

LYCOMING COUNTY
EMPLOYEES' RETIREMENT SYSTEM
ACTUARIAL VALUATION
AS OF JANUARY 1, 2024
CONTRIBUTIONS APPLICABLE TO THE
PLAN/FISCAL YEAR ENDING DECEMBER 31, 2024



FOSTER & FOSTER
ACTUARIES AND CONSULTANTS



July 16, 2024

Board of Trustees
Lycoming County Employees' Retirement System

Re: Actuarial Valuation Report – Lycoming County Employees' Retirement System

Dear Board:

We are pleased to present to the Board this report of the annual actuarial valuation of the Lycoming County Employees' Retirement System. The funding valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to develop the appropriate funding requirements for the applicable plan year. Use of the results for other purposes may not be applicable and could produce significantly different results.

The valuation has been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board, and reflects applicable county, state, and federal laws and regulations. Due to an actuarial transition, we were not able to perform a full review of the actuarial assumptions prior to the completion of this report and have relied on many of the assumptions used by the prior actuary. Future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including: changes in applicable laws, changes in plan provisions, changes in assumptions, or plan experience differing from expectations. Due to the limited scope of the valuation, we did not perform an analysis of the potential range of such future measurements.

The funding percentages and unfunded accrued liability as measured based on the actuarial value of assets will differ from similar measures based on the market value of assets. These measures, as provided, are appropriate for determining the adequacy of future contributions, but may not be appropriate for the purpose of settling a portion or all of its liabilities.

In conducting the valuation, we have relied on personnel, plan design, and asset information supplied by the Board, financial reports prepared by the custodian bank and the actuarial assumptions and methods described in the Actuarial Assumptions section of this report. While we cannot verify the accuracy of all this information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy of the information and believe that it has produced appropriate results. This information, along with any adjustments or modifications, is summarized in various sections of this report.

In performing the analysis, we used third-party software to model (calculate) the underlying liabilities and costs. These results are reviewed in the aggregate and for individual sample lives. The output from the software is either used directly or input into internally developed models to generate the costs. All internally developed models are reviewed as part of the process. As a result of this review, we believe that the models have produced reasonable results. We do not believe there are any material inconsistencies among assumptions or unreasonable output produced due to the aggregation of assumptions.

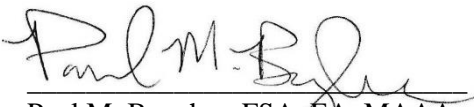
The undersigned are familiar with the immediate and long-term aspects of pension valuations and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All of the sections of this report are considered an integral part of the actuarial opinions.

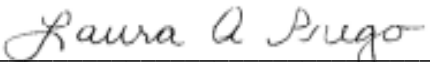
To our knowledge, no associate of Foster & Foster, Inc. working on valuations of the program has any direct financial interest or indirect material interest in the Lycoming County, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the Lycoming County Employees' Retirement System. Thus, there is no relationship existing that might affect our capacity to prepare and certify this actuarial report.

If there are any questions, concerns, or comments about any of the items contained in this report, please contact us at 630-620-0200.

Respectfully submitted,

Foster & Foster, Inc.

By: 
Paul M. Baugher, FSA, EA, MAAA

By: 
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PMB/lke
Enclosures

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SUMMARY OF REPORT

The regular annual actuarial valuation of the Lycoming County Employees' Retirement System, performed as of January 1, 2024, has been completed and the results are presented in this report. The contribution amounts set forth herein are applicable to the plan/fiscal year ended December 31, 2024.

The contribution requirements, compared with those set forth in the January 1, 2023 actuarial report, are as follows:

Valuation Date	1/1/2024	1/1/2023
Applicable to Fiscal Year Ending	<u>12/31/2024</u>	<u>12/31/2023</u>
Total Recommended Contribution	\$3,920,871	\$2,518,432
Member Contributions (Est.)	(2,751,079)	(1,881,654)
County Recommended Contribution	1,169,792	636,778

As you can see, the Total Recommended Contribution shows an increase when compared to the results determined in the January 1, 2023 actuarial valuation report. The increase is mainly attributable to an increase in normal cost associated with an increase in active membership and unfavorable plan experience.

Plan experience was unfavorable overall on the basis of the plan's actuarial assumptions. Sources of unfavorable experience included an investment return of 4.74% (Actuarial Asset Basis) which fell short of the 7.00% assumption and an average salary increase of 10.73% which exceeded the 4.00% assumption. There were no significant sources of favorable experience.

CHANGES SINCE PRIOR VALUATION

Plan Changes Since Prior Valuation

There were no plan changes since the prior valuation.

Actuarial Assumption/Method Changes Since Prior Valuation

There were no assumption or method changes since the prior valuation.

COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS

	<u>1/1/2024</u>	<u>1/1/2023</u> ¹
A. Participant Data		
Number Included		
Actives	520	465
Service Retirees	406	404
Beneficiaries	25	24
Disability Retirees	1	1
Terminated Vested	<u>99</u>	<u>91</u>
Total	1,051	985
Total Annual Payroll	\$29,081,175	\$23,520,669
Payroll Under Assumed Ret. Age	29,081,175	23,520,669
Annual Rate of Payments to:		
Service Retirees	8,923,143	N/A
Beneficiaries	367,319	N/A
Disability Retirees	13,730	N/A
Terminated Vested	616,163	N/A
B. Assets		
Actuarial Value	151,492,139	151,308,114
Market Value	145,135,527	138,890,984
C. Liabilities		
Present Value of Benefits		
Actives		
Retirement Benefits	74,111,296	66,420,598
Disability Benefits	0	0
Death Benefits	1,111,945	1,695,473
Vested Benefits	10,422,764	6,759,936
Service Retirees	90,710,530	91,173,671 ²
Beneficiaries	3,309,980	0
Disability Retirees	129,222	0
Terminated Vested	<u>5,668,088</u>	<u>7,460,731</u>
Total	185,463,825	173,510,409

¹ Values reported for 1/1/2023 are consistent with the report issued by Municipal Finance Partners, Inc.

² Includes Service Retirees, Beneficiaries, and Disability Retirees.

C. Liabilities - (Continued)	<u>1/1/2024</u>	<u>1/1/2023</u> ¹
Present Value of Future Salaries	278,708,688	N/A
Present Value of Future Member Contributions	26,365,842	N/A
Normal Cost (Retirement)	2,849,929	2,335,666
Normal Cost (Disability)	0	0
Normal Cost (Death)	57,983	65,568
Normal Cost (Vesting)	<u>708,376</u>	<u>596,415</u>
Total Normal Cost	3,616,288	2,997,649
Present Value of Future Normal Costs	31,295,751	N/A
Accrued Liability (Retirement)	48,846,066	N/A
Accrued Liability (Disability)	0	N/A
Accrued Liability (Death)	643,317	N/A
Accrued Liability (Vesting)	4,860,871	N/A
Accrued Liability (Inactives)	<u>99,817,820</u>	<u>N/A</u>
Total Actuarial Accrued Liability	154,168,074	146,215,943
Unfunded Actuarial Accrued Liability (UAAL)	2,675,935	(5,092,171)
Funded Ratio (AVA / AL)	98.3%	103.5%

¹ Values reported for 1/1/2023 are consistent with the report issued by Municipal Finance Partners, Inc.

	<u>1/1/2024</u>	<u>1/1/2023</u> ¹
D. Actuarial Present Value of Accrued Benefits		
Vested Accrued Benefits		
Inactives	99,817,820	N/A
Actives	11,615,731	N/A
Member Contributions	<u>23,639,758</u>	<u>N/A</u>
Total	135,073,309	N/A
Non-vested Accrued Benefits	<u>1,430,351</u>	<u>N/A</u>
Total Present Value Accrued Benefits	136,503,660	N/A
Funded Ratio (MVA / PVAB)	106.3%	N/A
Increase (Decrease) in Present Value of Accrued Benefits Attributable to:		
Plan Amendments	0	
Assumption Changes	0	
Plan Experience	0	
Benefits Paid	0	
Interest	0	
Other	<u>0</u>	
Total	0	

¹ Values reported for 1/1/2023 are consistent with the report issued by Municipal Finance Partners, Inc.

Valuation Date	1/1/2024	1/1/2023
Applicable to Fiscal Year Ending	<u>12/31/2024</u>	<u>12/31/2023</u>
E. Pension Cost		
Normal Cost	\$3,616,288	\$2,997,649 ¹
Administrative Expenses	30,000	30,000 ¹
Payment Required to Amortize Unfunded Actuarial Accrued Liability / (Funding Adjustment) (as of 1/1/2024)	274,583	(509,217)
Total Recommended Contribution	3,920,871	2,518,432 ¹
Expected Member Contributions	(2,751,079)	(1,881,654) ¹
Expected County Contribution	1,169,792	636,778 ¹
F. Past Contributions		
Plan Years Ending:	<u>12/31/2023</u>	
Total Recommended Contribution	3,225,028	
County	636,778	
Actual Contributions Made:		
Members (excluding buyback)	2,588,250	
County	<u>636,778</u>	
Total	3,225,028	
G. Net Actuarial (Gain)/Loss	7,925,897	

¹ Values reported for 1/1/2023 are consistent with the report issued by Municipal Finance Partners, Inc.

H. Schedule Illustrating the Amortization of the Total Unfunded Actuarial Accrued Liability as of:

<u>Year</u>	<u>Projected Unfunded Accrued Liability</u>
2024	2,675,935
2025	2,569,447
2026	2,455,504
2029	2,063,547
2033	1,400,417
2036	771,021
2039	0

I. (i) 5 Year Comparison of Actual and Assumed Salary Increases

		<u>Actual</u>	<u>Assumed</u>
Year Ended	12/31/2023	10.73%	4.00%

(ii) 5 Year Comparison of Investment Return on Actuarial Value

		<u>Actual MVA</u>	<u>Actual AVA</u>	<u>Assumed</u>
Year Ended	12/31/2023	13.72%	4.74%	7.00%
Year Ended	12/31/2022	-13.89%	6.80%	7.00%

