

Wyoming Law Enforcement Retirement Fund

Actuarial Valuation Report
for the Year Beginning January 1, 2024





May 30, 2024

Board of Trustees
Wyoming Law Enforcement Retirement Fund
6101 Yellowstone Road
Suite 500
Cheyenne, WY 82002

Dear Board of Trustees:

Subject: Actuarial Valuation as of January 1, 2024

We are pleased to present the report of the actuarial valuation of the Wyoming Law Enforcement Retirement Fund (“the Fund”) for the plan year commencing January 1, 2024. This report describes the current actuarial condition of the Fund, determines the calculated employer contribution rate (the actuarially determined contribution rate), and analyzes changes in this contribution rate from the prior year. Valuations are prepared annually, as of January 1, the first day of the Fund’s plan year.

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

Financing Objectives and Funding Policy

The employer and employee contribution rates are specified in the statute. The purposes of the valuation are to measure the System’s funding progress and to determine whether or not the statutory contribution is sufficient to meet the obligations of the Fund. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

Progress Toward Realization of Financing Objectives

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a plan's funded status. The funded ratio, based upon the assumption of no further cost-of-living adjustment increases, as of January 1, 2024 is 84.00%. As of January 1, 2023, this funded ratio, based on the assumption of no future COLAs and the actuarial value of assets, was 84.27%. On a market value of assets basis, the funded ratio increased from 81.76% as of January 1, 2023 to 84.71% as of January 1, 2024. The funded status alone is not appropriate for assessing the need for future contributions. The funded status is also not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

Benefit Provisions

The benefit provisions reflected in this valuation are those, which were in effect on January 1, 2024, including recent legislation that amended the death benefits for active members. W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change. Therefore, this valuation does not include any liability for future cost-of-living increases.

The benefit provisions are summarized in Appendix B of the report.

Assumptions and Methods

Actuarial assumptions and methods are set by the Board, based upon recommendations made by the plan's actuary. The current assumptions used in the actuarial valuation were adopted by the Board at the November 17, 2021 and February 17, 2022 meetings and were first utilized with the January 1, 2022 valuation report. For a detailed description of the experience related to these assumptions, as well as the rationale for any changes, please see our latest Wyoming Retirement System Actuarial Experience Study Report that covered the five-year investigation period ending December 31, 2020. All actuarial assumptions used in this report are reasonable for the purposes of this valuation. Furthermore, the assumptions and methods used in this valuation follow the guidance in the applicable Actuarial Standards of Practice and are expected to have no significant bias.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution amounts and funding periods. The actuarial calculations presented in the report are intended to provide information for rational decision making.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.



Assumptions and Methods (Continued)

The 8.60% employer contribution and the 8.60% employee contribution are the rates that comply with State law. Pursuant to Senate Enrolled Act No. 50, effective July 1, 2024, both the employer and employee contribution rates will increase to 9.50% and will continue to increase by 0.90% on July 1 each subsequent year until an ultimate rate of 11.30% is reached on July 1, 2026. Due to the many factors affecting a retirement system, users of this report should be aware that contributions made at that rate do not necessarily guarantee long-term benefit security.

The actuarially determined employer contribution in Table 1 of this report is determined using the actuarial assumptions and methods disclosed in Appendix A of this report. This report includes risk metrics in Appendix C but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We encourage a review and assessment of investment and other significant risks that may have a material effect on the plan's financial condition.

All assumptions and methods are described in Appendix A of our report.

Data

Member data for retired, active and inactive members was supplied as of January 1, 2024 by the System's staff. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data.

Asset and financial information as of January 1, 2024 was prepared by the Wyoming Retirement System and is the responsibility of management. Eide Bailly, LLP provided us the asset and financial information and will opine on Wyoming Retirement System's statements.

We relied on the System's staff for the accuracy and completeness of the information.

Plan Experience

As part of each valuation, we examine the Fund's experience relative to the assumptions. Experience in a given year will deviate from the assumptions and a gain occurs if the liabilities grow slower than the assumption set anticipates, and a loss occurs if the liabilities grow faster. This past fiscal year the Fund had a total experience loss of approximately \$14.8 million due to a contribution loss of \$7.8 million and a liability loss of \$26.7 million, primarily due to greater than expected salary increases. These losses were partially offset by an investment gain of \$19.7 million. Additionally, the liabilities increased by \$0.3 million due to recently passed legislation that amended the death benefits for active members. The aggregate results of these analyses are disclosed in Tables 4 and 5 under Section III of the report.



Actuarial Certification

All of the tables contained in this actuarial valuation report were prepared by Gabriel, Roeder, Smith & Company. Historical information for years prior to 2010 was prepared by the prior actuarial firm and was not subjected to our actuarial review.

We certify that the information presented herein is accurate and fairly portrays the actuarial position of the System as of January 1, 2024.

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of state law and, where applicable, the Internal Revenue Code and ERISA.

The undersigned are independent actuaries and consultants.

Thomas Lyle and Dana Woolfrey are Enrolled Actuaries and Paul Wood, Thomas Lyle, Dana Woolfrey, and Karli Fehrman are Members of the American Academy of Actuaries, and all four meet all the Qualification Standards of the American Academy of Actuaries.

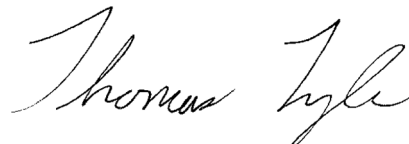
Finally, all of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,

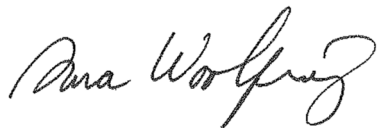
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SECTION I

EXECUTIVE SUMMARY

Executive Summary

Item	January 1, 2024	January 1, 2023
	No COLA	No COLA
1. Contributions:		
a. Total normal cost	16.39%	16.41%
b. Employee contributions*	(9.05%)	(8.60%)
c. Other expected contributions	0.00%	0.00%
d. Net employer normal cost	7.34%	7.81%
e. Amortization payment	6.83%	6.50%
f. Administrative expenses	0.51%	0.50%
g. Actuarially determined contribution	14.68%	14.81%
h. Statutory contribution*	(9.05%)	(8.60%)
i. Shortfall/(surplus)	5.63%	6.21%
2. Funding Elements:		
a. Market value of assets (MVA)	\$896,332,251	\$806,217,227
b. Actuarial value of assets (AVA)	\$888,793,032	\$831,035,274
c. Actuarial accrued liability (AAL)	\$1,058,069,485	\$986,133,210
d. Unfunded/(overfunded) actuarial accrued liability	\$169,276,453	\$155,097,936
3. Contributions and Ratios:		
a. Actuarially determined contribution	\$26,972,209	\$25,384,165
b. Actual contributions	N/A	16,113,114
i. Employer	N/A	15,606,067
ii. Other	N/A	507,047
c. Percentage contributed	N/A	63.48%
d. Funded ratio on an actuarial basis (AVA/AAL)	84.00%	84.27%
e. Funded ratio on a market basis (MVA/AAL)	84.71%	81.76%
f. Projected payroll	\$183,734,391	\$171,443,834

*The contribution rates are blended based on Senate Enrolled Act No. 50. Both employee and employer contribution rates will increase by 0.90% each year until July 1, 2026 when an ultimate rate of 11.30% is reached.

SECTION II

DISCUSSION

Contribution Requirements

- Exhibits throughout this report are based primarily, unless stated otherwise, on the assumption of no future cost-of-living adjustments (COLAs).
- W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change. The actuarial value funded ratio is 84.00% and the market value funded ratio is 84.71%.
- Pursuant to recently passed legislation, death benefits for active members have been updated since the prior valuation.
- There have not been any changes to the actuarial assumptions or methods since the prior valuation. For a detailed description of the experience related to these assumptions, as well as the rationale for any changes, please see our latest Wyoming Retirement System Actuarial Experience Study Report.
- An Actuarially Determined Contribution (ADC) is calculated as part of this valuation. Because contribution rates are set in statutes, the ADC could be thought of as a metric to which one could compare the statutory rate. The amortization payment for the purpose of calculating the ADC is based upon the following assumptions:
 - The funding period is based on a 30-year closed period for the initial base as of January 1, 2018 and 20-year closed period layers for future gains and losses
 - Amortization payment amounts are calculated in such a way that they will increase as a level percentage of payroll
 - Total payroll increases are assumed at 2.50% per year
 - Future growth in the number of active members is not reflected in the annual valuation
- The analysis of the changes in the ADC is shown in Table 5 under Section III of the report.
- Pursuant to Senate Enrolled Act No. 50, effective July 1, 2024 both employee and employer contribution rates will increase to 9.50% and will continue to increase by 0.90% on July 1 of subsequent years until an ultimate rate of 11.30% is reached on July 1, 2026.
- The calculated funding period assuming the new Statutory contribution rates and an open group projection based on a projection of the market value of assets is 28 years. In the January 1, 2023 valuation, the plan was not expected to reach full funding based on the Statutory rates in effect at that time and a projection of the market value of assets. Projection results were produced under a separate cover.

Calculation of Contribution Rates

The funds available to pay benefits come from two sources, contributions as specified in the statute and investment income on those contributions (the majority of the funds available to pay benefits typically come from investment income). The Fund receives contributions from two sources, employer contributions and member contributions which are both determined as a percentage of pay. An Actuarially Determined Contribution (ADC) is calculated as part of this valuation. Because contribution rates are set in statutes, the ADC could be thought of as a metric to which one could compare the statutory rate. As shown in Table 1 under Section III of the report, the employer contribution rate has three components:

- The normal cost percentage (NC%)
- The amortization percentage (UAAL%)
- The administrative expenses

The NC% is the theoretical amount which would be required to pay the members' benefits if this amount had been contributed from each member's entry date and if the fund's experience exactly followed the actuarial assumptions. The NC% is shown in Table 3 under Section III of the report.

Members are required to make employee contributions and only the excess of the NC% over the member contribution rate is included in the employer contribution rate.

The actuarial accrued liability (AAL) is the difference between (i) the actuarial present value of all future benefits for all current participants of the fund, including active, inactive and retired members, and (ii) the actuarial present value of future normal costs. Thus, the AAL represents the liability associated with past years. The unfunded actuarial accrued liability (UAAL) is the difference between the AAL and the actuarial value of assets (AVA). It is the shortfall/excess between the liability associated with prior years (the AAL) and the assets actually accumulated (the AVA). This shortfall/excess can arise from several sources, including actuarial gains and losses, which are caused by differences between actual experience and the plan's assumptions, changes to the plan's actuarial assumptions, and amendments to the benefit provisions.

