

# City of Ocala Firefighters' Retirement Plan

October 1, 2023 | Actuarial Valuation Report

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At the request of the plan sponsor, this report summarizes the Firefighters' Retirement Plan for the City of Ocala as of October 1, 2023. The purpose of this report is to communicate the following results of the valuation:

- · Determine Funded Status; and
- Determine Actuarial Contribution for the fiscal year October 1, 2024 through September 30, 2025

This report has been prepared in accordance with the laws and accounting standards indicated above and their applicable regulations. Consequently, it may not be appropriate for other purposes. Please contact Nyhart prior to disclosing this report to any other party or relying on its content for any purpose other than that explained above. Failure to do so may result in misrepresentation or misinterpretation of this report.

The results in this report were prepared using information provided to us by other parties. The census information has been provided to us by the employer. Asset information has been provided to us by the trustee. We have reviewed the provided data for reasonableness when compared to prior information provided, but have not audited the data. Where relevant data may be missing, we have made assumptions we believe to be reasonable. We are not aware of any significant issues with and have relied on the data provided. Any errors in the data provided may result in a different result than those provided in this report. A summary of the data used in the valuation is included in this report.

The actuarial assumptions and methods were chosen by the Board. In our opinion, all actuarial assumptions and methods are individually reasonable and in combination represent our best estimate of anticipated experience of the plan. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following:

- plan experience differing from that anticipated by the economic or demographic assumptions;
- changes in economic or demographic assumptions;
- increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and
- changes in plan provisions or applicable law. We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement. This report has been prepared in accordance with generally accepted actuarial principles and practice.

In preparing these results, Nyhart used ProVal valuation software developed by Winklevoss Technologies, LLC. This software is widely used for the purpose of performing pension valuations. We coded the plan provisions, assumptions, methods and participant data summarized in this report, and reviewed the liability and cost outputs for reasonableness. We are not aware of any weakness or limitations in the software and have determined it is appropriate for performing this valuation.

This actuarial valuation and/or cost determination was prepared and completed by me or under my direct supervision, and I acknowledge responsibility for the results. To the best of my knowledge, the results are complete and accurate, and in my opinion, the techniques and assumptions used are reasonable and meet the requirements and intent of Part VII, Chapter 112, Florida Statutes. There is no known benefit or expense to be provided by the plan and/or paid from the plan's assets for which liabilities or current costs have not been established or otherwise taken into account in the valuation. All known events or trends which may require a material increase in plan costs or required contribution rates have been taken into account in the valuation.



With respect to reporting standards for defined benefit retirement plans or systems contained in Section 112.664(1), F.S., the actuarial disclosures required under this section were prepared and completed by me or under my direct supervision, and I acknowledge responsibility for the results. To the best of my knowledge, the results are complete and accurate, and in my opinion, meet the requirements of Section 112.664 (1), Florida Statutes, and Rule 60T-1.0035, Florida Administrative Code.

Neither Nyhart nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report. To the extent that this report or any attachment concerns tax matters, it is not intended to be used and cannot be used by a taxpayer for the purpose of avoiding penalties that may be imposed by law.

The undersigned are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States and are available for any questions.

Nyhart

Lawrence Watts, Jr., FSA, CFA, EA, MAAA

Enrolled Actuary No. 23-8496

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Enrolled Actuary No. 23-8613

Kerry Supe

February 22, 2024

Date

Copies of this Report are to be furnished to the Division of Retirement within 60 days of receipt from the actuary at the following addresses:

Mr. Steve Bardin

**Benefits Administrator** 

Municipal Police Officers' &

Firefighters' Trust Funds

Division of Retirement

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Bureau Chief, Bureau of Local Retirement Systems

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**Department of Management Services** 

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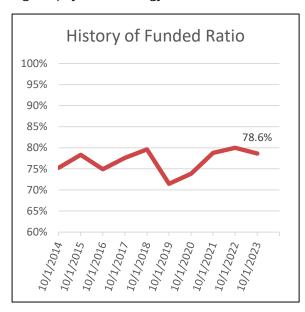
Tallahassee, FL 32315-9000



# **Summary Results**

The actuarial valuation's primary purpose is to produce a scorecard measure displaying the funding progress of the plan toward the ultimate goal of paying benefits at retirement. The accrued liability is based on an individual entry age normal level percentage of pay methodology.

	October 1, 2022	October 1, 2023
Funded Status Measures		
Accrued Liability	\$88,822,517	\$95,049,856
Actuarial Value of Assets	71,075,172	74,746,000
Unfunded Accrued Liability	\$17,747,345	\$20,303,856
Funded Percentage (AVA)	80.0%	78.6%
Funded percentage (MVA)	72.2%	73.8%
Cost Measures		
Recommended Contribution	\$3,376,436	\$3,738,243
Recommended Contribution (as a percentage of payroll)	38.2%	37.6%
Asset Performance		
Market Value of Assets	\$64,112,784	\$70,151,729
Actuarial Value of Assets	\$71,075,172	\$74,746,000
Actuarial Value/Market Value	110.9%	106.5%
Market Value Rate of Return	-14.99%	10.20%
Member Information		
Active Members	122	124
Terminated Vested Members	4	3
Retirees, Beneficiaries, and Disabled Members	85	89
DROP Participants	16	17
Total	227	233
Expected Payroll	\$8,848,567	\$9,933,729





# **Changes Since Prior Valuation and Key Notes**

The payroll growth assumption used to amortize the unfunded liability was increased to 2.500% from 1.573%. This is in accordance with Florida Statutes, limiting such rate to the lesser of the actual 10-year average payroll growth and the base payroll growth assumption of 2.500%.

Salaries for continuing active members from the 10/1/2021 plan year to the 10/1/2022 plan year increased roughly 13% overall. These material increases in salary resulted in a liability loss and a corresponding increase in the covered payroll.