DEVELOPMENT OF JANUARY 1, 2024 AMORTIZATION PAYMENT

(1)	Unfunded Actuarial Accrued Liability as of January 1, 2023	(\$5,092,171)
(2)	Sponsor Normal Cost developed as of January 1, 2023	772,594
(3)	Expected administrative expenses for the year ended December 31, 2023	30,000
(4)	Expected interest on (1), (2) and (3)	(301,320)
(5)	Sponsor contributions to the System during the year ended December 31, 2023	636,778
(6)	Expected interest on (5)	22,287
(7)	Expected Unfunded Actuarial Accrued Liability as of December 31, 2023 (1)+(2)+(3)+(4)-(5)-(6)	(5,249,962)
(8)	Change to UAAL due to Assumption Change	0
(9)	Change to UAAL due to Actuarial (Gain)/Loss	7,925,897
(10)	Unfunded Actuarial Accrued Liability as of January 1, 2024	2,675,935

<u>Type of Base</u>	<u>Date Established</u>	<u>Years Remaining</u>	<u>1/1/2024 Amount</u>	<u>Amortization Amount</u>
	1/1/2024	15	2,675,935	274,583

DETAILED ACTUARIAL (GAIN)/LOSS ANALYSIS

(1) Unfunded Actuarial Accrued Liability (UAAL) as of January 1, 2023	(\$5,092,171)
(2) Expected UAAL as of January 1, 2024	(5,249,962)
(3) Summary of Actuarial (Gain)/Loss, by component:	
Investment Return (Actuarial Asset Basis)	3,338,259
Salary Increases	1,367,568
Active Decrements	4,208
Inactive Mortality	(317,950)
Change in Actuary	3,487,516
Other	<u>46,296</u>
Change in UAAL due to (Gain)/Loss	7,925,897
Change to UAAL due to Assumption Change	<u>0</u>
(4) Actual UAAL as of January 1, 2024	\$2,675,935

RECONCILIATION OF CHANGES IN CONTRIBUTION REQUIREMENT

(1) Contribution Determined as of January 1, 2023	\$ 636,778
(2) Summary of Contribution Impact by component:	
Change in Normal Cost	618,639
Change in Expected Member Contributions	(869,425)
Change in Funding Adjustment	509,217
Amortization of Unfunded Liability	<u>274,583</u>
Total Change in Contribution	533,014
(3) Contribution Determined as of January 1, 2024	\$1,169,792

FUNDING HISTORY

Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Funded Ratio	Recommended County Contribution
1/1/2013	N/A	N/A	82.7%	\$2,270,134
1/1/2014	N/A	N/A	86.1%	\$2,146,876
1/1/2015	N/A	N/A	91.5%	\$2,139,753
1/1/2016	N/A	N/A	91.9%	\$2,304,856
1/1/2017	N/A	N/A	94.0%	\$2,190,157
1/1/2018	N/A	N/A	96.0%	\$2,051,188
1/1/2019	N/A	N/A	94.2%	\$2,059,528
1/1/2020	\$125,433,976	\$131,900,921	95.1%	\$1,945,444
1/1/2021	\$135,677,641	\$136,419,929	99.5%	\$1,592,238
1/1/2022	\$147,627,822	\$140,824,566	104.8%	\$462,620
1/1/2023	\$151,308,114	\$146,215,943	103.5%	\$636,778
1/1/2024	\$151,492,139	\$154,168,074	98.3%	\$1,169,792

PROJECTION OF BENEFIT PAYMENTS

Year	Payments for Current Actives	Payments for Current Inactives	Total Payments
2024	760,018	9,677,359	10,437,377
2025	1,007,777	9,265,189	10,272,966
2026	1,332,069	9,158,181	10,490,250
2027	1,692,401	9,043,444	10,735,845
2028	2,071,561	8,857,036	10,928,597
2029	2,479,353	8,832,983	11,312,336
2030	2,928,237	8,705,692	11,633,929
2031	3,324,104	8,392,382	11,716,486
2032	3,774,932	8,130,166	11,905,098
2033	4,194,690	7,974,896	12,169,586
2034	4,698,133	7,887,159	12,585,292
2035	5,231,728	7,666,754	12,898,482
2036	5,764,713	7,245,751	13,010,464
2037	6,401,705	7,135,267	13,536,972
2038	6,942,922	6,768,214	13,711,136
2039	7,439,206	6,517,823	13,957,029
2040	8,019,226	6,527,942	14,547,168
2041	8,515,647	6,095,707	14,611,354
2042	8,985,464	5,642,078	14,627,542
2043	9,604,561	5,645,303	15,249,864
2044	10,083,137	5,294,969	15,378,106
2045	10,549,599	4,951,748	15,501,347
2046	11,054,285	4,683,197	15,737,482
2047	11,493,478	4,298,402	15,791,880
2048	11,905,370	4,017,325	15,922,695
2049	12,299,636	3,816,354	16,115,990
2050	12,670,072	3,343,013	16,013,085
2051	13,068,353	3,161,476	16,229,829
2052	13,498,590	2,804,074	16,302,664
2053	13,790,386	2,658,372	16,448,758
2054	14,021,088	2,487,729	16,508,817
2055	14,246,740	2,159,947	16,406,687
2056	14,419,012	2,056,541	16,475,553
2057	14,512,843	1,681,376	16,194,219
2058	14,579,944	1,495,542	16,075,486
2059	14,547,966	1,324,924	15,872,890
2060	14,520,027	1,169,503	15,689,530
2061	14,396,694	1,028,968	15,425,662
2062	14,199,176	902,752	15,101,928
2063	14,001,034	790,153	14,791,187