The UAAL% is the amount required to fund this difference. It is the amount, expressed as a level percentage of payroll, necessary to amortize the UAAL. Amortization bases are established each year and amortized based on the Board's policy. The Board's policy for purposes of calculating the ADC consists of amortizing the unfunded liability as of January 1, 2018, over a closed 30-year period with each subsequent amortization base created as a result of year to year experience changes over individual 20-year closed periods. The Executive Summary shows the UAAL%, called Amortization Payment, compared to that of last year.

Administrative expenses are the average of the actual expenses for the prior two years, with each year projected at 2.50% to the valuation date.

The ADC is calculated for the twelve-month period beginning January 1, 2024. As of January 1, 2024, the statutory employer contribution is within 5.63% of meeting the ADC. This is detailed in the Executive Summary. The calculated ADC under the Board's funding policy can be considered a "Reasonable Actuarially Determined Contribution" as required by the Actuarial Standards of Practice.

Financial Data and Experience

As of January 1, 2024, the Fund has a total market value of about \$896 million. Financial information was received from Eide Bailly, LLP.

Table 7 under Section III of the report shows a reconciliation of the market values between the beginning and end of 2023.

During 2023, the total investment return on the market value of assets (MVA), as reported by Meketa Investment Group, Inc., was 13.84%, as shown in Table 10 under Section III of the report.

In determining the contribution rates and funded status of the Fund, an actuarial value of assets (AVA) is used rather than the market value of assets. The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (or less than) expected investment income. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses. An adjustment is made if the actuarial value is not within 20% of the Market Value. For any year following a year in which the 20% of market value adjustment was applied, the actuarial value is determined as if the adjustment was not applied in the previous year.

The development of the AVA is shown in Table 9 under Section III of the report. The AVA is \$889 million. The AVA is 99.16% of the MVA as of December 31, 2023, compared to 103.08% last year. The difference between the AVA and the MVA is the deferred gains and losses. As of January 1, 2023, the total deferred loss was \$24.8 million. As of January 1, 2024, the total deferred gain was \$7.5 million. Having a deferred gain in the AVA is an indicator that the funded ratio will have an upward “tilt” in the near term, and the ADC will likewise have downward pressure.

In addition to the market return, Table 10 also shows the return on the actuarial value of assets for the Fund. For 2023, this return was 9.20%. Because this is more than the assumed 6.80% investment return for the prior year, an actuarial gain occurred, decreasing the unfunded actuarial accrued liabilities of the Fund by \$19.7 million.

Member Data

Member data as of January 1, 2024 was supplied electronically by the Fund's staff. While we did not audit this data, we did perform various tests to ensure that it was internally consistent, consistent with the prior year's data, and was reasonable overall.

Table 15 under Section III of the report shows the number of members by category (active, inactive, retired, etc.) along with member statistics. Tables 16 through 28 show summaries of certain historical data and include membership statistics.

The total payroll shown on the statistical tables is the amount that was supplied by the Fund, annualized, if necessary. For the cost calculations, the pay amounts were adjusted in accordance with the actuarial assumptions to reflect one year's salary increase.

Total active member payroll increased 7.17%, compared with a 3.63% increase from the prior year.

The average of the final average salaries for participants who retired or became disabled this year is \$71,622.

Of the 2,495 active participants, 378 are eligible or will become eligible for normal retirement in 2024, and 498 are eligible or will become eligible for early retirement in 2024.

Changes in payroll are significant because the Fund receives its statutory contributions as a percent of pay. If payroll does not grow at the assumed rate, then fewer contributions will be made to the plan and the funding of the Fund will be delayed. Furthermore, the methodology used in the valuation to amortize the unfunded actuarial accrued liability assumes a growing payroll into the future. If the payroll does not grow at the assumed 2.50% per year average, then the current amortization payments may be understated and the funding position of the Fund will not strengthen as assumed over time. Higher than expected payroll growth, however, has the opposite effect of this and the funded position of the Fund should trend toward 100%. Table 5 under Section III of the report shows, for the past year, payroll for the plan increased more than expected, so the effect is a decrease in the calculated contribution rate of 0.30% of payroll.

Benefit Provisions

Appendix B of the report includes a more detailed summary of the benefit provisions for the Fund. A brief summary from W.S. 9-3-432 is as follows:

- *Normal Retirement Eligibility*
 - Age 60 with at least four years of service as a law enforcement officer or any age with at least twenty years of service as a law enforcement officer.
- *Normal Retirement Benefit*
 - 2.50% of highest average five-year salary not to exceed 75.0% of highest average five-year salary.
- *Normal Form of Payment*
 - Monthly benefit for life with a lump-sum death benefit equal to the excess (if any) of the employee contributions with interest over the total benefits received.
- *Employee Contributions* are required
 - 8.60% of pay.
- *Post-retirement Cost-of-Living Adjustments (COLAs)*
 - W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change.

Pursuant to Enrolled Act No. 25, interest crediting for non-vested inactive members on a prospective basis is eliminated beginning July 1, 2019.

Pursuant to Senate Enrolled Act No. 50, death benefits for active members were revised. Details can be found in Appendix B.

Actuarial Methods and Assumptions

Appendix A of the report includes a summary of the actuarial assumptions and methods used in this valuation. A few highlights are listed as follows:

- Costs are determined using the Entry Age Normal actuarial cost method, calculated as a level percentage of payroll.
- The unfunded actuarial accrued liability is amortized over an effective 20 year closed period as a level percent of payroll. Future valuations will include additional amortization layers on a closed 20-year basis.
- The assumed annual investment return rate is 6.80%, with assumed inflation of 2.25%.
- Payroll is assumed to increase at 2.50% per year.
- Inactive vested participants are assumed to retire at age 60 or the valuation date if over age 60. Those with over 20 years of service are assumed to retire immediately.
- No benefit data is available for all members entitled to deferred benefits. The present value of benefits expected to be paid to vested inactive non-retired members is approximated using the data provided.

The average future lifetime for current pensioners is 23.0 years.

The actuarial assumptions and methods were reviewed in detail as part of the 2021 Experience Study covering the five-year period ending December 31, 2020. Please see Appendix A for a summary of these assumptions.

GASB and Funding Progress

Governmental Accounting Standards Board Statement Number 67 (GASB 67) contains certain accounting requirements for the Fund. Schedules, notes and required supplementary information are provided under separate cover.

SECTION III

SUPPORTING EXHIBITS

Table 1A

Calculation of Actuarially Determined Employer Contribution Rate (Assumes No Future Cost-Of-Living Increases)

Item	January 1, 2024	January 1, 2023
1. Projected valuation payroll	\$183,734,391	\$171,443,834
2. Present value of future pay	\$1,347,302,526	\$1,261,145,776
3. Employer normal cost rate	7.34%	7.81%
4. Actuarial accrued liability for active members		
a. Present value of future benefits for active members	\$667,173,588	\$625,042,593
b. Less: present value of future employer normal costs	(96,172,080)	(96,217,246)
c. Less: present value of future employee contributions	(121,930,881)	(108,458,537)
d. Actuarial accrued liability	\$449,070,627	\$420,366,810
5. Total actuarial accrued liability for:		
a. Retirees and beneficiaries	\$493,666,395	\$459,943,597
b. Disabled members	73,208,148	68,361,895
<i>Duty</i>	53,672,736	49,085,961
<i>Non-duty</i>	19,535,412	19,275,934
c. Inactive members	42,124,315	37,460,908
d. Active members (Item 4d)	449,070,627	420,366,810
e. Total	\$1,058,069,485	\$986,133,210
6. Actuarial value of assets (Table 9)	\$888,793,032	\$831,035,274
7. Unfunded actuarial accrued liability (UAAL) (Item 5e - Item 6)	\$169,276,453	\$155,097,936
8. Effective UAAL amortization period	20 years	21 years
9. Assumed payroll growth rate	2.50%	2.50%
10. Actuarially Determined Employer Contribution		
a. UAAL amortization payment as % of pay	6.83%	6.50%
b. Employer normal cost	7.34%	7.81%
c. Administrative expense	0.51%	0.50%
d. Employer contribution (a + b + c)	14.68%	14.81%

Table 1B
Calculation of UAAL Amortization Payment
(Assumes No Future Cost-Of-Living Increases)

UAAL as of January 1, 2024		\$169,276,453		
Total Prior Remaining Amortization Bases as of January 1, 2024		<u>154,131,011</u>		
2024 Amortization Base as of January 1, 2024		\$15,145,442		
2024 Payment (20 years, level percent of pay amortization)		\$1,124,507		
		As of January 1, 2024		
Base Year	Initial Base	Remaining Base	Years Remaining	Amortization Payment
2024 Experience Loss	\$ 14,840,442	\$ 14,840,442	20	\$ 1,101,862
2024 Plan Changes	305,000	305,000	20	22,645
2023 Experience Loss	12,625,835	12,515,609	19	960,869
2023 Plan Changes	51,745	51,293	19	3,938
2022 Experience Gain	(32,736,377)	(32,082,559)	18	(2,553,635)
2022 Assumption Changes	57,271,373	56,127,537	18	4,467,512
2021 Experience Gain	(4,812,047)	(4,651,890)	17	(385,017)
2020 Experience Loss	14,645,499	13,919,530	16	1,201,935
2019 Experience Loss	24,129,271	22,462,126	15	2,031,202
2018 Experience Loss	83,395,794	85,789,365	24	5,692,739
Total		\$ 169,276,453		\$ 12,544,050

Table 2
Cost Breakdown
(Assumes No Future Cost-Of-Living Increases)

Item	Present Value of Future Normal Costs (1)	Actuarial Accrued Liabilities (2)	Total Present Value of Benefits (3) = (1) + (2)
Age and service allowances based on total service and disability benefits likely to be rendered by present active members	\$178,525,019	\$452,494,909	\$631,019,928
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	5,062,726	2,682,754	7,745,480
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	34,515,216	(6,107,036)	28,408,180
Benefits likely to be paid to vested inactive members	0	35,429,752	35,429,752
Benefits to be paid to members due refunds	0	6,694,563	6,694,563
Benefits to be paid to current retirees, disabled members, beneficiaries, and future beneficiaries of current retirees	0	566,874,543	566,874,543
Total	\$218,102,961	\$1,058,069,485	\$1,276,172,446
Actuarial Value of Assets	0	888,793,032	888,793,032
Liabilities to be covered by future contributions	\$218,102,961	\$169,276,453	\$387,379,414

Table 3
History of Total Normal Cost
(Assumes No Future Cost-Of-Living Increases)

Fiscal Year Ending December 31	Normal Cost as Percent of Payroll
2007	13.56%
2008	13.42%
2009	13.46%
2010	14.14%
2011	14.13%
2012	14.14%
2013	14.12%
2014	14.56%
2015	14.54%
2016	14.46%
2017	14.26%
2018	14.30%
2019	14.31%
2020	14.26%
2021	14.20%
2022	16.38%
2023	16.41%
2024	16.39%

