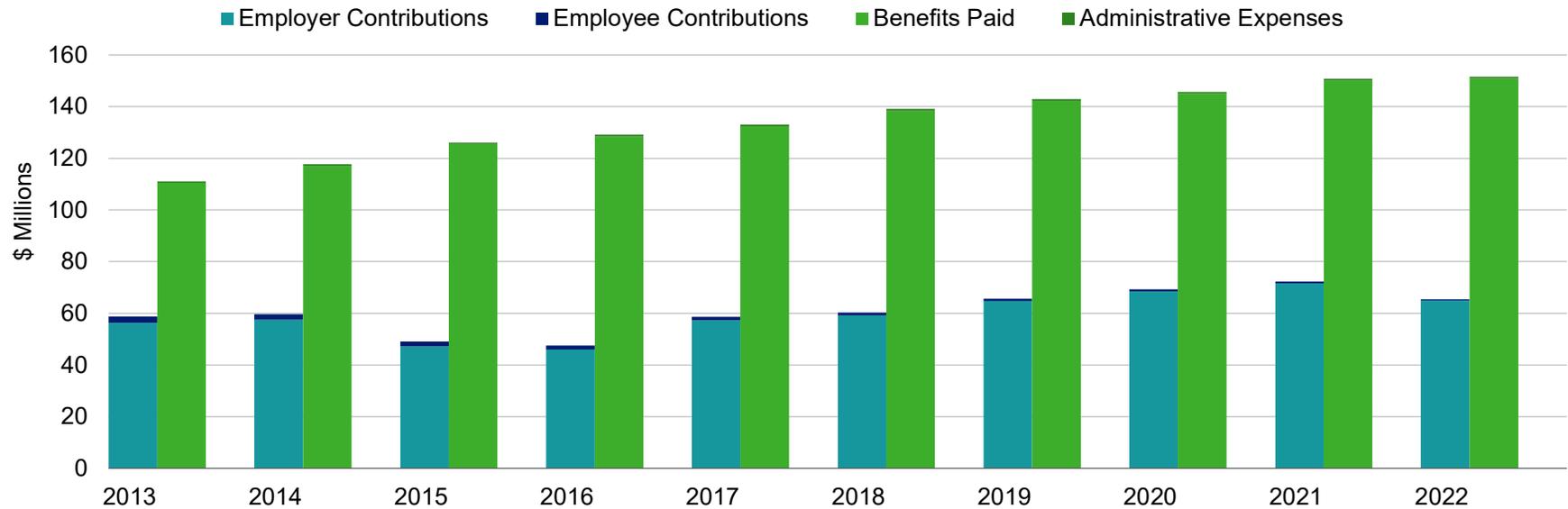
Year Ended December 31	Active Participants			Retired Participants and Beneficiaries		
	Count	Average Age	Average Service	Count	Average Age	Average Monthly Amount
2013	678	52.2	21.2	3,137	67.4	\$2,999
2014	576	52.6	22.0	3,179	67.6	3,107
2015	478	52.9	22.5	3,210	68.0	3,208
2016	394	53.4	23.3	3,232	68.3	3,303
2017	339	54.3	24.0	3,230	68.8	3,431
2018	240	55.4	24.5	3,252	69.1	3,524
2019	203	55.9	25.5	3,229	69.7	3,627
2020	158	56.1	26.1	3,185	70.2	3,777
2021	117	56.6	26.9	3,145	70.6	3,897
2022	90	57.3	26.9	3,066	71.1	4,040

Section 2: Actuarial Valuation Results

Financial information

Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and investment earnings (less investment fees) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components.

Comparison of Contributions Made with Benefits and Expenses Paid
for Years Ended December 31



Section 2: Actuarial Valuation Results

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

Determination of Actuarial Value of Assets for Year Ended December 31, 2022

1	Market value of assets, December 31, 2022				\$1,321,228,000
2	Calculation of unrecognized return	Original Amount¹	Percent Deferred²	Unrecognized Amount³	
	(a) Year ended December 31, 2022	-\$368,508,586	80%	-\$294,806,869	
	(b) Year ended December 31, 2021	88,515,180	60%	53,109,108	
	(c) Year ended December 31, 2020	102,606,188	40%	41,042,476	
	(d) Year ended December 31, 2019	190,838,569	20%	38,167,714	
	(e) Year ended December 31, 2018	-179,310,977	0%	<u>0</u>	
	(f) Total unrecognized return				-\$162,487,571
3	Preliminary actuarial value: (1) - (2f)				1,483,715,571
4	Adjustment to be within 20% corridor				<u>0</u>
5	Final actuarial value of assets as of December 31, 2022: (3) + (4)				\$1,483,715,571
6	Actuarial value as a percentage of market value: (5) ÷ (1)				112.3%
7	Amount deferred for future recognition: (1) - (5)				-\$162,487,571

¹ Total return minus expected return on a market value basis

² Percent deferred applies to the current valuation year

³ Recognition at 20% per year over five years

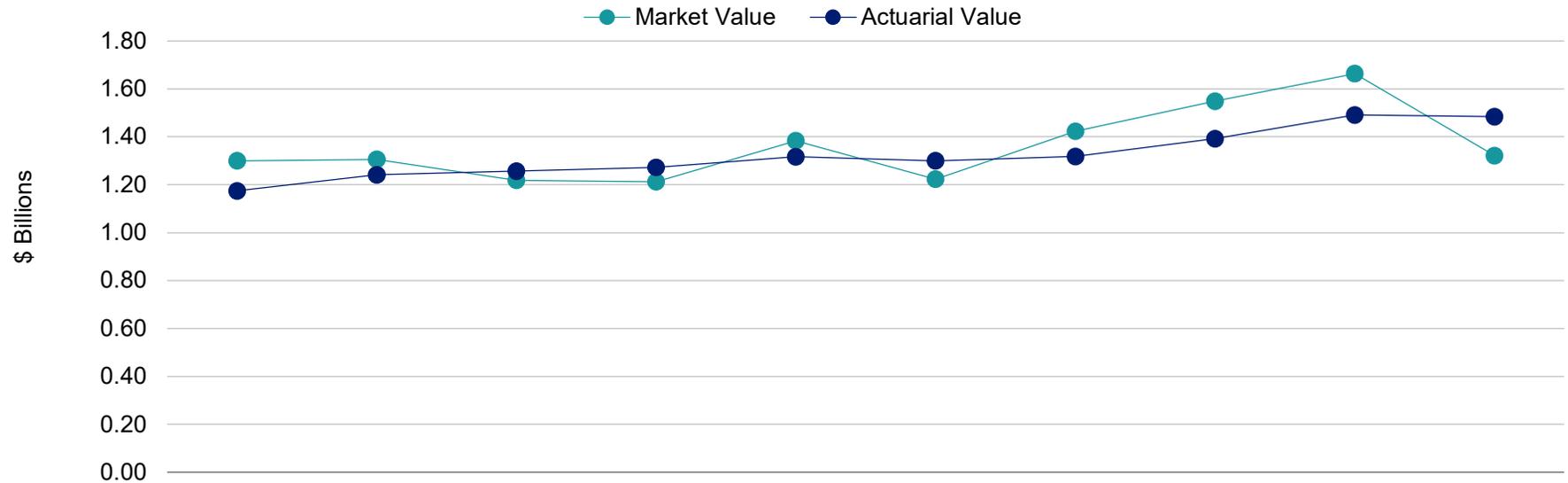
Deferred return as of December 31, 2022 recognized in each of the next four years:

(a) Amount recognized on December 31, 2023	\$2,690,270
(b) Amount recognized on December 31, 2024	-35,477,443
(c) Amount recognized on December 31, 2025	-55,998,681
(d) Amount recognized on December 31, 2026	-73,701,717