ACTUARIAL ASSUMPTIONS AND METHODS

Interest Rate	7.00% per year compounded annually, net of investment related expenses. We will continue to monitor this assumption in light of actual experience and the long-term expected return by asset class.
Mortality Rate	<p>Active Lives: PubS-2010 Employee mortality, with generational improvements using projection scale MP-2019.</p> <p>Inactive Lives: PubS-2010 Healthy Retiree mortality, with generational improvements using projection scale MP-2019.</p> <p>Beneficiaries: PubS-2010 Survivor mortality, with generational improvements using projection scale MP-2019.</p> <p>Disabled Lives: PubS-2010 Disabled mortality, with generational improvements using projection scale MP-2019.</p> <p>The mortality assumptions sufficiently accommodate anticipated future mortality improvements.</p>
Retirement Age	See table at end of this section.
Disability Rate	None.
Termination Rate	See tables at end of this section.
Inflation	2.50%
Salary Increases	4.0% per year.
Form of Payment	
Service Retirement	70% of members are assumed to elect to annuitize their member contributions, and 30% are assumed to elect a refund of their member contributions.
Termination (Vested)	100% of members under age 30 are assumed to elect to receive a refund of their member contributions, thereby forfeiting their County Annuity. See table of sample rates at the end of this section for members age 30 and over electing to receive a refund of the member contributions.
Funding Method	Entry Age Normal Cost Method.

Actuarial Asset Method	Investment gains and losses are smoothed over a 5-year period. In the first year, 20% of the gain or loss is recognized. In the second year 40%, in the third year 60%, in the fourth year 80%, and in the fifth year 100% of the gain or loss is recognized. The actuarial investment gain or loss is defined as the actual return on investments minus the actuarial assumed investment return. Actuarial Assets shall not be less than 80% nor greater than 120% of the Market Value of Assets.
Funding Policy Amortization Method	<p>If the actuarial accrued liability exceeds the actuarial value of plan assets, the unfunded actuarial accrued liability is amortized using layers established annually based on plan experience. The layers are amortized on a Level Dollar basis over the following periods:</p> <p>Experience: 15 years. Assumption/Method Changes: 15 years. Active Benefit Changes: 20 years. Retired Benefit Changes: 10 years. Special Early Retirement Benefit Changes: 5 years.</p> <p>If the actuarial value of assets exceeds the actuarial accrued liability, 10% of this excess is used to reduce the plan's financial requirement.</p>
Payroll Growth	None.
Administrative Expenses	\$30,000 per year.

Decrement Tables

% Terminating During the Year (<6 years of service)		% Terminating During the Year (6+ years of service)		% Retiring During the Year	
Service	% of Ultimate Rate	Age	Rate	Age	Rate
0	300.0%	20	5.50%	55-59	7.0%
1	275.0%	25	5.37%	60-61	8.0%
2	250.0%	30	5.17%	62-64	15.0%
3	225.0%	35	4.84%	65	34.0%
4	200.0%	40	4.39%	66-70	23.0%
5	175.0%	45	3.90%	71-79	21.0%
		50	3.12%	80+	100.0%
		55	1.98%		

% of Terminated Members
Electing a Refund

Age	Rate
30	100.0%
35	83.3%
40	66.7%
45	50.0%
50	33.3%
55	16.7%

GLOSSARY

Total Annual Payroll is the projected annual rate of pay for the fiscal year following the valuation date of all covered members.

Present Value of Benefits is the single sum value on the valuation date of all future benefits to be paid to current Members, Retirees, Beneficiaries, Disability Retirees and Vested Terminations.

Accrued Actuarial Liability is determined according to the plan's actuarial cost method. This amount represents the portion of the anticipated future benefits allocated to years prior to the valuation date.

Normal (Current Year's) Cost is the current year's cost for benefits yet to be funded.

Market Value of Assets is the fair market value of plan assets as of the valuation date. This amount may be adjusted to produce an Actuarial Value of Assets for plan funding purposes.

Actuarial Value of Assets is the asset value used in the valuation to determine contribution requirements. It represents the plan's Market Value of Assets, with adjustments according to the Actuarial Asset Method. These adjustments produce a "smoothed" value that is likely to be less volatile from year to year than the Market Value of Assets.

Unfunded Accrued Liability is the excess of the Accrued Actuarial Liability over the Actuarial Value of Assets.

Total Recommended Contribution is equal to the Normal Cost plus an amount sufficient to amortize the Unfunded Accrued Liability using annual layers with a closed period of 15 years if the actuarial accrued liability exceeds the actuarial value of assets, or with a reduction of 10% of the excess of the actuarial value of assets over the actuarial accrued liability if the actuarial value of assets exceeds the actuarial accrued liability. The recommended amount is adjusted for interest according to the timing of contributions during the year.

Entry Age Normal Cost Method - Under this method, the normal cost is the sum of the individual normal costs for all active participants. For an active participant, the normal cost is the participant's normal cost accrual rate, multiplied by the participant's current compensation.