# **Five Year Valuation Summary**

	10/1/2019	10/1/2020	10/1/2021	10/1/2022	10/1/2023
Funding					
Accrued Liability	\$77,263,779	\$80,908,874	\$84,703,050	\$88,822,517	\$95,049,856
Actuarial Value of Assets	\$55,227,847	\$59,740,119	\$66,720,136	\$71,075,172	\$74,746,000
Unfunded Actuarial Accrued Liability	\$22,035,932	\$21,168,755	\$17,982,914	\$17,747,345	\$20,303,856
Funded Percentage	71.5%	73.8%	78.8%	80.0%	78.6%
Normal Cost (NC)	\$1,364,394	\$1,426,480	\$1,452,965	\$1,510,777	\$1,667,329
NC as a Percent of Covered Payroll	18.5%	18.5%	18.3%	18.3%	18.1%
Actual Contribution	\$2,960,648	\$3,334,160	\$3,398,109	TBD	TBD
Recommended Contribution	\$2,960,648	\$3,334,160	\$3,398,109	\$3,376,436	\$3,738,243
Recommended Contribution (% of Pay)	40.2%	43.3%	42.7%	40.8%	40.5%
Interest Rate	7.00%	7.00%	7.00%	7.00%	7.00%
Rate of Return					
Actuarial Value of Assets	6.60%	9.01%	11.42%	6.59%	5.85%
Market Value of Assets	3.42%	14.31%	19.78%	-14.99%	9.95%
Demographic Information					
Active Participants	123	119	122	122	124
Terminated Vested Participants	3	3	4	4	3
Retired Participants	74	77	80	82	86
Beneficiaries	11	11	11	10	10
Disabled Participants	10	9	9	9	10
Total Participants	221	219	226	227	233
Covered Payroll	\$7,367,409	\$7,703,127	\$7,949,354	\$8,272,546	\$9,225,858
Average Covered Pay	\$59,898	\$64,732	\$65,159	\$67,808	\$74,402



#### **Identification of Risks**

The results presented in this report are shown as single point values. However, these values are derived using assumptions about future markets and demographic behavior. If actual experience deviates from our assumptions, the actual results for the plan will consequently deviate from those presented in this report. Therefore, it is critical to understand the risks facing this pension plan. The following table shows the risks we believe are most relevant to the City of Ocala Firefighters' Retirement Plan. The risks are generally ordered with those we believe to have the most significance at the top. Also shown are possible methods by which a more detailed assessment of the risk can be performed.

Type of Risk	Additional Information	
Investment Return	Portfolio risk and substantial equity position leave the plan open to adverse market results, which could increase costs in the	
	future.	
Participant Longevity	The plan has adopted FRS' most recent mortality tables for valuation purposes. These tables are modified from the standard tables, and, compared to the previous tables used by FRS, project a slightly shorter participant longevity overall. There is no guarantee FRS' anticipated mortality experience will mirror your plan's future experience. Deviation from expected mortality rates could impact long-term liabilities and plan cost.	
Early Retirement	If more employees than expected avail themselves of the early retirement option, then this could impact estimated plan	
	liabilities.	

Type of Risk	Method to Assess Risk
Investment Return	Scenario testing; asset/liability study
Participant Longevity	Benefit projections and contribution strategy
Early Retirement	Scenario testing; review population and retirement rates



#### Plan Maturity Measures - October 1, 2023

Each pension plan has a distinct life-cycle. New plans promise future benefits to active employees and then accumulate assets to pre-fund those benefits. As the plan matures, benefits are paid and the pre-funded assets begin to decumulate until ultimately, the plan pays out all benefits. A plan's maturity has a dramatic influence on how risks should be viewed. The following maturity measures illustrate where the City of Ocala Firefighters' Retirement Plan falls in its life-cycle.

#### **Duration of Liabilities: 11.1**

Duration is the most common measure of plan maturity. It is defined as the sensitivity of the liabilities to a change in the interest rate assumption. The metric also approximates the weighted average length of time, in years, until benefits are expected to be paid. A plan with high duration is, by definition, more sensitive to changes in interest rates. A plan with low duration is more susceptible to risk if asset performance deviates from expectations as there would be less time to make up for market losses in adverse market environments while more favorable environments could result in trapped surplus from gains. Conversely, high duration plans can often take on more risk when investing, and low duration plans are less sensitive to interest rate fluctuations.

# Demographic Distribution - Ratio of Actively Accruing Participants to All Participants: 53.2%

A plan with a high ratio is more sensitive to fluctuations in salary (if a salary-based plan) and statutory changes. A plan with a low ratio is at higher risk from demographic experience. Such a plan should pay close attention to valuation assumptions as there will be less opportunity to realize future offsetting gains or losses when current experience deviates from assumptions. Plans with a low ratio also have limited opportunities to make alterations to plan design to affect future funded status.

# Asset Leverage - Ratio of Payroll for Plan Participants to Market Value of Assets: 14.2%

Younger plans typically have a large payroll base from which to draw in order to fund the plan while mature plans often have a large pool of assets dedicated to providing benefits to a population primarily consisting of members no longer on payroll. Plans with low asset leverage will find it more difficult to address underfunding, as the contributions needed to make up the deficit will represent a higher percentage of payroll than for a plan with high asset leverage.

# Benefit Payment Percentage - Ratio of Annual Benefit Payments to Market Value of Assets: 6.9%

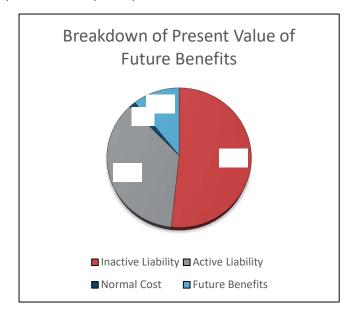
As a plan enters its decumulation phase, a larger percentage of the pre-funded assets are paid out each year to retirees. A high percentage is not cause for alarm as long as the plan is nearly fully funded. However, such a plan is more sensitive to negative asset performance, especially if cash contributions are not an option to make up for losses.



# **Present Value of Future Benefits**

The Present Value of Future Benefits represents the estimated value of benefits ultimately payable to the plans' current participants.

	October 1, 2023
Present Value of Future Benefits	
Active members	
Retirement	\$47,770,146
Disability	2,245,935
Death	302,534
Termination	1,722,648
Refund of contributions	339,412
Total active	\$52,380,675
Inactive members	
Retired members	\$51,660,558
Beneficiaries	821,406
Disabled members	3,020,047
Terminated vested members	557,938
Total inactive	\$56,059,949
Total	\$108,440,624
Present value of future payrolls	\$74,308,750





The Accrued Liability measures the present value of benefits earned as of the valuation date, using a specified set of actuarial assumptions. It is not a long-term measurement of the liabilities ultimately payable by the plan.

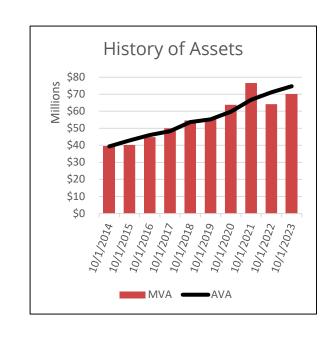
	October 1, 2023
crued Liability	
tive members	
Retirement	\$36,562,282
Disability	1,216,751
Death	174,406
Termination	887,723
Refund of contributions	148,745
Total Active	\$38,989,907
active members	
Retired members	\$51,660,558
Beneficiaries	821,406
Disableds	3,020,047
Terminated vested members	557,938
Total Inactive	\$56,059,949
tal	\$95,049,856
ormal Cost	\$1,667,329
mal Cost	\$1,6



The amount of assets backing the pension promise is typically the most significant driver of volatility and future costs within a pension plan. The investment performance of the assets directly offsets the ultimate cost.