Section 2: Actuarial Valuation Results

Asset history for years ended December 31

Actuarial Value of Assets vs Market Value of Assets



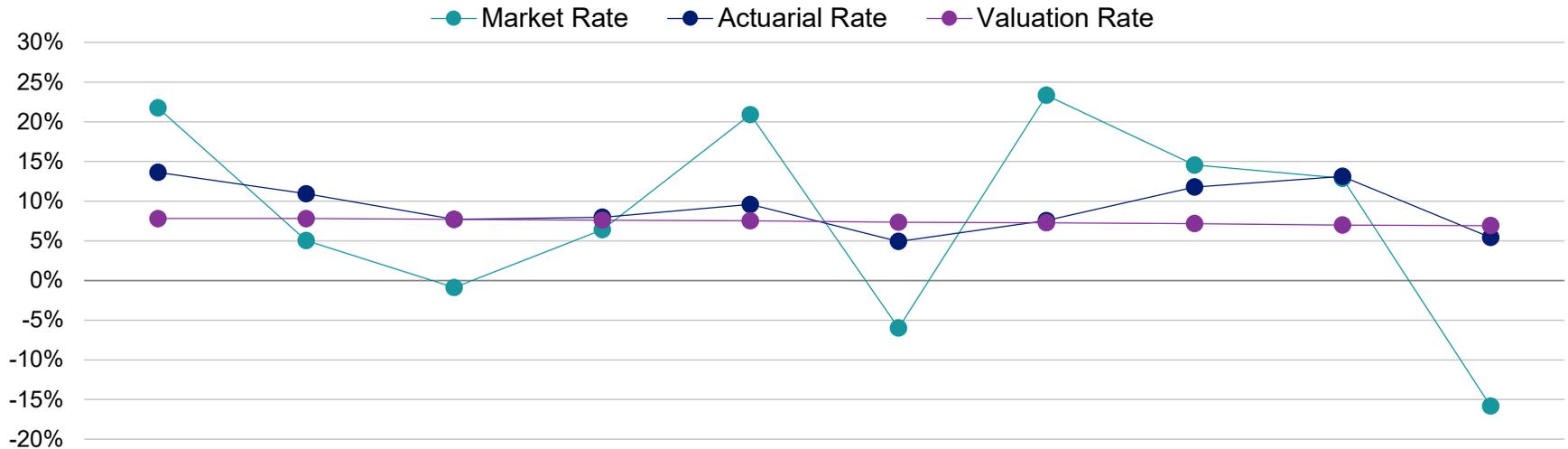
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Actuarial Value ¹	\$1.17	\$1.24	\$1.26	\$1.27	\$1.32	\$1.30	\$1.32	\$1.39	\$1.49	\$1.48
Market Value ¹	1.30	1.31	1.22	1.21	1.38	1.22	1.42	1.55	1.66	1.32
Ratio	0.90	0.95	1.03	1.05	0.95	1.06	0.93	0.90	0.90	1.12

¹ In \$ billions

Section 2: Actuarial Valuation Results

Historical investment returns

Market and Actuarial Rates of Return for Years Ended December 31



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Market rate	21.76%	5.05%	-0.88%	6.40%	20.91%	-6.00%	23.36%	14.56%	12.87%	-15.83%
Actuarial rate	13.63%	10.92%	7.71%	7.97%	9.59%	4.92%	7.54%	11.76%	13.13%	5.43%
Assumed rate	7.80%	7.80%	7.70%	7.60%	7.50%	7.35%	7.25%	7.15%	7.00%	6.90%

Average Rates of Return	Actuarial Value	Market Value
Most recent five-year average return:	8.53%	4.76%
Most recent ten-year average return:	9.15%	7.27%

Section 2: Actuarial Valuation Results

Actuarial experience

Assumptions should consider experience and should be based on reasonable expectations for the future.

Each year actual experience is compared to that projected by the assumptions. Differences are reflected in the actuarial valuation.

Assumptions are not changed if experience different than expected is believed to be a short-term development that will not continue over the long term. On the other hand, if experience different than expected is expected to continue, assumptions are changed.

Actuarial Experience for Year Ended December 31, 2022

1	Gain/(loss) from investments ¹	-\$21,245,337
2	Gain/(loss) from administrative expenses	-50,747
3	Net gain/(loss) from other experience	<u>-8,776,483</u>
4	Net experience gain/(loss): 1 + 2 + 3	-\$30,072,567

¹ Details on next page

Section 2: Actuarial Valuation Results

Investment experience

Actuarial planning is long term. The obligations of a pension plan are expected to continue for the lifetime of all its participants.

The assumed long-term rate of return of 6.80% considers past experience, the asset allocation policy of the Board and future expectations. For the year ended December 31, 2022, the assumed rate of return was 6.90%.

Investment Experience

		Year Ended December 31, 2022	
		Market Value	Actuarial Value
1	Net investment income	-\$256,661,000	\$78,675,661
2	Average value of assets	1,620,979,500	1,448,130,410
3	Rate of return: 1 ÷ 2	-15.83%	5.43%
4	Assumed rate of return	6.90%	6.90%
5	Expected investment income: 2 x 4	111,847,586	99,920,998
6	Investment gain/(loss): 1 - 5	-\$368,508,586	-\$21,245,337

Section 2: Actuarial Valuation Results

Non-investment experience

Administrative expenses

Administrative expenses for the year ended December 31, 2022 totaled \$721,000, as compared to the assumption of \$650,000. This resulted in an experience loss of \$50,747 for the year, when adjusted for timing. The assumed administrative expenses are the prior year actual amount rounded to the nearest \$50,000; the assumption was increased to \$700,000 for the current year.

Other experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- Mortality experience (more or fewer than expected deaths)
- The extent of turnover among participants
- Retirement experience (earlier or later than projected)
- The number of disability retirements (more or fewer than projected)
- Salary increases (greater or smaller than projected)

The net loss from this other experience for the year ended December 31, 2022 amounted to \$8,776,483, which is 0.47% of the actuarial accrued liability. This loss is primarily related to mortality experience.

Section 2: Actuarial Valuation Results

Actuarial assumptions

- A Review of Actuarial Experience for the Five-Year Period from January 1, 2017 to December 31, 2021 was presented to the Board in February, 2023. The assumption changes proposed in the Review and subsequently approved by the Board and first reflected in this report are:
 - Healthy Annuitant Mortality: Changed to the Pri-2012 Healthy Retiree Blue Collar Amount-weighted Mortality Table times 105% for Males (No adjustment for Females), projected generationally with Scale MP-2020 from 2012
 - Disabled Mortality: Changed to Pri-2012 Disabled Retiree Amount-weighted Mortality Table, projected generationally with Scale MP-2020 from 2012
 - Pre-Retirement Mortality: Changed to Pri-2012 Employee Blue Collar Amount-weighted Mortality Table, projected generationally with Scale MP-2020 from 2012
 - Investment Return: Lowered from 6.90% to 6.80%
 - Inflation Rate: Increased from 2.00% to 2.50%
 - Active Withdrawal and Active Disability rate assumptions were removed
 - Retirement rates were adjusted slightly to better reflect recent experience
 - The spousal age difference assumption was changed for female participants, from three years younger than their male spouses to two years younger than male spouses
 - The salary scale for non-public safety participants was changed to 3.0% for all years
 - The liability loads for unused vacation, 27th pay periods and unused vacation time were combined into a single 8.2% load
 - These changes increased the actuarial accrued liability by 1.19% and increased the employer normal cost by 5.02%.

Plan provisions

- There were no changes in plan provisions since the prior valuation.

Section 2: Actuarial Valuation Results

Unfunded Actuarial Accrued Liability

Development of Unfunded Actuarial Accrued Liability for Year Ended December 31, 2022

1	Unfunded actuarial accrued liability at beginning of year		\$401,824,774
2	Normal cost at beginning of year		2,149,481
3	Total contributions		-65,362,000
4	Interest on 1, 2 & 3		<u>25,832,052</u>
5	Expected unfunded actuarial accrued liability		\$364,444,307
6	Changes due to:		
	(a) Net experience loss	\$30,072,567	
	(b) Assumption changes	<u>22,387,565</u>	
	Total changes		<u>\$52,460,132</u>
7	Unfunded actuarial accrued liability at end of year		\$416,904,439

Section 2: Actuarial Valuation Results

Actuarially determined contribution

The actuarially determined contribution is equal to the employer normal cost payment and a payment on the unfunded actuarial accrued liability. As of January 1, 2023, the actuarially determined contribution is \$61,500,464.