- (a) The normal cost accrual rate equals:
 - (i) the present value of future benefits for the participant, determined as of the participant's entry age, divided by
 - (ii) the present value of the compensation expected to be paid to the participant for each year of the participant's anticipated future service, determined as of the participant's entry age.
- (b) In calculating the present value of future compensation, the salary scale is applied both retrospectively and prospectively to estimate compensation in years prior to and subsequent to the valuation year based on the compensation used for the valuation.
- (c) The accrued liability is the sum of the individual accrued liabilities for all participants and beneficiaries. A participant's accrued liability equals the present value, at the participant's attained age, of future benefits less the present value at the participant's attained age of the individual normal costs payable in the future. A beneficiary's accrued liability equals the present value, at the beneficiary's attained age, of future benefits.
- (d) Under this method, the entry age used for each active participant is the participant's age at the time he or she would have commenced participation if the plan had always been in existence under current terms, or the age as of which he or she first earns service credits for purposes of benefit accrual under the current terms of the plan.

DISCUSSION OF RISK

ASOP No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, states that the actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition.

Throughout this report, actuarial results are determined under various assumption scenarios. These results are based on the premise that all future plan experience will align with the plan's actuarial assumptions; however, there is no guarantee that actual plan experience will align with the plan's assumptions. It is possible that actual plan experience will differ from anticipated experience in an unfavorable manner that will negatively impact the plan's funded position.

Below are examples of ways in which plan experience can deviate from assumptions and the potential impact of that deviation. Typically, this results in an actuarial gain or loss representing the current-year financial impact on the plan's unfunded liability of the experience differing from assumptions; this gain or loss is amortized over a period of time determined by the plan's amortization method. When assumptions are selected that adequately reflect plan experience, gains and losses typically offset one another in the long term, resulting in a relatively low impact on the plan's contribution requirements associated with plan experience. When assumptions are too optimistic, losses can accumulate over time and the plan's amortization payment could potentially grow to an unmanageable level.

- Investment Return: When the rate of return on the Actuarial Value of Assets falls short of the assumption, this produces a loss representing assumed investment earnings that were not realized. Further, it is unlikely that the plan will experience a scenario that matches the assumed return in each year as capital markets can be volatile from year to year. Therefore, contribution amounts can vary in the future.
- Salary Increases: When a plan participant experiences a salary increase that was greater than assumed, this produces a loss representing the cost of an increase in anticipated plan benefits for the participant as compared to the previous year. The total gain or loss associated with salary increases for the plan is the sum of salary gains and losses for all active participants.
- Demographic Assumptions: Actuarial results take into account various potential events that could happen to a plan participant, such as retirement, termination, disability, and death. Each of these potential events is assigned a liability based on the likelihood of the event and the financial consequence of the event for the plan. Accordingly, actuarial liabilities reflect a blend of financial consequences associated with various possible outcomes (such as retirement at one of various possible ages). Once the outcome is known (e.g. the participant retires) the liability is adjusted to reflect the known outcome. This adjustment produces a gain or loss depending on whether the outcome was more or less favorable than other outcomes that could have occurred.

- **Contribution Risk:** This risk results from the potential that actual employer contributions may deviate from actuarially determined contributions, which are determined in accordance with the Board's funding policy. The funding policy is intended to result in contribution requirements that if paid when due, will result in a reasonable expectation that assets will accumulate to be sufficient to pay plan benefits when due. Contribution deficits, particularly large deficits and those that occur repeatedly, increase future contribution requirements and put the plan at risk for not being able to pay plan benefits when due.

Impact of Plan Maturity on Risk

For newer pension plans, most of the participants and associated liabilities are related to active members who have not yet reached retirement age. As pension plans continue in operation and active members reach retirement ages, liabilities begin to shift from being primarily related to active members to being shared amongst active and retired members. Plan maturity is a measure of the extent to which this shift has occurred. It is important to understand that plan maturity can have an impact on risk tolerance and the overall risk characteristics of the plan. For example, plans with a large amount of retired liability do not have as long of a time horizon to recover from losses (such as losses on investments due to lower than expected investment returns) as plans where the majority of the liability is attributable to active members. For this reason, less tolerance for investment risk may be warranted for highly mature plans with a substantial inactive liability. Similarly, mature plans paying substantial retirement benefits resulting in a small positive or net negative cash flow can be more sensitive to near term investment volatility, particularly if the size of the fund is shrinking, which can result in less assets being available for investment in the market.

To assist with determining the maturity of the plan, we have provided some relevant metrics in the table following titled "Plan Maturity Measures and Other Risk Metrics". Highlights of this information are discussed below:

- The Support Ratio, determined as the ratio of active to inactive members, has increased from 89.4% on January 1, 2023 to 97.9% on January 1, 2024, indicating that the plan has experienced a significant growth in active population.
- The Accrued Liability Ratio, determined as the ratio of the Inactive Accrued Liability, which is the liability associated with members who are no longer employed but are due a benefit from the plan, to the Total Accrued Liability, is 64.7%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors will need to be made up for over a shorter time horizon than would be needed for a less mature plan.
- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability, has decreased from 103.5% on January 1, 2023 to 98.3% on January 1, 2024.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments and administrative expenses) to the Market Value of Assets, stayed approximately the same from January 1, 2023 to January 1, 2024. The current Net Cash Flow Ratio of -4.8% indicates that contributions are not currently covering the plan's benefit payments and administrative expenses.