October 1 2023

	October 1, 2023
Market Value Reconciliation	
Market Value of Assets, beginning of prior year	\$76,775,260
Contributions	
Employer	\$3,398,109
Employee	754,044
Non-Member	692,315
Total	\$4,844,468
Investment Income	7,871,079
Investment Expenses	(220,966)
Benefit Payments	(4,386,298)
Administrative Expenses	(164,346)
Other Expenses	0
Market Value of Assets, beginning of current year	\$84,719,197
Return on Market Value	9.95%
Reserved Assets	(\$8,465,168)
DROP Account	(\$6,102,300)
Market Value of Assets available for pension benefits	\$70,151,729
Actuarial Value of Assets	
Value at beginning of current year	\$74,746,000





# **Asset Information (continued)**

# October 1, 2023

Derivation of A	Actuarial V	alue of	Assets:
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1.	Expected Market Value of Assets  (a) Market Value of Assets – beginning of year  (b) Contributions  (c) Benefit payments  (d) Expenses  (e) Expected return (7.00%)  (f) Expected Market Value – end of year	\$64,112,784 4,552,233 (4,866,771) (158,896) 4,562,750 \$68,202,100
2.	Market Value of Assets, beginning of current year	\$70,151,729
3.	Amount subject to phase-in [(2)-(1)(f)]	\$1,949,629
4.	Phase in of asset gain/(loss)  (a) Third prior year [20% x \$5,080,984]  (b) Second prior year [40% x \$8,481,678]  (c) First prior year [60% x (\$17,604,737)]  (d) Current year [80% x \$1,949,629]  (e) Total phase-in	\$1,016,197 3,392,671 (10,562,842) 1,559,703 (\$4,594,271)
5.	Preliminary Actuarial Value of Assets, beginning of current year [2 - 4(e)]	\$74,746,000
6.	80% Market Value of Assets	\$56,121,384
7.	120% Market Value of Assets	\$84,182,074
8.	Adjusted Actuarial Value of Assets	\$74,746,000
9.	Return on Actuarial Value of Assets	5.85%



# **Reconciliation of Gain/Loss**

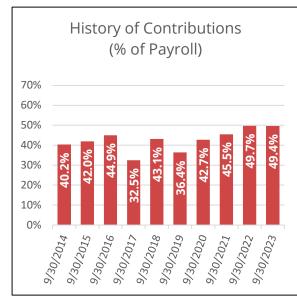
	October 1, 2023
Liability (gain)/loss	
Actuarial Liability, beginning of prior year	\$88,822,517
Normal Cost	1,510,777
Benefit Payments	(4,866,771)
Interest	6,152,994
Expected Actuarial Liability, beginning of current year	\$91,619,517
Actual Actuarial Liability	95,049,856
Liability (gain)/loss	\$3,430,339
Asset (gain)/loss	
Actuarial Value of Assets, beginning of prior year	\$71,075,172
Contributions	4,552,233
Benefit payments and expenses	(5,025,667)
Investment Return	5,050,117
Expected Actuarial Value of Assets, beginning of current year	\$75,651,855
Actual Actuarial Value of Assets, beginning of current year	74,746,000
Asset (gain)/loss, from asset experience	\$905,855
Impact of one-year lag/timing adjustment	(\$539,886)
Total (gain)/loss	\$3,796,308

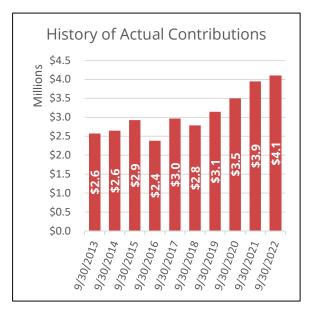


# **Development of Recommended Contribution**

The actuarial determined contribution is the annual amount necessary to fund the plan according to funding policies and/or applicable laws.

		October 1, 2023
Curre	ent Interest Rate (7.0%) and AVA Method (20% Phase In):	
	Funded Position	
1.	Entry Age Accrued Liability	\$95,049,856
2.	Actuarial Value of Assets	(74,746,000)
3.	Unfunded Actuarial Accrued Liability	\$20,303,856
	Employer Contributions	
4.	Normal Cost	
	(a) Total Normal Cost	\$1,667,329
	(b) Expected Participant Contributions	(707,623)
	(c) Net Normal Cost	\$959,706
5.	Administrative Expenses	164,346
6.	Amortization of UAAL	2,556,549
7.	Applicable Interest	257,642
8.	Total Recommended Contribution as of end of year [(4)+(5)+(6)+(7)]	\$3,938,243
9.	Expected Non-Employer Contributions	(200,000)
10.	Total Recommended Contribution	\$3,738,243



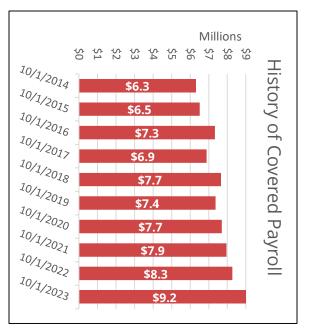




# **Demographic Information**

information is crucial for long-term pension planning. The foundation of a reliable actuarial report is the member information provided by the plan sponsor. Monitoring trends in demographic

	October 1, 2022	October 1, 2023
Member Counts		
Active Members	122	124
Retired Members	66	69
Beneficiaries	10	10
Disabled Members	9	10
Terminated Vested Members, due a Monthly Benefit	4	ω
DROP Members	16	17
Total	227	233
Active Participant Demographics		
Average Age	36.7	36.9
Average Service	11.59	11.54
Average Compensation for Prior Year	\$65,373	\$72,208
Covered Payroll	\$8,272,546	\$9,225,858





# **Demographic Information (continued)**

	October 1, 2022	October 1, 2023
Retired Member Statistics		
Average Age	65.7	66.1
Average Monthly Benefit	\$3,821	\$3,851
Beneficiary Statistics		
Average Age	69.6	70.6
Average Monthly Benefit	\$832	\$832
Disabled Member Statistics		
Average Age	67.2	65.8
Average Monthly Benefit	\$2,732	\$2,685
Terminated Member Statistics		
Average Age	49.0	49.5
Average Monthly Benefit for Participants due Monthly Benefit	\$2,620	\$2,420
DROP Member Statistics		
Average Age	54.6	55.4
Average Monthly Benefit	\$6,244	\$6,126



# **Participant Reconciliation**

	Active	Terminated Vested	Disabled	Retired	Beneficiaries	DROP	Totals
Prior Year	122	4	9	66	10	16	227
To Retired	(1)	(1)		3		(1)	0
To Terminated Vested							0
To Terminated Non-Vested							0
To Return of Contributions	(4)						(4)
To DROP	(2)					2	0
To Death							0
To Beneficiary							0
To Disabled	(1)		1				0
Additions	10						10
Departures							0
Current Year	124	3	10	69	10	17	233



# **Active Participant Schedule**

Active participant information grouped based on age and service.