The Board sets the methodology used to calculate the actuarially determined contribution, and the Trustees have opted to amortize the changes that occur each year over closed 15-year periods. As of January 1, 2018, the remaining outstanding bases were replaced with a single 15-year closed level dollar amortization. New bases are established each year to recognize experience gains and losses, plan changes, assumption changes, and method changes. A credit balance of \$25.5 million creates a buffer for differences between the budget and recommended contribution.

The contribution requirement as of January 1, 2023 is based on the data previously described, the actuarial assumptions and plan provisions described in *Section 4*, including all changes affecting future costs adopted at the time of the actuarial valuation, actuarial gains and losses, and changes in the actuarial assumptions.

Actuarially Determined Contribution

	2023	2022
1 Total normal cost	\$1,301,989	\$1,499,481
2 Administrative expenses	700,000	650,000
3 Expected employee contributions	<u>-405,691</u>	<u>-450,833</u>
4 Employer normal cost: (1) + (2) + (3)	\$1,596,298	\$1,698,648
5 Actuarial accrued liability	\$1,900,620,010	\$1,893,045,684
6 Actuarial value of assets	<u>1,483,715,571</u>	<u>1,491,220,910</u>
7 Unfunded actuarial accrued liability: (5) - (6)	\$416,904,439	\$401,824,774
8 Payment on unfunded actuarial accrued liability	57,924,746	52,787,894
9 Adjustment for timing ¹	1,979,420	1,838,056
10 Actuarially determined contribution: (4) + (8) + (9)	<u>\$61,500,464</u>	<u>\$56,324,598</u>

¹ Actuarially determined contributions are assumed to be paid at the middle of every month.

Section 2: Actuarial Valuation Results

Reconciliation of actuarially determined contribution

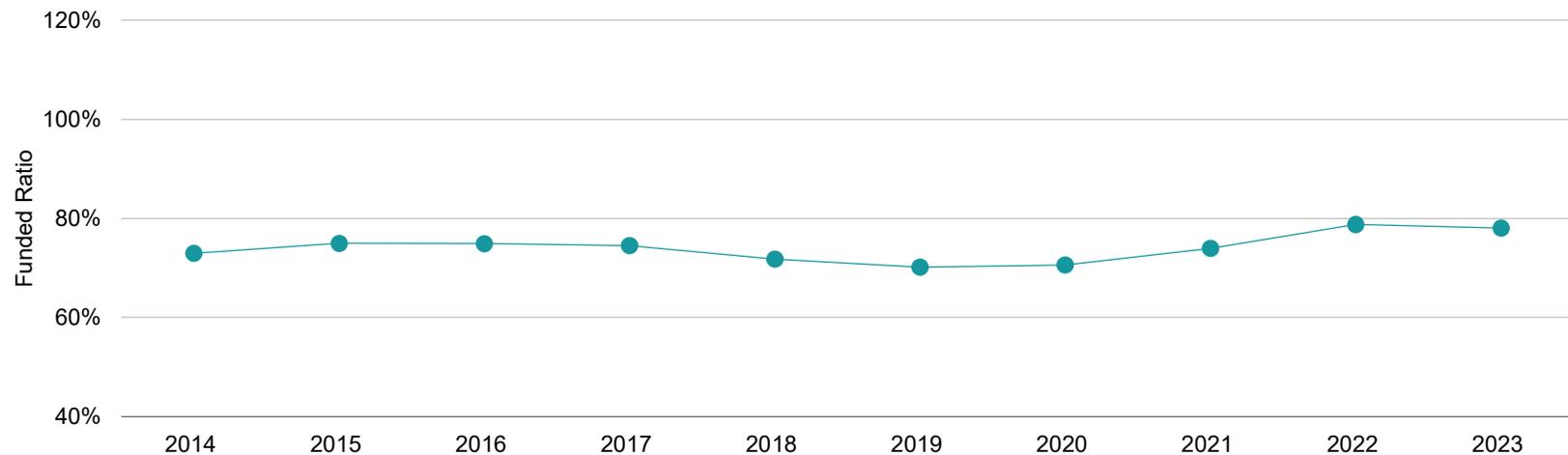
Reconciliation of Actuarially Determined Contribution
from January 1, 2022 to January 1, 2023

	Amount
1 Actuarially determined contribution as of January 1, 2022	\$56,324,598
2 Effect of change in administrative expense assumption	51,663
3 Effect of change in other actuarial assumptions	2,170,724
4 Effect of investment (gain)/loss	2,241,445
5 Effect of other gains and losses on accrued liability	931,299
6 Net effect of other changes, including composition and number of participants	<u>-219,265</u>
7 Total change	\$5,175,866
8 Actuarially determined contribution as of January 1, 2023	\$61,500,464

Section 2: Actuarial Valuation Results

Schedule of funding progress through December 31, 2022

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Compensation (c)	UAAL as a Percentage of Covered Compensation [(b) - (a)] / (c)
01/01/2014	\$1,173,841,252	\$1,608,975,544	\$435,134,292	72.96%	\$36,257,860	1,200.11%
01/01/2015	1,240,742,474	1,654,412,161	413,669,687	75.00%	32,828,504	1,260.09%
01/01/2016	1,256,554,200	1,677,001,812	420,447,612	74.93%	27,819,954	1,511.32%
01/01/2017	1,271,984,035	1,706,578,512	434,594,477	74.53%	23,391,200	1,857.94%
01/01/2018	1,315,952,327	1,833,170,386	517,218,059	71.79%	20,373,597	2,538.67%
01/01/2019	1,299,897,798	1,852,863,195	552,965,397	70.16%	14,845,291	3,724.85%
01/01/2020	1,317,765,335	1,865,253,623	547,488,288	70.65%	12,955,754	4,225.83%
01/01/2021	1,391,978,693	1,881,914,157	489,935,464	73.97%	9,864,659	4,966.57%
01/01/2022	1,491,220,910	1,893,045,684	401,824,774	78.77%	8,034,013	5,001.54%
01/01/2023	1,483,715,571	1,900,620,010	416,904,439	78.06%	7,176,761	5,809.09%



Section 2: Actuarial Valuation Results

History of employer contributions

History of Employer Contributions: 2014 – 2023

Fiscal Year Ended December 31	Actuarially Determined Employer Contribution (ADEC)	Actual Employer Contribution	Percent Contributed
2014	\$55,255,317	\$57,529,000	104.11%
2015	48,586,172	47,230,000	97.21%
2016	50,493,163	45,977,000	91.06%
2017	52,988,357	57,228,000	108.00%
2018	59,745,750	59,203,000	99.09%
2019	64,772,780	64,777,800	100.01%
2020	66,232,644	68,578,000	103.54%
2021	62,358,165	71,686,000	114.96%
2022	56,324,598	64,968,000	115.35%
2023	61,500,464	--	--

Section 2: Actuarial Valuation Results

Risk

The actuarial valuation results are dependent on a single set of assumptions; however, there is a risk that emerging results may differ significantly as actual experience proves to be different from the current assumptions.

- Investment Risk (the risk that returns will be different than expected)

Since the Plan's assets are much larger than contributions, investment performance may create volatility in contribution requirements. For example, for each 1% difference in market return from the assumed return, the actuarially determined contribution would increase or decrease by \$2.3 million once the difference is fully recognized in the actuarial value of assets.

The market value rate of return over the last 10 years has ranged from a low of -15.83% to a high of 23.36%.

- Longevity Risk (the risk that mortality experience will be different than expected)

The actuarial valuation includes an expectation of future improvement in life expectancy. Emerging plan experience that does not match these expectations will result in either an increase or decrease in the actuarially determined contribution.