Low Default-Risk Obligation Measure

ASOP No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions, was revised as of December 2021 to include a “low-default-risk obligation measure” (LDROM). This liability measure is consistent with the determination of the actuarial accrued liability shown on page 8 in terms of member data, plan provisions, and assumptions/methods, including the use of the Entry Age Normal Cost Method, except that the interest rate is tied to low-default-risk fixed income securities. The S&P Municipal Bond 20 Year High Grade Rate Index (daily rate closest to, but not later than, the measurement date) was selected to represent a current market rate of low risk but longer-term investments that could be included in a low-risk asset portfolio. The interest rate used in this valuation was 4.00%, resulting in an LDROM of \$215,651,764. The LDROM should not be considered the “correct” liability measurement; it simply shows a possible outcome if the Board elected to hold a very low risk asset portfolio. Given that plan benefits are paid over time through the combination of contributions and investment returns, prudent investments selected by the Board help to balance asset accumulation through these two sources.

It is important to note that the actuary has identified the risks above as the most significant risks based on the characteristics of the plan and the nature of the project, however, it is not an exhaustive list of potential risks that could be considered. Additional advanced modeling, as well as the identification of additional risks, can be provided at the request of the audience addressed on page 2 of this report.

PLAN MATURITY MEASURES AND OTHER RISK METRICS

	<u>1/1/2024</u>	<u>1/1/2023</u>
<u>Support Ratio</u>		
Total Actives	520	465
Total Inactives	531	520
Actives / Inactives	97.9%	89.4%

Asset Volatility Ratio

Market Value of Assets (MVA)	145,135,527	138,890,984
Total Annual Payroll	29,081,175	23,520,669
MVA / Total Annual Payroll	499.1%	590.5%

Accrued Liability (AL) Ratio

Inactive Accrued Liability	99,817,820	98,634,402
Total Accrued Liability	154,168,074	146,215,943
Inactive AL / Total AL	64.7%	67.5%

Funded Ratio

Actuarial Value of Assets (AVA)	151,492,139	151,308,114
Total Accrued Liability	154,168,074	146,215,943
AVA / Total Accrued Liability	98.3%	103.5%

Net Cash Flow Ratio

Net Cash Flow ¹	(6,987,201)	(6,153,094)
Market Value of Assets (MVA)	145,135,527	138,890,984
Ratio	-4.8%	-4.4%

¹ Determined as total contributions minus benefit payments and administrative expenses.

STATEMENT OF FIDUCIARY NET POSITION
December 31, 2023

<u>ASSETS</u>	MARKET VALUE
Cash and Cash Equivalents:	
Money Market	1,169,202
Savings, CD's, and Time Deposits	94,681
Total Cash and Equivalents	1,263,883
Receivables:	
Accrued Income	116,640
Total Receivable	116,640
Investments:	
Corporate Bonds	3,290,284
U.S. Gov't and Agency Obligations	5,424,836
U.S. Treasury Obligation	638,123
Stocks	24,520,399
Mutual Funds	60,665,620
Total Investments	94,539,262
Other Assets	49,215,742
Total Assets	145,135,527
<u>LIABILITIES</u>	
Total Liabilities	0
Net Assets:	
Active and Retired Members' Equity	145,135,527
NET POSITION RESTRICTED FOR PENSIONS	145,135,527
TOTAL LIABILITIES AND NET ASSETS	145,135,527

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED December 31, 2023
Market Value Basis

ADDITIONS

Contributions:

Member	2,588,250
Member Service Purchases	42,539
County	636,778

Total Contributions 3,267,567

Investment Income:

Miscellaneous Income	(274,251)	
Net Realized Gain (Loss)	4,055,661	
Unrealized Gain (Loss)	12,796,892	
Net Increase in Fair Value of Investments		16,578,302
Interest & Dividends		1,897,054
Less Investment Expense ¹		(243,612)

Net Investment Income 18,231,744

Total Additions 21,499,311

DEDUCTIONS

Distributions to Members:

Benefit Payments	9,249,764
Refund of Contributions/Transfers	793,998
Death Benefits	156,975

Total Distributions 10,200,737

Administrative Expenses 54,031

Other 5,000,000

Total Deductions 15,254,768

Net Increase in Net Position 6,244,543

NET POSITION RESTRICTED FOR PENSIONS

Beginning of the Year 138,890,984

End of the Year 145,135,527

¹ Investment Related expenses include investment advisory, custodial and performance monitoring fees.