	Years of Service											
Age Group	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	Total	Average Pay
Under 25	5	11	2								18	\$47,518
25 to 29	1	8	7								16	\$57,476
30 to 34	1	8	13	3							25	\$64,393
35 to 39	3		2	4	6						15	\$75,675
40 to 44			2	2	13	6					23	\$91,133
45 to 49			2		3	7	3				15	\$108,374
50 to 54					2	6	3				11	\$96,663
55 to 59						1					1	\$66,609
60 to 64											0	\$0
65 to 69											0	\$0
70 & up											0	\$0
Total	10	27	28	9	24	20	6	0	0	0	124	\$75,576

The 'Average Pay' displayed is projected pay for the valuation year based on prior year compensation and assumed salary increases.



#### **Plan Status**

Established October 1, 1999 under the Code of Ordinances for the City of Ocala, Florida, Chapter 43 Article II Sections 43-21 through 43-45 and was most recently amended by Ordinance No. 2019-14 on January 9, 2019. The Plan is also governed by certain provisions of Chapters 175 and 185, Florida Statutes, Part VII, Chapter 112, Florida Statutes (F.S.) and the Internal Revenue Code.

# **Eligibility for Participation**

Employees in the Fire Department certified as firefighters.

#### **Accrual of Benefits**

The accrued benefit is determined as 3% of Average Final Compensation multiplied by Credited Service as of date of determination; maximum of 93% of Average Monthly Earnings.

# Vesting

100% after 10 years

#### **Benefits**

#### **Normal Retirement**

Eligibility Age 55 and 10 years of credited service, Rule of 70, or 25 years of credited service.

Benefit Accrued Benefit

# **Early Retirement**

Eligibility Age 50 and 10 years of credited service

Benefit Accrued Benefit reduced by 2% for each year prior to normal retirement date.



#### **Termination Benefit**

Eligibility Fully vested after 10 years of credited service

Benefit Accrued retirement benefit payable at participant's normal retirement date. If the participant terminates prior to 10 years

of service a refund of the accumulated contributions without interest will be issued.

# **Disability Benefit In Line of Duty**

Eligibility Immediately upon permanent disability

Benefit Accrued benefit, but not less than 42% of AME.

# **Disability Benefit Not In Line of Duty**

Eligibility Participant without vested benefit

Benefit Refund of Contributions

Eligibility Participant with vested benefit

Benefit If vested, accrued benefit, but not less than 30% of AME.



#### **Death Benefit**

Eligibility Participant without vested benefit

Benefit Refund of Contributions

Eligibility Service Incurred; Participant with vested benefit

Benefit Choice of (i) Accrued benefit payable for 120 months; or (ii) 50% of AME to spouse until death.

Eligibility Non-Service Incurred; Participant with vested benefit

Benefit If not eligible for either early or normal retirement, same as for Service-Incurred Death Benefits.

If eligible for either early or normal retirement, choice of (i) accrued benefit payable for 120 months; or (ii) 50% of

accrued benefit to spouse until death.

#### **Credited Service**

For Vesting and Benefit Accruals, Service is defined as years and completed months.

# Compensation

**Average Monthly Earnings** 

Within 5 years of normal retirement as of November 1, 2015: Average during highest 3 consecutive of last 5 years of total earnings, including base salary, pick-up contributions, overtime pay, assignment pay, and educational incentive.

Others: Average during highest 5 of last 10 years of earnings, including base salary, state education incentive pay, and up to 300 hours of overtime pay per year, excluding all other compensation

# **Employee Contributions**

7.67% to Regular Fund Retirement Plan and 0.50% to COLA Fund (8.17% total).



# **Payment Forms**

Normal Form

50% joint & contingent survivor, with 10 years' certain, payable for life (married); 10 years' certain and life (single).

**Optional Forms** 

50%, 66 2/3%, 75%, and 100% Joint and Survivor Annuity (last survivor basis) and Life Annuity.

#### **DROP**

Up to 5 years; actuarially equivalent BAC-DROP

#### **COLA**

Benefit payment schedule to be designed by Board. Funding is from .50% member contributions, market return, and 50% of State Premium Tax Revenues in excess of \$200,000 (percentage increased to 100% once the Plan becomes 90% funded). A portion of excess returns on COLA assets will be transferred to the plan until the plan becomes 90% funded.

# **Changes Since Last Valuation**

Since the last valuation, ordinance 2024-8 amended the definition of earnable compensation under Component B of the Plan to clarify that the 300-hour-per-year overtime pay "cap" is on a calendar-year basis rather than a fiscal-year basis.



Valuation Date October 1, 2023

Participant and Asset Information Collected as of October 1, 2023

**Cost Method** Entry Age Normal Cost Method

**Amortization Method**The following amortization periods will apply for any unfunded actuarial accrued liabilities, all on an increasing payroll basis of 2.500% (as limited by 10-year average payroll growth):

- Unfunded liability as of October 1, 2001: 25 years
- Benefit improvements for actives: 25 years
- Benefit improvements for inactives: 15 years
- Actuarial gains/losses: 20 years
- Changes in actuarial assumptions: 20 years

This assumption is limited by the base payroll growth assumption of 2.50%.

**Asset Valuation Method**20% Phase-In Method with a fresh start methodology as of October 1, 2019 and a 80%/120% corridor.

**Interest Rates** 7.0% net of investment expenses

Support for the interest rate assumption has been provided in the experience study report dated September 2019.

**Annual Pay Increases** 2.5% inflation plus the below merit increases

<u>Age</u>	<u>Genera</u>
<=25	5.5%
<=30	4.1%
<=35	3.1%
<=40	2.1%
<=45	1.1%
50	0.0%

The annual pay increases are based on a study of actual experience for the plan during 2011-2018. See the experience study report dated September 2019.