- Contribution Risk (the risk that actual contributions will be different from actuarially determined contribution)

The Plan's funding policy requires payment of the actuarially determined contribution. As long as this policy is adhered to, contribution risk is negligible.

- Demographic Risk (the risk that participant experience will be different than assumed)

Examples of this risk include:

- Actual retirements occurring earlier or later than assumed. The value of retirement plan benefits is sensitive to the rate of benefit accruals and any early retirement subsidies that apply.
- More or less active participant turnover than assumed.

- Maturity Measures

Due to cost-of-living adjustments and new retirements, benefit payments are projected to grow to \$156.2 million by 2030. Thereafter, total benefits are projected to decline as the number of individuals in pay status decreases.

Currently the Plan has a pay status to active participant ratio of 34.07. In 2022 benefits paid were \$85.5 million more than contributions received. As the Plan matures, more cash will be needed from the investment portfolio to meet benefit payments.

This report does not contain a detailed analysis of the potential range of future measurements, but does include a brief discussion of some risks that may affect the Plan. A more detailed assessment would provide the Trustees with a better understanding of the risks inherent in the Plan. This assessment may include scenario testing, sensitivity testing, stress testing and stochastic modeling.

Section 2: Actuarial Valuation Results

GFOA funded liability by type

The Actuarial Accrued Liability represents the present value of benefits earned, calculated using the Plan's actuarial cost method. The Actuarial Value of Assets reflects the financial resources available to liquidate the liability. The portion of the liability covered by assets reflects the extent to which accumulated plan assets are sufficient to pay future benefits, and is shown for liabilities associated with employee contributions, pensioner liabilities, and other liabilities. The Government Finance Officers Association (GFOA) recommends that the funding policy aim to achieve a funded ratio of 100 percent.

GFOA Funded Liability by Type as of December 31

	2023	2022
Actuarial accrued liability (AAL)		
Active member contributions	\$10,993,668	\$12,811,155
Retirees and beneficiaries	1,836,263,072	1,817,801,075
Active and inactive members (employer-financed)	<u>53,363,270</u>	<u>62,433,454</u>
Total	\$1,900,620,010	\$1,893,045,684
Actuarial value of assets	1,483,715,571	1,491,220,910
Cumulative portion of AAL covered		
Active member contributions	100.00%	100.00%
Retirees and beneficiaries	80.20%	81.33%
Active and inactive members (employer-financed)	0.00%	0.00%

Section 2: Actuarial Valuation Results

State minimum requirements

Georgia Code Section 47-20-10(b) allows a Plan to be in compliance the minimum funding standards if the sponsor makes contributions equal to or greater than the annual required contribution (ARC) under Governmental Accounting Standards Board (GASB) Statements No. 25 and No. 27 as in effect on June 15, 2013. The lowest ARC allowable is based on a 30-year level percent-of-pay amortization of the Plan's unfunded actuarial liability. The County is making annual contributions in excess of this amount, based on 15-year level dollar amortizations, and therefore the Plan is in compliance with Georgia law.

Section 3: Supplemental Information

Exhibit A: Table of Plan Demographics

Category	Year Ended December 31		Change From Prior Year
	2022	2021	
Active participants in valuation:			
• Number	90	117	-23.1%
• Average age	57.3	56.6	0.7 years
• Average years of service	26.9	26.9	0.0 years
• Total payroll	\$7,176,761	\$8,034,013	-10.7%
• Average payroll	79,742	68,667	16.1%
• Account balances	10,993,668	12,811,155	-14.2%
Inactive vested participants	18	17	5.9%
Retired participants:			
• Number in pay status	2,504	2,575	-2.8%
• Average age	70.2	69.7	0.5 years
• Average monthly benefit	\$4,291	\$4,152	3.3%
Disabled participants:			
• Number in pay status	104	109	-4.6%
• Average age	68.4	67.9	0.5 years
• Average monthly benefit	\$2,670	\$2,521	5.9%
Beneficiaries:			
• Number in pay status	458	461	-0.7%
• Average age	76.3	76.2	0.1 years
• Average monthly benefit	\$2,976	\$2,798	6.4%

Section 3: Supplemental Information

Exhibit B: Participants in Active Service as of December 31, 2022 by Age and Years of Service

Age	Total	Years of Service				
		Under 20	20-24	25-29	30-34	35 & over
Under 50	16	--	15	1	--	--
50 - 54	18	--	7	7	4	--
55 - 59	30	1	8	17	4	--
60 - 64	14	--	3	5	6	--
65 - 69	7	--	1	1	3	2
70 & over	5	--	--	2	2	1
Total	90	1	34	33	19	3

Section 3: Supplemental Information

Exhibit C: Reconciliation of Participant Data

	Active Participants	Inactive Vested Participants	Disableds	Retired Participants	Beneficiaries	Total
Number as of January 1, 2022	117	17	109	2,575	461	3,279
• Terminations	-1	1	0	0	0	0
• Retirements	-25	0	0	25	0	0
• New disabilities	0	0	0	0	0	0
• Return to work	0	0	0	0	0	0
• New beneficiaries	0	0	0	0	38	38
• Deaths	-1	0	-5	-98	-41	-145
• Lump sum cash-outs	0	0	0	0	0	0
• Data adjustments	0	0	0	2	0	2
• DC Plan Transfer	0	0	0	0	0	0
Number as of January 1, 2023	90	18	104	2,504	458	3,174

Section 3: Supplemental Information

Exhibit D: Summary Statement of Income and Expenses on a Market Value Basis

	Year Ended December 31, 2022	Year Ended December 31, 2021	-
Net assets at market value at the beginning of the year	\$1,664,070,000	\$1,548,336,000	
Contribution and other income:			
Employer contributions	\$64,968,000	\$71,686,000	
Employee contributions	<u>394,000</u>	<u>600,000</u>	
<i>Total contribution income</i>	<i>\$65,362,000</i>	<i>\$72,286,000</i>	
Investment income:			
• Investment income	-\$252,281,000	\$198,995,000	
Less investment fees	<u>-4,380,000</u>	<u>-4,841,000</u>	
<i>Net investment income</i>	<i><u>-\$256,661,000</u></i>	<i><u>\$194,154,000</u></i>	
Total income available for benefits	<u>-\$191,299,000</u>	<u>\$266,440,000</u>	
Less benefit payments and administrative expenses:			
Administrative expenses	-\$721,000	-\$649,000	
Benefit payments	-150,463,000	-148,754,000	
Refunds of contributions	-28,000	0	
Transfers to DC Plan	<u>-331,000</u>	<u>-1,303,000</u>	
<i>Net benefit payments and administrative expenses</i>	<i><u>-\$151,543,000</u></i>	<i><u>-\$150,706,000</u></i>	
Change in reserve for future benefits	<u>-\$342,842,000</u>	<u>\$115,734,000</u>	
Net assets at market value at the end of the year	<u>\$1,321,228,000</u>	<u>\$1,664,070,000</u>	

Section 3: Supplemental Information

Exhibit E: Summary Statement of Plan Assets

	December 31, 2022	December 31, 2021
Cash equivalents	\$26,374,000	\$23,605,000
Total accounts receivable	16,460,000	18,208,000
Investments:		
Domestic equity	\$584,671,000	\$794,698,000
International equity	321,729,000	384,511,000
Domestic fixed income	216,363,000	271,776,000
International fixed income	65,555,000	80,300,000
Mortgage-backed securities/real estate	14,773,000	19,368,000
Bank loans	<u>82,442,000</u>	<u>82,909,000</u>
Total investments at market value	1,285,533,000	1,633,562,000
Total assets	1,328,367,000	1,675,375,000
Total accounts payable	-7,139,000	-11,305,000
Net assets at market value	\$1,321,228,000	\$1,664,070,000
Net assets at actuarial value	\$1,483,715,571	\$1,491,220,910