ACTUARIAL ASSET VALUATION

December 31, 2023

Development of Actuarial Value of Assets

Market Value of Assets, 12/31/2023	145,135,527
(Gains)/Losses Not Yet Recognized	6,356,612
Actuarial Value of Assets, 12/31/2023	151,492,139
12/31/2023 Limited Actuarial Assets:	151,492,139

Development of Investment Gain/Loss

Market Value of Assets, 12/31/2022	138,890,984
Contributions Less Benefit Payments & Administrative Expenses	(6,830,226)
Expected Investment Earnings ¹	9,483,311
Actual Net Investment Earnings	18,231,744
2023 Actuarial Investment Gain/(Loss)	8,748,433

¹ Expected Investment Earnings = 7.00% x (138,890,984 + 0.5 x -6,830,226)

Gains/(Losses) Not Yet Recognized

Plan Year Ending	Gain/(Loss)	Amounts Not Yet Recognized by Valuation Year				
		2023	2024	2025	2026	2027
12/31/2020	10,902,419	2,180,484	0	0	0	0
12/31/2021	12,795,068	5,118,027	2,559,014	0	0	0
12/31/2022	(34,423,115)	(20,653,869)	(13,769,246)	(6,884,623)	0	0
12/31/2023	8,748,433	6,998,746	5,249,060	3,499,373	1,749,687	0
Total		(6,356,612)	(5,961,172)	(3,385,250)	1,749,687	0

Development of Asset Returns

(A) 12/31/2022 Actuarial Assets:	151,308,114
(I) Net Investment Income:	
1. Interest and Dividends	1,622,803
2. Realized Gains (Losses)	4,055,661
3. Change in Actuarial Value	1,579,399
4. Investment Expenses	(243,612)
Total	7,014,251
(B) 12/31/2023 Actuarial Assets:	151,492,139
Actuarial Asset Rate of Return = (2 x I) / (A + B - I):	4.74%
Market Value of Assets Rate of Return:	13.72%
Actuarial Gain/(Loss) due to Investment Return (Actuarial Asset Basis)	(3,338,259)

CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS
December 31, 2023
Actuarial Asset Basis

INCOME		
Contributions:		
Member	2,588,250	
Member Service Purchases	42,539	
County	636,778	
Total Contributions		3,267,567
Earnings from Investments		
Interest & Dividends	1,897,054	
Miscellaneous Income	(274,251)	
Net Realized Gain (Loss)	4,055,661	
Change in Actuarial Value	1,579,399	
Total Earnings and Investment Gains		7,257,863
EXPENSES		
Administrative Expenses:		
Investment Related ¹	243,612	
Other	54,031	
Total Administrative Expenses		297,643
Distributions to Members:		
Benefit Payments	9,249,764	
Refund of Contributions/Transfers	793,998	
Total Distributions		10,043,762
Change in Net Assets for the Year		184,025
Net Assets Beginning of the Year		151,308,114
Net Assets End of the Year ²		151,492,139

¹ Investment Related expenses include investment advisory, custodial and performance monitoring fees.

² Net Assets may be limited for actuarial consideration.

STATISTICAL DATA

	<u>1/1/2024</u>	<u>1/1/2023</u>
<u>Actives</u>		
Number	520	465
Average Current Age	43.8	N/A
Average Age at Employment	35.5	N/A
Average Past Service	8.3	N/A
Average Annual Salary	\$55,925	N/A
<u>Service Retirees</u>		
Number	406	404
Average Current Age	70.7	N/A
Average Annual Benefit	\$21,978	N/A
<u>Beneficiaries</u>		
Number	25	24
Average Current Age	73.6	N/A
Average Annual Benefit	\$14,693	N/A
<u>Disability Retirees</u>		
Number	1	1
Average Current Age	61.7	N/A
Average Annual Benefit	\$13,730	N/A
<u>Terminated Vested</u>		
Number	99	91
Average Current Age	48.8	N/A
Average Annual Benefit ¹	\$6,771	N/A

¹ Average Annual Benefit for Terminated Vested members reflects the benefit for members entitled to a future annual benefit from the plan.

AGE AND SERVICE DISTRIBUTION

PAST SERVICE

AGE	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30+	Total
15 - 19	1	0	0	0	0	0	0	0	0	0	0	1
20 - 24	19	9	0	0	1	0	0	0	0	0	0	29
25 - 29	23	16	7	3	3	5	0	0	0	0	0	57
30 - 34	15	9	5	7	3	16	4	0	0	0	0	59
35 - 39	16	7	9	2	0	13	17	5	0	0	0	69
40 - 44	6	2	3	2	1	7	11	14	3	0	0	49
45 - 49	9	7	4	1	2	10	9	10	7	4	0	63
50 - 54	7	2	4	7	5	10	10	12	10	5	4	76
55 - 59	7	3	4	2	2	9	8	8	3	3	5	54
60 - 64	5	3	2	1	1	9	6	3	8	1	1	40
65+	5	4	0	0	3	3	2	3	2	0	1	23
Total	113	62	38	25	21	82	67	55	33	13	11	520

VALUATION PARTICIPANT RECONCILIATION

1. Active lives

a. Number in prior valuation 1/1/2023	465
b. Terminations	
i. Vested (partial or full) with deferred benefits	(14)
ii. Non-vested or full lump sum distribution received	(33)
iii. Transferred service to other fund	0
c. Deaths	
i. Beneficiary receiving benefits	0
ii. No future benefits payable	(1)
d. Disabled	0
e. Retired	<u>(14)</u>
f. Continuing participants	403
g. New entrants	<u>117</u>
h. Total active life participants in valuation	<u>520</u>

2. Non-Active lives (including beneficiaries receiving benefits)

	Service Retirees, Vested Receiving <u>Benefits</u>	Receiving Death <u>Benefits</u>	Receiving Disability <u>Benefits</u>	Vested <u>Deferred</u>	<u>Total</u>
a. Number prior valuation	404	24	1	91	520
Retired	14	0	0	0	14
Vested Deferred	0	0	0	14	14
Death, With Survivor	(1)	1	0	0	0
Death, No Survivor	(12)	0	0	0	(12)
Disabled	0	0	0	0	0
Refund of Contributions	0	0	0	(9)	(9)
Rehires	0	0	0	(2)	(2)
Expired Annuities	0	0	0	0	0
Data Corrections	0	0	0	0	0
Hired/Termed in Same Year	1	0	0	5	6
b. Number current valuation	406	25	1	99	531

SUMMARY OF CURRENT PLAN

Membership An employee enters the plan on the day he becomes a full-time employee of the County.