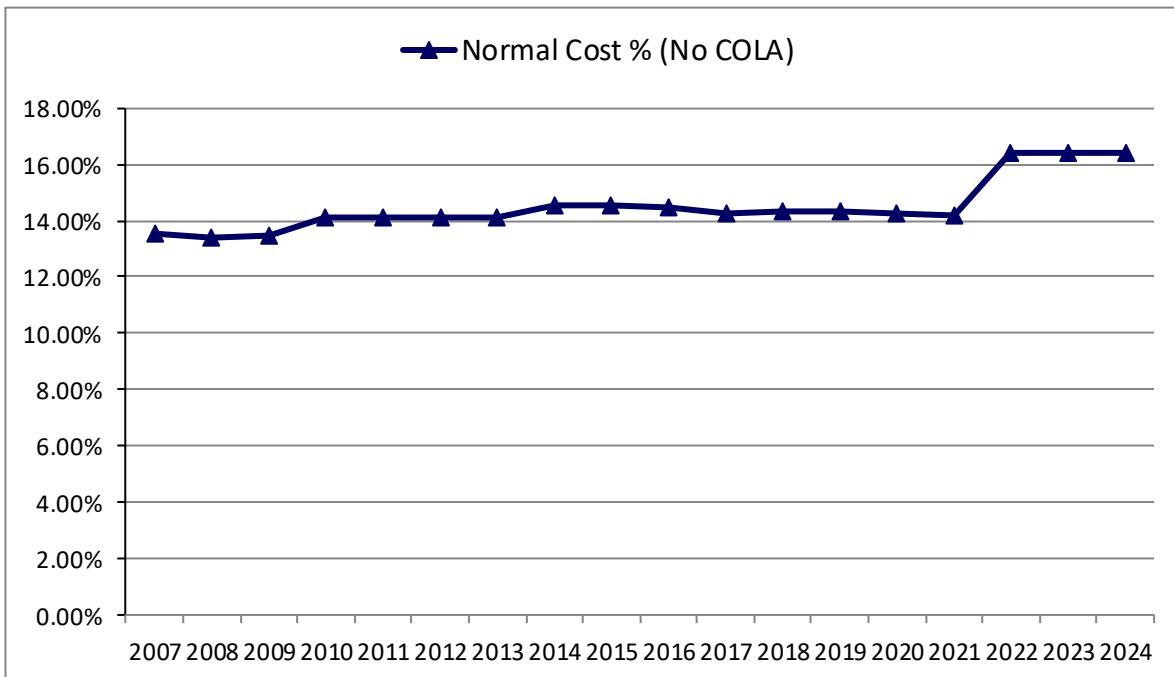


Table 4
Calculation of Total Actuarial Gain/(Loss)
Assumes No Future Cost-Of-Living Increases

Item	January 1, 2024
1. Derivation of Experience Gain/(Loss)	
a. Unfunded actuarial accrued liability (UAAL) - previous valuation	\$155,097,936
b. Normal cost (NC) for fiscal year ending December 31, 2023	28,127,266
c. Expected administrative expenses for fiscal year ending December 31, 2023	853,300
d. Actuarially determined contribution for fiscal year ending December 31, 2023	40,121,585
e. Interest accrual:	
(i) For whole year on (a)	10,546,660
(ii) For half year on (b) + (c) - (d)	(372,565)
(iii) Total interest: (e)(i) + (e)(ii)	10,174,094
f. Change in UAAL due to plan changes	305,000
g. Change in UAAL due to assumption change	0
h. Expected UAAL current year: (a) + (b) + (c) - (d) + (e)(iii) + (f) + (g)	154,436,011
i. Actual UAAL current year	169,276,453
j. Experience gain/(loss): (h) - (i)	(14,840,442)
k. Experience gain/(loss) as a % of actuarial accrued liability	-1.40%
2. Approximate Portion of Gain/(Loss) Due to Investments (at Actuarial Value)	\$19,746,363
3. Approximate Portion of Gain/(Loss) Due to Contributions and Administrative Expenses higher or lower than expected*	(\$7,835,353)
4. Approximate Portion of Gain/(Loss) Due to Liabilities: (1)(j) - (2) - (3)	(\$26,751,452)
a. Age & service retirements	649,729
b. Non-duty disability retirements	45,966
c. Duty disability retirements	(1,968,122)
d. Death-in-service	893,689
e. Withdrawal from employment	2,056,722
f. Rehires	(633,568)
g. Pay increases	(24,648,673)
h. Death after Retirement	558,745
i. Service Purchases	(903,294)
j. Other	(2,802,646)
k. Other as a % of actuarial accrued liability	-0.26%

*Includes \$0.9 million in additional employee contributions for service purchases. These additional contributions offset the liability loss due to service purchases.

Table 5

Change in Calculated Contribution Rate Since the Prior Valuation Assumes No Future Cost-Of-Living Increases

Item	January 1, 2024
1. Calculated contribution rate as of January 1, 2023	14.81%
2. Change in contribution rate during year	
a. Change in employer normal cost	-0.02%
b. Change in employee contributions*	-0.45%
c. Assumption changes	0.00%
d. Plan Changes	0.07%
e. Actuarial (gain) loss from investments on actuarial value of assets	-0.83%
f. Actuarial (gain) loss from liability sources and administrative expenses	1.07%
g. Difference between contributions made and ADC	0.33%
h. Effect of payroll growing (faster)/slower than assumption	-0.30%
i. Other changes	0.00%
j. Total change	-0.13%
3. Calculated contribution rate as of January 1, 2024	14.68%

*Includes the impact of using the blended employee contribution rates for calendar year 2024.

Table 6
Statement of Plan Net Assets

Assets at Market Value		
Item	FYE 2023	FYE 2022
1. Cash and Cash Equivalents (Operating Cash)	\$35,203,024	\$34,464,676
2. Receivables		
a. Insurance premium tax	\$0	\$0
b. Buy backs	0	0
c. Employer contributions	896,479	959,151
d. Employee contributions	895,339	956,914
e. Securities sold	20,557,508	353,810
f. Accrued interest and dividends	1,754,032	1,482,236
g. Currency contract receivable	53,245,088	49,139,387
h. Other	34,806	31,641
i. Rebate and fee income receivable	0	0
j. Total receivables	\$77,383,252	\$52,923,139
3. Investments, at fair value	\$866,629,257	\$810,284,694
4. Liabilities		
a. Benefits and refunds payable	(\$88,377)	(\$221,158)
b. Securities purchased	(1,537,293)	(1,176,667)
c. Administrative and consulting fees payable	(1,464,923)	(1,199,759)
d. Currency contract payable	(54,682,744)	(50,435,987)
e. Securities lending collateral	(25,109,945)	(38,421,711)
f. Total liabilities	(\$82,883,282)	(\$91,455,282)
5. Total Market Value of Assets Available for Benefits	\$896,332,251	\$806,217,227

Table 7
Reconciliation of Plan Net Assets

Assets at Market Value		
Item	FYE 2023	FYE 2022
A. Market Value of Assets at Beginning of Year	\$806,217,227	\$882,352,248
B. Contribution Income:		
1. Contributions		
a. Employee	\$15,607,538	\$14,548,477
b. Employer	15,606,067	14,548,971
c. Other	1,410,341	2,797,122
d. Total	<u>\$32,623,946</u>	<u>\$31,894,570</u>
2. Investment Income		
a. Interest, dividends, and other income	\$19,479,836	\$15,883,203
b. Net appreciation	93,149,422	(71,982,505)
c. Investment expenses	(4,722,424)	(4,619,981)
d. Net investment income	<u>\$107,906,834</u>	<u>(\$60,719,283)</u>
3. Securities Lending		
a. Gross income	\$1,938,415	\$699,821
b. Deductions	(1,829,826)	(616,441)
c. Net investment income	<u>\$108,589</u>	<u>\$83,380</u>
4. Benefits and Refunds		
a. Refunds	(\$3,455,442)	(\$3,790,198)
b. Regular monthly benefits	(46,131,432)	(42,739,295)
c. Total	<u>(\$49,586,874)</u>	<u>(\$46,529,493)</u>
5. Administrative and Miscellaneous Expenses	(\$937,471)	(\$864,195)
C. Market Value of Assets at End of Year	\$896,332,251	\$806,217,227

Table 8
Progress of Fund Through December 31, 2023

Plan Year Ending December 31	Employer Contributions*	Employee Contributions*	Administrative Expenses	Net Investment Income**	Benefit Payments	Transfers	Actuarial Value of Assets
Total	\$295,500,738	\$269,726,479	(\$8,923,816)	\$629,953,282	(\$544,758,362)	\$8,655,176	
2003	\$7,229,011	\$8,646,962	(\$67,842)	\$9,479,413	(\$6,475,594)	-	\$204,892,219
2004	12,902,452	8,415,620	(83,082)	12,318,566	(7,747,280)	-	230,698,495
2005	11,155,211	8,185,299	(138,060)	16,938,900	(10,532,309)	\$8,655,176	264,962,712
2006	34,228,475	9,114,022	(101,237)	25,935,590	(11,170,034)	-	322,969,528
2007	10,591,387	10,072,138	(113,629)	34,419,422	(13,215,795)	-	364,723,051
2008	11,861,638	11,267,854	(158,229)	(46,711,706)	(15,036,756)	-	325,945,852
2009	11,779,557	11,867,348	(184,662)	4,176,581	(16,785,935)	-	389,358,007
2010	13,166,633	12,811,136	(219,040)	13,106,593	(18,656,300)	-	409,567,029
2011	13,497,836	12,838,756	(345,446)	7,312,027	(20,667,243)	-	422,202,959
2012	13,364,655	12,963,835	(416,632)	12,335,269	(23,214,588)	-	437,235,498
2013	13,558,586	13,043,663	(470,177)	49,168,273	(25,717,983)	-	486,817,860
2014	13,496,913	13,928,652	(414,331)	42,034,212	(27,320,442)	-	528,542,864
2015	12,706,883	15,397,475	(442,876)	31,040,707	(30,119,285)	-	557,125,768
2016	13,730,305	14,442,190	(544,008)	37,077,027	(31,364,891)	-	590,466,391
2017	13,614,406	13,691,494	(631,865)	42,084,105	(33,662,493)	-	625,562,038
2018	13,781,011	13,846,377	(664,066)	24,801,449	(35,984,464)	-	641,342,345
2019	14,270,844	14,671,686	(623,912)	39,362,935	(37,276,954)	-	671,746,944
2020	14,893,513	15,860,479	(721,782)	60,916,180	(40,386,827)	-	722,308,507
2021	14,567,813	15,246,586	(781,274)	81,537,331	(43,306,822)	-	789,572,141
2022	14,990,494	16,904,076	(864,195)	56,962,251	(46,529,493)	-	831,035,274
2023	16,113,114	16,510,832	(937,471)	75,658,157	(49,586,874)	-	888,793,032