**Expense and/or Contingency Loading**Non-investment expenses in previous year



# **Mortality Rates**

Pre-Retirement:

Post-Retirement:

Disabled:

**Retirement Rates** 

Pub-2010 Generational using scale MP-2018; Females, Headcount Weighted Safety Employee Female Table, set forward 1 year; Males, Headcount Weighted Safety Below Median Employee Male Table, set forward 1 year.

Pub-2010 Generational using scale MP-2018; Females, Headcount Weighted Safety Healthy Retiree Female Table, set forward 1 year; Males, Headcount Weighted Safety Below Median Healthy Retiree Male Table, set forward 1 year

Pub-2010; Females, 80% Headcount Weighted General Disabled Retiree Female Table / 20% Headcount Weighted Safety Disabled Retiree Female Table; Males, 80% Headcount Weighted General Disabled Retiree Male Table / 20% Headcount Weighted Safety Disabled Retiree Male Table.

10% of Active deaths are assumed to be in the line of duty

These are the same mortality rates used by the Florida Retirement System in their July 1, 2023 Actuarial Valuation Report.

<u>Age + Service</u>	<u>Rate</u>
<70	0%
70-71	25%
72-74	15%
75-79	25%
>=80	100%

The assumed retirement rates are based on a study of actuarial experience for the plan during 2011-2018. See the Experience study report dated 2019.



Disability Rates	<u>Age</u>	<u>Rate</u>
	20	0.10%
	30	0.14%
	40	0.29%
	50	0.92%

80% of disabilities are assumed to be in the line of duty.

The disability rates are based on a study of actual experience for the plan during 2011-2018. See the experience study report dated September 2019.

Wi	ith	Ь	rav	val	Ra	ites
vv		u	av	vai	No	ıccs

<u>Age</u>	<u>Rate</u>
<30	8.0%
<35	5.5%
<40	2.7%
<45	1.9%
<50	1.2%
<55	0.5%
>=55	0.0%

The withdrawal rates are based on a study of actual experience for the plan during 2011-2018. See the experience study report dated September 2019.

**Marital Status and Ages** 

80% of Participants assumed to be married with wives assumed to be 3 years younger than husbands.

**Contribution Timing** 

City contribution is assumed to occur at the beginning of the fiscal year.



# **Changes Since Prior Valuation**

The payroll growth assumption used to amortize the unfunded liability was increased to 2.500% from 1.573% to comply with State Law limiting such rate to the 10-year average payroll growth. This assumption is limited by the base payroll growth assumption of 2.50%.



The actuarial report also shows the necessary items required for plan reporting and any state requirements.

- · Reconciliation of unfunded actuarial liability
- Statement of changes on value of assets
- Distribution of Assets
- Schedule of amortizations
- Florida State requirements

Comparative Summary of Principal Valuation Results

Comparison of Payroll Growth, salary increases and investment results

Requirements under Florida Statute 112.664 and F.A.C. 60T – 1.0035

Reserve account for benefit improvements under F.L. 99-1 and SB 172

- Accrued (Prepaid) Position
- Determination of COLA Fund Assets



# **Reconciliation of Unfunded Actuarial Liability**

		October 1, 2023
1.	Unfunded Actuarial Accrued Liability (UAAL), beginning of Prior Year	\$17,747,345
2.	Normal Cost	\$1,510,777
3.	Expenses	\$158,896
4.	Employer Contributions	(\$3,398,109)
5.	Employee Contributions	(\$707,967)
6.	Non-Employer Contributions	(\$446,157)
7.	Interest	\$1,102,877
8.	Expected UAAL based off of Contributions, beginning of Current Year	\$15,967,662
9.	1-year lag adjustment <sup>1</sup>	539,886
10.	Expected UAAL based off of Amortization Bases, beginning of Current Year	\$16,507,548
11.	Accumulated Reserve Adjustment	\$0
12.	Liability changes due to:	
	(a) Amendments	\$0
	(b) Assumptions	0
	(c) Asset Funding Methods	0
	(d) Actuarial Experience (Gain)/Loss	3,796,308
	(e) Total	\$3,796,308
13.	Unfunded Actuarial Accrued Liability, beginning of Current Year	\$20,303,856

<sup>&</sup>lt;sup>1</sup> A difference between the "Expected UAAL based off of Contributions" and the "Expected UAAL based off of Amortization Bases" is seen because of the 1 year offset between when the recommended contributions for the fiscal year are calculated and when they are paid by the plan sponsor. Plan practice is to include this difference in the new "Actuarial (Gain) / Loss" base established that year.



Statement of Changes on Value of Assets	September 30, 2022	September 30, 2023
Additions		
Contributions:		
Employer	\$3,334,160	\$3,398,109
Member	677,091	754,044
Nonemployer contributing entity	614,717_	692,315
Total contributions	\$4,625,968	\$4,844,468
Investment income		
Net increase in fair value of investments	(\$15,300,393)	\$6,170,558
Interest and dividends	2,037,059	\$1,700,521
Less investment expense, other than from securities lending	(207,380)	(220,966)
Net income other than from securities lending	(\$13,470,714)	\$7,650,113
Securities lending income	0	0
Less securities lending expense	0	0
Net income from securities lending	0	0
Net investment income	(\$13,470,714)	\$7,650,113
Other	0	0
Total additions	(\$8,844,746)	\$12,494,581
Deductions		
Benefit payments, including refunds of member contributions	\$4,167,351	\$4,386,298
Administrative expense	135,218	164,346
Other	0	0
Total deductions	\$4,302,569	\$4,550,644
Net increase in market value	(\$13,147,315)	\$7,943,937
Market Value as of		
Beginning of year	\$89,922,575	\$76,775,260
End of year	\$76,775,260	\$84,719,197



Distribution of Assets	September 30, 2022	September 30, 2023
Cash and deposits	\$1,529,008	\$1,239,127
Securities lending cash collateral	0	0
Total cash	\$1,529,008	\$1,239,127
Receivables:		
Investment income	\$119,607	\$170,907
Other	0	66,210
Total receivables	\$119,607	\$237,117
Investments:		
Mutual Funds	\$0	\$0
Common Stock	0	0
Fixed Income	19,168,506	18,559,520
Domestic Equities	36,652,556	45,324,319
International Equities	9,035,976	10,810,635
Real Estate Fund	10,386,226	8,706,628
Total investments	\$75,243,264	\$83,401,102
Total assets	\$76,891,879	\$84,877,346
Liabilities		
Payables		
Investment management fees	\$59,546	\$33,121
Due to broker for investments purchased	0	0
Collateral payable for securities lending	0	0
Other	57,073	125,028
Total liabilities	\$116,619	\$158,149
Total	\$76,775,260	\$84,719,197
Reserved Assets		
COLA Fund	(\$6,769,854)	(\$7,533,107)
DROP Account	(5,011,183)	(6,102,300)
State Reserve Account	0	0
Accrued (Prepaid) Position	(881,439)	(932,061)
Assets available for benefits	\$64,112,784	\$70,151,729