Section 3: Supplemental Information

Exhibit F: Table of Amortization Bases

Type	Date Established	Initial Period	Initial Amount	Annual Payment ¹	Years Remaining	Outstanding Balance
Initial liability	01/01/2018	15	\$413,296,938	\$42,183,653	10.00	\$319,373,591
Actuarial experience gain	01/01/2018	15	-5,216,165	-532,394	10.00	-4,030,769
Change in assumptions	01/01/2018	15	112,434,921	11,475,807	10.00	86,883,646
Actuarial experience loss	01/01/2019	15	37,633,237	3,833,969	11.00	31,012,886
Change in assumptions	01/01/2019	15	17,674,462	1,800,625	11.00	14,565,212
Actuarial experience loss	01/01/2020	15	915,500	93,129	12.00	798,484
Change in assumptions	01/01/2020	15	17,553,347	1,785,611	12.00	15,309,740
Actuarial experience gain	01/01/2021	15	-54,667,307	-5,554,643	13.00	-50,147,547
Change in assumptions	01/01/2021	15	26,158,143	2,657,880	13.00	23,995,452
Actuarial experience gain	01/01/2022	15	-68,128,677	-6,917,913	14.00	-65,396,570
Change in assumptions	01/01/2022	15	17,469,051	1,773,840	14.00	16,768,504
Actuarial experience loss	01/01/2023	15	30,072,567	3,052,640	15.00	30,072,567
Change in assumptions	01/01/2023	15	22,387,565	2,272,542	15.00	22,387,565
Total				\$57,924,746		\$441,592,761

¹ Level dollar

Exhibit F-1– Development of Credit Balance

1. Credit balance as of January 1, 2022	\$14,978,676
2. County contributions with interest	66,997,862
3. Employee contributions with interest	406,310
4. Normal cost	-1,499,481
5. Administrative expenses	-650,000
6. Net amortization payments	-52,787,894
7. Interest at 6.90%	<u>-2,757,151</u>
8. Credit balance as of January 1, 2023	\$24,688,322
9. 2023 credit balance adjusted for contribution timing	<u>\$25,509,352</u>

Section 3: Supplemental Information

Exhibit G: Benefit Payment Projection

Segal has determined the anticipated benefits to be paid from the Plan over the next ten years. This projection is provided to help the Pension Board assess the future liquidity needs of the System, and to help determine whether the Plan should plan to sell assets to pay participants' benefits or to restructure the debt and equity allocations.

This is a mature and closed fund, and thus it is expected that the contributions paid into the Plan each year will not be sufficient to pay all of the annual benefit requirements and expenses. Investment income is required to make up the difference. The Board needs to ensure that interest and dividend income, along with maturing fixed income investments and the sale of equity investments, are at a sufficient level to provide existing and emerging benefit payments to participants and beneficiaries. This matter should be considered by the investment managers in designing their strategies.

The projection is shown below. The assumptions for retirement and mortality are the same rates shown in Section 4 of the report.

Projected Benefit Payments, 2023 - 2032				
Year Ended December 31	Number of Benefit Recipients	Benefits to Active Participants	Benefits to Non-Active Participants	Total Benefits Projected
2023	3,096	\$1,183,553	\$147,389,272	\$148,572,825
2024	3,059	1,989,236	148,799,334	150,788,570
2025	3,011	2,660,227	149,950,139	152,610,366
2026	2,957	3,223,730	150,829,722	154,053,452
2027	2,898	3,816,184	151,421,871	155,238,055
2028	2,832	4,221,097	151,707,820	155,928,917
2029	2,763	4,609,604	151,667,612	156,277,216
2030	2,687	4,910,537	151,281,054	156,191,591
2031	2,609	5,202,731	150,528,203	155,730,934
2032	2,525	5,439,476	149,390,342	154,829,818

Section 4: Actuarial Valuation Basis

Exhibit I: Actuarial Assumptions, Methods and Models

Rationale for Assumptions	The information and analysis used in selecting each demographic assumption that has a significant effect on this actuarial valuation is shown in the Review of Actuarial Experience for the Five-Year Period from January 1, 2017 to December 31, 2021. Changes from the prior year are listed at the end of this exhibit.			
Net Investment Return:	6.80%			
	The net investment return assumption was chosen by the Pension Board Investment Committee. The Committee received input from the actuary, including a long-term range estimate derived from historical data, current and recent market expectations, and professional judgment. As part of the actuarial analysis, a building block approach was used that reflects inflation expectations and anticipated risk premiums for each of the portfolio's asset classes as provided by NEPC, as well as the Plan's target asset allocation.			
Salary Increases:	Non-Public Safety Rates		Public Safety Rates	
	Age	Rate (%)	Age	Rate (%)
	40-44	3.0%	40-44	6.0%
	45-49	3.0%	45-49	5.0%
	50 and older	3.0%	50-54	4.0%
			55 and older	3.0%
Mortality Rates:	<i>Pre-retirement</i>	Pri-2012 Employee Blue Collar Amount-weighted Mortality Tables, sex-distinct, projected generationally with Scale MP-2020 from 2012		
	<i>Healthy annuitants:</i>	Pri-2012 Healthy Retiree Blue Collar Amount-weighted Mortality Tables times 105% for Males (No adjustment for Females), projected generationally with Scale MP-2020 from 2012		
	<i>Disabled annuitants:</i>	Pri-2012 Disabled Retiree Amount-weighted Mortality Tables, sex-distinct, projected generationally with Scale MP-2020 from 2012		
	The tables above, with adjustments as shown, reasonably reflect the mortality experience of the System as of the measurement date. The mortality tables are generationally projected to reflect future mortality improvement.			

Section 4: Actuarial Valuation Basis

Annuitant Mortality Rates:

Age	Rate (%) ¹			
	Healthy		Disabled	
	Male	Female	Male	Female
55	0.64	0.49	2.09	1.47
60	0.93	0.71	2.41	1.80
65	1.36	1.08	2.93	2.09
70	2.05	1.64	3.76	2.58
75	3.22	2.62	5.34	3.66
80	5.72	4.35	8.24	5.76
85	9.66	7.49	12.89	9.49
90	16.54	13.05	19.59	15.67

¹ Mortality rates shown for base table.

Termination Rates Before Retirement:

Age	Rate (%)				
	Mortality ¹		Disability		Withdrawal
	Male	Female	Non-Public Safety	Public Safety	All Lives
40	0.12	0.07	0.00	0.00	0.00
45	0.13	0.09	0.00	0.00	0.00
50	0.17	0.12	0.00	0.00	0.00
55	0.27	0.20	0.00	0.00	0.00
60	0.45	0.32	0.00	0.00	0.00

¹Mortality rates shown for base table

Section 4: Actuarial Valuation Basis

Retirement Rates:	Rates for Unreduced Pension			
	<u>Non-Public Safety</u>		<u>Public Safety</u>	
	Age	Retirement Probability (%)	Age	Retirement Probability (%)
	First eligibility through eligibility + 20 years	20.00	First eligibility through eligibility + 10 years	50.00
First eligibility + 20-25 years	30.00	First eligibility + 10-15 years	20.00	
Thereafter	100.00	First eligibility + 15-20 years	50.00	
		Thereafter	100.00	
Description of Weighted Average Retirement Age	Rates for Reduced Pension			
	<u>Non-Public Safety</u>		<u>Public Safety</u>	
	Age	Retirement Probability (%)	Age	Retirement Probability (%)
	40-44	0.00	40-44	20.00
	45-49	10.00	45-49	20.00
	50-54	15.00	50-54	30.00
	55-59	15.00	55-59	30.00
	Age 61, determined as follows: The weighted average retirement age for each participant is calculated as the sum of the product of each potential current or future retirement age times the probability of surviving from current age to that age and then retiring at that age, assuming no other decrements. The overall weighted retirement age is the average of the individual retirement ages based on all the active participants included in the January 1, 2023 actuarial valuation.			
Retirement Rates for Inactive Vested Participants:	Earliest unreduced retirement age			
Unknown Data for Participants:	Same as those exhibited by participants with similar known characteristics. If not specified, participants are assumed to be male.			
Family Composition:	70% of males and 40% of females are assumed to be married. None are assumed to have dependent children. Males are assumed to be three years older than their spouses. Females are assumed to be two years younger than their spouses.			