* Employer contributions include other funding sources and employee contributions may include member redeposits and member service purchase contributions

** Net of investment expenses

Table 9
Development of Actuarial Value of Assets

Item	FYE 2023	FYE 2022
1. Actuarial value of assets, beginning of year (before corridor)	\$831,035,274	\$789,572,141
2. Market value, end of year	\$896,332,251	\$806,217,227
3. Market value, beginning of year	\$806,217,227	\$882,352,248
4. Non-investment/administrative net cash flow:		
a. Employee contributions	\$15,607,538	\$14,548,477
b. Employer contributions	15,606,067	14,548,971
c. Other contributions	1,410,341	2,797,122
d. Refund of employee accounts	(3,455,442)	(3,790,198)
e. Retirement benefits	(46,131,432)	(42,739,295)
f. Administrative expenses	(937,471)	(864,195)
g. Total net cash flow: [sum of (4a) through (4f)]	<u>(\$17,900,399)</u>	<u>(\$15,499,118)</u>
5. Investments and securities lending:		
a. Interest and dividends on investments	\$19,479,836	\$15,883,203
b. Gross income from securities lending	1,938,415	699,821
c. Fees and expenses	<u>(6,552,250)</u>	<u>(5,236,422)</u>
d. Total net income: [sum of (5a) through (5c)]	\$14,866,001	\$11,346,602
6. Investment income:		
a. Actual market return: (2) - (3) - (4g) - (5d)	\$93,149,422	(\$71,982,505)
b. Assumed rate of return	6.80%	6.80%
c. Assumed amount of return	<u>39,358,166</u>	<u>48,135,047</u>
d. Amount subject to phase-in: (6a) - (6c)	\$53,791,256	(\$120,117,552)
7. Phase-in recognition of investment income:		
a. Current year: 0.20 * (6d)	\$10,758,251	(\$24,023,510)
b. First prior year	(24,023,510)	15,711,058
c. Second prior year	15,711,058	5,154,634
d. Third prior year	5,154,634	13,833,557
e. Fourth prior year	<u>13,833,557</u>	<u>(13,195,137)</u>
f. Total recognition	\$21,433,990	(\$2,519,398)
8. Actuarial value of assets, end of year		
a. Preliminary actuarial value of assets, end of year: (1) + (4g) + (5d) + (6c) + (7f)	\$888,793,032	\$831,035,274
b. Upper corridor limit: 120% * (2)	1,075,598,701	967,460,672
c. Lower corridor limit: 80% * (2)	717,065,801	644,973,782
d. Actuarial value of assets, end of year	\$888,793,032	\$831,035,274
9. Difference between market and actuarial value of assets	\$7,539,219	(\$24,818,047)
10. Actuarial rate of return	9.20%	7.29%
11. Market rate of return*	13.84%	-6.99%
12. Ratio of actuarial value to market value of assets	99.16%	103.08%

* Current year market rate of return is based on unaudited data and is supplied by the plan's investment

Table 10

History of Investment Returns

Plan Year (1)	Market Value (2)	Actuarial Value (3)
2004	11.54%	5.82%
2005	8.22%	7.08%
2006	12.63%	9.23%
2007	7.44%	10.54%
2008	-29.63%	-12.67%
2009	23.72%	17.23%
2010	13.80%	3.34%
2011	-0.90%	1.77%
2012	14.05%	2.91%
2013	13.53%	11.24%
2014	4.70%	8.64%
2015	-0.26%	5.89%
2016	7.60%	6.68%
2017	14.20%	7.17%
2018	-3.52%	3.99%
2019	18.72%	6.18%
2020	11.03%	9.14%
2021	17.19%	11.40%
2022	-6.99%	7.29%
2023	13.84%	9.20%

Average returns:

Last five years:	10.34%	8.63%
Last ten years:	7.31%	7.54%

The market returns above are gross of investment expenses and were provided by the plan's investment consultant. The actuarial returns above are based on the financial information provided by the plan's auditors.

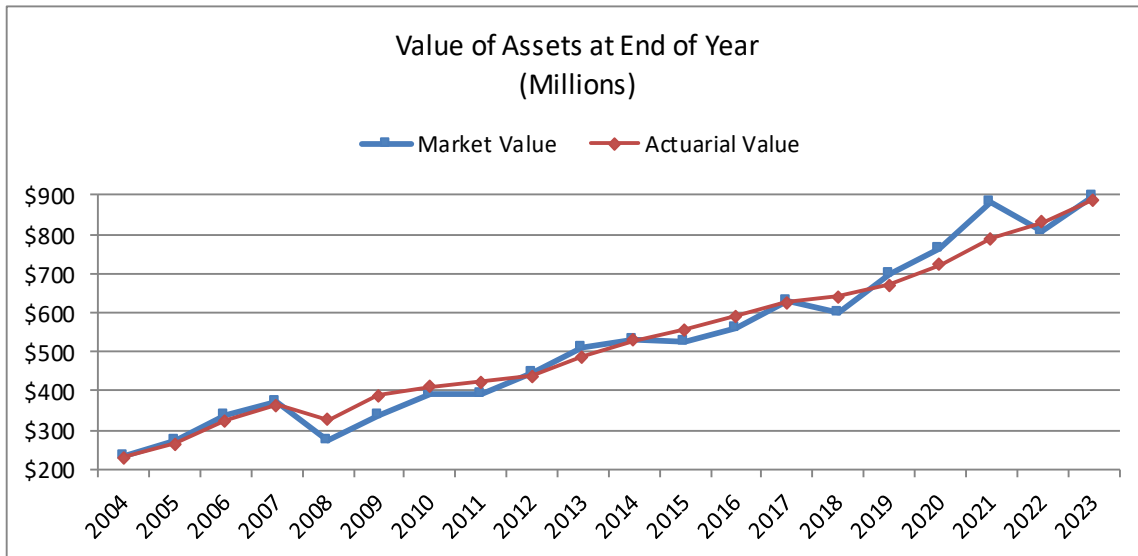


Table 11
Solvency Test

Valuation Date January 1	Total Active Member Contributions (1)	Inactive and Pensioner Liability (2)	Active Accrued Liability (3)	Actuarial Value of Assets	Percentage of Liabilities Covered by Assets		
					(1)	(2)	(3)
2005	\$61,842,876	\$87,958,000	\$110,225,000	\$230,698,495	100%	100%	73.4%
2006	66,827,791	109,836,100	119,969,000	264,962,712	100%	100%	73.6%
2007	72,004,612	130,672,200	128,806,000	322,969,528	100%	100%	93.4%
2008	74,889,713	163,621,400	141,901,000	364,723,051	100%	100%	88.9%
2009	82,306,146	173,849,000	134,790,000	325,945,852	100%	100%	51.8%
2010	92,241,086	166,797,234	121,992,468	389,358,007	100%	100%	100.0%
2011	100,333,051	186,200,382	123,626,373	409,567,029	100%	100%	99.5%
2012	106,871,965	210,366,572	123,266,327	422,202,959	100%	100%	85.2%
2013	116,002,787	229,727,100	127,814,770	437,235,498	100%	100%	71.6%
2014	121,915,804	260,467,214	144,399,452	486,817,860	100%	100%	72.3%
2015	128,198,774	286,399,991	149,642,588	528,542,864	100%	100%	76.1%
2016	133,911,728	309,474,214	153,470,235	557,125,768	100%	100%	74.1%
2017	137,264,555	335,396,840	155,423,417	590,466,391	100%	100%	75.8%
2018	140,028,844	389,301,860	179,627,128	625,562,038	100%	100%	53.6%
2019	140,663,665	421,538,730	187,322,490	641,342,345	100%	100%	42.2%
2020	142,463,869	453,526,381	198,964,475	671,746,944	100%	100%	38.1%
2021	146,445,081	485,587,766	208,779,989	722,308,507	100%	100%	43.2%
2022	147,980,630	531,045,121	253,527,752	789,572,141	100%	100%	43.6%
2023	149,380,012	565,766,400	270,986,798	831,035,274	100%	100%	42.8%
2024	148,301,236	608,998,858	300,769,391	888,793,032	100%	100%	43.7%

Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.

Table 12
Schedule of Funding Progress

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Valuation Date January 1	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL) [(3) - (2)]	Funded Ratio [(2)/(3)]	Covered Payroll	UAAL as a Percentage of Covered Payroll [(4)/(6)]
2003	\$186,080,269	\$206,395,100	\$20,314,831	90.16%	\$79,217,700	25.64%
2004	204,892,219	236,441,300	31,549,081	86.66%	84,242,600	37.45%
2005	230,698,495	260,025,800	29,327,305	88.72%	89,351,600	32.82%
2006	264,962,712	296,633,400	31,670,688	89.32%	98,070,700	32.29%
2007	322,969,528	331,483,200	8,513,672	97.43%	108,350,000	7.86%
2008	364,723,051	380,413,100	15,690,049	95.88%	119,165,000	13.17%
2009	325,945,852	390,945,700	64,999,848	83.37%	132,701,500	48.98%
2010	389,358,007	381,030,788	(8,327,219)	102.19%	149,481,383	-5.57%
2011	409,567,029	410,159,806	592,777	99.86%	154,652,284	0.38%
2012	422,202,959	440,504,864	18,301,905	95.85%	155,481,933	11.77%
2013	437,235,498	473,544,657	36,309,158	92.33%	157,764,488	23.01%
2014	486,817,860	526,782,470	39,964,610	92.41%	154,071,943	25.94%
2015	528,542,864	564,241,353	35,698,489	93.67%	156,791,728	22.77%
2016	557,125,768	596,856,177	39,730,409	93.34%	161,357,314	24.62%
2017	590,466,391	628,084,812	37,618,421	94.01%	160,072,828	23.50%
2018	625,562,038	708,957,832	83,395,794	88.24%	155,696,162	53.56%
2019	641,342,345	749,524,885	108,182,540	85.57%	159,747,760	67.72%
2020	671,746,944	794,954,725	123,207,781	84.50%	164,757,930	74.78%
2021	722,308,507	840,812,836	118,504,329	85.91%	170,284,524	69.59%
2022	789,572,141	932,553,503	142,981,362	84.67%	165,440,506	86.42%
2023	831,035,274	986,133,210	155,097,936	84.27%	171,443,834	90.47%
2024	888,793,032	1,058,069,485	169,276,453	84.00%	183,734,391	92.13%

Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.