					October 1, 2023
			<u>Total</u>	\$20,303,856	\$2,556,549
				<u>Remaining</u>	
<u>Date Established</u>	<u>Description</u>	<u>Original Amount</u>	Remaining Period Years	<u>Balance</u>	<u> Annual Payment</u>
	Original	3,756,166	3	964,548	335,425
10/1/2003	Actuarial (Gain)/Loss	2,150,309	1	229,253	229,253
10/1/2003	Assumption Change	671,278	1	84,189	84,189
10/1/2004	Software Change	(337,307)	2	(72,369)	(36,962)
10/1/2004	Actuarial (Gain)/Loss	1,946,896	2	417,708	213,340
10/1/2004	Assumption Change	(3,172,477)	2	(680,658)	(347,639)
10/1/2005	Actuarial (Gain)/Loss	770,808	3	244,847	85,146
10/1/2006	Actuarial (Gain)/Loss	119,465	4	45,117	12,016
10/1/2007	Actuarial (Gain)/Loss	(339,027)	5	(152,762)	(33,233)
10/1/2008	Actuarial (Gain)/Loss	4,327,025	6	2,389,550	442,228
10/1/2009	Actuarial (Gain)/Loss	1,693,744	7	1,032,125	167,114
10/1/2010	Actuarial (Gain)/Loss	825,265	8	543,721	78,613
10/1/2010	Assumption Change	1,779,240	8	1,172,245	169,487
10/1/2011	Actuarial (Gain)/Loss	844,373	9	593,541	77,836
10/1/2012	Actuarial (Gain)/Loss	(1,268,648)	10	(939,867)	(113,171)
10/1/2013	Actuarial (Gain)/Loss	(598,254)	11	(462,511)	(51,645)
10/1/2014	Actuarial (Gain)/Loss	(183,432)	12	(146,786)	(15,324)
10/1/2015	Actuarial (Gain)/Loss	806,755	13	727,432	71,484
10/1/2015	Actuarial (Gain)/Loss	(499,457)	13	(450,348)	(44,255)
10/1/2016	Actuarial (Gain)/Loss	1,789,200	14	1,660,970	154,536
10/1/2016	Assumption Change	2,275,563	14	2,112,475	196,543
10/1/2017	Actuarial (Gain)/Loss	(887,868)	14	(761,608)	(70,860)
10/1/2018	Actuarial (Gain)/Loss	35,698	15	31,743	2,810
10/1/2018	Assumption Change	141,256	15	125,614	11,120
10/1/2019	Actuarial (Gain)/Loss	1,182,361	16	1,082,507	91,575
10/1/2019	Asset Method Change	1,927,282	16	1,764,519	149,269
10/1/2019	Assumption Change	6,042,962	16	5,532,619	468,031
10/1/2020	Actuarial (Gain)/Loss	301,953	17	284,828	23,112
10/1/2021	Actuarial (Gain)/Loss	(1,984,364)	18	(1,915,180)	(149,558)
10/1/2022	Actuarial (Gain)/Loss	1,064,879	19	1,050,086	79,150

3,796,308

20



3,796,308

276,919

10/1/2023

Actuarial (Gain)/Loss

# **Comparative Summary of Principal Valuation Results**

	10/1/2022 7.00%	10/1/2023 7.00%
Participant Data		
Active members	122	124
Total annual payroll	\$8,347,705	\$9,371,442
Members in DROP	16	17
Total Annualized Benefit	\$1,198,787	\$1,249,713
Retired members and beneficiaries	76	79
Total annualized benefit	\$3,123,935	\$3,288,861
Disabled members receiving benefits	9	10
Total annualized benefit	\$284,138	\$322,212
Terminated vested members	4	3
Total annualized benefit	\$125,772	\$87,118
Assets		
Actuarial value of assets	\$71,075,172	\$74,746,000
Market value of assets	\$64,112,784	\$70,151,729



# **Comparative Summary of Principal Valuation Results (continued)**

	10/1/2022 7.00%	10/1/2023 7.00%
Liabilities, present value of all future expected benefit payments		
Active members		
Retirement benefits	\$42,509,213	\$47,770,146
Vesting benefits	1,581,215	1,722,648
Disability benefits	2,028,080	2,245,935
Death benefits	278,027	302,534
Return of contribution	311,900_	339,412
Total	\$46,708,435	\$52,380,675
Terminated vested members	1,021,340	557,938
Retired members and beneficiaries	50,322,610	52,481,964
Disabled members	2,741,857	3,020,047
Total	\$100,794,242	\$108,440,624
Liabilities due and unpaid	\$0	\$0
Actuarial accrued liability	\$88,822,517	\$95,049,856
Unfunded actuarial accrued liability	\$17,747,345	\$20,303,856



# **Comparative Summary of Principal Valuation Results (continued)**

	10/1/2022 7.00%	10/1/2023 7.00%
Actuarial present value of accrued benefits		
Statement of actuarial present value of all accrued benefits  Vested accrued benefits		
Inactive members and beneficiaries	\$54,085,807	\$56,059,949
Active members	22,185,972	23,569,758
Total value of all vested accrued benefits	\$76,271,779	\$79,629,707
Non-vested accrued benefits	3,774,073	4,511,142
Total actuarial present value of all accrued benefits	\$80,045,852	\$84,140,849
Statement of changes in total actuarial present value of all accrued benefits (ASC 960)	A76 454 70 4	100 0 45 050
Actuarial present value of accrued benefits, beginning of year Increase (decrease) during year	\$76,451,734	\$80,045,852
Benefits accumulated	\$2,553,238	\$3,029,009
Plan amendment	0	0
Changes in actuarial assumptions	0	0
Interest	5,208,231	5,452,286
Benefits paid	(4,167,351)	(4,386,298)
Other changes	0_	0
Net increase (decrease)	\$3,594,118	\$4,094,997
Actuarial present value of accrued benefits, end of year	\$80,045,852	\$84,140,849