Section 4: Actuarial Valuation Basis

Benefit Election:	All participants are assumed to take an annuity. No participants are assumed to transfer to the County's defined contribution plan.
Final Average Earnings and Years of Service Loads:	A single load of 8.2% is applied to compute benefits due to 27 th pay periods, unused vacation time, and unused sick leave
Interest on Employee Contributions:	4.0%
Administrative Expenses:	Prior year actual amount rounded to the nearest \$50,000 (\$700,000 for 2023)
Actuarial Value of Assets:	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.
Actuarial Cost Method:	Entry Age Normal Actuarial Cost Method. Entry Age is the age at the time the participant commenced employment. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary.
Models:	Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the supervision of the responsible actuary.
Justification for Change in Actuarial Assumptions:	<p>The following change in assumptions is reflected in this valuation, based on the Trustees' input:</p> <ul style="list-style-type: none"> • Healthy Annuitant Mortality: Changed to the Pri-2012 Healthy Retiree Blue Collar Amount-weighted Mortality Table times 105% for Males (No adjustment for Females), projected generationally with Scale MP-2020 from 2012 • Disabled Mortality: Changed to Pri-2012 Disabled Retiree Amount-weighted Mortality Table, projected generationally with Scale MP-2020 from 2012 • Pre-Retirement Mortality: Changed to Pri-2012 Employee Blue Collar Amount-weighted Mortality Table, projected generationally with Scale MP-2020 from 2012 • Investment Return: Lowered from 6.90% to 6.80% • Inflation Rate: Increased from 2.00% to 2.50% • Active Withdrawal and Active Disability rate assumptions were removed • Retirement rates were adjusted slightly to better reflect recent experience • The spousal age difference assumption was changed for female participants, from three years younger than their male spouses to two years younger than male spouses • The salary scale for non-public safety participants was changed to 3.0% for all years • The liability loads for unused vacation, 27th pay periods and unused vacation time were combined into a single 8.2% load

Section 4: Actuarial Valuation Basis

Exhibit II: Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Plan Year:	January 1 through December 31
Plan Status:	Closed to new entrants as of July 1, 1999
Normal Retirement:	
<i>Age and Service Requirement</i>	Earlier of age 65 with 10 years of Service, age 60 with 15 years of Service, age 55 with 30 years of Service, or 10 years of service and the sum of age and service equals 79 or more For elected officials or department heads, if termination is the result of resignation, failure to be re-elected, or abolishment of office, age 55 with 10 years of service
<i>Amount</i>	1991 Plan - 2.00% of Final Average Compensation times years of Creditable Service. Enhanced Plan - 2.25% of Final Average Compensation times years of Creditable Service for the first five years, plus 2.50% of Final Average Compensation per year of Credited Service in excess of five years. The maximum benefit is 75% of Final Average Compensation. The minimum benefit is \$460 per month.
<i>Final Average Compensation</i>	The average of the Participant's earnings during the three years of employment that produce the highest average. For elected officials and department heads, Final Average Compensation is not less than the average earnings during the 12 months prior to termination.
Early Retirement:	
<i>Age Requirement</i>	None
<i>Service Requirement</i>	15 years of Credited Service
<i>Amount</i>	Normal pension accrued, reduced 0.5% for the first 60 months and 0.25% for the remaining months preceding employee's normal retirement date. The benefit of a Peace Officer with 25 years will be reduced by 0.25% for each month that commencement precedes age 55. The minimum benefit is \$300 per month.
Disability:	
<i>Age Requirement</i>	None

Section 4: Actuarial Valuation Basis

<i>Service Requirement</i>	10 years of Credited Service or disabled in the line of duty
<i>Amount</i>	Normal pension accrued (For Peace Officers, the benefit assumes 35 years of service.)
Vesting:	
<i>Age Requirement</i>	None
<i>Service Requirement</i>	10 years of Credited Service
<i>Amount</i>	Normal pension accrued
Death Benefit	<p>A percentage of the amount the Participant either a) was receiving at death, b) would have received had he retired with a normal retirement benefit at death, or c) would have received as a vested pension benefit had he survived to age 65.</p> <p>75% for the Enhanced Plan, 1991 Plan, and 1982 Plan (If the beneficiary has not attained age 60 and is more than five years younger than the participant, the beneficiary's death benefit payments are reduced by 1/12 of two percent per month for each month that such beneficiary is more than five years younger than the participant.)</p> <p>50% for other Plans</p> <p>A beneficiary of a Peace Officer who dies in the line of duty receives the amount of compensation that the deceased would have received from the employer for one year from the date of death. After the first year, 75% of the greater of the participant's salary at death or the salary paid to a six-year police officer.</p>
Interest on Contributions	Employee contributions are credited with an annual interest rate of 4%
Cost of Living Adjustments	3% per year for the Enhanced, 1991 and 1992 Plans if CPI is greater than zero
Member Contribution Rates	<p>Enhanced Plan - 6% of pay</p> <p>1991 and 1982 Plans – 5% of pay</p> <p>Other Plans – 0% to 4% of pay</p>
Changes in Plan Provisions:	There have been no changes in plan provisions since the last valuation.

Section 5: GASB Information

General information about the pension plan

Plan Description

Plan membership. At December 31, 2022, pension plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	3,076
Vested terminated members entitled to but not yet receiving benefits ¹	18
Active members	<u>90</u>
Total	3,184

The System was closed to new entrants in 1999.

Contributions: The Plan is subject to minimum funding standards of the Public Retirement Systems Standards Law (Georgia Code Section 47-20-10). The System establishes an actuarially determined contribution as recommended by an independent actuary. The actuarially determined contribution is the estimated amount necessary to finance the costs of benefits earned by employees during the year, plus an additional amount to finance any unfunded accrued liability.

Benefits provided: See Section 4, Exhibit II for a summary of plan provisions.

¹ Excludes terminated members due a refund of contributions

Section 5: GASB Information

Exhibit 1: Net Pension Liability

Reporting Date for Employer under GASB 68	December 31, 2022	December 31, 2021
Measurement Date	December 31, 2022	December 31, 2021
Total Pension Liability	\$1,900,620,010	\$1,893,045,684
Plan Fiduciary Net Position	1,321,228,000	1,664,070,000
Net Pension Liability	579,392,010	228,975,684
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	69.52%	87.90%

Actuarial assumptions. The total pension liability was determined by an actuarial valuation as of December 31, 2022, using the following actuarial assumptions, applied to all periods included in the measurement:

Inflation	2.50%
Salary increases	3.00% to 6.00%
Investment rate of return	6.80%, net of pension plan investment expense, including inflation (previously 6.90%)

Pre-retirement mortality is based on to the Pri-2012 Blue Collar Amount-weighted Employee Mortality Table. Post-retirement mortality for non-disabled lives is based on the Pri-2012 Blue Collar Amount-weighted Healthy Annuitant Mortality Table, times 105% for males with no adjustment for females. Mortality for disabled lives is based on the Pri-2012 Disabled Retiree Amount-weighted Mortality Table, set forward four years for males and unadjusted for females. All tables are projected generationally from 2012 with Scale MP-2020.