Table 13

Schedule of Contributions from the Employer(s) and Other Contributing Entities

(1)	(2)	(3)	(4)	(5)	(6)
Fiscal Year Ending December 31	Actuarially Determined Contribution		Employer Contributions*		Percentage of Actuarially Determined Contributions Contributed [(5)/(3)]
	% of Payroll	Amount	% of Payroll	Amount	
2004	7.95%	\$6,693,300	15.32%	\$12,902,452	192.77%
2005	8.81%	7,873,900	12.48%	11,155,211	141.67%
2006	7.28%	7,138,000	34.90%	34,228,475	479.52%
2007	7.21%	7,810,100	9.78%	10,591,387	135.61%
2008	7.62%	9,084,200	9.95%	11,861,638	130.57%
2009	8.60%	11,413,400	8.88%	11,779,557	103.21%
2010	5.37%	8,029,651	8.81%	13,166,633	163.98%
2011	5.69%	8,806,599	8.73%	13,497,836	153.27%
2012	6.37%	9,899,466	8.60%	13,364,655	135.00%
2013	7.01%	11,071,525	8.59%	13,558,586	122.46%
2014	7.67%	11,812,078	8.76%	13,496,913	114.26%
2015	7.47%	11,708,248	8.10%	12,706,883	108.53%
2016	7.48%	12,063,684	8.76%	13,730,305	113.82%
2017	7.26%	11,623,441	8.51%	13,614,406	117.13%
2018	9.31%	14,493,422	8.61%	13,781,011	95.08%
2019	10.48%	16,754,321	8.92%	14,270,844	85.18%
2020	11.07%	18,231,644	9.04%	14,893,513	81.69%
2021	10.75%	18,309,732	8.55%	14,567,813	79.56%
2022	14.26%	23,603,760	9.06%	14,990,494	63.51%
2023	14.81%	25,384,165	9.40%	16,113,114	63.48%
2024	14.68%	26,972,209	-	-	-

Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.

Table 14
Reconciliation of Participant Data

	Active Participants	Vested Former Participants	Retired Participants	Disableds	Beneficiaries	Participants Due Refunds	Total
Number as of January 1, 2023	2,524	495	1,262	173	172	1,226	5,852
New participants	307	2	-	-	-	67	376
Vested terminations	(94)	94	-	-	-	-	-
Retirements	(84)	(11)	95	-	-	-	-
Disability	(10)	-	-	10	-	-	-
Deceased with beneficiary	-	(2)	(9)	(1)	12	-	-
Deceased without beneficiary	(1)	(1)	(6)	-	(9)	(1)	(18)
Due refunds	(111)	(1)	-	-	-	112	-
Lump sum payoffs	(61)	(30)	-	-	-	(48)	(139)
Rehires/return to active	22	(9)	(2)	-	-	(11)	-
Certain period expired	-	-	-	-	(3)	-	(3)
Reclassifications	3	-	-	-	-	-	3
Data corrections	-	-	-	-	-	-	-
Number as of January 1, 2024	2,495	537	1,340	182	172	1,345	6,071

Table 15
Demographic Statistics

	January 1		Change
	2024	2023	
<u>Active Participants</u>			
Number	2,495	2,524	-1.1%
<i>Vested</i>	1,666	1,735	
<i>Not vested</i>	829	789	
Average age (years)	39.63	39.66	-0.1%
Average service (years)	8.92	9.06	-1.5%
Average entry age (years)	30.71	30.60	0.4%
Total payroll*	\$183,734,391	\$171,443,834	7.2%
Average payroll*	\$73,641	\$67,925	8.4%
Total employee contributions with interest	\$148,301,236	\$149,380,012	-0.7%
Average employee contributions with interest	\$59,439	\$59,184	0.4%
<u>Vested Former Participants</u>			
Number	537	495	8.5%
Average age (years)	44.97	44.74	0.5%
Total employee contributions with interest	\$26,912,526	\$24,148,367	11.4%
Average employee contributions with interest	\$50,116	\$48,785	2.7%
<u>Service Retirees</u>			
Number	1,340	1,262	6.2%
Average age (years)	65.15	64.97	0.3%
Total annual benefits	\$38,170,355	\$35,400,171	7.8%
Average annual benefit	\$28,485	\$28,051	1.5%
<u>Disability Retirees</u>			
Number	182	173	5.2%
Average age (years)	57.26	56.99	0.5%
Total annual benefits	\$5,807,130	\$5,404,844	7.4%
Average annual benefit	\$31,907	\$31,242	2.1%
<u>Beneficiaries</u>			
Number	172	172	0.0%
Average age (years)	66.92	66.67	0.4%
Total annual benefits	\$3,264,719	\$3,087,305	5.7%
Average annual benefit	\$18,981	\$17,949	5.7%
<u>Participants Due Refunds</u>			
Number	1,345	1,226	9.7%
Total Refunds Due	\$6,694,563	\$6,106,786	9.6%

* Projected payroll for the upcoming valuation year

Table 16

Distribution of Male Active Members by Age and by Years of Service

Average Age = 39.8 Average Service = 9.3

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	Count	16	-	-	-	-	-	-	16
	Avg. Salary	\$40,043	-	-	-	-	-	-	\$40,043
20-24	Count	112	1	-	-	-	-	-	113
	Avg. Salary	\$57,229	*	-	-	-	-	-	\$57,259
25-29	Count	164	64	1	-	-	-	-	229
	Avg. Salary	58,921	\$71,464	*	-	-	-	-	62,626
30-34	Count	108	127	45	1	-	-	-	281
	Avg. Salary	63,426	74,995	\$80,957	*	-	-	-	71,557
35-39	Count	70	99	130	47	-	-	-	346
	Avg. Salary	61,237	76,895	81,785	\$88,305	-	-	-	77,114
40-44	Count	67	54	62	92	13	-	-	288
	Avg. Salary	64,191	75,904	80,166	87,236	\$85,190	-	-	78,136
45-49	Count	41	28	46	62	26	1	-	204
	Avg. Salary	67,552	74,717	82,028	82,763	94,263	*	-	80,056
50-54	Count	26	15	26	45	30	21	-	163
	Avg. Salary	59,038	74,789	75,963	80,352	97,082	93,649	-	80,532
55-59	Count	18	12	21	29	16	11	3	110
	Avg. Salary	61,481	77,835	85,021	81,793	87,187	93,505	*	81,927
60-64	Count	10	6	5	19	5	3	3	51
	Avg. Salary	62,014	84,433	69,978	78,378	67,375	*	*	74,602
65-69	Count	3	2	3	2	-	-	1	11
	Avg. Salary	*	*	*	*	-	-	*	74,614
70 & Over	Count	1	-	-	1	-	-	-	2
	Avg. Salary	*	-	-	*	-	-	-	*
Totals	Count	636	408	339	298	90	36	7	1,814
	Avg. Salary	\$60,312	\$75,074	\$81,077	\$84,342	\$91,140	\$94,007	\$108,873	\$73,846

Average Salary represents annualized salary earned in 2023 and is not shown for cells with counts less than or equal to three participants

Table 17

Distribution of Female Active Members by Age and by Years of Service

Average Age = 39.3 Average Service = 8.0

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	Count	2	-	-	-	-	-	-	2
	Avg. Salary	*	-	-	-	-	-	-	*
20-24	Count	51	-	-	-	-	-	-	51
	Avg. Salary	\$54,247	-	-	-	-	-	-	\$54,247
25-29	Count	91	16	-	-	-	-	-	107
	Avg. Salary	58,321	\$70,575	-	-	-	-	-	60,153
30-34	Count	64	42	13	-	-	-	-	119
	Avg. Salary	60,897	68,991	\$71,219	-	-	-	-	64,881
35-39	Count	43	27	23	10	1	-	-	104
	Avg. Salary	62,909	73,085	77,197	\$86,557	*	-	-	71,191
40-44	Count	33	16	20	25	2	-	-	96
	Avg. Salary	54,439	67,040	74,233	82,832	*	-	-	68,874
45-49	Count	19	13	13	16	10	1	-	72
	Avg. Salary	58,643	67,904	70,219	78,324	\$77,746	*	-	70,109
50-54	Count	11	5	17	20	8	1	-	62
	Avg. Salary	52,883	67,167	76,260	79,262	88,082	*	-	74,163
55-59	Count	5	7	4	13	5	1	1	36
	Avg. Salary	62,947	62,090	71,472	69,671	72,077	*	*	68,324
60-64	Count	2	1	6	6	5	2	3	25
	Avg. Salary	*	*	63,962	61,242	78,570	*	*	67,646
65-69	Count	1	1	-	1	2	1	-	6
	Avg. Salary	*	*	-	*	*	*	-	62,631
70 & Over	Count	-	-	-	-	-	-	1	1
	Avg. Salary	-	-	-	-	-	-	*	*
Totals	Count	322	128	96	91	33	6	5	681
	Avg. Salary	\$58,119	\$68,962	\$73,593	\$78,307	\$80,142	\$81,129	\$86,446	\$66,514

Average Salary represents annualized salary earned in 2023 and is not shown for cells with counts less than or equal to three participants

Table 18

Distribution of Total Active Members by Age and by Years of Service

Average Age = 39.6 Average Service = 8.9

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	Count	18	-	-	-	-	-	-	18
	Avg. Salary	\$39,856	-	-	-	-	-	-	\$39,856
20-24	Count	163	1	-	-	-	-	-	164
	Avg. Salary	\$56,296	*	-	-	-	-	-	56,322
25-29	Count	255	80	1	-	-	-	-	336
	Avg. Salary	58,707	\$71,286	*	-	-	-	-	61,839
30-34	Count	172	169	58	1	-	-	-	400
	Avg. Salary	62,485	73,503	\$78,775	*	-	-	-	69,571
35-39	Count	113	126	153	57	1	-	-	450
	Avg. Salary	61,873	76,078	81,095	\$87,998	*	-	-	75,745
40-44	Count	100	70	82	117	15	-	-	384
	Avg. Salary	60,973	73,878	78,719	86,295	\$86,322	-	-	75,820
45-49	Count	60	41	59	78	36	2	-	276
	Avg. Salary	64,731	72,556	79,426	81,852	89,675	*	-	77,461
50-54	Count	37	20	43	65	38	22	-	225
	Avg. Salary	57,208	72,884	76,080	80,016	95,187	93,675	-	78,777
55-59	Count	23	19	25	42	21	12	4	146
	Avg. Salary	61,800	72,034	82,853	78,041	83,590	92,976	\$115,367	78,573
60-64	Count	12	7	11	25	10	5	6	76
	Avg. Salary	59,704	80,371	66,697	74,265	72,972	83,115	\$80,203	72,314
65-69	Count	4	3	3	3	2	1	1	17
	Avg. Salary	46,754	*	*	*	*	*	*	70,385
70 & Over	Count	1	-	-	1	-	-	1	3
	Avg. Salary	*	-	-	*	-	-	*	*
Totals	Count	958	536	435	389	123	42	12	2,495
	Avg. Salary	\$59,575	\$73,615	\$79,425	\$82,930	\$88,190	\$92,167	\$99,528	\$71,845