Credited Service Years, months, and days of full-time service.

Final Salary Average compensation received for the highest 3 years in the employment of the County. In the event the member has less than 3 years of Credited Service, total compensation received divided by Credited Service.

Normal Retirement

Date Earlier of age 55 and 20 years of Credited Service, and age 60 regardless of Credited Service.

Benefit Sum of the County Annuity and Member Annuity.

County Annuity: Percentage of Final Salary times Credited Service. The percentage is outlined below.

Class	Percentage	Effective Date
1/100	1.000%	1/1/1950
1/80	1.250%	1/1/1968
1/70	1.429%	1/1/1983

Member Annuity: Annuitized member contribution with interest.

Form of Benefit **No Option:** Member receives their County Annuity plus Member Annuity for life. Upon death, if the total payments received (not considering COLAs) are less than accumulated member contributions, the balance of accumulated member contributions shall be paid to a beneficiary.

Option One: Member receives their County Annuity plus Member Annuity for life. Upon death, if the total payments received (not considering COLAs) are less than accumulated member contributions plus present value of County Annuity, the balance of accumulated member contributions shall be paid to a beneficiary.

Option Two: Member receives their County Annuity plus Member Annuity for life with 100% of the amount at retirement continued to a beneficiary. Upon death, if the total payments received (not considering COLAs) are less than accumulated member contributions plus present value of County Annuity, the balance of accumulated member contributions shall be paid to a beneficiary.

Option Three: Member receives their County Annuity plus Member Annuity for life with 50% of the amount at retirement continued to a beneficiary. Upon death, if the total payments received (not considering COLAs) are less than accumulated member contributions plus present value of County Annuity, the balance of accumulated member contributions shall be paid to a beneficiary.

Option Four: Member receives a refund of their accumulated member contributions. The County Annuity is then paid in accordance with any of the previous options.

Early Retirement

Date	Voluntary: 20 years of Credited Service regardless of age. Involuntary: 8 years of Credited Service regardless of age.
Benefit	Same as Normal Retirement, with an actuarial reduction applied to the County Annuity.
Form of Benefit	Same as Normal Retirement

Disability Benefit

Eligibility	5 years of Credited Service.
Benefit Amount	25% of Final Salary, which includes the Member Annuity.

Pre-Retirement Death Benefit

If a member dies after the earlier of age 60 or completion of 10 years of service, the beneficiary will receive a lump sum payment equal to the accumulated member contributions, plus the present value of the County Annuity at the time of death. Members may elect instead to have any death benefits paid to a designated beneficiary as a lifetime annuity.

If a member dies and is not eligible for a monthly death benefit described above, the beneficiary will receive a refund of their accumulated member contributions.

Vesting (Termination)

Vesting Service Requirement	5 years of Credited Service.
Non-Vested Benefit	Refund of accumulated member contributions.
Vested Benefit	Either the termination benefit, payable upon reaching age 60 (55 if more than 20 years of Credited Service), provided contributions are not withdrawn, or a refund of member contributions. The termination benefit is calculated as for Normal Retirement.

Cost-of-Living Adjustment

Cost-of-living adjustments (COLAs) shall be reviewed at least once in every three years by the Retirement Board. Recent history of COLAs are as follows:

<u>Effective Date</u>	<u>Percent Change in CPI</u>	<u>Effective Date</u>	<u>Percent Change in CPI</u>
1/1/1998	80%	1/1/2012	80%
1/1/1999	80%	1/1/2013	80%
1/1/2000	80%	1/1/2014	80%
1/1/2001	80%	1/1/2015	80%
1/1/2002	80%	1/1/2016	No Increase
1/1/2003	80%	1/1/2017	No Increase
1/1/2004	80%	1/1/2018	Flat 2% Inc.
1/1/2005	80%	1/1/2019	Flat 2% Inc.
1/1/2006	80%	1/1/2020	Flat 2% Inc.
1/1/2007	80%	1/1/2021	Flat 2% Inc.
1/1/2008	80%	1/1/2022	Flat 2% Inc.
1/1/2009	80%	1/1/2023	Flat 2% Inc.
1/1/2010	No Increase	1/1/2024	No Increase
1/1/2011	80%		
1/1/2012	80%		

Contributions

Employee

Pick-up Contributions: Mandatory 8% of pre-tax compensation, based on the 1/70 class.

Member Contributions: Voluntary up to 10% of after-tax compensation.

Both pick-up and Member contributions receive annual interest at a rate specified by the Retirement Board. The rate is limited to between 4.0% and 5.5% per year.