The actuarial assumptions used in the December 31, 2022 valuation were based on the results of an experience study for the period January 1, 2017 to December 31, 2021

Section 5: GASB Information

Determination of discount rate and investment rates of return

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. These returns 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, adding expected inflation. The target allocation (approved by the Board) and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expenses, used in the derivation of the long-term expected investment rate of return assumption are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
U.S. Large Cap Equity	31.50%	4.70%
U.S. Small/Mid Cap Equity	14.00%	5.10%
International Large Cap Equity	12.50%	4.60%
International Small Cap Equity	5.00%	5.30%
Emerging Market Equity	5.00%	7.30%
Domestic Fixed Income	17.00%	2.20%
Global Fixed Income	5.00%	0.90%
Bank Loans	5.00%	4.20%
Asset Allocator (60/40 Eq/FI Tgt)	5.00%	3.90%
Total	100.00%	

Discount rate. The discount rate used to measure the total pension liability was 6.80%. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that contributions will be made at rates equal to the actuarially determined contribution rates. 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. For the prior year, the discount rate was 6.90%.

Section 5: GASB Information

Discount rate sensitivity

Sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability, calculated using the discount rate of 6.80%, as well as what the net pension liability would be if it were calculated using a discount rate that is one-percentage-point lower (5.80%) or one-percentage-point higher (7.80%) than the current rate:

	1% Decrease (5.80%)	Current Discount Rate (6.80%)	1% Increase (7.80%)
Net Pension Liability	\$769,512,122	\$579,392,010	\$417,913,369

Section 5: GASB Information

Exhibit 2: Schedule of Changes in Net Pension Liability

Reporting Date for Employer under GASB 68	December 31, 2022	December 31, 2021
Measurement Date	December 31, 2022	December 31, 2021
Total Pension Liability		
Service cost	\$1,499,481	\$1,895,141
Interest	125,520,257	126,614,656
Change of benefit terms	0	0
Differences between expected and actual experience	8,989,023	15,209,679
Changes of assumptions	22,387,565	17,469,051
Benefit payments, including refunds of member contributions	<u>-150,822,000</u>	<u>-150,057,000</u>
Net change in Total Pension Liability	\$7,574,326	\$11,131,527
Total Pension Liability – beginning	1,893,045,684	1,881,914,157
Total Pension Liability – ending	\$1,900,620,010	\$1,893,045,684
Plan Fiduciary Net Position		
Contributions – employer	\$64,968,000	\$71,686,000
Contributions – employee	394,000	600,000
Net investment income	-256,661,000	194,154,000
Benefit payments, including refunds of member contributions	-150,822,000	-150,057,000
Administrative expense	-721,000	-649,000
Other	<u>0</u>	<u>0</u>
Net change in Plan Fiduciary Net Position	-\$342,842,000	\$115,734,000
Plan Fiduciary Net Position – beginning	1,664,070,000	1,548,336,000
Plan Fiduciary Net Position – ending	\$1,321,228,000	\$1,664,070,000
Net Pension Liability – ending	\$579,392,010	\$228,975,684
Plan Fiduciary Net Position as a percentage of the Total Pension Liability	69.52%	87.90%
Covered payroll	\$7,176,761	\$8,034,013
Plan Net Pension Liability as percentage of covered payroll	8,073.17%	2,850.08%

Section 5: GASB Information

Notes to Schedule:

Benefit changes: There have been no changes in benefit provisions since GASB67 implementation

Change of Assumptions: Please see *Section 4, Exhibit I* for a full list of assumption changes as of December 31, 2022. As of December 31, 2021, the assumed discount rate was changed from 7.00% to 6.90%.

Section 5: GASB Information

Deferred Outflows of Resources and Deferred Inflows of Resources

Reporting Date for Employer under GASB 68	December 31, 2022	December 31, 2021
Measurement Date	December 31, 2022	December 31, 2021
Deferred Outflows of Resources		
Changes of assumptions or other inputs	0	0
Net difference between projected and actual earnings on pension plan investments	162,499,162	0
Difference between expected and actual experience in the Total Pension Liability	<u>0</u>	<u>0</u>
Total Deferred Outflows of Resources	\$162,499,162	\$0
Deferred Inflows of Resources		
Changes of assumptions or other inputs	0	0
Net difference between projected and actual earnings on pension plan investments	0	172,827,836
Difference between expected and actual experience in the Total Pension Liability	<u>0</u>	<u>0</u>
Total Deferred Inflows of Resources	\$0	\$172,827,836
Deferred outflows of resources and deferred inflows of resources related to pension will be recognized as follows:		
Reporting Date for Employer under GASB 68 Year Ended December 31:		
2022	N/A	-\$40,520,130
2023	-\$2,680,608	-76,382,325
2024	35,479,372	-38,222,345
2025	55,998,681	-17,703,036
2026	73,701,717	0
Thereafter	0	0

The average of the expected service lives of all employees is determined by:

- Calculating each active employee's expected remaining service life as the present value of \$1 per year of future service at 0% interest.
- Setting the remaining service life to zero for each nonactive or retired member.
- Dividing the sum of the above amounts by the total number of active employee, nonactive and retired members.

For 2022, the average of the expected remaining service lives of all employees that are provided with pensions by the Retirement System (active and inactive employees) is one year, and therefore assumption changes and the difference between actual and expected experience are recognized immediately. The difference between projected and actual earnings on investments is recognized over five years.

Section 5: GASB Information

Schedule of Recognition of Change in Total Net Pension Liability

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience on Total Pension Liability

Reporting Date for Employer under GASB 68 Year Ended December 31	Differences between Expected and Actual Experience	Recognition Period (Years)	2021	2022	2023	2024	2025	2026	Thereafter
2022	8,989,023	1.00	N/A	<u>8,989,023</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Net increase (decrease) in pension expense			N/A	\$8,989,023	\$0	\$0	\$0	\$0	\$0

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Assumption Changes

Reporting Date for Employer under GASB 68 Year Ended December 31	Assumption Changes	Recognition Period (Years)	2021	2022	2023	2024	2025	2026	Thereafter
2022	\$22,387,565	1.00	<u>N/A</u>	<u>\$22,387,565</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Net increase (decrease) in pension expense			N/A	\$22,387,565	\$0	\$0	\$0	\$0	\$0

Section 5: GASB Information

Increase (Decrease) in Pension Expense Arising from the Recognition of the Effects of Differences between Projected and Actual Earnings on Pension Plan Investments

Reporting Date for Employer under GASB 68 Year Ended December 31	Differences between Projected and Actual Earnings	Recognition Period (Years)	2021	2022	2023	2024	2025	2026	Thereafter
2016	14,079,075	5.00	0	0	0	0	0	0	0
2017	-157,468,025	5.00	-31,493,605	0	0	0	0	0	0
2018	179,310,977	5.00	35,862,195	35,862,195	0	0	0	0	0
2019	-190,799,901	5.00	-38,159,980	-38,159,980	-38,159,980	0	0	0	0
2020	-102,596,545	5.00	-20,519,309	-20,519,309	-20,519,309	-20,519,309	0	0	0
2021	-88,515,180	5.00	-17,703,036	-17,703,036	-17,703,036	-17,703,036	-17,703,036	0	0
2022	368,508,586	5.00	<u>N/A</u>	<u>73,701,718</u>	<u>73,701,717</u>	<u>73,701,717</u>	<u>73,701,717</u>	<u>73,701,717</u>	<u>0</u>
Net increase (decrease) in pension expense			N/A	\$33,181,588	-\$2,680,608	\$35,479,372	\$55,998,681	\$73,701,717	\$0

Total Increase (Decrease) in Pension Expense

Reporting Date for Employer under GASB 68 Year Ended December 31	Total Increase (Decrease) in Pension Expense	Recognition Period (Years)	2021	2022	2023	2024	2025	2026	Thereafter
2016	14,079,075		0	0	0	0	0	0	0
2017	-157,468,025		-31,493,605	0	0	0	0	0	0
2018	179,310,977		35,862,195	35,862,195	0	0	0	0	0
2019	-190,799,901		-38,159,980	-38,159,980	-38,159,980	0	0	0	0
2020	-102,596,545		-20,519,309	-20,519,309	-20,519,309	-20,519,309	0	0	0
2021	-88,515,180		-17,703,036	-17,703,036	-17,703,036	-17,703,036	-17,703,036	0	0
2022	399,885,174		<u>N/A</u>	<u>105,078,306</u>	<u>73,701,717</u>	<u>73,701,717</u>	<u>73,701,717</u>	<u>73,701,717</u>	<u>0</u>
Net increase (decrease) in pension expense			N/A	\$64,558,176	-\$2,680,608	\$35,479,372	\$55,998,681	\$73,701,717	\$0