Average Salary represents annualized salary earned in 2023 and is not shown for cells with counts less than or equal to three participants

Table 19

Distribution of Male Deferred Members by Age and by Years of Service

Average Age = 44.7 Average Service = 8.0

Age Last Birthday	Whole Years of Service at Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	-	-	-	-	-	-	-	-
20-24	1	-	-	-	-	-	-	1
25-29	5	2	-	-	-	-	-	7
30-34	8	35	2	-	-	-	-	45
35-39	10	42	12	-	-	-	-	64
40-44	24	31	8	2	1	-	-	66
45-49	11	31	12	5	-	-	-	59
50-54	4	23	22	2	-	-	-	51
55-59	6	26	7	3	-	-	-	42
60-64	-	5	3	-	-	-	-	8
65-69	-	1	4	-	-	-	-	5
70 & Over	-	-	-	-	-	-	-	-
Totals	69	196	70	12	1	-	-	348

Table 20

Distribution of Female Deferred Members by Age and by Years of Service

Average Age = 45.4 Average Service = 8.2

Age Last Birthday	Whole Years of Service at Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	-	-	-	-	-	-	-	-
20-24	1	-	-	-	-	-	-	1
25-29	3	3	-	-	-	-	-	6
30-34	8	10	2	-	-	-	-	20
35-39	6	20	6	1	-	-	-	33
40-44	10	13	3	6	-	-	-	32
45-49	4	19	3	6	1	-	-	33
50-54	1	18	6	2	-	-	-	27
55-59	5	9	12	2	-	-	-	28
60-64	-	6	2	-	-	-	-	8
65-69	-	1	-	-	-	-	-	1
70 & Over	-	-	-	-	-	-	-	-
Totals	38	99	34	17	1	-	-	189

Table 21

Distribution of Total Deferred Members by Age and by Years of Service

Average Age = 45.0 Average Service = 8.1

Age Last Birthday	Whole Years of Service at Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	-	-	-	-	-	-	-	-
20-24	2	-	-	-	-	-	-	2
25-29	8	5	-	-	-	-	-	13
30-34	16	45	4	-	-	-	-	65
35-39	16	62	18	1	-	-	-	97
40-44	34	44	11	8	1	-	-	98
45-49	15	50	15	11	1	-	-	92
50-54	5	41	28	4	-	-	-	78
55-59	11	35	19	5	-	-	-	70
60-64	-	11	5	-	-	-	-	16
65-69	-	2	4	-	-	-	-	6
70 & Over	-	-	-	-	-	-	-	-
Totals	107	295	104	29	2	-	-	537

Table 22

Schedule of Pension Recipients Added to and Removed from Rolls

Fiscal Year Ending December 31	Added to Rolls*		Removed from Rolls		Total		Percent Increase in Annual Pension Benefits	Average Annual Pension Benefit
	Count	Annual	Count	Annual	Count	Annual		
		Pension Benefits		Pension Benefits		Pension Benefits		
2008	72	\$1,651,841	11	(\$9,251)	610	\$13,605,759	13.91%	\$22,305
2009	55	1,154,341	9	(65,125)	656	14,694,975	8.01%	22,401
2010	75	1,881,618	12	(109,159)	719	16,467,434	12.06%	22,903
2011	93	2,330,905	7	(101,024)	805	18,697,315	13.54%	23,226
2012	54	1,418,567	7	(62,989)	852	20,052,893	7.25%	23,536
2013	77	2,048,141	12	(155,942)	917	21,945,092	9.44%	23,931
2014	98	2,598,158	14	(250,849)	1,001	24,292,401	10.70%	24,268
2022	83	2,229,651	14	(234,679)	1,070	26,287,373	8.21%	24,568
2016	91	2,618,016	14	(239,572)	1,147	28,665,817	9.05%	24,992
2017	83	2,325,313	28	(478,242)	1,202	30,512,888	6.44%	25,385
2018	89	2,817,707	17	(254,449)	1,274	33,076,146	8.40%	25,962
2019	111	3,086,125	22	(461,992)	1,363	35,700,279	7.93%	26,192
2020	106	3,212,958	27	(487,974)	1,442	38,425,263	7.63%	26,647
2021	114	3,265,415	34	(515,154)	1,522	41,175,524	7.16%	27,054
2022	114	3,294,318	29	(577,522)	1,607	43,892,320	6.60%	27,313
2023	117	3,895,912	30	(546,027)	1,694	47,242,205	7.63%	27,888

* Includes cost-of-living increases

Table 23
Retired and Disabled Members by Option Code

	Count			Monthly Benefit		
	Male	Female	Total	Male	Female	Total
Option Code*						
1	227	142	369	\$567,159	\$282,523	\$849,682
2	524	76	600	1,348,754	151,943	1,500,696
2P	220	43	263	558,763	94,442	653,205
3	42	11	53	106,197	24,918	131,116
3P	41	11	52	102,685	25,879	128,565
4	24	13	37	59,886	28,141	88,027
5	38	21	59	74,326	47,920	122,246
Other**	87	2	89	186,705	4,548	191,253
Total	1,203	319	1,522	\$3,004,476	\$660,314	\$3,664,790
Beneficiaries	7	165	172	\$9,685	\$262,375	\$272,060
Grand Total	1,210	484	1,694	\$3,014,161	\$922,689	\$3,936,850

*See optional forms of payment in Appendix B

**66.67% joint and survivor option for grandfathered employees

***Of the 105 new retirees and disabled members, 3 elected a self-funded COLA

Table 24
Pensioners by Monthly Benefit and Option Code

Males	Option Code								
Benefit Amount	1	2	2P	3	3P	4*	5	Other	Total
Under \$200	2	2	-	-	-	-	-	-	4
\$200-\$399	8	10	5	1	-	3	4	-	31
\$400-\$599	6	15	10	3	2	2	4	-	42
\$600-\$799	12	12	6	-	2	1	3	1	37
\$800-\$999	6	11	9	-	-	2	3	2	33
\$1,000-\$1,499	16	32	13	3	6	-	5	7	82
\$1,500-\$1,999	20	67	27	5	5	-	2	26	152
\$2,000-\$2,499	36	107	40	4	8	4	5	29	233
\$2,500 & over	121	268	110	26	18	14	17	22	596
Total	227	524	220	42	41	26	43	87	1,210
Females									
Benefit Amount	1	2	2P	3	3P	4*	5	Other	Total
Under \$200	1	-	-	-	-	-	4	-	5
\$200-\$399	6	2	1	-	-	3	10	-	22
\$400-\$599	9	6	1	-	-	2	12	-	30
\$600-\$799	7	3	2	-	-	-	15	-	27
\$800-\$999	9	4	1	1	2	1	8	-	26
\$1,000-\$1,499	19	5	4	-	1	1	47	-	77
\$1,500-\$1,999	18	11	5	4	2	2	29	1	72
\$2,000-\$2,499	26	23	13	2	2	2	18	-	86
\$2,500 & over	47	22	16	4	4	7	38	1	139
Total	142	76	43	11	11	18	181	2	484
Males & Females									
Benefit Amount	1	2	2P	3	3P	4*	5	Other	Total
Under \$200	3	2	-	-	-	-	4	-	9
\$200-\$399	14	12	6	1	-	6	14	-	53
\$400-\$599	15	21	11	3	2	4	16	-	72
\$600-\$799	19	15	8	-	2	1	18	1	64
\$800-\$999	15	15	10	1	2	3	11	2	59
\$1,000-\$1,499	35	37	17	3	7	1	52	7	159
\$1,500-\$1,999	38	78	32	9	7	2	31	27	224
\$2,000-\$2,499	62	130	53	6	10	6	23	29	319
\$2,500 & over	168	290	126	30	22	21	55	23	735
Total	369	600	263	53	52	44	224	89	1,694

**Includes 7 beneficiaries who are receiving a certain only benefit.*

Table 25
Pensioners by Age and Option Code

Average Age Male = 64.3 Average Age Female = 65.0 Average Age Total = 64.5

Males	Option Code								
Age Last Birthday	1	2	2P	3	3P	4*	5	Other	Total
Under 50	27	51	33	5	2	3	2	-	123
50-54	24	51	29	5	5	3	4	-	121
55-59	30	68	20	8	4	2	2	1	135
60-64	40	96	36	5	9	5	7	2	200
65-69	36	122	45	4	9	5	12	23	256
70-74	35	81	32	10	6	4	11	24	203
75-79	25	45	19	3	3	3	3	18	119
80-84	8	8	6	1	3	1	2	14	43
85 & over	2	2	-	1	-	-	-	5	10
Total	227	524	220	42	41	26	43	87	1,210
Females									
Age Last Birthday	1	2	2P	3	3P	4*	5	Other	Total
Under 50	18	3	4	3	2	5	10	-	45
50-54	10	7	7	2	-	2	10	-	38
55-59	13	5	7	1	2	1	15	-	44
60-64	23	17	11	2	3	3	25	-	84
65-69	36	29	5	1	2	5	29	-	107
70-74	22	11	8	2	2	1	45	1	92
75-79	14	4	1	-	-	1	25	-	45
80-84	6	-	-	-	-	-	14	1	21
85 & over	-	-	-	-	-	-	8	-	8
Total	142	76	43	11	11	18	181	2	484
Males & Females									
Age Last Birthday	1	2	2P	3	3P	4*	5	Other	Total
Under 50	45	54	37	8	4	8	12	-	168
50-54	34	58	36	7	5	5	14	-	159
55-59	43	73	27	9	6	3	17	1	179
60-64	63	113	47	7	12	8	32	2	284
65-69	72	151	50	5	11	10	41	23	363
70-74	57	92	40	12	8	5	56	25	295
75-79	39	49	20	3	3	4	28	18	164
80-84	14	8	6	1	3	1	16	15	64
85 & over	2	2	-	1	-	-	8	5	18
Total	369	600	263	53	52	44	224	89	1,694