# **Comparative Summary of Principal Valuation Results (continued)**

	10/1/2022 7.00%	10/1/2023 7.00%
Pension cost Normal Cost	<u> </u>	\$1,667,329
Member contributions	\$634,504	\$707,623
Expected plan sponsor contribution As % of payroll Member Contributions as % of payroll	\$3,376,436 38.16% 7.17%	\$3,738,243 37.63% 7.12%
Past contributions Required plan sponsor contribution	9/30/2022 \$3,334,160	9/30/2023 \$3,398,109
Required member contribution	\$635,864	\$707,967
Actual contributions made by: Plan's sponsor Members Other	\$3,334,160 \$635,864 \$407,358	\$3,398,109 \$707,967 \$446,157
Net actuarial gain (loss) (if applicable)	(\$1,064,879)	(\$3,796,308)
Other disclosures (where applicable)		
Present value of active member Future salaries at attained age Future contributions at attained age Accumulated Member Contributions	\$66,362,418 \$4,691,318 \$5,486,064	\$74,308,750 \$5,257,935 \$6,420,365



# **Historical Salary Increases and Asset Performance**

# **September 30, 2022**

Year Ending 9/30/2023 9/30/2022 9/30/2021 9/30/2020 9/30/2019 9/30/2018 9/30/2017 9/30/2016 9/30/2015	Payroll Growth 12.26% 4.03% 2.71% 1.39% (3.80%) 11.20% (6.10%) 12.70% 3.10%	Salary Growth 15.32% 9.45% 7.31% 8.37% 4.73% 9.88% 0.64% 13.97% 5.59%	Expected Salary Growth 4.69% 4.74% 5.53% 5.51% 5.48% 5.27% 5.23% 5.25% 5.31%	Asset Return (Market) 9.95% (14.99%) 19.78% 14.31% 3.42% 8.93% 11.05% 10.33% 0.05%	Asset Return (Actuarial) 5.85% 6.59% 11.42% 9.01% 6.60% 8.01% 7.86% 7.02% 6.07%	Asset Return (Expected) 7.00% 7.00% 7.00% 7.00% 7.50% 7.50% 7.50% 7.75%
9/30/2014	(1.30%)	1.10%	5.40%	9.50%	7.86%	7.75%
Averages 3-year 5-year 10-year 20-year	3.619%			3.84% 5.77% 6.83% 6.12%	7.93% 7.87% 7.62% 6.17%	

# **Amortization of Unfunded Actuarial Accrued Liability**

	UAAL	<b>Amortization</b>
10/1/2023	\$20,303,856	\$2,556,549
10/1/2024	\$18,989,619	\$2,299,187
10/1/2025	\$17,858,762	\$2,536,597
10/1/2026	\$16,394,715	\$2,147,103
10/1/2042	\$442,698	\$442,698



				October 1, 2023
	GASB 67/68 <sup>2</sup>	- 200 bp <sup>2</sup>	Funding Rate <sup>2</sup>	+ 200 bp <sup>2</sup>
	7.00%	5.00%	7.00%	9.00%
Total pension liability				
Service Cost	\$1,641,437	\$1,641,437	\$1,641,437	\$1,641,437
Interest	6,936,273	5,024,731	7,034,624	9,044,516
Benefit changes	0	0	0	0
Difference between expected and actual experience	1,503,363	2,716,520	2,716,520	2,716,520
Changes in assumptions	0	30,147,586	0	(21,342,730)
Benefit payments	(4,386,298)	(4,386,298)	(4,386,298)	(4,386,298)
Contribution refunds	0	0	0	0
Net change in pension liability	\$5,694,775	\$35,143,977	\$7,006,283	(\$12,326,555)
Total pension liability, beginning of year	\$99,641,323	\$101,046,335	\$101,046,335	\$101,046,335
Total pension liability, end of year	\$105,336,098	\$136,190,312	\$108,052,618	\$88,719,780
Plan fiduciary net position				
Contributions - Employer	\$3,398,109	\$3,398,109	\$3,398,109	\$3,398,109
Contributions - State	692,315	692,315	692,315	692,315
Contributions - Member	754,044	754,044	754,044	754,044
Net investment income	7,650,113	7,650,113	7,650,113	7,650,113
Benefit payments	(4,386,298)	(4,386,298)	(4,386,298)	(4,386,298)
Contribution refunds	0	0	0	0
Administrative expense	(164,346)	(164,346)	(164,346)	(164,346)
Other	0	0	0	0
Net change in plan fiduciary net position	\$7,943,937	\$7,943,937	\$7,943,937	\$7,943,937
Plan fiduciary net position, beginning of year	\$76,775,260	\$76,775,260	\$76,775,260	\$76,775,260
Plan fiduciary net position, end of year	\$84,719,197	\$84,719,197	\$84,719,197	\$84,719,197
Net pension liability/(asset)	\$20,616,901	\$51,471,115	\$23,333,421	\$4,000,583
Funded ratio	80.43%	62.21%	78.41%	95.49%
Years that Assets support expected benefit payments	18	14	18	24
Estimated city contribution				
Annual dollar value	\$3,738,243	\$6,270,857	\$3,738,243	\$1,743,685
Percentage of payroll	37.63%	63.13%	37.63%	17.55%

<sup>&</sup>lt;sup>1</sup> Does not include DROP assets and liabilities



<sup>&</sup>lt;sup>2</sup> Based on valuation assumption with the following changes

<sup>-</sup> interest rate (as noted)

October 1, 2023

# **Sustainment of Expected Benefit Payments**

Mortality GASB 67/68 Interest 7.00%

<u>Year</u>	Market Value of Assets	<u>Investment Return</u>	<b>Benefit Payments</b>
1	\$84,719,197	\$5,531,673	\$11,586,549
2	78,664,321	5,305,645	5,837,518
3	78,132,448	5,252,823	6,290,634
4	77,094,637	5,169,841	6,591,015
5	75,673,463	5,058,676	6,930,543
6	73,801,596	4,920,285	7,144,461
7	71,577,420	4,755,541	7,407,535
8	68,925,426	4,558,157	7,748,855
9	65,734,728	4,323,547	8,076,132
10	61,982,143	4,050,464	8,378,448
11	57,654,159	3,739,050	8,624,185
12	52,769,024	3,390,174	8,825,185
13	47,334,013	3,000,412	9,095,821
14	41,238,604	2,568,328	9,252,898
15	34,554,034	2,098,248	9,315,673
16	27,336,609	1,587,852	9,466,113
17	19,458,348	1,033,037	9,563,105
18	10,928,280	431,373	9,695,603
19	1,664,050		9,844,660