Section 5: GASB Information

Pension expense

Reporting Date for Employer under GASB 68	December 31, 2022	December 31, 2021
Measurement Date	December 31, 2022	December 31, 2021
Components of Pension Expense		
Service cost	\$1,499,481	\$1,895,141
Interest on the Total Pension Liability	125,520,257	126,614,656
Current-period benefit changes	--	--
Expensed portion of current-period difference between expected and actual experience in the Total Pension Liability	8,989,023	15,209,679
Expensed portion of current-period changes of assumptions or other inputs	22,387,565	17,469,051
Member contributions	-394,000	-600,000
Projected earnings on plan investments	-111,847,586	-105,638,820
Expensed portion of current-period differences between actual and projected earnings on plan investments	73,701,718	-17,703,036
Administrative expense	721,000	649,000
Recognition of beginning of year deferred outflows of resources as pension expense	35,862,195	35,862,195
Recognition of beginning of year deferred inflows of resources as pension expense	-76,382,325	-90,172,894
Pension Expense	\$80,057,328	-\$16,415,028

Section 5: GASB Information

Schedule of reconciliation of Net Pension Liability

Reporting Date for Employer under GASB 68	December 31, 2022	December 31, 2021
Measurement Date	December 31, 2022	December 31, 2021
Beginning Net Pension Liability	\$228,975,684	\$333,578,157
Pension expense	80,057,328	-16,415,028
Employer contributions	-64,968,000	-71,686,000
New net deferred inflows/outflows	294,806,868	-70,812,144
Recognition of prior deferred inflows/outflows	40,520,130	54,310,699
Ending Net Pension Liability	\$579,392,010	\$228,975,684

Section 5: GASB Information

Exhibit 3: Schedule of contributions

Year Ended December 31	Actuarially Determined Contributions	Contributions in Relation to the Actuarially Determined Contributions	Contribution Deficiency / (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
2014	55,255,317	57,529,000	-2,273,683	32,828,504	175.24%
2015	48,586,172	47,230,000	1,356,172	27,819,954	169.77%
2016	50,493,163	45,977,000	4,516,163	23,391,200	196.56%
2017	52,988,352	57,228,000	-4,239,648	20,373,597	280.89%
2018	59,745,750	59,203,000	542,750	14,845,291	398.80%
2019	64,772,780	64,777,000	-4,220	12,955,754	499.99%
2020	66,232,644	68,578,000	-2,345,356	9,864,659	695.19%
2021	62,358,165	71,686,000	-9,327,835	8,034,013	892.28%
2022	56,324,598	64,968,000	-8,643,402	7,176,761	905.26%

Notes to Schedule:

Methods and assumptions used to establish “actuarial determined contribution” for the year ended December 31, 2022:

Valuation date	Actuarially determined contribution is calculated using a January valuation date as of the beginning of the fiscal year in which contributions are reported
Actuarial cost method	Entry age
Amortization method	Level dollar, closed period
Remaining amortization period	Remaining amortization period varies for the bases, with an average effective period of 12 years.
Asset valuation method	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.
Investment rate of return	6.80%, including inflation, net of pension plan investment expense
Inflation rate	2.50%
Projected salary increases	3.00% - 6.00%

Section 5: GASB Information

Retirement rates	Separate retirement rates for public safety employees and non-public safety employees. Rates for reduced retirement run from age 40 to age 59. Rates for unreduced retirement begin at first eligibility, and extend to age 65 for public safety and to age 70 for other employees. A full table is available in Section 4 of the actuarial valuation.	
Mortality Rates:	<i>Pre-retirement</i>	Pri-2012 Employee Blue Collar Amount-weighted Mortality Tables, sex-distinct, projected generationally with Scale MP-2020 from 2012
	<i>Healthy annuitants:</i>	Pri-2012 Healthy Retiree Blue Collar Amount-weighted Mortality Tables times 105% for Males (No adjustment for Females), projected generationally with Scale MP-2020 from 2012
	<i>Disabled annuitants:</i>	Pri-2012 Disabled Retiree Amount-weighted Mortality Tables, sex-distinct, projected generationally with Scale MP-2020 from 2012
The tables above, with adjustments as shown, reasonably reflect the mortality experience of the System as of the measurement date. The mortality tables are generationally projected to reflect future mortality improvement.		

Appendix A: Definition of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Actuarial Accrued Liability for Actives:	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability for Retirees and Beneficiaries:	Actuarial Present Value of lifetime benefits to existing retirees and beneficiaries. This sum takes account of life expectancies appropriate to the ages of the annuitants and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial Cost Method:	A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.
Actuarial Gain or Loss:	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield actuarial liabilities that are larger than projected.
Actuarially Equivalent:	Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV):	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is: Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and Discounted according to an assumed rate (or rates) of return to reflect the time value of money.
Actuarial Present Value of Future Benefits:	The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund of

Appendix A: Definition of Pension Terms

	member contributions or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation:	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan, as well as Actuarially Determined Contributions.
Actuarial Value of Assets (AVA):	The value of the Plan's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the Actuarially Determined Contribution.
Actuarially Determined:	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the Plan.
Actuarially Determined Contribution (ADC):	The employer's contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.
Amortization Method:	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the Unfunded Actuarial Accrued Liability. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the Unfunded Actuarial Accrued Liability. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
Amortization Payment:	The portion of the pension plan contribution, or ADC, that is intended to pay off the Unfunded Actuarial Accrued Liability.
Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Plan is calculated, including: <u>Investment return</u> - the rate of investment yield that the Plan will earn over the long-term future; <u>Mortality rates</u> - the rate or probability of death at a given age for employees and retirees; <u>Retirement rates</u> - the rate or probability of retirement at a given age or service; <u>Disability rates</u> - the rate or probability of disability retirement at a given age; <u>Withdrawal rates</u> - the rate or probability at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; <u>Salary increase rates</u> - the rates of salary increase due to inflation, real wage growth and merit and promotion increases.

Appendix A: Definition of Pension Terms

Closed Amortization Period:	A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 20 years, it is 19 years at the end of one year, 18 years at the end of two years, etc. See Open Amortization Period.
Decrements:	Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.
Defined Benefit Plan:	A retirement plan in which benefits are defined by a formula based on the member's compensation, age and/or years of service.
Defined Contribution Plan:	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.
Employer Normal Cost:	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Experience Study:	A periodic review and analysis of the actual experience of the Plan that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified based on recommendations from the Actuary.
Funded Ratio:	The ratio of the Actuarial Value of Assets (AVA) to the Actuarial Accrued Liability (AAL). Plans sometimes also calculate a market funded ratio, using the Market Value of Assets (MVA), rather than the AVA.
GASB 67 and GASB 68:	Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves.
Investment Return:	The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.
Net Pension Liability (NPL):	The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position.
Normal Cost:	The portion of the Actuarial Present Value of Future Benefits and expenses, if applicable, allocated to a valuation year by the Actuarial Cost Method. Any payment with respect to an Unfunded Actuarial Accrued Liability is not part of the Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of member contributions and employer Normal Cost unless otherwise specifically stated.

Appendix A: Definition of Pension Terms

Open Amortization Period:	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in each future year in determining the Amortization Period.
Plan Fiduciary Net Position:	Market value of assets.
Service Costs:	The portions of the actuarial present value of projected benefit payments that are attributed to valuation years.
Total Pension Liability (TPL):	The actuarial accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 67 and 68.
Unfunded Actuarial Accrued Liability:	The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus or an Overfunded Actuarial Accrued Liability.
Valuation Date or Actuarial Valuation Date:	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Benefits is determined. The expected benefits to be paid in the future are discounted to this date.