**Includes 7 beneficiaries who are receiving a certain only benefit.*



Table 26
Pensions Awarded in 2023 by Option Code

Average Age = 53.6

Males & Females	Option Code								
Benefit Amount	1	2	2P	3	3P	4	5	Other	Total
Under \$200	-	-	-	-	-	-	1	-	1
\$200-\$399	-	4	-	-	-	-	-	-	4
\$400-\$599	-	2	-	-	-	-	-	-	2
\$600-\$799	1	2	1	-	-	-	-	-	4
\$800-\$999	1	-	-	1	-	-	2	-	4
\$1,000-\$1,499	4	-	-	-	-	-	3	-	7
\$1,500-\$1,999	2	4	2	-	-	-	4	-	12
\$2,000-\$2,499	3	5	4	-	-	-	1	-	13
\$2,500 & over	20	29	12	2	1	1	3	2	70
Total	31	46	19	3	1	1	14	2	117
Males & Females									
Age Last Birthday	1	2	2P	3	3P	4	5	Other	Total
Under 50	11	12	6	2	1	1	2	2	37
50-54	4	8	5	-	-	-	-	-	17
55-59	4	9	3	-	-	-	1	-	17
60-64	9	10	4	1	-	-	5	-	29
65-69	3	7	1	-	-	-	2	-	13
70-74	-	-	-	-	-	-	2	-	2
75-79	-	-	-	-	-	-	-	-	0
80-84	-	-	-	-	-	-	2	-	2
85 & over	-	-	-	-	-	-	-	-	-
Total	31	46	19	3	1	1	14	2	117

Table 27

Retirees and Disabled Members by Service at Retirement and Years Since Retirement

Average Service at Retirement = 17.8 Average Years Since Retirement = 10.5

Service at Retirement		Years Elapsed Since Retirement							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 5	Count	23	9	10	10	31	32	28	143
	Avg. Benefit	\$5,103	\$396	\$3,607	\$4,199	\$3,717	\$2,272	\$1,830	\$1,977
5-9	Count	44	46	41	26	4	-	-	161
	Avg. Benefit	\$1,026	\$850	\$945	\$1,111	\$419	-	-	\$954
10-14	Count	67	59	34	22	10	-	2	194
	Avg. Benefit	\$1,688	\$1,909	\$1,647	\$1,697	\$1,373	-	\$1,547	\$1,731
15-19	Count	51	30	25	39	6	-	2	153
	Avg. Benefit	\$2,483	\$2,160	\$2,023	\$1,660	\$1,716	-	\$1,898	\$2,097
20-24	Count	215	136	104	110	28	3	-	596
	Avg. Benefit	\$2,934	\$2,752	\$2,578	\$2,156	\$2,074	\$1,866	-	\$2,641
25-29	Count	37	54	34	45	10	2	-	182
	Avg. Benefit	\$3,866	\$3,698	\$3,457	\$2,754	\$2,553	\$2,559	-	\$3,378
30-34	Count	19	24	20	15	-	-	-	78
	Avg. Benefit	\$4,833	\$3,706	\$3,988	\$3,466	-	-	-	\$4,007
35 & Over	Count	7	6	2	-	-	-	-	15
	Avg. Benefit	\$5,241	\$4,582	\$3,105	-	-	-	-	\$4,692
Totals	Count	463	364	270	267	89	37	32	1,522
	Avg. Benefit	\$2,692	\$2,501	\$2,332	\$2,086	\$2,020	\$2,255	\$1,817	\$2,408

Table 28

Retirees and Disabled Members by Year of Retirement

January 1, 2024 Total = 1,522

Year of Retirement	Count	Year of Retirement	Count
Under 1960	-	1992	2
1960	-	1993	6
1961	-	1994	3
1962	-	1995	9
1963	-	1996	9
1964	-	1997	5
1965	-	1998	11
1966	-	1999	4
1967	-	2000	8
1968	-	2001	11
1969	-	2002	26
1970	-	2003	36
1971	-	2004	41
1972	-	2005	57
1973	-	2006	47
1974	-	2007	69
1975	-	2008	55
1976	-	2009	36
1977	-	2010	56
1978	-	2011	71
1979	1	2012	49
1980	-	2013	57
1981	2	2014	78
1982	-	2015	75
1983	2	2016	71
1984	-	2017	67
1985	2	2018	72
1986	2	2019	96
1987	1	2020	86
1988	2	2021	93
1989	5	2022	92
1990	2	2023*	101
1991	4		

*May include retirements as of January 1, 2024

Table 29**Thirty Year Closed Group Projected Benefit Payments**

Year Ending December 31	Actives	Retirees*	Total
2024	\$ 3,683,822	\$ 47,377,617	\$ 51,061,440
2025	6,745,936	47,257,491	54,003,426
2026	9,861,438	47,144,030	57,005,468
2027	13,173,928	47,005,916	60,179,845
2028	16,676,693	46,955,413	63,632,106
2029	20,397,540	46,790,168	67,187,708
2030	24,250,102	46,600,353	70,850,455
2031	28,194,468	46,392,920	74,587,388
2032	32,266,871	46,099,751	78,366,622
2033	36,415,666	45,755,411	82,171,077
2034	40,562,486	45,344,307	85,906,794
2035	44,801,817	44,876,282	89,678,100
2036	49,128,701	44,376,413	93,505,114
2037	53,458,086	43,922,498	97,380,584
2038	57,825,583	43,344,930	101,170,513
2039	62,235,778	42,580,868	104,816,646
2040	66,552,736	41,745,671	108,298,407
2041	70,748,111	40,906,974	111,655,085
2042	74,854,783	40,057,387	114,912,170
2043	78,860,262	39,107,528	117,967,790
2044	82,625,463	38,092,416	120,717,880
2045	85,910,267	37,065,550	122,975,816
2046	88,695,388	35,951,824	124,647,212
2047	90,990,908	34,772,169	125,763,077
2048	92,822,540	33,556,395	126,378,936
2049	94,278,569	32,331,560	126,610,129
2050	95,345,641	31,022,404	126,368,045
2051	96,008,978	29,624,806	125,633,784
2052	96,320,673	28,231,256	124,551,929
2053	96,317,889	26,843,085	123,160,974

* Includes Disabled Members, Beneficiaries, and Deferred Vested Members. Retirement benefit payments for deferred vested members are assumed to commence at age 60.

APPENDIX A

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Assumptions and Methods

The following methods and assumptions were used in preparing the January 1, 2024 actuarial valuation report.

1. Valuation Date

The valuation date for any given year is January 1st, the first day of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

2. Actuarial Cost Method

The actuarial valuation uses the Entry Age Normal (EAN) actuarial cost method, amortized as a level percentage of payroll. Under this method, the employer contribution rate is the sum of (i) the employer normal cost rate, and (ii) the rate that will amortize the unfunded actuarial accrued liability (UAAL).

- a. The valuation is prepared on the projected benefit basis, under which the present value, at the investment return rate assumed to be earned in the future (currently 6.80%), of each participant's expected benefit payable at retirement or death is determined, based on his/her age, service, sex and compensation. The calculations take into account the probability of a participant's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his/her terminating with a service, disability, or survivor's benefit. Future salary increases are also anticipated. The present value of the expected benefits payable for the active participants is added to the present value of the expected future payments to retired participants and beneficiaries to obtain the present value of all expected benefits payable from the Fund on account of the present group of participants and beneficiaries.
- b. The employer contributions required to support the benefits of the Fund are determined using a level funding approach, and consist of a normal cost contribution and an unfunded accrued liability contribution.
- c. The normal cost contribution is determined using the "entry age normal" actuarial cost method. Under this method, a calculation is made to determine the average uniform and constant percentage rate of employer contribution which, if applied to the compensation of each new participant during the entire period of his/her anticipated covered service, would be required to meet the cost of all benefits payable on his/her behalf based on the benefits provisions applicable for the individual member.

- d. The unfunded accrued liability contributions are determined by subtracting the actuarial value of assets from the actuarial accrued liability. Amortization bases are established each year and amortized based on the Board’s policy. The Board’s policy consists of amortizing the unfunded liability as of January 1, 2018, over a closed 30-year period with each subsequent amortization base created as a result of year to year experience changes over individual 20-year closed periods. The current year amortization base is determined by taking the current unfunded liability less the outstanding amounts of prior year bases.

3. Actuarial Value of Assets

The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income, with interest, dividends, and other income recognized immediately. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses. An adjustment is made if the actuarial value is not within 20% of the Market Value. For any year following a year in which the 20% of market value adjustment was applied, the actuarial value is determined as if the adjustment was not applied in the previous year.

4. Economic Assumptions

a. Investment return

6.80% per year, compounded annually, composed of an assumed 2.25% inflation rate and a 4.55% net real rate of return. This rate represents the assumed return, net of investment expenses.

a. Salary increase rate

Age	Rate
20	7.00%
25	6.50%
30	5.00%
35	4.25%
40	4.25%
45	4.00%
50	3.50%
55	3.25%
60	3.00%

b. Payroll growth rate

In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 2.50% per year. This increase rate is solely due to the effect of inflation on salaries, with no allowance for future membership growth.

c. Cost-of-Living adjustment

No cost-of-living adjustment is assumed since the policy for providing the benefit requires Board approval to make the recommendation to the Joint Appropriations Committee and the funded level of the plan shows a cost-of-living requirement would not be permitted.

5. Demographic Assumptions

b. Rates Before Retirement

Healthy Pre-Retirement Mortality:

Pub-2010 Safety Healthy Active Mortality Table, amount-weighted, fully generational, projected with the MP-2020 Ultimate Scale

Males: No set back with a multiplier of 100%

Females: No set back with a multiplier of 100%

Healthy Post-Retirement Mortality:

Pub-2010 Safety Healthy Annuitant Mortality Table, amount-weighted, fully generational, projected with the MP-2020 Ultimate Scale

Males: No set back with a multiplier of 100%

Females: No set back with a multiplier of 100%

Disabled Mortality:

Pub-2010 Safety Disabled Retiree Mortality Table, amount-weighted, fully generational, projected with the MP-2020 Ultimate Scale

Males: No set back with a multiplier of 100%

Females: No set back with a multiplier of 100%

Age	Pre-Retirement		Post-Retirement		Disabled	
	Projected to 2024 using the MP-2020 Ultimate Scale					
	Male	Female	Male	Female	Male	Female
20	0.03%	0.01%	0.03%	0.01%	0.10%	0.04%
25	0.03%	0.02%	0.03%	0.02%	0.09%	0.05%
30	0.03%	0.02%	0.03%	0.02%	0.10%	0.07%
35	0.04%	0.03%	0.04%	0.03%	0.11%	0.10%
40	0.05%	0.04%	0.05%	0.04%	0.14%	0.14%
45	0.07%	0.06%	0.10%	0.07%	0.20%	0.18%
50	0.10%	0.08%	0.16%	0.12%	0.29%	0.25%
55	0.14%	0.10%	0.25%	0.21%	0.40%	0.38%
60	0.22%	0.14%	0.42%	0.37%	0.61%	0.58%
65	0.34%	0.19%	0.73%	0.64%	0.99%	0.88%
70	0.64%	0.38%	1.32%	1.12%	1.60%	1.35%
75			2.40%	1.95%	2.75%	2.07%
80			4.37%	3.39%	4.79%	3.39%
85			8.08%	6.05%	8.15%	6.05%
90			14.52%	10.81%	14.52%	10.81%
95			22.55%	17.92%	22.55%	17.92%
100			31.27%	27.00%	31.27%	27.00%