October 1, 2023

# **Sustainment of Expected Benefit Payments**

Mortality	FRS Special Risk Generational
Interest	5.00%

<u>Year</u>	Market Value of Assets	<u>Investment Return</u>	Benefit Payments
1	\$84,719,197	\$3,949,829	\$11,586,549
2	77,082,477	3,709,966	5,837,518
3	74,954,925	3,592,399	6,290,634
4	72,256,690	3,450,069	6,591,015
5	69,115,744	3,284,637	6,930,543
6	65,469,838	3,097,059	7,144,461
7	61,422,436	2,888,192	7,407,535
8	56,903,093	2,653,796	7,748,855
9	51,808,034	2,390,961	8,076,132
10	46,122,863	2,099,237	8,378,448
11	39,843,652	1,779,208	8,624,185
12	32,998,675	1,431,995	8,825,185
13	25,605,485	1,055,652	9,095,821
14	17,565,316	649,765	9,252,898
15	8,962,183		9,315,673



October 1, 2023

# **Sustainment of Expected Benefit Payments**

Mortality FRS Special Risk Generational Interest 7.00%

<u>Year</u>	Market Value of Assets	<u>Investment Return</u>	Benefit Payments
1	\$84,719,197	\$5,531,673	\$11,586,549
2	78,664,321	5,305,645	5,837,518
3	78,132,448	5,252,823	6,290,634
4	77,094,637	5,169,841	6,591,015
5	75,673,463	5,058,676	6,930,543
6	73,801,596	4,920,285	7,144,461
7	71,577,420	4,755,541	7,407,535
8	68,925,426	4,558,157	7,748,855
9	65,734,728	4,323,547	8,076,132
10	61,982,143	4,050,464	8,378,448
11	57,654,159	3,739,050	8,624,185
12	52,769,024	3,390,174	8,825,185
13	47,334,013	3,000,412	9,095,821
14	41,238,604	2,568,328	9,252,898
15	34,554,034	2,098,248	9,315,673
16	27,336,609	1,587,852	9,466,113
17	19,458,348	1,033,037	9,563,105
18	10,928,280	431,373	9,695,603
19	1,664,050		9,844,660



October 1, 2023

# **Sustainment of Expected Benefit Payments**

Mortality FRS Special Risk Generational Interest 9.00%

<u>Year</u>	Market Value of Assets	<u>Investment Return</u>	Benefit Payments
1	\$84,719,197	\$7,114,564	\$11,586,549
2	80,247,212	6,965,219	5,837,518
3	81,374,913	7,046,761	6,290,634
4	82,131,040	7,101,587	6,591,015
5	82,641,612	7,132,589	6,930,543
6	82,843,658	7,141,354	7,144,461
7	82,840,551	7,129,491	7,407,535
8	82,562,507	7,089,439	7,748,855
9	81,903,091	7,015,681	8,076,132
10	80,842,640	6,906,929	8,378,448
11	79,371,121	6,763,672	8,624,185
12	77,510,608	6,587,376	8,825,185
13	75,272,799	6,374,057	9,095,821
14	72,551,035	6,122,182	9,252,898
15	69,420,319	5,837,654	9,315,673
16	65,942,300	5,518,008	9,466,113
17	61,994,195	5,158,408	9,563,105
18	57,589,498	4,756,151	9,695,603
19	52,650,046	4,305,037	9,844,660
20	47,110,423	3,799,652	9,999,535
21	40,910,540	3,231,151	10,238,266
22	33,903,425	2,594,602	10,372,457
23	26,125,570	1,885,921	10,569,453
24	17,442,038	1,099,148	10,688,822
25	7,852,364		10,798,766



# Accrued/(Prepaid) Position

1.	Accrued/(Prepaid) Position 10/01/2022	(\$881,439)
2.	Costs  Minimum Required City Contribution (2022/2023 Plan Year) \$3,398,10  State Contribution \$200,00  Interest to September 30, 2023 \$	)
	Total Costs with Interest	\$3,598,109
3.	City Biweekly Contributions (\$3,398,109) State Contribution September 30, 2023 Interest to September 30, 2022 \$11,07  Total Contributions with Interest	)
4.	Interest on Beginning of Year Amount	(\$61,701)
5.	Accrued/(Prepaid) Position 10/01/2023	(\$932,061)



# **Determination of COLA Fund Assets**

	September 30, 2023
COLA Fund Assets, beginning of Prior Year	\$6,769,854
Distributions	(\$194,863)
Investment Return	\$665,881
Asset Transfers	\$0
Member Contributions	\$46,077
State Contribution Allocation	\$246,158
COLA Fund Assets, beginning of Current Year	\$7,533,107



# **Determination of DROP Account Assets**

	Regular DROP Account	Post-DROP Account	Total
DROP Account Assets, beginning of Prior Year	\$2,796,934	\$2,214,249	\$5,011,183
Monthly DROP Payments	\$1,293,292	\$0	\$1,293,292
Distributions	\$0	(\$617,956)	(\$617,956)
Enter Post-DROP Account	(\$544,378)	\$544,378	\$0
Fees	\$0	(\$5,450)	(\$5,450)
Investment Income	\$206,618	\$214,613	\$421,231
DROP Account Assets, beginning of Current Year	\$3,752,466	\$2,349,834	\$6,102,300



#### **Low-Default-Risk Obligation Measure (LDROM)**

For reports issued after February 15, 2023 the Plan's actuary is generally required to disclose liabilities under an alternative low-default-risk based discount rate. This LDROM liability measure represents the estimated asset value as of the measurement date the Plan would need in order to purchase a low-default-risk fixed income securities portfolio with durations that are reasonably consistent with the timing of benefits expected to be paid from the plan.

	October 1, 2023
LDROM liability	\$ (111,356,499)
Market value of assets	<u>\$ 70,151,729</u>
LDROM funded status	\$ (41,204,770)

The LDROM liability measure is for informational purposes only. The plan sponsor has no requirements to contribute to the Plan to meet this threshold, and the funded status on this basis is not used for any restrictions.

If Plan assets are invested to earn in excess of a fixed income portfolio, a shortfall on this basis may not necessarily mean the security of participant benefits is at risk. If the plan is fully funded, or nearly fully funded, on the LDROM measure, the plan sponsor may want to consider reducing investment risk in order to offer greater benefit security and lower contribution volatility. We did not perform an analysis of assumption or provision changes resulting from a potential shift in investment policy due to the limited scope of our engagement.

The above LDROM liability measure applies a single effective discount rate of 5.64% which would produce approximately the same discounted cashflows as the FTSE Pension Liability Curve for the month prior to the valuation date. All other data, assumptions, methods and provisions are the same as those detailed in this report.