30% of active deaths are assumed to be duty-related

c. Disability

Age	Disability	
	Non-Duty	Duty
20	0.03%	0.02%
25	0.03%	0.02%
30	0.03%	0.02%
35	0.04%	0.02%
40	0.09%	0.05%
45	0.19%	0.12%
50	0.33%	0.20%
55	0.57%	0.34%
60	1.11%	0.67%
65	1.53%	0.92%
70	1.53%	0.92%
75	1.53%	0.92%

30% of active disabilities are assumed to be duty-related

d. Withdrawal

Service	Withdrawal	
	Male	Female
1	12.00%	18.00%
2-4	12.00%	16.00%
5	12.00%	14.00%
6	10.00%	14.00%
7	10.00%	12.00%
8	9.00%	11.00%
9	7.00%	8.00%
10-11	6.00%	8.00%
12	5.00%	7.00%
13	4.00%	6.00%
14	4.00%	5.00%
15	3.00%	4.00%
16	3.00%	3.00%
17-18	2.00%	2.00%
19-20	1.00%	1.00%
21+	0.00%	0.00%

e. Retirement Rates

Age	Normal	Early
50	25.00%	2.00%
51-56	18.00%	2.00%
57-60	20.00%	2.00%
61-62	17.00%	
63-64	20.00%	
65-69	50.00%	
70+	100.00%	

15% is assumed for members with at least 20 years of service before age 50

6. Other Assumptions

- a. Percent married: 85% of employees are assumed to be married. (No beneficiaries other than the spouse assumed.)
- b. Age difference: Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses.
- c. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an annuity.
- d. Percent electing deferred termination benefit: It is assumed that 45% of active members who terminate with a vested deferred benefit will elect to have their contributions refunded.
- e. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at the first age at which unreduced benefits are available, which for this plan is age 60.
- f. No benefit data is available for members entitled to deferred benefits. The benefit is estimated using the final average compensation and service provided by WRS.
- g. There will be no recoveries once disabled.
- h. No children are assumed for purposes of valuing the ordinary death benefit.
- i. Administrative expenses: Assumed to be the average of the prior two years, with each year projected at 2.50% to the valuation date.
- j. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported pay represents amount paid to members during the year ended on the valuation date.
- k. Decrement timing: Decrements of all types are assumed to occur mid-year.
- l. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
- m. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in the report, and the actual payroll payable at the time contributions are made.
- n. Benefit Service: All members are assumed to accrue one year of service each year.
- o. Employee contribution pickup: For members hired after January 1, 2018, it is assumed that 25% of the employee contributions were paid by employee and therefore would be refundable.

APPENDIX B

SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions

Covered Members	County sheriffs, deputy county sheriffs, municipal police officers; Investigator of the Wyoming Livestock Board; meeting the specifications of W.S.7-2-101(a)(iv)(E), investigators employed by the Wyoming State Board of Outfitters and professional guides meeting the specifications of W.S. 7-2-101(a)(iv)(J); Correctional officers, probation and parole agents employed by the Wyoming Department of Corrections, Wyoming Law Enforcement Academy instructors, University of Wyoming campus police officers; And full-time dispatchers or detention officers for law enforcement agencies.
Final Average Salary	Employee's average annual salary for the highest paid five continuous years of service.
Service Retirement	
Eligibility	Age 60 with four or more years of service as a law enforcement officer or any age with at least twenty years of service as a law enforcement officer. Early retirement benefits are payable to any law enforcement officer who has at least four but less than twenty years of service and are at least age 50. Early retirement benefits are actuarially reduced by 5% per year before age 60.
Monthly Benefit	2.50% of employee's highest five-year average salary for each year of credited service, not to exceed 75.0% of final average salary.
Vesting	Any employee who has left employment with four or more years of service, and who has not withdrawn accumulated contributions, is eligible to receive the above benefit or can elect to receive a lump-sum refund of contributions with interest. An employee who terminates with less than four years of service is only eligible for the lump-sum benefit.
Duty Disability Retirement	
Eligibility	No age or service eligibility requirements. Partial or total disability resulting from an individual and specific act, the type of which would normally occur only while employed as an employee, or as otherwise defined under W.S. 9-3-432(h).
Monthly Benefit	62.5% of Final Salary.
Non-duty Disability Retirement	
Eligibility	10 years of credited service. Partial or total disability, but not eligible for duty disability.
Monthly Benefit	50.0% of Final Salary.



Pre-retirement Duty Death Benefit

Eligibility	No age or service requirements.
Monthly Benefit	The greater of 90% or 2.5% for each year of credited service times the greater of the member's final actual salary and final average compensation, payable to the surviving spouse plus 6% of the member's final actual salary for each unmarried child under 18. Payment shall not exceed 100% of the greater of the member's final actual salary and final average compensation.

Pre-retirement Non-duty Death Benefit

Eligibility	No age or service requirements.
Monthly Benefit	50% of the greater of the member's final actual salary and final average compensation, payable to the surviving spouse plus 6% of the member's final actual salary for each unmarried child under 18. Payment shall not exceed 100% of the greater of the member's final actual salary and final average compensation.

Contributions

Employee	8.6% of salary. The employer may subsidize all or part of the employee contributions.
Employer	8.6% of salary.
	Pursuant to Senate Enrolled Act No. 50, both employee and employer contribution rates will increase to 9.50% effective July 1, 2024 and will increase by 0.90% on July 1 of each subsequent year until July 1, 2026 when an ultimate rate of 11.30% is reached.
Interest	3.0% annually. (0.0% for non-vested inactive members after July 1, 2019)

Cost-of-Living Improvements

W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change.

Optional Forms of Payment

Option 1	Monthly benefit for life with a lump-sum death benefit equal to the excess (if any) of the employee contributions with interest over the total benefits received.
Option 2	Monthly benefit for life. Upon death, 100% of the benefit continues to be paid to the beneficiary.
Option 2P	Monthly benefit for life. Upon death, 100% of the benefit continues to be paid to the beneficiary. Benefit reverts to Option 1 amount but without the cash refund feature upon beneficiary death.
Option 3	Monthly benefit for life. Upon death, 50% of the benefit continues to be paid to the beneficiary.
Option 3P	Monthly benefit for life. Upon death, 50% of the benefit continues to be paid to the beneficiary. Benefit reverts to Option 1 amount but without the cash refund feature upon beneficiary death.
Option 4	Monthly benefit for life with a guarantee of 120 monthly payments.
Option 5	The largest possible monthly benefit payable for life with no lump-sum death benefit.
Other	Grandfathered group of retirees has an optional form which, upon death, 66.67% of the benefit continues to be paid to the beneficiary.

APPENDIX C

RISKS ASSOCIATED WITH MEASURING THE ACCRUED LIABILITY AND ACTUARIALLY DETERMINED CONTRIBUTION

Risks Associated With Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

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 due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. Investment risk – actual investment returns may differ from the expected returns;
2. Asset/Liability mismatch – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. Contribution risk – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. Salary and Payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. Longevity risk – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
6. Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The computed contribution rate shown on page 13 may be considered as a minimum contribution rate that complies with the Board's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

Risks Associated With Measuring the Accrued Liability and Actuarially Determined Contribution

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	<u>January 1, 2024</u>	<u>January 1, 2023</u>
Ratio of the market value of assets to total payroll	4.9	4.7
Ratio of actuarial accrued liability to payroll	5.8	5.8
Ratio of actives to retirees and beneficiaries	1.5	1.6
Ratio of net cash flows to market value of assets	-2%	-2%
Duration of the actuarial accrued liability	13.4	13.4

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 4.0 times the payroll, a return on assets 5% different than assumed would equal 20% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 5.5 times the payroll, a change in liability 2% other than assumed would equal 11% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Risks Associated With Measuring the Accrued Liability and Actuarially Determined Contribution

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Duration of Actuarial Accrued Liability

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the liability would increase approximately 10% if the assumed rate of return were lowered 1%.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

Risk Measures – Low Default Risk Obligation Measure

Introduction

In December 2021, the Actuarial Standards Board (ASB) adopted a revision to Actuarial Standard of Practice (ASOP) No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions. The revised ASOP No. 4 requires the calculation and disclosure of a liability referred to by the ASOP as the “Low-Default-Risk Obligation Measure” (LDROM). The rationale that the ASB cited for the calculation and disclosure of the LDROM was included in the Transmittal Memorandum of ASOP No. 4 and is presented below (emphasis added):

“The ASB believes that the calculation and disclosure of this measure provides **appropriate, useful information for the intended user regarding the funded status of a pension plan**. The calculation and disclosure of this additional measure is **not intended to suggest that this is the “right” liability measure** for a pension plan. However, the ASB does believe that **this additional disclosure provides a more complete assessment of a plan’s funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date.**”

Comparing the Accrued Liabilities and the LDROM

One of the fundamental financial objectives of the Wyoming Law Enforcement Retirement Fund (the Fund) is to finance each member’s retirement benefits over the period from the member’s date of hire until the member’s projected date of retirement (entry age actuarial cost method) as a level percentage of payroll. To fulfill this objective, the discount rate that is used to value the accrued liabilities of the Fund is set equal to the expected return on the Fund’s diversified portfolio of assets (referred to sometimes as the investment return assumption). For the Law Enforcement plan, the investment return assumption is 6.80%.

The LDROM is meant to approximately represent the lump sum cost to a plan to purchase low-default-risk fixed income securities whose resulting cash flows essentially replicate in timing and amount the benefits earned (or the costs accrued) as of the measurement date. The LDROM is very dependent upon market interest rates at the time of the LDROM measurement. The lower the market interest rates, the higher the LDROM, and vice versa. The LDROM results presented in this report are based on the entry age actuarial cost method and discount rates based upon the intermediate rate from the FTSE Pension Discount Curve and Liability Index published by the Society of Actuaries. This rate is 4.80% as of December 31, 2023. This measure may not be appropriate for assessing the need for or amount of future contributions. This measure may not be appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan’s benefit obligation.

The difference between the two measures (Valuation and LDROM) is one illustration of the savings the sponsor anticipates by taking on risk in a diversified portfolio.

Valuation Accrued Liabilities	LDROM
\$1,058,069,485	\$1,376,324,635